

Fish and Game Commission

Meeting Binder



April 26-27, 2017

Commission Meeting

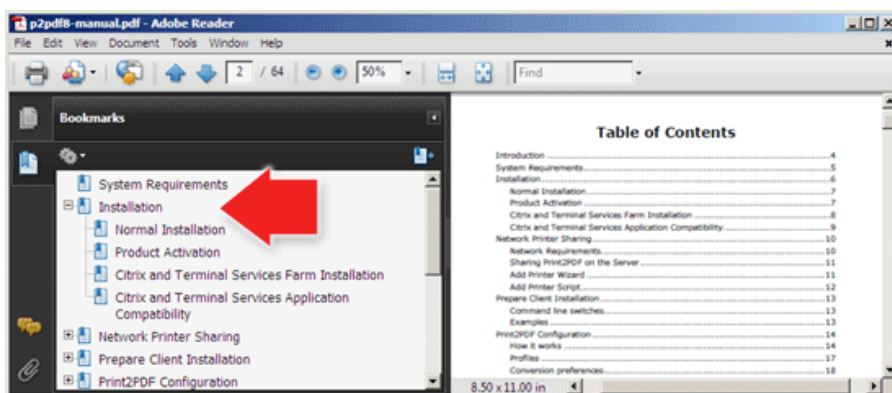
Van Nuys

EASY GUIDE TO USING THE BINDER

1. Download and open the binder document using your Adobe Acrobat program/app.
2. If a bookmark panel does not automatically appear on either the top or left side of the screen, click/tap on the “bookmark symbol” located near the top left-hand corner.



3. To make adjustments to the view, use the Page Display option in the View tab. You should see something like:



4. We suggest leaving open the bookmark panel to help you move efficiently among the staff summaries and numerous supporting documents in the binder. It's helpful to think of these bookmarks as a table of contents that allows you to go to specific points in the binder without having to scroll through hundreds of pages.
5. You can resize the two panels by placing your cursor in the dark, vertical line located between the panels and using a long click /tap to move in either direction. ⬅➡
6. You may also adjust the sizing of the documents by adjusting the sizing preferences located on the Page Display icons found in the top toolbar or in the View tab.
7. Upon locating a staff summary for an agenda item, notice that you can obtain more information by clicking/tapping on any item underlined in blue.
8. Return to the staff summary by simply clicking/tapping on the item in the bookmark panel.
9. Do not hesitate to contact staff if you have any questions or would like assistance.

OVERVIEW OF FISH AND GAME COMMISSION BUSINESS MEETINGS

- This is the 147th year of continuous operation of the California Fish and Game Commission in partnership with the California Department of Fish and Wildlife. Our goal is the preservation of our heritage and conservation of our natural resources through informed decision making. These meetings are vital in achieving that goal. In that spirit, we provide the following information to be as effective and efficient toward that end. Welcome and please let us know if you have any questions.
- We are operating under Bagley-Keene Open Meeting Act and these proceedings are being recorded and broadcast via Cal-Span.
- In the unlikely event of an emergency, please note the location of the nearest emergency exits. Additionally, the restrooms are located _____.
- Items may be heard in any order pursuant to the determination of the Commission President.
- The amount of time for each agenda item may be adjusted based on time available and the number of speakers.
- Speaker cards need to be filled out legibly and turned in to the staff before we start the agenda item. Please make sure to list the agenda items you wish to speak to on the speaker card.
- We will be calling the names of several speakers at a time so please line up behind the speakers' podium when your name is called. If you are not in the room when your name is called you may forfeit your opportunity to speak on the item.
- When you speak, please state your name and any affiliation. Please be respectful. Disruptions from the audience will not be tolerated. Time is precious so please be concise.
- To receive meeting agendas and regulatory notices about those subjects of interest to you, please visit the Commission's website, www.fgc.ca.gov, and sign up for our electronic mailing lists.
- All petitions for regulation change must be submitted in writing on the authorized petition form, FGC 1, Petition to the California Fish and Game Commission for Regulation Change, available at <http://www.fgc.ca.gov/public/information/petitionforregulatorychange.aspx>.
- **Reminder!** Please silence your mobile devices and computers to avoid interruptions.
- **Warning!** The use of a laser pointer by someone other than a speaker doing a presentation may result in arrest.

INTRODUCTIONS FOR FISH AND GAME COMMISSION MEETINGS

Fish and Game Commission

Eric Sklar	President (Saint Helena)
Jacque Hostler-Carmesin	Vice-President (McKinleyville)
Anthony Williams	Member (Huntington Beach)
Russell Burns	Member (Napa)
Peter Silva	Member (El Cajon)

Commission Staff

Valerie Termini	Executive Director
Melissa Miller-Henson	Deputy Executive Director
Mike Yaun	Legal Counsel
Erin Chappell	Wildlife Advisor
Susan Ashcraft	Marine Advisor
Mary Brittain	Administrative Assistant
Sherrie Fonbuena	Analyst

California Department of Fish and Wildlife

Chuck Bonham	Director
Wendy Bogdan	General Counsel
Jordan Traverso	Deputy Director, Communications, Education and Outreach
David Bess	Deputy Director and Chief, Law Enforcement Division
Stafford Lehr	Deputy Director, Wildlife and Fisheries Division
Kevin Shaffer	Fisheries Branch Chief
T.O. Smith	Wildlife Branch Chief
Craig Shuman	Marine Region Manager

I would also like to acknowledge special guests who are present:
(i.e., elected officials, tribal chairpersons, other special guests)

Commissioners
Eric Sklar, President
Saint Helena
Jacque Hostler-Carmesin, Vice President
McKinleyville
Anthony C. Williams, Member
Huntington Beach
Russell E. Burns, Member
Napa
Peter S. Silva, Member
El Cajon

STATE OF CALIFORNIA
Edmund G. Brown Jr., Governor

Valerie Termini, Executive Director
1416 Ninth Street, Room 1320
Sacramento, CA 95814
(916) 653-4899
www.fgc.ca.gov

Fish and Game Commission



Wildlife Heritage and Conservation
Since 1870

MEETING AGENDA April 26-27, 2017

Airtel Plaza Hotel
7277 Valjean Avenue, Van Nuys 91406

The meeting will be live streamed at www.cal-span.org

NOTE: See important meeting deadlines and procedures at the end of the agenda. Unless otherwise indicated, the California Department of Fish and Wildlife is identified as "Department."

DAY 1 – APRIL 26, 2017, 9:00 AM

Call to order/roll call to establish quorum

1. Approve agenda and order of items
2. Public forum for items not on agenda
The Commission **may not** discuss or take action on any matter raised during this item, except to decide whether to place the matter on the agenda of a future meeting. (sections 11125, 11125.7(a), Government Code)

CONSENT ITEMS

3. Receive Department's 90-day evaluation report on the petition to list foothill yellow-legged frog (*Rana boylei*) as a threatened species under the California Endangered Species Act (CESA)
(Pursuant to 2073.5, Fish and Game Code)
4. Receive petition from the Center for Biological Diversity to list Cascades frog (*Rana cascadae*) as endangered or threatened under CESA
(Pursuant to Section 2073.3, Fish and Game Code, and Section 670.1(c), Title 14, CCR)

5. Approve five-year Private Lands Wildlife Habitat Enhancement and Management Area (PLM) plans and 2017-2022 licenses for:
(Pursuant to Section 601, Title 14, CCR)
 - (A) Humboldt County
 - I. Stover Ranch
 - (B) San Benito County
 - I. Lewis Ranch
 - II. Trinchero Ranch
 - (C) San Joaquin County
 - I. Connelly and Corral Hollow Ranch
 - (D) San Luis Obispo County
 - I. Avenales Ranch
6. Approve annual PLM plans and 2017-2018 licenses for:
(Pursuant to Section 601, Title 14, CCR)
 - (A) Del Norte County
 - I. Alexandre Ecodairy Farms PLM
 - (B) Humboldt County
 - I. Big Lagoon PLM
 - II. Cottrell Ranch
 - III. Diamond C Outfitters
 - IV. Fulton Ranch
 - V. Hunter Ranch
 - VI. Klamath PLM
 - VII. Rainbow Ridge PLM
 - VIII. Redwood House Ranch
 - IX. Smith River PLM
 - X. Wiggins Ranch
 - (C) Mendocino County
 - I. Amann Ranch
 - II. Carley Ranch
 - III. Christensen Ranch
 - IV. Eden Valley Ranch
 - V. Elk Creek Ranch
 - VI. Four Pines Ranch
 - VII. Miller-Eriksen Ranch
 - VIII. Potter Valley Wildlife Management Area
 - IX. Sanhedrin Ranch
 - X. Seven Springs Ranch
 - XI. Shamrock Ranch
 - XII. Summer Camp Ranch
 - (D) Merced County
 - I. DeFrancesco Eaton Ranch

- (E) Modoc County
 - I. Roberts Ranch
- (F) Monterey County
 - I. Alexander Ranch
 - II. Camp 5 Outfitters – Roth Ranch PLM
(See also San Luis Obispo County)
 - III. Gabilan Ranch
 - IV. Hartnell Ranch
 - V. Indian Valley Cattle Company (Lombardo Ranch)
 - VI. Morisoli Ranch (See also San Benito County)
 - VII. Peachtree Ranch
 - VIII. Work Ranch
- (G) San Benito County
 - I. Lone Ranch
 - II. Morisoli Ranch (See also Monterey County)
 - III. Rancho La Cuesta
- (H) San Bernardino County
 - I. Big Morongo Springs Ranch
- (I) Santa Clara County
 - I. Coon Creek Ranch
 - II. Pacheco Ranch
- (J) Shasta County
 - I. Duncan Creek Ranch
 - II. Stackhouse Ranch
- (K) San Luis Obispo County
 - I. Camp 5 Outfitters – Roth Ranch PLM (See also Monterey County)
 - II. Chimney Rock Ranch
 - III. Clark and White Ranches
 - IV. D-Rafter-“L” Ranch, LLC
- (L) Solano County
 - I. Buckeye Ranch
- (M) Stanislaus County
 - I. Roostercomb Ranch
- (N) Tehama County
 - I. 3D Ranch
 - II. Bell Ranch
 - III. Corning Land and Cattle Company
 - IV. R Wild Horse Ranch
- (O) Trinity County
 - I. Stewart Ranch
 - II. Travis Ranch

7. Wildlife Resources Committee
 - (A) Work plan development
 - I. Update on work plan and draft timeline
 - II. Discuss and approve new topics
8. Discuss proposed changes to upland game bird hunting regulations (Section 300, Title 14, CCR)
9. Adopt proposed changes to Central Valley salmon sport fishing regulations (subsections 7.50(b)(5), 7.50(b)(68) and 7.50(b)(156.5), Title 14, CCR)
10. Adopt proposed changes to waterfowl hunting regulations (Section 502, Title 14, CCR)
11. Adopt proposed changes to mammal hunting regulations (subsections 360(b) and 360(c), and sections 361, 362, 363, 364 and 364.1, Title 14, CCR)
12. Adopt proposed changes to regulations concerning deer tagging and reporting requirements (Section 708.5, Title 14, CCR)
13. Use of dogs for the pursuit/take of mammals or for dog training (Section 265, Title 14, CCR)
 - (A) Adopt proposed changes to regulations
 - (B) Authorize publication of notice of intent to amend regulations
14. Ratify findings on the petition to list northern spotted owl (*Strix occidentalis caurina*) as a threatened or endangered species under the California Endangered Species Act (Pursuant to Section 2075.5, Fish and Game Code)
Note that staff will recommend the Commission not substantively discuss this item and that the item be continued to the June 21-22, 2017 Commission meeting in Smith River.
15. Announce results from Executive Session
16. Non-marine items of interest from previous meetings
 - (A) Importation of American bullfrogs and non-native turtles
 - (B) Other
17. Non-marine petitions for regulation change and non-regulatory requests from previous meetings
 - (A) Action on petitions for regulation change
 - I. Petition #2016-030 to add American bullfrog to list of restricted species
 - II. Petition #2016-031 to issue restricted species permits to residents for ferrets

- III. Petition #2016-032 to remove all size and limit restrictions on the recreational take of striped bass
- IV. Petition #2017-001 to allow firearm possession while archery hunting for big game
- (B) Action on non-regulatory requests
- (C) Update on pending regulation petitions and non-regulatory requests referred to staff and the Department for review
 - I. Petition #2015-008 to repeal hunting of American badger and gray fox
 - II. Petition #2016-026 to permit use of jacketed frangible bullet

18. Department informational items

- (A) Director's report
- (B) Wildlife and Fisheries Division, and Ecosystem Conservation Division
- (C) Law Enforcement Division
- (D) Other

Recess

DAY 2 – APRIL 27, 2017, 8:00 AM

Call to order/roll call to establish quorum

- 19. Public forum for items not on agenda
The Commission **may not** discuss or take action on any matter raised during this item, except to decide whether to place the matter on the agenda of a future meeting. (sections 11125, 11125.7(a), Government Code)
- 20. Recognize former Commissioners Richard Rogers and Michael Sutton for their commitment and service to the California Fish and Game Commission
- 21. Tribal Committee
 - (A) Work plan development
 - I. Update on work plan and draft timeline
 - II. Discuss and approve new topics
- 22. Receive and approve Santa Ynez Band of Chumash Indians' proposed amendments to its request for tribal take in state marine conservation areas near Santa Barbara
- 23. Marine Resources Committee
 - (A) March 23, 2017 meeting summary
 - I. Receive and adopt recommendations
 - (B) Work plan development
 - I. Update on work plan and draft timeline
 - II. Discuss and approve new topics

24. Authorize publication of notice of intent to adopt a process for automatic conformance of state recreational fishing regulations to federal regulations
(add Section 1.95, Title 14, CCR)
25. Discuss proposed changes to crab and lobster recreational gear marking, and commercial lobster harbor restricted fishing area regulations
(sections 29.80 and 122, Title 14, CCR)
26. Receive presentation on and discuss *State of the California South Coast: Summary of Findings from Baseline Monitoring of Marine Protected Areas, 2011-2015*
27. Receive update on offshore wind energy from the U.S. Department of the Interior's Bureau of Ocean Energy Management
28. Marine items of interest from previous meetings
29. Marine petitions for regulation change and non-regulatory requests from previous meetings
 - (A) Action on petitions for regulation change – none scheduled at this time
 - (B) Action on non-regulatory requests
 - (C) Update on pending regulation petitions and non-regulatory requests referred to staff and the Department for review
 - I. Petition #2015-006 to remove special closure regulations for Rockport Rocks
 - II. Petition #2016-013 to permit use of cast nets south of Point Conception
30. Department informational items
 - (A) Director's report
 - (B) Marine Region
 - (C) Other
31. Other informational items
 - (A) Staff report
 - (B) Legislative update and possible action
 - (C) Federal agencies report
 - (D) Other
32. Discuss and act on Commission administrative items
 - (A) Next meetings
 - (B) Rulemaking calendar updates
 - (C) New business
 - (D) Other

Adjournment

EXECUTIVE SESSION

(Not Open to Public)

Pursuant to the authority of Government Code Section 11126(a)(1), (c)(3), and (e)(1), and Section 309 of the Fish and Game Code, the Commission will meet in closed Executive Session. The purpose of this Executive Session is to consider:

- (A) Pending litigation to which the Commission is a Party
 - I. Big Creek Lumber Company and Central Coast Forest Assoc. v. California Fish and Game Commission (Coho listing, south of San Francisco)
 - II. Center for Biological Diversity and Earth Island Institute v. California Fish and Game Commission (failure to list black-backed woodpecker)
 - III. Dennis Sturgell v. California Fish and Game Commission, California Department of Fish and Wildlife, and Office of Administrative Hearings (revocation of Dungeness Crab Vessel Permit No. CT0544-T1)
 - IV. Kele Young v. California Fish and Game Commission, et al. (restricted species inspection fee waiver)
 - V. Public Interest Coalition v. California Fish and Game Commission (California Environmental Quality Act)
 - VI. California Cattlemen's Association, et al. v. California Fish and Game Commission (gray wolf listing)
- (B) Possible litigation involving the Commission
- (C) Staffing
- (D) Deliberation and action on license and permit items
 - I. Take action on the request from Craig Alton to renew Salmon Vessel Permit No. SA0798
 - II. Take action on the Department's request to permanently revoke Adam Crawford James' commercial fisherman's retail license and commercial fishing license
 - III. Take action on the Office of Administrative Hearings' proposed decision for Gregory Ambiel's request to transfer Salmon Vessel Permit No. FG10053 (OAH No. 2016120944)

**CALIFORNIA FISH AND GAME COMMISSION
2017 MEETING SCHEDULE**

Note: As meeting dates and locations can change, please visit www.fgc.ca.gov for the most current list of meeting dates and locations.

MEETING DATE	COMMISSION MEETING	COMMITTEE MEETING	OTHER MEETINGS
May 24		Wildlife Resources Resources Building Auditorium, First Floor 1416 Ninth Street Sacramento, CA 95814	
June 20		Tribal Howonquet Hall Community Center 101 Indian Court Smith River, CA 95567	
June 21-22	Howonquet Hall Community Center 101 Indian Court Smith River, CA 95567		
July 20		Marine Resources Flamingo Conference Resort & Spa 2777 Fourth Street Santa Rosa, CA 95405	
August 16-17	Resources Building Auditorium, First Floor 1416 Ninth Street Sacramento, CA 95814		
September 13		Wildlife Resources California Tower 3737 Main Street Highgrove Room 200 Riverside, CA 92501	
October 10		Tribal SpringHill Suites by Marriott 900 El Camino Real Atascadero, CA 93422	
October 11-12	SpringHill Suites by Marriott 900 El Camino Real Atascadero, CA 93422		
November 9		Marine Resources Marina	
December 6-7	Handlery Hotel 950 Hotel Circle North San Diego, CA 92108		

OTHER MEETINGS OF INTEREST

Association of Fish and Wildlife Agencies

- September 10-13, Sandy, UT

Pacific Fishery Management Council

- June 8-14, Spokane, WA
- September 12-18, Boise, ID
- November 14-20, Costa Mesa, CA

Pacific Flyway Council

- September, TBD

Western Association of Fish and Wildlife Agencies

- July 6-11, Vail, CO

Wildlife Conservation Board

- May 25, Sacramento
- August 24, Sacramento
- November 30, Sacramento

IMPORTANT COMMISSION MEETING PROCEDURES INFORMATION

WELCOME TO A MEETING OF THE CALIFORNIA FISH AND GAME COMMISSION

This is the 147th year of operation of the Commission in partnership with the California Department of Fish and Wildlife. Our goal is the preservation of our heritage and conservation of our natural resources through informed decision making; Commission meetings are vital in achieving that goal. In that spirit, we provide the following information to be as effective and efficient toward that end. Welcome and please let us know if you have any questions.

PERSONS WITH DISABILITIES

Persons with disabilities needing reasonable accommodation to participate in public meetings or other Commission activities are invited to contact the Reasonable Accommodation Coordinator at (916) 651-1214. Requests for facility and/or meeting accessibility should be received at least 10 working days prior to the meeting to ensure the request can be accommodated.

STAY INFORMED

To receive meeting agendas and regulatory notices about those subjects of interest to you, visit the Commission's website, www.fgc.ca.gov, and sign up for our electronic mailing lists.

SUBMITTING WRITTEN COMMENTS

The public is encouraged to comment on any agenda item. Submit written comments by one of the following methods: **E-mail** to fgc@fgc.ca.gov; **delivery** to Fish and Game Commission, 1416 Ninth Street, Room 1320, Sacramento, CA 95814; or **hand-deliver to a Commission meeting**. Materials provided to the Commission may be made available to the general public.

COMMENT DEADLINES

The **Written Comment Deadline** for this meeting is **5:00 p.m. on April 13, 2017**. Written comments received at the Commission office by this deadline will be made available to Commissioners prior to the meeting.

The **Late Comment Deadline** for this meeting is **12:00 p.m. on April 21, 2017**. Comments received by this deadline will be marked "late" and made available to Commissioners at the meeting.

After these deadlines, written comments may be delivered in person to the meeting – Please bring ten (10) copies of written comments to the meeting.

NON-REGULATORY REQUESTS

All non-regulatory requests will follow a two-meeting cycle to ensure proper review and thorough consideration of each item. All requests submitted by the **Late Comment Deadline** (or heard during public forum at the meeting) will be scheduled for receipt at this meeting, and scheduled for consideration at the next business meeting.

PETITIONS FOR REGULATION CHANGE

Any person requesting that the Commission adopt, amend, or repeal a regulation must complete and submit form FGC 1, titled, "Petition to the California Fish and Game Commission for Regulation Change" (as required by Section 662, Title 14, CCR). The form is available at <http://www.fgc.ca.gov/public/information/petitionforregulatorychange.aspx>. To be received by the Commission at this meeting, petition forms must have been delivered by the **Late**

Comment Deadline (or delivered during public forum at the meeting) and will be scheduled for consideration at the next business meeting, unless the petition is rejected under staff review pursuant to subsection 662(b), Title 14, CCR.

VISUAL PRESENTATIONS/MATERIALS

All electronic presentations must be submitted by the **Late Comment Deadline** and approved by the Commission executive director before the meeting.

1. Electronic presentations must be provided by email to fgc@fgc.ca.gov.
2. All electronic formats must be Windows PC compatible.
3. It is recommended that a print copy of any electronic presentation be submitted in case of technical difficulties.
4. A data projector, laptop and presentation mouse will be available for use at the meeting.

CONSENT CALENDAR

A summary of all items will be available for review at the meeting. Items on the consent calendar are generally non-controversial items for which no opposition has been received and will be voted upon under single action without discussion. Any item may be removed from the consent calendar by the Commission upon request of a Commissioner, the Department, or member of the public who wishes to speak to that item, to allow for discussion and separate action.

LASER POINTERS may only be used by a speaker during a presentation; use at any other time may result in arrest.

SPEAKING AT THE MEETING

To speak on an agenda item, please complete a "Speaker Card" and give it to the designated staff member before the agenda item is announced. Cards will be available near the entrance of the meeting room. Only one speaker card is necessary for speaking to multiple items.

1. Speakers will be called in groups; please line up when your name is called.
2. When addressing the Commission, give your name and the name of any organization you represent, and provide your comments on the item under consideration.
3. If there are several speakers with the same concerns, please appoint a spokesperson and avoid repetitive testimony.
4. The presiding commissioner will allot between one and three minutes per speaker per agenda item, subject to the following exceptions:
 - a. The presiding commissioner may allow up to five minutes to an individual speaker if a minimum of three individuals who are present when the agenda item is called have ceded their time to the designated spokesperson, and the individuals ceding time forfeit their right to speak to the agenda item.
 - b. Individuals may receive advance approval for additional time to speak if requests for additional time to speak are received by email or delivery to the Commission office by the **Late Comment Deadline**. The president or designee will approve or deny the request no later than 5:00 p.m. two days prior to the meeting.
 - c. An individual requiring an interpreter is entitled to at least twice the allotted time pursuant to Government Code Section 11125.7(c).

- d. An individual may receive additional time to speak to an agenda item at the request of any commissioner.
- 5. If you are presenting handouts/written material to the Commission at the meeting, please provide ten (10) copies to the designated staff member just prior to speaking.

STAFF SUMMARY FOR APRIL 26-27, 2017

2. PUBLIC FORUM (DAY 1)**Today's Item****Information** ☒**Action** ☐

Receipt of public comments, petitions for regulation change, and requests for non-regulatory actions.

Summary of Previous/Future Actions

- **Today's receipt of requests and comments** **Apr 26-27, 2017; Van Nuys**
- Direction to grant, deny or refer Jun 21-22, 2017; Smith River

Background

This agenda item is primarily to provide the public an opportunity to address FGC on topics not on the agenda. Staff also includes written materials and comments received prior to the meeting as exhibits in the meeting binder (if received by comment deadline), or as late comments at the meeting (if received by late comment deadline), for official FGC "receipt."

Public comments are generally categorized into three types under public forum: (1) Petitions for regulation change; (2) requests for non-regulatory action; and (3) informational-only comments. Under the Bagley-Keene Open Meeting Act, FGC cannot discuss any matter not included on the agenda, other than to schedule issues raised by the public for consideration at future meetings. Thus, petitions for regulation change and non-regulatory requests generally follow a two-meeting cycle (receipt and direction): FGC will determine the outcome of the petitions for regulation change and non-regulatory requests received at today's meeting at the next in-person FGC meeting following staff evaluation.

As required by the Administrative Procedure Act (APA), petitions for regulation change will be either denied or granted and notice made of that determination. Action on petitions and requests received at previous meetings is scheduled under a separate agenda item titled "Petitions for regulation change and non-regulatory requests from previous meetings."

Significant Public Comments

1. Petitions for regulation change are summarized in Exhibit 1 and the original petitions are provided in Exhibit 3.
2. Non-regulatory requests are summarized in Exhibit 2 and the original requests are provided in exhibits 4-13.
3. An informational comment is provided in Exhibit 14.

Recommendation

Consider whether any new future agenda items are needed to address issues that are raised during public comment and within FGC's authority.

Exhibits

1. Summary table of new petitions for regulation change received by Apr 13 at 5:00 p.m.
2. Summary table of new non-regulatory requests received by Apr 13 at 5:00 p.m.

STAFF SUMMARY FOR APRIL 26-27, 2017

3. Petition # 2017-002: Ballona Wetlands Land Trust
4. Email from Marko Mlikotin, received Feb 24, 2017
5. Email from Jean Welch, received Mar 2, 2017
6. Letter from Mia Laurence, received Mar 26, 2017
7. Email from Marilyn Jasper, received Mar 29, 2017
8. Email from Francis Coats, received Mar 30, 2017
9. Email from Christine Harris, received Apr 13, 2017
10. Email from The Cultured Abalone Farm, received Feb 10, 2017
11. Email from Cynthia Harland, received Feb 26, 2017
12. Email from Mike Wright, received Mar 23, 2017
13. Email from Audubon California, received Apr 13, 2017
14. Letter from Gaye Mueller, received Jan 23, 2017

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

3. Foothill Yellow-Legged Frog (Consent)**Today's Item****Information** ☒**Action** ☐

Receive DFW's 90-day evaluation report on the petition to list foothill yellow-legged frog (*Rana boylei*) as threatened under the California Endangered Species Act.

Summary of Previous/Future Actions

- | | |
|---|----------------------------------|
| • Received petition | Dec 14, 2016 |
| • FGC transmitted petition to DFW | Dec 22, 2016 |
| • Published notice of receipt of petition | Jan 20, 2017 |
| • Today's receipt of DFW's 90-day evaluation | Apr 26-27, 2017; Van Nuys |
| • Determine if candidacy listing is warranted | June 21-22, 2017; Smith River |

Background

A petition to list foothill yellow-legged frog was submitted by the Center for Biological Diversity on Dec 14, 2016. On Dec 22, 2016, FGC transmitted the petition to DFW for review. A Notice of Receipt of Petition was published in the California Regulatory Notice Register on Jan 20, 2017. California Fish and Game Code Section 2073.5 requires that DFW evaluate the petition and submit to FGC a written evaluation with a recommendation (Exhibit 1).

Based upon the information contained in the petition and other relevant information, DFW has determined that there is sufficient scientific information available at this time to indicate that the petitioned action may be warranted. DFW recommends that the petition be accepted and considered.

Significant Public Comments

Concern that listing the foothill yellow-legged frog as a threatened species could restrict or prohibit recreational fishing where foothill yellow-legged frog habitat exists today, or has in the past. As part of the deliberative process, analyze which bodies of water would be impacted, and to what extent and for how long fish stocking and recreational fishing would be restricted in these areas. Such information would be of value to California aquaculture and to communities dependent on recreational fishing for outdoor tourism and jobs. See Exhibit 2.

Recommendation

FGC staff: Under a motion to adopt the consent calendar, accept DFW's evaluation report to allow staff to provide notice of consideration of DFW's candidacy recommendation in Jun 2017.

DFW: Accept and consider the petition.

Exhibits

1. DFW memo, dated Apr 17, 2017
2. DFW 90-day evaluation, dated Apr 2017
3. Email from Marko Mlikotin, California Sportfishing League, dated Feb 7, 2017

STAFF SUMMARY FOR APRIL 26-27, 2017

Motion/Direction

Moved by _____ and seconded by _____ that the Commission adopts the consent calendar, items 3-6.

STAFF SUMMARY FOR APRIL 26-27, 2017

4. CASCADES FROG (CONSENT)**Today's Item****Information** ☒**Action** ☐

Receive petition from the Center for Biological Diversity (CBD) to list Cascades frog (*Rana cascadae*) as threatened or endangered under the California Endangered Species Act (CESA).

Summary of Previous/Future Actions

- | | |
|---|----------------------------------|
| • Received petition | Mar 1, 2017 |
| • FGC transmitted petition to DFW | Mar 6, 2017 |
| • Published notice of receipt of petition | Mar 31, 2017 |
| • Today's public receipt of petition | Apr 26-27, 2017; Van Nuys |
| • Receive DFW 90-day evaluation | Aug 16-17, 2017; Sacramento |
| • Determine if listing may be warranted | Oct 11-12, 2017; Atascadero |

Background

A petition to list Cascades frog as a threatened or endangered species under CESA was submitted by CBD on Mar 1, 2017. On Mar 6, 2017, FGC transmitted the petition to DFW for review. A Notice of Receipt of Petition was published in the California Regulatory Notice Register on Mar 31, 2017.

Significant Public Comments

This meeting is not intended for FGC discussion as the law requires the public to have 30 days to review the petition and public release of the evaluation report; however, under the Bagley-Keene Open Meeting Act, FGC must allow public comment on this item if requested.

Recommendation (N/A)**Exhibits**

1. CBD petition to list Cascades frog as a threatened or endangered species

Motion/Direction

Moved by _____ and seconded by _____ that the Commission adopts the consent calendar, items 3-6.

STAFF SUMMARY FOR APRIL 26-27, 2017

5. FIVE-YEAR PLM HARVEST PROGRAMS (CONSENT)**Today's Item**Information ☐Action ☒

Approve the five-year renewal of Private Lands Wildlife Habitat Enhancement and Management (PLM) Area licenses for 2017-2022 and seasons, harvests and habitat improvements for 2017-2022 on five properties.

Summary of Previous/Future Actions (N/A)**Background**

Fish and Game Code sections 3400-3409, and Title 14 Section 601 prescribe conditions for a PLM program that provides incentives for landholders to manage their property for the benefit of fish and wildlife in exchange for access to increased recreational opportunities, such as hunting tags or extended seasons ("harvest program"). In return for a harvest program, the landholder must prepare a biologically-sound wildlife management plan and complete specific wildlife habitat improvements on the PLM property.

There are three types of actions associated with the PLM program: an initial five-year PLM license; an annual list of PLM seasons, harvests, and habitat improvements; and a five-year PLM license renewal, with conditions unique to each participant's property.

Proposed wildlife management plans and annual seasons, harvests, and habitat improvements for the five properties have been reviewed by DFW and found to be in compliance with FGC regulations and policies for PLMs; applicants have identified location where records will be kept and made available for inspection (Exhibit 1).

Significant Public Comments (N/A)**Recommendation**

FGC staff: Approve five-year renewal of PLM licenses, and annual seasons, harvests and habitat improvements as recommended by DFW, under a motion to adopt the consent calendar.

DFW: Approve the specified wildlife management plans, five-year PLM license renewals for 2017-2022, and seasons, harvests, and habitat improvements for 2017-2022 for five properties, under the conditions specified in Exhibit 2.

Exhibits

1. DFW memo, received Mar 21, 2017
2. PLM proposed five-year details
3. Alphabetical listing of five properties

Motion/Direction

Moved by _____ and seconded by _____ that the Commission adopts the consent calendar, items 3-6.

STAFF SUMMARY FOR APRIL 26-27, 2017

6. ANNUAL PLM HARVEST PROGRAMS (CONSENT)**Today's Item**Information ☐Action ☒

Approve the annual Private Lands Wildlife Habitat Enhancement and Management (PLM) Area seasons, harvests and habitat improvements for 2017-2018 on 51 properties.

Summary of Previous/Future Actions (N/A)**Background**

Fish and Game Code sections 3400-3409, and Title 14 Section 601 prescribes conditions for a PLM program that provides incentives for landholders to manage their property for the benefit of fish and wildlife in exchange for access to increased recreational opportunities, such as hunting tags or extended seasons ("harvest program"). In return for a harvest program, the landholder must prepare a biologically-sound wildlife management plan and complete specific wildlife habitat improvements on the PLM property.

There are three types of actions associated with the PLM program: an initial five-year PLM license; an annual list of PLM seasons, harvests, and habitat improvements; and a five-year PLM license renewal, with conditions unique to each participant's property.

Proposed annual seasons, harvests, and habitat improvements for the 51 PLM properties have been reviewed by DFW and found to be in compliance with FGC regulations and policies for PLMs; applicants have identified location where records will be kept and made available for inspection (Exhibit 1).

Significant Public Comments (N/A)**Recommendation**

FGC staff: Approve annual seasons, harvests, and habitat improvements for 51 PLM properties as recommended by DFW, under a motion to adopt the consent calendar.

DFW: Approve annual seasons, harvests, and habitat improvements for 51 properties, under the conditions specified in Exhibit 2.

Exhibits

1. DFW memo, received Mar 21, 2017
2. PLM proposed annual details
3. Alphabetical listing of 51 properties

Motion/Direction

Moved by _____ and seconded by _____ that the Commission adopts the consent calendar, items 3-6

STAFF SUMMARY FOR APRIL 26-27, 2017

7. WILDLIFE RESOURCES COMMITTEE**Today's Item****Information** ☐**Action** ☒

Review tasks referred to the Wildlife Resources Committee (WRC), review potential agenda topics for May 24, 2017 WRC meeting, and consider new potential topics for WRC review.

Summary of Previous/Future Actions

- | | |
|---|----------------------------------|
| • Most recent WRC meeting | Jan 18, 2017; WRC, Redding |
| • Today approve draft May WRC topics | Apr 26-27, 2017; Van Nuys |
| • Next WRC meeting | May 24, 2017; WRC, Sacramento |

Background***WRC Work Plan and Draft Timeline***

FGC directs committee work. Current topics already referred to WRC are shown in Exhibit 1. Draft agenda topics for the May 2017 WRC meeting are shown in the May column of the WRC work plan for FGC review and consideration today. Topics include discussion and recommendations on the annual sportfish rulemaking and discussion on falconry, lead ban implementation, wild pig management, and the Predator Policy Workgroup (PPWG).

Discuss and Approve New WRC Topics

Staff proposes adding discussion of the FGC climate change policy to the agenda for May.

Significant Public Comments

Received a bibliography of predator management studies and journal articles to support PPWG discussions (Exhibit 2). Concern raised about the impacts of predators on deer and elk herds (Exhibit 3).

Recommendation

FGC staff: Approve draft agenda topics for the May 2017 WRC meeting:

- Sport fishing regulation proposals for 2018 season
- Falconry regulations
- Lead ban implementation
- Wild pig management
- PPWG update
- FGC climate change policy

STAFF SUMMARY FOR APRIL 26-27, 2017

Exhibits

1. WRC work plan and draft agenda topics for May 24, 2017 WRC meeting
2. Email from Miriam Seger and others, received Apr 13, 2017
3. Email from Daniel Epperson, received Mar 2, 2017

Motion/Direction

Moved by _____ and seconded by _____ that the Commission approves the draft agenda topics for the May 2017 Wildlife Resources Committee meeting.

STAFF SUMMARY FOR APRIL 26-27, 2017

8. UPLAND GAME BIRDS**Today's Item****Information** ☒**Action** ☐

Discuss proposed changes to upland game bird hunting regulations.

Summary of Previous/Future Actions

- | | |
|-------------------------------------|----------------------------------|
| • WRC vetting | Sep 21, 2016; WRC Sacramento |
| • Notice hearing | Feb 8-9, 2017; Rohnert Park |
| • Today's discussion hearing | Apr 26-27, 2017; Van Nuys |
| • Adoption hearing | Jun 21-22, 2017; Smith River |

Background

The regulations in Section 300, Title 14, California Code of Regulations (CCR), provide general hunting seasons for taking resident and migratory upland game birds. DFW is recommending the following regulation changes:

- Amend subsection 300(a)(1)(D)4. to adjust the annual number of general season sage grouse hunting permits by zone for the 2017-18 season.
- Make non-substantive changes to the authority and reference sections, which are the result of changes to the Fish and Game Code by SB 1473 (Statutes 2016; Chapter 546) that took effect on Jan 1, 2017.

Significant Public Comments

- Support sage grouse recommendations (Exhibit 3)
- Request for 0 sage grouse limit (Exhibit 4)

Recommendation (N/A)**Exhibits**

1. Initial statement of reasons
2. DFW memo, received Jan 12, 2017
3. Letter from National Wild Turkey Federation, received Feb 7, 2017
4. Email from Center for Biological Diversity, received Apr 13, 2017

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

9. CENTRAL VALLEY SALMON SPORT FISHING**Today's Item****Information** ☐**Action** ☒

Adopt proposed changes to Central Valley salmon sport fishing regulations for 2017-18 season.

Summary of Previous/Future Actions

- | | |
|-----------------------------------|----------------------------------|
| • WRC vetting | Sep 21, 2016; Sacramento |
| • Notice hearing | Dec 7-8, 2016; San Diego |
| • First discussion hearing | Feb 8-9, 2017; Rohnert Park |
| • Second discussion hearing | Apr 13, 2017; Teleconference |
| • Today's adoption hearing | Apr 26-27, 2017; Van Nuys |

Background

In Dec 2016, FGC authorized publication of notice of proposed changes to subsections 7.50(b)(5), (b)(68) and (b)(156.5), including a range of bag and possession limits in the American, Feather, and Sacramento rivers to encompass mid-Apr Pacific Fishery Management Council (PFMC) allocation recommendations for Central Valley salmon stocks. In addition, at its Dec meeting, FGC directed that the initial statement of reasons and proposed regulations be amended to include a closure of the Sacramento River between Keswick Dam and the Hwy 44 bridge to protect winter-run Chinook Salmon. See exhibits 1 and 2.

FGC annually adopts Central Valley salmon sport fishing regulations consistent with federal fishery management goals. Normally FGC adopts at the Apr teleconference specific salmon bag and possession limits after PFMC reviews West Coast salmon stocks and makes recommendations to the National Marine Fishery Service regarding fishery allocations. The Apr 13, 2017 teleconference was used for a second discussion hearing to allow sufficient time for California Environmental Quality Act document review; DFW did not present its allocation recommendations at the teleconference meeting. See exhibits 3 and 4.

Specific bag and possession limits for Central Valley fall-run Chinook Salmon will be recommended by DFW and presented at this meeting.

Significant Public Comments

No new comments have been received in support or opposition since Nov 2016.

Recommendation

FGC staff: Adopt changes to the regulations as recommended by DFW during the meeting.

DFW: Recommendations will be presented at the meeting.

Exhibits

1. DFW memo, received Nov 2, 2016
2. Initial statement of reasons, received Jan 2017

STAFF SUMMARY FOR APRIL 26-27, 2017

3. DFW memo with initial study/negative declaration, received Jan 18, 2017
4. Continuation notice, dated Mar 30, 2017

Motion/Direction

Moved by _____ and seconded by _____ that the Commission certifies the negative declaration, adopts the proposed project, and adopts the proposed changes to subsections 7.50(b)(5), (b)(68) and (b)(156.5) of Section 7.50, related to Central Valley salmon sport fishing regulations as recommended today by the Department of Fish and Wildlife.

STAFF SUMMARY FOR APRIL 26-27, 2017

10. WATERFOWL**Today's Item****Information** ☐**Action** ☒

Adopt proposed changes to waterfowl hunting regulations.

Summary of Previous/Future Actions

- | | |
|-----------------------------------|----------------------------------|
| • WRC vetting | Sep 21, 2016; WRC Sacramento |
| • Notice hearing | Dec 7-8, 2016; San Diego |
| • Discussion hearing | Feb 8-9, 2017; Rohnert Park |
| • Today's adoption hearing | Apr 26-27, 2017; Van Nuys |

Background

The frameworks for the 2017-18 waterfowl hunting season were approved by the flyway councils and adopted at the U.S. Fish and Wildlife Service (USFWS) Regulations Committee meeting in Oct 2016. The Pacific Flyway framework allows for a liberal duck season, which includes a 107-day season (scaup limited to 86-day season), 7-daily duck bag limit including 7 mallards but only 2 hen mallards, 1 pintail, 2 canvasback, 2 redheads, and 3 scaup. Ranges for daily bag limit and season length for ducks and season length for geese are provided to allow FGC flexibility in selecting the final regulations. Federal regulations require that California's hunting regulations conform to those of Arizona in the Colorado River Zone and with those of Oregon in the North Coast Special Management Area.

The following is the federal process as it relates to our state process:

- USFWS publishes (in the federal register) proposed rulemaking for migratory game bird hunting regulations in Aug;
- USFWS publishes (federal register) proposed season frameworks for migratory game bird hunting in Dec;
- Final frameworks for migratory game bird hunting are published in Feb;
- States proposing changes in regulatory frameworks must provide verbal or written notification of their intentions at the Pacific Flyway Study Committee's non-regulatory meeting in Mar.
- States (today's hearing) make selections within the frameworks established by USFWS, which must then be provided to their respective flyway council by Apr 30;
- State selections are published in the federal register in Jun.

USFWS may work with any state if an emergency prevented the adoption from taking place prior to the Apr 30 deadline, allowing for a week or so of additional time. However, due to federal deadlines and other states' selections, a delay in adoption by a state and not providing the state's selections to USFWS by Apr 30 for any other reason will result in no hunting season for that state in the coming year.

STAFF SUMMARY FOR APRIL 26-27, 2017

Significant Public Comments

Opposition to a proposed loss of four weeks of waterfowl season in the NE Zone. An assertion that increasing the number of hunting days for the spring special season does not recognize that the real problem is that the greatest numbers occur after the Federal Flyway closes, so the proposal does little to decrease crop damages caused by geese in the spring. (Exhibit 5)

Opposition to the proposal to move 30 days of the white-fronted goose season from the current season dates to the spring season in the NE Zone. (Exhibits 6 and 7)

General support for the DFW proposals except in the NE Zone. (Exhibit 7)

Recommendation

FGC staff: Recommends adopting the regulations as proposed, noting that that the final frameworks were published in the federal registry in Mar, and any change that significantly alters the proposal at the adoption hearing will delay adoption beyond the time required for state selection submittal (Apr 30, 2017) resulting in no waterfowl season for 2017-2018.

DFW: Recommends adopting the regulations as outlined in its presentation.

Exhibits

1. Initial statement of reasons, dated Oct 14, 2016
2. Final environmental document, dated Apr 26, 2017
3. DFW memo, received Nov 3, 2016
4. DFW presentation
5. Email from G. Robeson, received Feb 22, 2017
6. Email from Siskiyou County Fish and Game Commission, received Mar 10, 2017
7. Email from California Waterfowl Association, received Apr 11, 2017

Motion/Direction

Moved by _____ and seconded by _____ that the Commission certifies the final environmental document, adopts the proposed project, and adopts proposed changes to Section 502, regarding migratory waterfowl regulations for the 2017-18 season.

STAFF SUMMARY FOR APRIL 26-27, 2017

11. MAMMAL HUNTING**Today's Item****Information** ☐**Action** ☒

Discuss and adopt proposed changes to mammal hunting regulations (deer, archery deer, nelson bighorn sheep, antelope, elk, and SHARE elk hunts).

Summary of Previous/Future Actions

- | | |
|-----------------------------------|----------------------------------|
| • WRC vetting | Sep 21, 2016; WRC Sacramento |
| • Notice hearing | Dec 7-8, 2016; San Diego |
| • Discussion hearing | Feb 8-9, 2017; Rohnert Park |
| • Today's adoption hearing | Apr 26-27, 2017; Van Nuys |

Background

Annual proposed changes to hunting regulations for various big game mammals are combined for concurrent action under a single rulemaking package. Proposed changes for the 2017-18 season are highlighted below.

**§ 360 (Deer), 361 (Archery Deer), 362 (Nelson Bighorn Sheep),
363 (Antelope), 364 (Elk) and 364.1 (SHARE Elk Hunts)**

- The proposal changes the number of tags for all existing zones to those recommended in the mammal data supplements (Exhibit 10).
- Other nonsubstantive editorial changes and renumbering are also proposed.

Note: For proposed date changes the term "calendar shift" refers to considering days lost or gained from one year to the next when relative days are identified. An example would be "the first Saturday in Oct" which was Oct 1, 2016 last season but will be Oct 7, 2017 this season; if unaccounted for, that shift would take seven days off the 2017-2018 season.

In addition, the following section-specific proposals are being presented:

§ 360(c) Additional Deer Hunts

- Hunts G-8 (Fort Hunter Liggett Antlerless Deer Hunt) and J-10 (Fort Hunter Liggett Apprentice Either-Sex Deer Hunt) provide for hunting to begin on Oct 8 and continue for three consecutive days and reopen on Oct 15 and continue for two consecutive days, including the Columbus Day holiday. The proposal would modify the season to account for the annual calendar shift.
- Additional Hunt G-10 (Camp Pendleton Either-Sex Hunt) provides for hunting to begin on the first Saturday in Sep and extend through the first Sunday in Dec and allows hunting on Saturdays, Sundays, holidays and the day after Thanksgiving. The proposal would allow for the calendar shift and allow hunting on Fridays, Saturdays, Sundays, Labor Day, Columbus Day and Veterans Day.

STAFF SUMMARY FOR APRIL 26-27, 2017

- Additional Hunt G-11 (Vandenberg Either-Sex Deer Hunt) provides for hunting to begin on the last Monday in Aug and extend through Dec 31. The proposal would allow hunting to begin on Aug 28 and extend through Oct 1.

§ 361(b) Archery Deer Hunting

- Existing regulations for Hunt A-33 (Fort Hunter Liggett Late Season Archery Either Sex Hunt) provide for hunting to begin on the first Saturday in Oct and end on Nov 11. The proposal would modify the season to open the season on the first Saturday in Oct and end on Nov 12 to account for the calendar shift.

§ 362 Nelson Bighorn Sheep

- DFW's final recommendations will ensure that the take will be no more than 15 percent of the mature rams estimated in each zone in accordance with Fish and Game Code Section 4902.

§ 364 Elk

- The proposal establishes the Goodale Tule Elk Hunt in the western part of the Independence Zone. DFW recommends adding a new subsection 364(d)(10)(A) establishing the Goodale General Methods Tule Elk Hunt.
- DFW makes many different times and seasons of the year available to the public for hunting. In order to provide opportunity for hunters, DFW modifies the calendar day for the start of individual hunts and the number of days of hunting. A table in each initial statement of reasons (ISORs) sets forth the proposed season dates for each hunt (Exhibits 1-7).

§ 364.1 SHARE Elk Hunts

- DFW recommends establishing a new Goodale SHARE hunt in subsection 364(l)(10).

Significant Public Comments***Deer (Zone D-17)***

- Proposal to extend D-17 by one week, due to its proximity to Halloween (Exhibit 11)

Elk

- Request for more complete survey numbers and questions numbers provided by DFW
- Reduce percentage culled
- Close Rowdy Creek to encourage expansion to Smith River National Recreation Area
- Request priority be given to tribal take
- Make coastal zones 1 and 5 non-lead hunt zones
- Requests all hunting of Roosevelt elk in Del Norte County be stopped until a sound management plan is completed

(Exhibits 12-15)

STAFF SUMMARY FOR APRIL 26-27, 2017

Recommendation

FGC staff: Adopt changes to the regulations as recommended by DFW in the mammal data supplements (Exhibit 10) and today's presentation.

Exhibits

1. ISOR 360(b) Deer X Zones
2. ISOR 360(c) Deer Additional Hunts
3. ISOR 361 Archery Deer
4. ISOR 362 Bighorn Sheep
5. ISOR 363 Pronghorn Antelope
6. ISOR 364 Elk
7. ISOR 364.1 SHARE Elk
8. DFW memo, received Nov 8, 2016
9. Elk addendum to EIR, dated Jan 2017
10. Mammal data supplements (deer, bighorn sheep, antelope and elk), received Apr 2017
11. Email from Martin Fenn, received Feb 20, 2017
12. Email from Supporters for Del Norte Roosevelt Elk, received Mar 24, 2017
13. Email from Supporters for Del Norte Roosevelt Elk, dated Mar 25, 2017
14. Letter from Supporters for Del Norte Roosevelt Elk, received Mar 30, 2017
15. Letter from Friends of Del Norte, dated Apr 3, 2017

Motion/Direction

Moved by _____ and seconded by _____ that the Commission adopts the proposed addendum to the final environmental document for elk hunting, and adopts the proposed changes to sections 360, 361, 362, 363, 364 and 364.1 related to mammal hunting regulations.

STAFF SUMMARY FOR APRIL 26-27, 2017

12. DEER TAGGING AND REPORTING**Today's Item****Information** ☐**Action** ☒

Discuss and adopt proposed changes to regulations concerning deer tagging and reporting requirements.

Summary of Previous/Future Actions

- | | |
|-----------------------------------|----------------------------------|
| • Notice hearing | Dec 7-8, 2016; San Diego |
| • Discussion hearing | Feb 8-9, 2017; Rohnert Park |
| • Today's adoption hearing | Apr 26-27, 2017; Van Nuys |

Background

The proposed amendments are intended to clarify the methods by which hunters may comply with mandatory deer harvest reporting. The amendments will:

- eliminate "in person" delivery of report cards to DFW as DFW regional offices are not staffed to receive and process report cards; and
- given the new non-reporting fee and expected increase in the number of report cards returned by mail to be in the tens of thousands, add a provision stating, "If a report card is submitted by mail and not received by DFW, it is considered not reported."

Significant Public Comments

Concern that the proposal would modify the season-ending reporting procedure for holders of California deer tags, in that it would no longer be possible for a tag holder to report success, or lack thereof, to DFW by going to a DFW office, providing a clerk with the information, and receiving acknowledgement of that information in person (Exhibit 3). Instead, responders would be required to either utilize DFW's website or send results via the U.S. Postal Service. Commenter states that:

1. Not all hunters have computers. Some hunters will be obligated to send results by mail with no guarantee their results will reach the intended destination.
2. DFW's website seems very difficult to navigate. It would be helpful if DFW would place an obvious link on its homepage for complying with the mandatory reporting requirement.
3. A 'Report Card' should be made available to the public; at the very least, a link to a card that can be printed should be provided on DFW's website.
4. A clerk responsible for recording success information should continue to be provided at specified locations, such as DFW headquarters, regional offices and perhaps fish hatcheries.

Recommendation

FGC staff: Adopt proposed regulations as noticed.

STAFF SUMMARY FOR APRIL 26-27, 2017

Exhibits

1. Initial statement of reasons
2. DFW memo, dated Nov 3, 2016
3. Email from Tuolumne County Sportsmen, Inc., received Feb 6, 2017

Motion/Direction

Moved by _____ and seconded by _____ that the Commission has determined, based on the record, this project is exempt from California Environmental Quality Act pursuant to the Guidelines in sections 15307 and 15308, and adopts the proposed changes to section 708.5, related to deer tagging and reporting regulations, as recommended by the Department of Fish and Wildlife.

STAFF SUMMARY FOR APRIL 26-27, 2017

13. USE OF DOGS FOR PURSUIT/TAKE OF MAMMALS**Today's Item****Information** ☐**Action** ☒

Use of dogs for the pursuit/take of mammals or for dog training

- (A) Adopt proposed changes to regulations concerning the use of dogs for the pursuit and take of mammals.
- (B) Authorize publication of notice of intent to further amend regulations concerning the use of dogs for the pursuit and take of mammals.

Summary of Previous/Future Actions

(A)

- Notice hearing Oct 19-20, 2016; Eureka
- Discussion hearing Dec 7-8, 2016; San Diego
- Originally scheduled adoption hearing Feb 8-9, 2017; Rohnert Park
- Further discussion March 15, 2017; Teleconference
- Further discussion April 13, 2017; Teleconference
- **Adoption hearing April 26-27, 2017; Van Nuys**

(B)

- **Notice hearing April 26-27, 2017; Van Nuys**
- Discussion hearing (proposed) Oct 11-12, 2017; Atascadero
- Adoption hearing (proposed) Dec 6-7, 2017; San Diego

Background

In Apr 2016, FGC adopted changes to Section 265, Title 14, California Code of Regulations, deleting language restricting the use of global positioning system (GPS) collars and treeing switches for dogs aiding a hunter; this amendment effectively authorized the use of those devices as an aid in hunting. Subsequently a lawsuit was filed challenging the adoption alleging California Environmental Quality Act (CEQA) process deficiencies; FGC has determined that further rulemaking may be necessary to resolve that lawsuit.

The current rulemaking (Exhibit 1) and related CEQA analysis will help to further inform FGC about the issues related to regulating the use of dogs as an aid to hunting and associated equipment for those dogs. The proposed regulation inserts a provision prohibiting the use of treeing switches on dog collars when dogs are used as an aid in hunting and inserts a provision prohibiting the use of GPS-equipped dog collars when dogs are used as an aid in hunting; both provisions existed in the regulation prior to the Apr 2016 changes.

In Dec 2016, FGC discussion included a vote that directed staff to prepare a notice for further rulemaking to be considered by FGC immediately after and at the same meeting as any adoption of the currently proposed regulation, to consider authorizing GPS collars and treeing switches. In Feb 2017, FGC voted to continue the current rulemaking to include an additional discussion hearing during the Mar 15, 2017 teleconference meeting and re-schedule the final

STAFF SUMMARY FOR APRIL 26-27, 2017

adoption until Apr 26-27, 2017. On Mar 15, FGC added a discussion hearing to the agenda for the Apr 13, 2017 teleconference meeting.

FGC requested that DFW staff develop an analysis of the impacts of both allowing GPS collars and treeing switches and prohibiting the use of that gear; DFW provided that analysis at the Apr 13 teleconference (Exhibit 2). The DFW document and the record as a whole do not include any evidence that the currently proposed rule has any possibility of a significant effect on the environment.

Significant Public Comments

- Opposition to the proposed regulation from individuals (see Exhibit 2 for an example).
- Support for the proposed regulation from individuals and organizations (see exhibits 3-4 for examples).

Recommendation

FGC staff:

(A) Recommends adopting the proposed regulation.

(B) Recommends authorizing staff to publish notice in order to open public discussion.

Exhibits

1. ISOR, notice, and continuation notices
2. DFW memo with attachment
3. Email from Teri Faulkner, received Apr 12, 2017
4. Email from Public Interest Coalition, received Apr 7, 2017
5. Email from Public Interest Coalition, received Apr 13, 2017

Motion/Direction

- A. Moved by _____ and seconded by _____ that the Commission has determined, based on the record, this project is exempt from the California Environmental Quality Act pursuant to the guidelines in Public Resources Code Section 15061(b)(3), and adopts changes to Section 265 related to the use of dogs for pursuit/take of mammals regulations with an effective date of April 26, 2018.
- B. Moved by _____ and seconded by _____ that the Commission authorizes publication of a notice of its intent to amend Section 265 to delete the prohibitions related to GPS collars and treeing switches for dogs.

STAFF SUMMARY FOR APRIL 26-27, 2017

14. NORTHERN SPOTTED OWL**Today's Item****Information** ☐**Action** ☒

Adopt findings for the Aug 25, 2016 decision to accept the petition to list northern spotted owl (*Strix occidentalis caurina*) as a threatened species pursuant to Section 2075.5, Fish and Game Code.

Summary of Previous/Future Actions

- | | |
|--|------------------------------------|
| • Received petition | Sept 7, 2012 |
| • FGC transmits petition to DFW | Sept 10, 2012 |
| • Published notice of receipt of petition | Oct 5, 2012 |
| • Approved DFW request for 30-day extension | Dec 12, 2012; San Diego |
| • Received DFW's evaluation and recommendation | Mar 6, 2013; Mount Shasta |
| • Deferred decision whether listing may be warranted | Apr 17, 2013; Santa Rosa |
| • FGC determined listing may be warranted | Aug 7, 2013; San Luis Obispo |
| • Approved DFW request for six month extension | Dec 3, 2014; Van Nuys |
| • Received DFW status review report | Feb 10-11, 2016; Sacramento |
| • Discussion; deferred action to Jun 2016 meeting | April 13-14, 2016; Santa Rosa |
| • Discussion; deferred action to Aug 2016 meeting | Jun 22-23, 2016; Bakersfield |
| • Determination that listing is warranted | Aug 24-25, 2016; Folsom |
| • Considered draft findings; deferred action | Feb 8-9, 2017; Rohnert Park |
| • Today's meeting (proposed to defer action) | April 26-27, 2017; Van Nuys |
| • Proposed date to adopt findings | Jun 21-22, 2017, Smith River |

Background

On Aug 25, 2016, FGC determined, pursuant to Fish and Game Code Section 2075.5, that the petitioned action to list northern spotted owl as threatened under the California Endangered Species Act is warranted.

On Feb 8, 2017, FGC considered draft findings supporting the Aug 2016 determination. FGC received several comments suggesting revisions to the draft finding and, in light of those comments, FGC directed staff to review the comments and the findings.

Environmental Protection Information Center, the sole entity that filed the petition to list the northern spotted owl has requested that FGC delay this item until the Jun 21-22, 2017 FGC meeting in Smith River.

Significant Public Comments (N/A)**Recommendation**

FGC staff: Continue the item to the June 21-22, 2017 FGC meeting in Smith River

STAFF SUMMARY FOR APRIL 26-27, 2017

Exhibits (N/A)

Motion/Direction

Moved by _____ and seconded by _____ that the Commission adds this item to the agenda for the June 21-22, 2017 Commission meeting in Smith River.

STAFF SUMMARY FOR APRIL 26-27, 2017

15. EXECUTIVE SESSION**Today's Item****Information** ☐**Action** ☒

Announce results from Executive Session, which will include:

- (A) Pending litigation to which FGC is a party
- (B) Possible litigation involving FGC
- (C) Staffing
- (D) Deliberation on license and permit items
 - I. Alton request to renew salmon vessel permit
 - II. James commercial fisherman's retail license and commercial fishing license
 - III. Ambiel request to transfer salmon vessel permit

Summary of Previous/Future Actions (N/A)**Background**

Pursuant to the authority of Government Code Section 11126(a)(1), (c)(3), and (e)(1), and Section 309 of the Fish and Game Code, FGC meets in closed executive session at each meeting. The purpose of executive session is to consider topics A-D as reflected on the meeting agenda.

- (A) See agenda for a list of civil litigation to which FGC is a party and pending at the time the agenda was posted. Additionally, after the agenda was finalized, FGC was formally served a complaint in Tri-State Crab Producers Association v. California Department of Fish and Wildlife; California Fish and Game Commission.
- (B) No possible litigation to report at the time the meeting binder was prepared.
- (C) Three positions are currently open: Staff services manager, associate governmental program analyst, and legal/regulatory clerk.
- (D) Deliberation and action on license and permit items:
 - I. Craig Alton submitted an appeal to FGC requesting renewal of Salmon Vessel Permit No. SA0798 (Exhibit DI.1). Subsequent to submitting the appeal, DFW and Mr. Alton entered into a settlement agreement (Exhibit D.I.2).
 - II. DFW filed an accusation with FGC to permanently revoke Adam Crawford James' commercial fisherman's retail license and commercial fishing license, and served that accusation on Mr. James (Exhibit DII.1). Mr. James did not submit anything in response and, as a result, waives his right to a hearing on the matter. After the time for him to submit notice passed, DFW submitted additional documentation asking FGC to enter an order consistent with the accusation (Exhibit DII.2).
 - III. DFW denied a request by Gregory Ambiel to transfer Salmon Vessel Permit No. FG10053 to another vessel. Mr. Ambiel filed an appeal with FGC and FGC referred

STAFF SUMMARY FOR APRIL 26-27, 2017

the appeal to the Office of Administrative Hearings (OAH). OAH conducted a hearing and submitted a proposed order (exhibit DIII.1).

Recommendation

(D) FGC staff:

- I. Enter an order consistent with the settlement agreement between DFW and Mr. Alton
- II. Enter an order permanently revoking Adam Crawford James' commercial fisherman's retail license and commercial fishing license
- III. Adopt the proposed decision of the OAH administrative law judge

Exhibits

- DI.1. Appeal by Craig Alton, received Jun 21, 2016
- DI.2. Settlement Agreement between DFW and Mr. Alton
- DI.3. [Unsigned] Decision In the Matter of the Appeal of Craig Alton
- DII.1. Accusation In the Matter Against Adam Crawford James, filed Jan 31, 2017
- DII.2. Letter from DFW regarding Accusation Against Adam Crawford James, received Mar 22, 2017
- DII.3. [Unsigned] Decision In the Matter Against Adam Crawford James
- DIII.1. OAH proposed decision In the Matter of the Statement of Issues Against Gregory Ambiel
- DIII.2. Letter from Henry Outten, received Mar 29, 2017
- DIII.3. [Unsigned] Decision In the Matter of the Statement of Issues Against Gregory Ambiel

Motion/Direction

- DI. Moved by _____ and seconded by _____ that the Commission reinstates Craig Alton's Salmon Vessel Permit No. SA0798 under the conditions outlined in the settlement agreement with DFW.
- DII. Moved by _____ and seconded by _____ that the Commission permanently revokes Adam Crawford James' commercial fisherman's retail license and commercial fishing license.
- DIII. Moved by _____ and seconded by _____ that the Commission adopts the proposed decision In the Matter of the Statement of Issues Against Gregory Ambiel.

STAFF SUMMARY FOR APRIL 26-27, 2017

16. ITEMS OF INTEREST FROM PREVIOUS MEETINGS (NON-MARINE)**Today's Item****Information** ☒**Action** ☐

This is a standing agenda item to provide FGC with updates on non-marine items of interest from previous meetings. For this meeting:

- (A) Staff presentation on possible regulatory options to address impacts on California's native wildlife resulting from the importation of American bullfrogs and non-native turtles.
- (B) Other

Summary of Previous/Future Actions

(A)

- FGC discussion
- **Today's discussion**

Feb 8-9, 2017; Rohnert Park
Apr 26-27, 2017; Van Nuys

Background

This item is an opportunity for FGC staff and DFW to provide any follow-up information on non-marine topics previously before FGC.

(A) American Bullfrogs and Non-native Turtles

Annually there are approximately two million non-native American bullfrogs and 300,000 non-native turtles (mostly red-eared sliders and softshell turtles) imported into California for food and the pet trade. Even though these species are not imported into California with the intention of being released, they have established wild populations in California's wetlands and waterways that threaten populations of native amphibians, fish, and wildlife by direct predation, competition for resources and habitat, and disease.

In Feb 2015, DFW determined that American bullfrogs posed a significant risk to the fish and wildlife resources of the state and notified FGC of its decision to stop issuing long-term importation permits and to only issue short-term individual event permits, consistent with Section 236(c)(6)(I) of Title 14, CCR. At its Feb 2015 meeting, FGC directed staff to work with DFW to identify a list of potential actions FGC could take to further address the issues identified in a DFW report.

In Feb 2016, FGC staff presented four possible regulatory options to address impacts on California's native wildlife resulting from the importation of American bullfrogs and non-native turtles, and provided additional information in a joint memorandum prepared by FGC and DFW staff (Exhibit 1). At the meeting, FGC directed staff to add this topic to the Apr 26-27, 2017 agenda for further discussion with more information and a presentation on options 1 and 4. Today, FGC staff will present the requested information (Exhibit 2).

STAFF SUMMARY FOR APRIL 26-27, 2017

Significant Public Comments**(A)**

- Petition with 3,212 signatures (Exhibit 3) and an additional 103 comment letters asking FGC to add exotic bullfrogs and turtles to the restricted species list.
- Twelve emails in support of Option 4: Add to Restricted Species List (example provided in Exhibit 4).
- Five emails supporting a general ban or specifically a ban on importation (see examples in exhibits 5-6).
- Email describing a recent experience in purchasing American bullfrogs in live animal food markets and support for Option 4 (Exhibit 7)
- Email regarding impacts of red-eared sliders (Exhibit 8)
- Email with reference to a newspaper article on religious releases of non-native species (Exhibit 9)
- Email with reference to a 2016 newspaper article on FGC actions on this issue (Exhibit 10)
- Letter in response to the Feb 2016 staff presentation regarding Option 4 (Exhibit 11).

Recommendation (N/A)**Exhibits**

- A1. FGC and DFW joint memorandum, dated Jan 26, 2017
- A2. Staff presentation
- A3. Petition letter from Center for Biological Diversity, received Apr 13, 2017
- A4. Sample email from PJ Bremier, received Feb 14, 2017
- A5. Letter from Huey Johnson, received Mar 2, 2017
- A6. Email from Janet Thew, received Apr 3, 2017
- A7. Email from Action for Animals, received Apr 12, 2017
- A8. Email from Tiffany Namwong, received Feb 21, 2017
- A9. Email from Action for Animals, received Feb 13, 2017
- A10. Email from Action for Animals, received Feb 13, 2017
- A11. Letter from Center for Biological Diversity, received Apr 13, 2017

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

17. NON-MARINE REGULATION PETITIONS AND NON-REGULATORY REQUESTS**Today's Item**Information ☐Action ☒

This is a standing agenda item for FGC to act on regulation petitions and non-regulatory requests from the public that are non-marine in nature. For this meeting:

- (A) Action on petitions for regulation change received at the Feb 2017 meeting.
- (B) Action on non-regulatory requests received at the Feb 2017 meeting.
- (C) Update on pending regulation petitions and non-regulatory requests referred to staff or DFW for review.

Summary of Previous/Future Actions

(A-B)

- FGC receipt of new petitions and requests Feb 8-9, 2017; Rohnert Park
- **Today's FGC action on petitions and requests Apr 26-27, 2017; Van Nuys**

(C)

- **Today's update and possible action on referrals Apr 26-27, 2017; Van Nuys**

Background

FGC provides direction regarding requests from the public received by mail and email and during public forum at the previous FGC meeting. Public petitions for regulation change or requests for non-regulatory action follow a two-meeting cycle to ensure proper review and consideration.

Petitions or requests scheduled for consideration today were received or referred at the Feb 2017 meeting in one of three ways: (1) submitted by the comment deadline and published as tables in the meeting binder, (2) submitted by the late comment deadline and delivered at the meeting, or (3) received during public forum.

Exhibits A1 and B1 summarize the regulation petitions and non-regulatory requests received through the last meeting that are scheduled for FGC action today. The exhibits contain staff recommendations for each request.

- (A) ***Petitions for regulation change.*** As of Oct 1, 2015, any request for FGC to adopt, amend, or repeal a regulation must be submitted on form FGC 1, "Petition to the California Fish and Game Commission for Regulation Change" (Section 662, Title 14). Petitions received at the previous meeting are scheduled for consideration at the next business meeting, unless the petition is rejected under 10-day staff review as prescribed in subsection 662(b).

Today, four non-marine regulation petitions received in Feb 2017 are scheduled for FGC action (See summary table in Exhibit A1 and individual petitions in exhibits A2-A5).

- (B) ***Non-regulatory requests.*** Requests for non-regulatory action received at the previous meeting are scheduled for consideration today.

STAFF SUMMARY FOR APRIL 26-27, 2017

Two non-regulatory requests received in Feb 2017 are scheduled for action (see summary table Exhibit B1 and individual request in Exhibit B2).

- (C) ***Pending regulation petitions and non-regulatory requests.*** This item is an opportunity for staff to provide a recommendation on items previously referred by FGC to DFW or FGC staff for review. FGC may act on any staff recommendations made today.

Today, there are recommendations for two pending regulation petitions:

1. ***Petition #2015-008 (hunting of American badgers and gray fox).*** In Apr 2016 FGC referred this petition (Exhibit C.1), requesting the repeal of hunting of American badger and gray fox, to the WRC Predator Policy Workgroup (PPWG) for evaluation and recommendation. PPWG completed its review and offers two options for FGC consideration.
 - Option 1. The recommendation of the majority of PPWG members is to refer the American badger portion of the petition to DFW for evaluation and recommendation, and to deny the gray fox portion of the petition; or
 - Option 2. The recommendation of the minority of the PPWG members is to refer the petition to DFW for the separate evaluation and recommendation for American badger and gray fox.
2. ***Petition #2016-026 (jacketed frangible bullets).*** In Feb 2017 FGC referred this petition, requesting the use of DRT's jacketed frangible bullets for big game hunting, to DFW for evaluation and recommendation. As of the completion of the meeting materials, DFW has not yet provided its evaluation, though is expected to provide a verbal update at the meeting.

Significant Public Comments

- (A) ***Petition #2016-030 (American bullfrogs).*** A petition with 3212 signatures (see Exhibit 16.3) and an additional 103 comment letters asking FGC to add exotic bullfrogs and turtles to the restricted species list. In addition, FGC received an email containing supplemental information in support of the petition (Exhibit A6).
- Petition #2016-031 (ferrets).*** Two emails in support of the petition, one from Assemblymember Todd Gloria (Exhibit A7) and the other from the petitioner which contains an "open letter to FGC" (Exhibit 8) and previously-provided survey results (due to its size, available from staff).
- (C) ***Petition #2015-008 (American badgers and gray fox).*** The petitioner supports the minority PPWG recommendation to refer the petition to DFW for separate evaluation and recommendation (Exhibit C2).
- Petition #2015-010 (Gray wolf).*** The petitioners address several points made at the Feb 2017 FGC meeting and request FGC commit to a rulemaking schedule for the petition (Exhibit C3). Two supporters of the petition (exhibits C4 and C5).
- Petition #2015-009 (Trapping Fees).*** Two supporters of adjusting trapping fees to recover program costs consistent with this petition (exhibits C6 and C7).

STAFF SUMMARY FOR APRIL 26-27, 2017

Recommendation

- (A-B) Adopt staff recommendations for regulation petitions and non-regulatory requests to (1) deny, (2) grant, or (3) refer to committee, DFW staff, or FGC staff for further evaluation or information gathering. See exhibits A1 and B1 for staff recommendations for each regulation petition and non-regulatory request.
- (C) Adopt PPWG recommendation option 1 or option 2 for regulation petition #2015-008, and defer action on Petition #2016-026 to Jun 2017 to allow time for DFW to submit its evaluation and for FGC staff review of the evaluation and any recommendations.

Exhibits

- A1. FGC table of non-marine petitions for regulation change received through Feb 9, 2017
- A2. Petition #2016-030, received Dec 9, 2016
- A3. Petition #2016-031, received Dec 5, 2016
- A4. Petition #2016-032, received Dec 16, 2016
- A5. Petition #2017-001 received Feb 2, 2017
- A6. Email with supplemental information from Dr. Sarah Kupferberg and Dr. Andrea Adams concerning Petition #2016-030, received Apr 13, 2017
- A7. Letter from Assemblymember Todd Gloria concerning Petition #2015-031, received Mar 29, 2017
- A8. Letter from Pat Wright concerning Petition #2016-031, received Apr 6, 2017
- B1. FGC table of non-marine non-regulatory requests received through Feb 9, 2017
- B2. Email from Kevin Ward concerning mountain lion products, received Jan 17, 2017
- C1. Petition #2015-008, received Dec 2, 2017
- C2. Email from Susan Kirks concerning Petition #2015-008, received Apr 13, 2017
- C3. Letter from Center for Biological Diversity and Project Coyote concerning Petition #2015-010, received Apr 13, 2017
- C4. Email from Dr. Kelly Dunn concerning Petition #2015-010, received Apr 13, 2017
- C5. Email from Pat Marriott concerning Petition #2015-010, received Apr 13, 2017
- C6. Email from Dr. Kelly Dunn related to Petition #2015-009, received Apr 13, 2017
- C7. Email from Edward Macan related to Petition #2015-009, received Feb 2, 2017

Motion/Direction

- (A-C) Moved by _____ and seconded by _____ that the Commission *adopts* the staff recommendations for actions on February 2017 regulation petitions and non-regulatory requests, *adopts* Option _____ for the PPWG recommendation on Petition #2015-008, and *approves* the staff recommendation to schedule action on Petition #2016-026 for June 2017.

OR

Moved by _____ and seconded by _____ that the Commission *adopts* the staff recommendations for actions on February 2017 regulation petitions and non-regulatory requests, *adopts* Option _____ for the PPWG recommendation for Petition #2015-008, and *approves* the staff recommendation to schedule action on Petition #2016-026 for June 2017, except for item(s) _____ for which the action is _____.

STAFF SUMMARY FOR APRIL 26-27, 2017

19. PUBLIC FORUM (DAY 2)**Today's Item****Information** ☒**Action** ☐

Receipt of public comments and requests for regulatory and non-regulatory actions.

Summary of Previous/Future Actions

- **Today's receipt of requests and comments** **Apr 26-27, 2017; Van Nuys**
- Direction to grant, deny or refer **June 21-22, 2017; Smith River**

Background

This agenda item is primarily to provide the public an opportunity to address FGC on topics not on the agenda. Staff includes written materials and comments received prior to the meeting comment deadline as exhibits in the meeting binder (under Day 1 Public Forum), or as late comments at the meeting (if received by late comment deadline), for official FGC "receipt."

Action on requests received at previous meetings is scheduled under a separate agenda item called "Petitions for regulation change and non-regulatory requests from previous meetings".

Significant Public Comments

All written comments were summarized and provided as exhibits under Day 1 Public Forum.

Recommendation

Consider whether any new future agenda items are needed to address issues that are raised during public comment and within FGC's authority.

Exhibits

See exhibits for Agenda Item 2

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

20. COMMISSION RECOGNITION OF RICHARD ROGERS AND MIKE SUTTON**Today's Item****Information** ☐**Action** ☒

Recognition of former Commissioners Richard Rogers and Mike Sutton for their commitment and service to FGC.

Summary of Previous/Future Actions

- | | |
|--|----------------------------------|
| • Direct staff to begin planning for recognition | Feb 10-11, 2016; Sacramento |
| • Further direction and schedule for recognition | Mar 15, 2016; Teleconference |
| • Honor Richard Rogers and Mike Sutton | Apr 26-27, 2017; Van Nuys |

Background

Traditionally, FGC has recognized out-going Commissioners for the work those individuals performed during the term they served.

Richard Rogers was appointed to FGC in Jan 2005 by Governor Schwarzenegger. During his tenure, he served as president and vice president of FGC, as well as co-chair for the Marine Resources Committee. He served for more than 10 years, ending in Jun 2015.

Mike Sutton was appointed to FGC in May 2007 by Governor Schwarzenegger. During his tenure, he served as president and vice president of FGC, as well as co-chair for the Marine Resources Committee. He served for more than 8 years, ending in Jun 2015.

FGC discussed recognizing former Commissioners Rogers and Sutton for their service and decided that the cost of gifts would be borne by the current Commissioners in their individual capacity, as State funds could not be used to purchase gifts.

Significant Public Comments (N/A)**Recommendation**

FGC staff: FGC staff recommends formally recognizing the work of former Commissioners Richard Rogers and Mike Sutton by adopting resolutions and presenting gifts.

Exhibits (N/A)**Motion/Direction (N/A)**

STAFF SUMMARY FOR APRIL 26-27, 2017

21. TRIBAL COMMITTEE**Today's Item****Information** ☐**Action** ☒

Discuss and provide direction regarding agenda topics for the Jun 20, 2017 Tribal Committee (TC) meeting in Smith River. Receive update on TC work plan and draft timeline. Discuss and approve new topics for TC review.

Summary of Previous/Future Actions

- Most recent TC meeting Feb 7, 2017; TC, Ronhert Park
- **Today receive update and approve agenda topics** **Apr 26-27, 2017; Van Nuys**
- Next TC meeting Jun 20, 2017; Smith River

Background***Updates***

In Feb 2017, FGC received a verbal summary from the Feb 7 TC meeting, and approved TC recommendations to add these topics to the TC work plan:

1. Approve the Santa Ynez Band of Chumash Indian's request to begin the regulatory process for tribal take exemptions in select state marine conservation areas.
2. Provide an update regarding Proposition 64 implementation regulations.
3. Request that staff provide the FGC rulemaking calendar to California tribes and identify where tribal interests could provide feedback.
4. Receive an update from the Ocean Protection Council (OPC) on tribal participation in the statewide leadership team for marine protected areas (MPAs).

Potential Jun 21, 2017 TC Agenda Items

- Annual FGC-tribal planning meeting pursuant to FGC's Tribal Consultation Policy
- Continue discussion on the development of a vision statement for co-management
- Updates:
 - Legislation to formalize TC
 - FGC climate policy development
 - Sustainable fishing communities
 - MRC and WRC activities of interest to TC
- OPC update on tribal participation in the statewide leadership team for MPAs
- Request for a presentation from DFW's Law Enforcement Division regarding the status of the regulatory process for marijuana under Proposition 64
- FGC staff to provide regulatory calendar overview and where tribal interests could provide feedback.

Significant Public Comments (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

Recommendation

FGC staff: Approve changes to work plan and approve list of draft agenda topics for Jun 20, 2017 TC meeting.

Exhibits

1. 2017 TC work plan

Motion/Direction

Moved by _____ and seconded by _____ that the Commission approves the changes to the Tribal Committee work plan and approves the agenda topic(s) as proposed for the June 20, 2017 Tribal Committee meeting.

STAFF SUMMARY FOR APRIL 26-27, 2017

22. TRIBAL TAKE IN SMCAs**Today's Item****Information** ☐**Action** ☒

Receive and approve Santa Ynez Band of Chumash Indians' proposed amendments to its request for tribal take in state marine conservation areas (SMCAs) near Santa Barbara

Summary of Previous/Future Actions

- | | |
|---------------------------------------|----------------------------------|
| • Received request | Jun 22-23; Bakersfield |
| • Accepted request to amend | Feb 8-9, 2017; Rohnert Park |
| • Today accept amended request | Apr 26-27, 2017; Van Nuys |

Background

The Santa Ynez Band of Chumash Indians requests amendments to its existing request for tribal take in SMCAs near Santa Barbara. Initially, representatives of the Santa Ynez Band of Chumash came before FGC at the Jun 2016 FGC meeting in Bakersfield requesting FGC approve tribal take provisions for unspecified marine protected areas (MPAs) in Santa Barbara. Following that meeting, staff worked with the tribe and conducted site visits to the MPAs in the Santa Barbara area along with other interested parties.

At the Feb 7, 2017 TC meeting, members of the Santa Ynez Band of Chumash Indians requested tribal take provisions at four MPAs, including Kashtayit SMCA, Naples SMCA, Campus Point SMCA (No Take) and Goleta Slough SMCA (No Take). At its Feb 8-9, 2017 meeting, FGC approved the request to include Kashtayit and Naples SMCAs, but did not grant inclusion of Goleta Slough and Campus Point SMCAs as they are designated as no take.

Following the Feb 2017 FGC meeting, the Santa Ynez Band of Chumash asked to amend its request to now include Point Dume SMCA and Anacapa Island SMCA (Exhibit 1). The tribe's historical record for these areas has been submitted.

Significant Public Comments (N/A)**Recommendation**

FGC staff: Staff recommends granting request to add Point Dume and Anacapa Island SMCAs to the request

Exhibits

1. Email from Sam Cohen on behalf of the Santa Ynez Band of Chumash Indians, received Feb 14, 2017

Motion/Direction

Moved by _____ and seconded by _____ that the Commission amends the regulatory calendar to add a rulemaking for the Santa Ynez Band of Chumash Indians for tribal take (recreational take) at Kashtayit SMCA, Naples SMCA, Point Dume SMCA and Anacapa Island SMCA.

STAFF SUMMARY FOR APRIL 26-27, 2017

23. MARINE RESOURCES COMMITTEE**Today's Item**Information ☐Action ☒

Receive summary from Mar 23, 2017 MRC meeting and adopt MRC recommendations.
 Receive update on MRC work plan and draft timeline, and discuss and approve new topics for MRC review.

Summary of Previous/Future Actions

- | | |
|--|----------------------------------|
| • Most recent MRC meeting | Mar 23, 2017; MRC, San Clemente |
| • Today approve MRC recommendations | Apr 26-27, 2017; Van Nuys |
| • Next MRC meeting | Jul 20, 2017; MRC, Santa Rosa |

Background

MRC works under FGC direction to set and accomplish its current work plan (Exhibit 1).

Meeting Summary

MRC met on Mar 23 and covered the following topics:

- Nearshore commercial fishery – permit transfer fee options
- Sea cucumber commercial fishery – fishery status and possible regulation changes
- Red abalone – fishery management plan progress
- Pacific herring – fishery management plan progress
- Marine Life Management Act master plan for fisheries – amendment process update
- U.S. Bureau of Ocean Energy Management offshore wind energy – overview of stakeholder engagement
- Fisheries Bycatch Workgroup – update
- Fishing communities – regional meetings planning

MRC also discussed possible topics for the Jul MRC meeting, which is reflected in the updated work plan. A written summary of the meeting is provided as Exhibit 2.

MRC Recommendations

Based on the meeting discussion, MRC has three recommendations for FGC consideration:

1. *Commercial nearshore and deeper nearshore fishery permits:* Include a permit transfer fee range of \$1,000 - \$2,000 in the proposed rulemaking scheduled for notice in Jun 2017, as recommended by DFW, and include processing procedure changes as proposed by DFW.
2. *Commercial sea cucumber fishery:* Support DFW recommendation to prepare a rulemaking to amend commercial sea cucumber management measures and add to the rulemaking calendar for 2017 (see Agenda Item 32B for specific schedule proposed by DFW).

STAFF SUMMARY FOR APRIL 26-27, 2017

3. *U.S. Bureau of Ocean Energy Management (BOEM) offshore wind stakeholder engagement:* Continue MRC tracking of this topic with general updates scheduled as necessary.

New Agenda Topics:

Based on a request by a commenter under public forum at the Mar 2017 MRC meeting, MRC recommends that an informational overview of the federal process related to the drift gill net swordfish fishery be added to the MRC work plan for Jul 2017.

Significant Public Comments (N/A)**Recommendation**

FGC staff: Approve MRC recommendations 1-3 and consider potential new agenda topic recommended for Jul MRC meeting.

Exhibits

1. MRC 2017 Work Plan, updated on Apr 11, 2017
2. Meeting summary from Mar 23, 2017 MRC meeting

Motion/Direction

Moved by _____ and seconded by _____ that the Commission approves recommendations and the proposed new agenda topic from the March 23, 2017 Marine Resources Committee meeting.

OR

Moved by _____ and seconded by _____ that the Commission approves recommendations and the proposed new agenda topic from the March 23, 2017 Marine Resources Committee meeting, except _____.

STAFF SUMMARY FOR APRIL 26-27, 2017

24. FISHERIES AUTOMATIC CONFORMANCE PROCESS**Today's Item****Information** ☐**Action** ☒

Authorization to publish notice of intent to add a section for an automatic process to conform State recreational fishing regulations to federal regulations.

Summary of Previous/Future Actions

- | | |
|---------------------------------|----------------------------------|
| • Today's notice hearing | Apr 26-27, 2017; Van Nuys |
| • Discussion hearing | Jun 21-22, 2017; Smith River |
| • Adoption hearing | Aug 16-17, 2017; Sacramento |

Background

For species managed under federal fishery management plans or regulations, FGC usually takes concurrent action to conform State recreational regulations to federal regulations adopted by the National Marine Fisheries Service (NMFS). This dual process is redundant and inefficient. The proposed regulation will establish a process through which State recreational fishing regulations for salmon and Pacific halibut will automatically conform to federal regulations, unless FGC adopts regulations for said species using the regular rulemaking process.

For annual regulations or corrections to annual regulations for salmon and Pacific halibut, the proposed regulation would require no later than 10 days after federal regulations are published in the Federal Register that:

- FGC submit amended State regulations to the Office of Administrative Law for publication in the California Code of Regulations and file the amended State regulations with the Secretary of State;
- DFW issue a news release announcing the Federal Register in which the federal regulations are published and the effective date of the conformed State regulations;
- FGC mail or email the news release to interested parties;
- to the extent practicable, DFW provide information on any changes to the State regulations via public contact, electronic notification, and online and printed publications.

The proposed regulation would also require that an update on the conformed State regulations be included on the agenda of the next regularly-scheduled FGC meeting.

For in-season changes to regulations for salmon and Pacific halibut, the proposed regulation indicates that State regulations shall conform to the applicable federal regulations publicly noticed through the NMFS ocean salmon hotline and NMFS Area 2A Pacific halibut hotline, respectively.

Significant Public Comments (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

Recommendation

FGC staff: Authorize publication of the notice as recommended by DFW.

Exhibits

1. DFW memo, received Apr 11, 2017
2. Initial statement of reasons
3. Draft notice of exemption

Motion/Direction

Moved by _____ and seconded by _____ that the Commission authorizes publication of a notice of its intent to add Section 1.95 related to a process to conform State recreational fishing regulations to federal regulations.

STAFF SUMMARY FOR APRIL 26-27, 2017

25. CRAB AND LOBSTER**Today's Item****Information** ☒**Action** ☐

Discussion on the proposed changes to the crab and lobster recreational gear and commercial lobster harbor restricted fishing area regulations.

Summary of Previous/Future Actions

- | | |
|-------------------------------------|----------------------------------|
| • Notice hearing | Feb 8-9, 2017; Rohnert Park |
| • Today's discussion hearing | Apr 26-27, 2017; Van Nuys |
| • Adoption hearing | Jun 21-22, 2017; Smith River |

Background

The proposed regulations would amend subsections (a) and (b) of Section 29.80 concerning recreational crab trap and hoop net buoy marking, respectively. The proposed amendment to subsection 29.80(a)(3) would exempt a person from having his or her GO ID number on crab trap buoys when operating recreational crab traps belonging to another fisherman, provided that the fisherman operating the crab trap has written permission (i.e., a note) from the owner(s) of the traps. Written permission may be transmitted electronically (e.g., a text message) from owner to operator and is valid only if it contains the GO ID number of the owner, and that GO ID number must also be on the buoy of the trap being pulled.

In addition, an amendment is proposed to clarify the current hoop net buoy marking requirements, another is proposed to require the buoys of hoop nets deployed from commercial passenger fishing vessels (CPFVs) be marked with the corresponding CPFV number, and another is proposed to require licensed guides to mark buoys with their guide license number for hoop nets provided to clients for use on trips.

The proposed regulations would also amend the restricted fishing areas (RFAs) specified in subsection 122(d)(2). The Dana Point Harbor RFA is proposed to be modified from a southerly orientation to a more westerly orientation (see Exhibit 3). A new RFA for Port Hueneme is proposed, which would cover approximately 3.25 square nautical miles where lobster traps would be prohibited for operational and navigational safety purposes (see Exhibit 4).

Significant Public Comments

1. Support for the proposed amendment that would prohibit lobster traps within the safety fairway; the intent of a safety fairway is to provide a safe route, free of obstructions, for vessels. Commercial lobster traps placed within the confines of a safety fairway can become entangled in a vessel's propeller and thus compromises vessel's maneuverability, which has long been known as a leading cause of vessels running aground and could, in a worst case scenario, result in an oil spill that pollutes beaches and water, and cause harm to wildlife. See Exhibit 6.
2. Support for the proposed amendments but requesting additional clarity in Section 29.80(c) relating to required destruct devices (adopted in 2015). Sportfishing regulations do not allow for the use of a single loop of biodegradable cotton twine in

STAFF SUMMARY FOR APRIL 26-27, 2017

the trap closure, along with a rubber strap and hook as allowed in commercial fishing regulations. Another issue with the 2015 amendments is that the most affordable and most commonly used recreational crab trap is non-compliant with the regulations. See Exhibit 7.

Exhibits

1. DFW memo, dated Jan 4, 2017
2. Initial statement of reasons (ISOR)
3. ISOR Attachment 1 – Document relied upon
4. ISOR Attachment 2 – Document relied upon
5. DFW presentation
6. Email from Office of Spill Prevention and Response, dated Feb 12, 2017, resubmitted Apr 12, 2017
7. Letter from Coastside Fishing Club, received Feb 9, 2017

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

26. STATE OF SOUTH COAST MPAS**Today's Item****Information** ☒**Action** ☐

Receive presentation on south coast marine protected areas (MPAs) baseline data collection results and five-year management review.

Summary of Previous/Future Actions

- | | |
|---|----------------------------------|
| • FGC adopted northern Channel Islands state MPAs | Oct 23, 2002; Santa Barbara |
| • FGC adopted south coast MPAs | Dec 15-16, 2010; Santa Barbara |
| • Presentations on south coast MPAs | Dec 7-8, 2016; San Diego |
| • Report on 5-year baseline review | Apr 26-27, 2017; Van Nuys |

Background

In Dec 2010, FGC adopted a regional network of 50 new and revised MPAs and two special closures in the south coast region, the third of four regions to complete an MPA planning process consistent with the Marine Life Protection Act (MLPA). The areas included 13 MPAs previously established by FGC at the northern Channel Islands in 2003.

As with other MPA regions, baseline monitoring data was collected in the south coast MPAs over the first five years to document initial conditions at implementation and inform future adaptive management. Implemented through a partnership between the Ocean Protection Council (OPC), California Ocean Science Trust (OST), DFW, and California Sea Grant, regional data collection and monitoring was carried out from 2011-2015 through selected projects representative of the south coast region's ecosystems and human uses.

In 2016, OST and DFW collaborated with OPC, California Sea Grant, and local researchers to develop a report to disseminate a summary of results from the baseline monitoring period. The report, *State of the California South Coast: Summary of Findings from Baseline Monitoring of Marine Protected Areas, 2011-2015* (Exhibit 1), includes ecological, biological, oceanographic, and socioeconomic information and findings from key partners.

The south coast report was released following extensive outreach by OST, working in coordination with DFW and OPC, to the broader south coast ocean and tribal communities, and was presented through a series of community gatherings and other meetings in late Mar 2017 (see summary in Exhibit 2). DFW has conducted a management review of the south coast baseline information for FGC consideration (Exhibit 3).

Today, OST and DFW will jointly present an overview of the south coast monitoring efforts and DFW's five-year management review and recommendations (Exhibit 4). In addition, The Bay Foundation requested an opportunity during this agenda item to share the foundation's efforts to contribute to ecosystem restoration in south coast MPAs and to monitor ocean vessel activity in southern California; the foundation's presentation is included as Exhibit 5.

Significant Public Comments (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

Recommendation

DFW: No regulatory changes based on the baseline program data, but a number of non-regulatory management recommendations in the focal areas of monitoring and research, enforcement and compliance, outreach and education, and policy and permitting (Exhibit 3).

Exhibits

1. State of the south coast report, Mar 2017
2. OST memo on engaging the south coast community, dated Apr 14, 2017
3. DFW memo, management review of baseline for south coast MPAs, dated Apr 7, 2017
4. OST and DFW presentation
5. Email and presentation from The Bay Foundation, received Mar 28, 2017

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

27. OFFSHORE WIND ENERGY**Today's Item****Information** ☒**Action** ☐

Receive update on offshore wind energy from the U.S. Department of the Interior's Bureau of Ocean Energy Management (BOEM).

Summary of Previous/Future Actions

- | | |
|-----------------------------------|----------------------------------|
| • MRC discussion | Mar 23, San Clemente |
| • Today's update | Apr 26-27, 2017; Van Nuys |
| • Additional updates as requested | TBD |

Background

In Oct 2016, BOEM and the state of California convened the BOEM California Intergovernmental Renewable Energy Task Force, a partnership of federal, state and local agencies and tribal governments, as a forum to provide information to the decision-making process for planning future renewable energy development in federal waters offshore California.

BOEM and the state of California are currently gathering environmental information and ocean use data for the entire coast of California to inform the offshore wind planning process. Initial emphasis for this effort is on California's central coast due to viable wind energy resources, current commercial interest by offshore wind developers, and available existing transmission infrastructure.

The presentation today is to help inform FGC and the public about the proposed project and to gather public comment moving forward. This presentation follows another informational presentation made at the Mar MRC meeting, which generated significant comment from commercial fishermen in attendance.

Significant Public Comments (N/A)**Recommendation (N/A)****Exhibits**

1. Trident Winds, LLC unsolicited lease application, dated Jan 14, 2016
2. BOEM map of proposed project area offshore Point Piedras Blancas, dated Mar 4, 2016
3. BOEM map of proposed project area with Pacific Outer Continental Shelf Region blocks, undated
4. Frequently Asked Questions flyer regarding Trident Winds' offshore wind unsolicited lease request, undated

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

28. ITEMS OF INTEREST FROM PREVIOUS MEETINGS (MARINE)**Today's Item****Information** ☒**Action** ☐

This is a standing agenda item to provide FGC with updates on marine items of interest from previous meetings.

Summary of Previous/Future Actions

- FGC adopts MRC recommendation for staff engagement on marine debris Apr 2016; Santa Rosa
- **Today's update** Apr 2017; Van Nuys

Background

This item is an opportunity for staff to provide any follow-up information on marine topics previously before FGC.

Marine Debris Update

At its Apr 2016 meeting, FGC supported an MRC recommendation to direct staff to engage in marine debris issues. Staff is currently focused on engaging with the Ocean Protection Council (OPC) on its effort to update the [Implementation Strategy to Reduce and Prevent Ocean Litter \(Strategy\)](#) adopted by OPC in 2008. Staff will participate in an upcoming workshop titled "California Ocean Litter Strategy Update Workshop" on May 2-3, 2017 in Oakland. The workshop is organized by OPC and NOAA's Marine Debris Program, in collaboration with the California Coastal Commission, Surfrider Foundation, and California Sea Grant (Exhibit 1).

Recommendations (N/A)**Exhibits**

1. OPC Ocean Litter Strategy Workshop flyer and "save the date" email for May 2-3, 2017

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

29. MARINE REGULATION PETITIONS AND NON- REGULATORY REQUESTS**Today's Item**Information ☐Action ☒

This is a standing agenda item for FGC to act on regulation petitions and non-regulatory requests from the public that are marine in nature. For this meeting:

- (A) Action on petitions for regulation change received at the Feb 2017 meeting.
- (B) Action on non-regulatory requests received at the Feb 2017 meeting.
- (C) Update on pending regulation petitions and non-regulatory requests referred to staff or DFW for review.

Summary of Previous/Future Actions**(A-B)**

- FGC receipt of new petitions and requests Feb 8-9, 2017; Rohnert Park
- **Today's FGC action on petitions and requests Apr 26-27, 2017; Van Nuys**

(C)

- **Today's update and possible action on referrals Apr 26-27, 2017; Van Nuys**

Background

FGC provides direction regarding requests from the public received by mail and email and during public forum at the previous FGC meeting. Public petitions for regulatory change or requests for non-regulatory action follow a two-meeting cycle to ensure proper review and consideration.

Petitions or requests scheduled for consideration today were received at the Feb 2017 meeting in one of three ways: (1) submitted by the comment deadline and published as tables in the meeting binder, (2) submitted by the late comment deadline and delivered at the meeting, or (3) received during public forum.

Exhibits capture the regulatory and non-regulatory requests received at the last meeting that are scheduled for FGC action today. The exhibits contain staff recommendations for each request.

- (A) ***Petitions for regulation change.*** As of Oct 1, 2015, any request for FGC to adopt, amend, or repeal a regulation is required to be submitted on form FGC 1, "Petition to the California Fish and Game Commission for Regulation Change" (Section 662, Title 14). Petitions received at the previous meeting are scheduled for consideration at the next business meeting, unless the petition is rejected under 10-day staff review as prescribed in subsection 662(b).

Today, no marine petitions for regulation change were received at the previous meeting and scheduled for action today.

- (B) ***Non-regulatory requests.*** Requests for non-regulatory action received at the previous meeting are scheduled for consideration today.

STAFF SUMMARY FOR APRIL 26-27, 2017

Today, there are four non-regulatory requests scheduled for action today (see summary table in Exhibit B1; there are no exhibits for the individual requests as they were all made verbally at the Feb 2017 meeting).

- (C) ***Pending regulation petitions and non-regulatory requests.*** This item is an opportunity for staff to provide a recommendation on items previously referred by FGC to DFW or FGC staff for review. FGC may act on any staff recommendations made today.

Today, there are updates and recommendations for two pending regulation petitions and one non-regulatory request:

1. *Petition #2015-006 (remove Rockport Rocks Special Closure).* In Feb 2016, FGC referred this petition to DFW for evaluation and recommendation. DFW has completed its review and recommends that the petition be *granted* (see petition and DFW memo in exhibits C1 and C2).
2. *Petition #2016-013 to permit use of cast nets south of Point Conception.* In Jun 2016, FGC referred this petition to DFW for evaluation and recommendation. DFW has completed its review and recommends that the petition be *denied* (see petition and DFW memo in exhibits C3 and C4).
3. *Update on request for FGC resolution.* In Feb 2017, FGC granted a request from Heal the Bay and Environment California for FGC to adopt a resolution in supporting the “Federal prohibition of new offshore oil and gas leasing in Federal waters offshore California”; FGC asked the petitioners to provide a draft resolution for FGC consideration. As requested, a draft resolution has been submitted by the petitioners (Exhibit C5).

Significant Public Comments (N/A)

Recommendation

- (B) Adopt staff recommendations for non-regulatory requests to (1) deny, (2) grant, or (3) refer to committee, DFW staff, or FGC staff for further evaluation or information gathering. See Exhibit B1 for staff recommendations for each non-regulatory request.
- (C) 1-2. Schedule action on Petition #2015-006 and Petition #2016-013 for Jun 2017 to allow time for FGC staff review of the recommendations received.
3. Direct staff to work with President Sklar to review and revise the draft resolution, based on input received at the meeting, and schedule for action in Jun 2017.

Exhibits

- B1. FGC table of marine requests for non-regulatory change received through Feb 9, 2017
- C1. Petition #2015-006, received Nov 24, 2015
- C2. DFW memo concerning Petition #2015-006 (Rockport Rocks Special Closure), received Apr 18, 2017
- C3. Petition #2016-013, received Apr 22, 2016
- C4. DFW memo concerning Petition #2016-013 (use of cast nets), received Apr 3, 2017

STAFF SUMMARY FOR APRIL 26-27, 2017

- C5. Email from Environment Now and Heal the Bay with draft resolution, received Apr 14, 2017

Motion/Direction

Moved by _____ and seconded by _____ that the Commission *adopts* the staff recommendations for actions on February 2017 non-regulatory requests; *approves* the staff recommendation to schedule action on Petition #2015-006 to amend regulations to remove Rockport Rocks Special Closure and Petition #2016-013 to permit use of cast nets south of Point Conception for June 2017; and *directs staff* to work with President Sklar to review and revise the draft "Resolution Supporting the Federal Prohibition of New Offshore Oil and Gas Leasing in Federal Waters Offshore California" submitted by petitioners, and schedule for action in June 2017.

OR

Moved by _____ and seconded by _____ that the Commission *adopts* the staff recommendations for actions on February 2017 non-regulatory requests; *approves* the staff recommendation to schedule action on Petition #2015-006 to amend regulations to remove Rockport Rocks Special Closure and Petition #2016-013 to permit use of cast nets south of Point Conception for June 2017; and *directs staff* to work with President Sklar to review and revise the draft "Resolution Supporting the Federal Prohibition of New Offshore Oil and Gas Leasing in Federal Waters Offshore California" submitted by petitioners, and schedule for action in June 2017, except for item(s) _____ for which the action is _____ .

Today's Item

Action ☐

(A) Director's Report
(B) Marine Region
(C) Other

Verbal reports are expected at the meeting for items (A) and (B).

- ### Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits (N/A)

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

31A. OTHER INFORMATIONAL ITEMS – STAFF REPORT**Today's Item****Information** ☒**Action** ☐

Receive the staff report, including staffing updates, staff time allocations, and previous meeting outcomes.

Summary of Previous/Future Actions (N/A)**Background****Staffing update:**

- Interviews were completed for the seasonal clerk position and the job was offered to Jodean Hernandez; we are pleased to announce that she accepted and began on Apr 12!
- Marine Advisor Susan Ashcraft was on medical leave through mid-Mar and we are excited that she has returned to work half-time. Dr. Craig Shuman, DFW's marine region manager, graciously allowed Elizabeth Pope to continue as an acting senior environmental scientist until the end of Mar to avoid canceling the Mar MRC meeting and to help keep marine items moving forward.
- The program manager position is vacant and staff is working to advertise the position as soon as possible; this position is expected to remain vacant for at least several more months during the recruitment process. In the meantime, the program manager's responsibilities have been distributed among FGC staff to the extent possible; Deputy Executive Director Miller-Henson continues to carry many of those responsibilities.
- Refilling the vacant associate governmental program analyst is still in process; the position is expected to remain vacant at least several more months during the recruitment process. In the meantime, the analyst's responsibilities have been distributed among other FGC staff to the extent possible.
- Recent legislation has created the need to amend Title 14, CCR with new Fish and Game Code citations; as this project will generate significant workload, a retired annuitant with a legal or regulatory background is needed to provide project support. Staff plans to advertise this position in May. In the meantime, FGC staff is addressing updates to Title 14 with individual rulemaking files.

Staff time allocations: To help keep FGC current on where its staff is expending time, Exhibit 1 reports the allocation of time in general categories for the previous two months, as well as highlights some specific activities during that time. *Note that unfilled positions and leave represented 40% and 36% of staff's Feb and Mar hours, respectively, which has significantly impacted capacity.* With Ms. Ashcraft's return to half-time, Ms. Hernandez working at two-thirds time, and two rulemaking packages expected to be completed in the next couple of weeks and several more nearing completion by early Jun, staff workload should become more stable by mid-Jun.

Previous meeting outcomes. Due to staffing constraints, previous meeting outcomes have not been completed.

STAFF SUMMARY FOR APRIL 26-27, 2017

Significant Public Comments (N/A)

Recommendation (N/A)

Exhibits

1. *Staff Report on Time Allocation and Accomplishments*, dated Apr 14, 2017

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

31B. OTHER INFORMATIONAL ITEMS – LEGISLATIVE REPORT**Today's Item****Information** ☒**Action** ☒

Review and discuss legislation of interest, and provide any staff direction.

Summary of Previous/Future Actions

- Brief legislative update Feb 8-9, 2017; Ronhert Park
- **Today's update** Apr 26-27, 2017; Van Nuys

Background

FGC staff has prepared a list of legislation that may impact FGC's resources and workload (see below); each description includes a brief synopsis and current bill status. Additional information is also available in DFW's Apr 2017 Legislative Report (Exhibit 3).

This is an opportunity for FGC to provide direction to staff concerning any proposed legislation. At any meeting, FGC may direct staff to provide information to or share concerns with bill authors. FGC members also have the option to take positions on bills at the same meeting an update is provided.

Updates on FGC Positions

As directed by FGC, staff drafted a letter of support for the Shark Fin Sales Elimination Act of 2017, as introduced in Mar 2017 through S.793 by Senator Booker (D-NJ) and through H.R.1456 by Representative Royce (R-CA) (Exhibit 2).

At the Mar 2017 MRC meeting, President Sklar directed staff to report to FGC on the feasibility of the project proposed in SB 234 – *Fishing: local regulation: report*. Staff has reviewed the current amendments to the bill language and, at this time, finds that with current staffing levels and funding, we are unable to take on this task unless other priorities are set aside.

Introduced Legislation

SB 49 (De Leon and Stern) – California Environmental, Public Health, and Workers Defense Act of 2017. Status: from committee: Do pass and re-refer to committee on judiciary. This bill is one in a package of bills aimed at insulating the state from rollbacks in federal environmental regulations and public health protections, including SB 51 (Jackson), SB 50 (X).

SB 161 (McGuire) – Fish and Game Commission: tribal committee. Status: Apr 3 hearing: Placed on appropriations suspense file. This bill would require FGC to form a tribal committee from its membership consisting of at least one commissioner and would require the committee to report to FGC from time to time on its activities and to make recommendations on all tribal matters considered by FGC, consistent with requirements for MRC and WRC.

AB 234 (Berryhill) – Fishing: local regulation: report. Status: read second time. Ordered to third reading. This bill would require FGC to undertake a survey and an evaluation of local

STAFF SUMMARY FOR APRIL 26-27, 2017

ordinances that regulate fishing, and to submit the survey and evaluation to the California State Legislature in a report by Dec 31, 2018.

AB 907 (Garcia) - Office of Outdoor Recreation and Public Lands Enhancement. Status: re-referred to committee on appropriations. This bill would establish the Office of Outdoor Recreation and Public Lands Enhancement in the Governor's Office of Business and Economic Development for specified purposes, including promoting active healthy lifestyles and improving the quality of life for all Californians, and would require the director of the Governor's Office of Business and Economic Development to administer the Office of Outdoor Recreation and Public Lands Enhancement. The bill would require the Office of Outdoor Recreation and Public Lands Enhancement to create an advisory group to offer advice, expertise, support, and service to it, without compensation.

AB 1228 (Bloom) - Experimental fishing permits. Status: in committee. This bill would authorized DFW to issue experimental fishing permits for specified purposes that would authorize commercial or recreational fishing activity otherwise prohibited by the Fish and Game Code or regulations adopted pursuant to that code, subject to certain requirements, including a requirement that activities conducted under the permit be consistent with specified policies enacted as part of the Marine Life Management Act of 1998 and any applicable fishery management plan, and a requirement that the permit be subject to certain DFW conditions. Because a violation of the terms of a permit would be a crime, this bill would impose a state-mandated local program.

AB 1337 (Patterson and Cooley) – Fish and Game Commission: meetings and hearings: live broadcast. Status: re-referred to committee on appropriations. This bill would require FGC provide a live video broadcast on its web site of every FGC meeting or hearing that is open and public and every meeting or hearing conducted by the marine resources committee, wildlife resources committee, or tribal committee that is open and public.

AB 1544 (Dahle and Mathis) - Hunting: nonlead ammunition. Status: in committee: Hearing canceled at the request of author. This bill would require FGC to temporarily suspend the prohibition on the use of nonlead ammunition for the taking of all wildlife for a specific hunting season and caliber if FGC finds that nonlead ammunition of the specific caliber is not-available for any reason. The bill would require FGC, on or before Jan 1, 2019, to adopt criteria to determine when nonlead ammunition is not available for purposes of this provision and would require those criteria to include regional availability and cost of nonlead ammunition. The bill would prohibit a suspension from remaining in effect for longer than three years. The bill would require FGC to make any finding that nonlead ammunition is not-available-publicly available on its website.

Significant Public Comments

Three organizations copied FGC on letters of support for SB 161 to formalize the tribal committee within FGC, as what happens on tribal lands is important to the state's wildlife and habitat resources, and that tribal representatives should have more input and visibility in FGC's regulatory process. The same suite of organizations also support AB 1337, which requires that all public meetings of FGC be webcast to increase public visibility, input and participation

STAFF SUMMARY FOR APRIL 26-27, 2017

relative to the development of regulations and related activities of FGC and its committees. See Exhibit 1 for the letters.

Recommendation (N/A)**Exhibits**

1. Letters from Safari Club International, California Sportsman's Lobby, and Outdoor Sportsmen's Coalition of California to Senator McGuire, received Mar 16, 2017
2. FGC letter of support to U.S. Senator Corey Booker and Representative Edward Royce regarding the Shark Fin Sales Elimination Act of 2017
3. DFW legislative report, dated Apr 13, 2017

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

31C. OTHER INFORMATIONAL ITEMS – FEDERAL AGENCIES REPORT**Today's Item****Information** ☒**Action** ☐

Standing agenda item to receive reports on any recent federal agency activities of interest not otherwise addressed under other agenda items.

Summary of Previous/Future Actions (N/A)**Background**

New Administration: As of Apr 14, 2017, appointments had not yet been made for the NOAA administrator or assistant administrator for fisheries (National Marine Fisheries Service), director of the National Park Service, or director of the U.S. Fish and Wildlife Service.

U.S. Secretary for Commerce: On Feb 28, 2017, Wilbur L. Ross was sworn in as the Secretary of Commerce. Secretary Ross is the former Chairman and Chief Strategy Officer of WL Ross & Co. LLC and has over 55 years of investment banking and private equity experience. There is no news release available announcing his appointment; his full biography can be found at <https://www.commerce.gov/directory/wilburross>.

National Oceanic and Atmospheric Administration (NOAA): Between Oct 2011 and Sep 2015, California saw its driest four-year period in the instrumental record, which dates back to 1895, creating a recovery challenge against multi-century odds (Exhibit 1).

U.S. Secretary for Interior: On Mar 1, 2017, Ryan Zinke was sworn in as secretary for the U.S. Department of the Interior (Exhibit 2). On his first day, Secretary Zinke signed orders to expand access to public lands and increase hunting, fishing, and recreation opportunities nationwide (Exhibit 3).

Significant Public Comments (N/A)**Recommendation (N/A)****Exhibits**

1. DOI news release: *California Dryness and Recovery Challenge Multi-Century Odds*, dated Apr 10, 2017
2. DOI news release: *Ryan Zinke Sworn In as 52nd Secretary of the Interior*, dated Mar 1, 2017
3. DOI news release: *Day One: Secretary Zinke Signs Orders to Expand Access to Public Lands*, dated Mar 2, 2017

Motion/Direction (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

31D. OTHER INFORMATIONAL ITEMS – OTHER**Today's Item****Information** ☒**Action** ☐

Standing agenda item to allow staff to identify any additional informational items that arise after meeting materials are produced, or for Commissioners to provide updates on recent FGC-related activities.

Summary of Previous/Future Actions (N/A)**Background (N/A)****Significant Public Comments (N/A)****Recommendation (N/A)****Exhibits (N/A)****Motion/Direction (N/A)**

STAFF SUMMARY FOR APRIL 26-27, 2017

32A. ADMINISTRATIVE ITEMS – NEXT MEETINGS**Today's Item**Information ☐Action ☒

This is a standing item to review logistics and approve draft agenda items for the next and future FGC meetings.

Summary of Previous/Future Actions (N/A)**Background**

The next FGC meeting has been scheduled for Jun 21-22 in Smith River. Staff does not anticipate any special logistics for this meeting.

Significant Public Comments (N/A)**Recommendation**

Approve draft agenda topics for Jun FGC meeting.

Exhibits

1. Potential agenda items for Jun meeting

Motion/Direction

Move by _____ and seconded by _____ that the Commission approves the draft agenda items for the June 21-22, 2017 Commission meeting, as amended.

STAFF SUMMARY FOR APRIL 26-27, 2017

32B. ADMINISTRATIVE ITEMS – REGULATORY TIMETABLE**Today's Item**Information ☐Action ☒

Review and approve requested changes to the perpetual timetable for anticipated regulatory actions.

Summary of Previous/Future Actions (N/A)

- FGC adopted 2017 regulatory calendar Feb 9, 2017; Rohnert Park

Background***Proposed Changes to Rulemaking Timetable***

Each year FGC adopts and submits to the Office of Administrative Law a rulemaking calendar. Subsequently, FGC maintains a perpetual timetable for anticipated regulatory actions. At each FGC meeting, staff provides the latest approved regulatory timetable along with proposed changes highlighted in bolded blue text (Exhibit 1).

DFW submitted a memo (Exhibit 2) requesting two changes to the FGC regulatory timetable:

1. Remove the proposed big game tag reporting process rulemaking from the calendar.
2. Move the proposed commercial sea cucumber rulemaking from the "To Be Determined" category to public notice at the Jun 22, 2017 meeting in Smith River. Discussion and adoption would occur at the Oct 12, 2017 meeting in Atascadero.

FGC staff requests five changes to the timetable:

1. For enhance penalties for game illegal take, submittal to the Office of Administrative Law was longer than anticipated. Circumstances did not justify requesting an expedited review from OAL, so the original effective date of 4/1 will now be 7/1.
2. For tricolored blackbird - compliance, information will not be received in time for this to qualify as a compliance regulation. A full rulemaking is added to the "To Be Determined" category, awaiting DFW and FGC staff coordination.
3. For abalone - compliance, information will not be received in time for this to qualify as a compliance regulation. A full rulemaking is added to the "To Be Determined" category, awaiting DFW and FGC staff coordination.
4. For Central Valley salmon, change the effective date to May 12, 2017 given the later adoption date than originally anticipated.
5. For use of dogs for the pursuit/take of mammals, based on the staff recommendation for agenda item 13, change the effective date of the current rulemaking to Apr 26, 2018; and add Apr 26, 2017 notice for a rulemaking for additional Section 265 changes, with discussion in Oct 2017 and adoption in Dec 2017.

Significant Public Comments (N/A)

STAFF SUMMARY FOR APRIL 26-27, 2017

Recommendation

FGC staff: Adopt the proposed changes to the timetable for anticipated regulatory actions and provide direction on the scheduling of any proposed rulemaking changes identified during the meeting.

Exhibits

1. Proposed timetable for anticipated regulatory actions, updated Apr 13, 2017
2. DFW memo requesting changes to the FGC regulatory timetable, received Apr 11, 2017

Motion/Direction

Moved by _____ and seconded by _____ that the Commission approves the proposed amendments to the timetable for anticipated regulatory actions.

STAFF SUMMARY FOR APRIL 26-27, 2017

32C. ADMINISTRATIVE ITEMS – NEW BUSINESS**Today's Item****Information** ☒**Action** ☐

This is a standing agenda item to allow Commissioners to bring new items of business to FGC.

Summary of Previous/Future Actions (N/A)**Background (N/A)****Significant Public Comments (N/A)****Recommendation (N/A)****Exhibits (N/A)****Motion/Direction (N/A)**

STAFF SUMMARY FOR APRIL 26-27, 2017

32D. ADMINISTRATIVE ITEMS - OTHER**Today's Item****Information** ☒**Action** ☐

This is an opportunity for Commissioners or staff to raise any other topics related to future meetings and other administrative items that have arisen since binder production.

Summary of Previous/Future Actions (N/A)**Background (N/A)****Significant Public Comments (N/A)****Recommendation (N/A)****Exhibits (N/A)****Motion/Direction (N/A)**

CALIFORNIA FISH AND GAME COMMISSION
RECEIPT LIST FOR REGULATION PETITIONS: RECEIVED BY 5 PM ON APR 13, 2017
Revised 4-14-2017

FGC - California Fish and Game Commission **DFW** - California Department of Fish and Wildlife **WRC** - Wildlife Resources Committee **MRC** - Marine Resources Committee

Tracking No.	Date Received	Response Due (10 work days)	Response letter to Petitioner	Accept or Reject	Name of Petitioner	Subject of Request	Code or Title 14 Section Number	Short Description	FGC Decision
2017-002	3/1/2017	3/15/2017	3/10/2017	A	Walter Lamb	Ballona Wetlands Land Trust	630(h)(3), T14	Eliminate parking use exemption for County of Los Angeles leases	RECEIPT: Scheduled 4/26-27/2017 ACTION: Scheduled 6/21-22/2017

CALIFORNIA FISH AND GAME COMMISSION
RECEIPT LIST FOR NON-REGULATORY REQUESTS: RECEIVED BY 5 PM ON APR 13, 2017
Revised 4-18-2017

FGC - California Fish and Game Commission **DFW** - California Department of Fish and Wildlife **WRC** - Wildlife Resources Committee **MRC** - Marine Resources Committee

Date Received	Name of Petitioner	Subject of Request	Short Description	FGC Decision
2/11/2017	Doug Bush The Cultured Abalone Farm, LLC	Kelp bed lease	Request to renew lease of Kelp Bed #208 for exclusive harvesting of giant kelp; lease expired on March 31, 2017.	Receipt scheduled 4/26-27/2017 Action scheduled: N/A*
2/24/2017	Marko Mlikotin CA Sportfishing League	Social media	Requests FGC utilize social media to more effectively notice public hearing dates and communicate policy objectives	Receipt scheduled 4/26-27/2017 Action scheduled 6/21-22/2017
2/25/2017	Mia Laurence	Hunting and trapping	Requests FGC outlaw hunting and trapping.	Receipt scheduled 4/26-27/2017 Action scheduled 6/21-22/2017
2/26/2017	Cynthia Harland	Aquaculture leases	(1) Urges FGC not to approve any new aquaculture leases in Tomales Bay until "legacy trash and debris" from oyster farming is cleaned up; (2) Requests that DFW and FGC clean up marine debris in Tomales Bay.	Receipt scheduled 4/26-27/2017 Action scheduled 6/21-22/2017
3/2/2017	Jean Welch	Hunting and trapping	Requests FGC outlaw hunting and trapping of native wildlife.	Receipt scheduled 4/26-27/2017 Action scheduled 6/21-22/2017
3/23/2017	Mike Wright	Aquaculture leases	Opposes possible FGC approval of the new aquaculture lease application for Tomales Bay received in Feb 2017.	Receipt scheduled 4/26-27/2017 Action scheduled 6/21-22/2017
3/29/2017	Marilyn Jasper Public Interest Coalition Sierra Club Placer Group	Public comments	Urges FGC to develop and implement a policy defining staff's authority and criteria for incorporating public comments in meeting materials.	Receipt scheduled 4/26-27/2017 Action scheduled 6/21-22/2017
3/30/2017	Francis Coats	Public use and access	Requests FGC consider applicable laws for navigable waters and public trust lands when adopting regulations for public use of wildlife areas and ecological reserves.	Receipt scheduled 4/26-27/2017 Action scheduled 6/21-22/2017
4/13/2017	Christine Harris	Trapping	Requests FGC stop the trapping of wolves.	Receipt scheduled 4/26-27/2017 Action scheduled 6/21-22/2017
4/13/2017	Mike Lynes and Anna Weinstein Audubon California	Aquaculture leases, Marine spatial planning	Urges FGC to (1) require a spatial planning process for Tomales Bay before evaluating or approving new or expanded aquaculture; (2) not issue any new or expanded aquaculture leases unless and until a maximum, permanent footprint and location for aquaculture is identified and adopted by FGC; (3) adopt a motion to request staff to work with partner agencies to initiate a marine spatial planning exercise and identify siting alternatives; (4) direct staff to reach out to OST, OPC, or other organizations to undertake marine spatial planning; and (5) requests FGC add a discussion on topic to 2017 MRC meeting agenda.	Receipt scheduled 4/26-27/2017 Action scheduled 6/21-22/2017

* **Note:** This request was already denied under staff review. Renewal request was not received during the lease renewal timeline prescribed in lease terms. Lessee was notified (3/30/2017) and invited to reapply. FGC staff must notify current kelp license holders of the availability of Kelp Bed 208, and advertise for bids on the individual kelp bed, as required in subsections 165.5(e) and 165.5(h) of Title 14, CCR. No FGC action necessary.



2017-002

Tracking Number: (Click here to enter text.)

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, 1416 Ninth Street, Suite 1320, Sacramento, CA 95814 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

1. Person or organization requesting the change (Required)

Name of primary contact person: Walter Lamb, Ballona Wetlands Land Trust

Address: 4201 Duquesne Ave #4, Culver City, CA 90232

Telephone number:

Email address: landtrust@ballona.org

2. Rulemaking Authority (Required) - Reference to the statutory or constitutional authority of the Commission to take the action requested: Fish and Game Code Section 1580 ["The commission may adopt regulations for the occupation, utilization, operation, protection, enhancement, maintenance, and administration of ecological reserves."]

3. Overview (Required) - Summarize the proposed changes to regulations: This petition proposes to amend Section 630 of the Code of California Regulations, Title 14 to eliminate the parking use exception for "[e]xisting parking areas under leases to the County of Los Angeles" in the Ballona Wetlands Ecological Reserve, by striking paragraph (b)(9)(F). The purpose of this proposed change is to convert approximately 72,600 square feet of paved parking lot, used by an unrelated County agency and by staff and patrons of a private shopping plaza, to a use more compatible for a public ecological reserve.

4. Rationale (Required) - Describe the problem and the reason for the proposed change: California taxpayers spent \$139 million over a decade ago to acquire the land which now makes up the Ballona Wetlands Ecological Reserve. This includes approximately 72,600 square feet of land currently leased to Los Angeles County, Department of Beaches and Harbors ("Beaches and Harbors"), for purposes that are primarily unrelated to the purpose of the ecological reserve (i.e. parking for Beaches and Harbors vehicles and parking for patrons and visitors to the Fisherman's Village shopping plaza across the street from the ecological reserve). The current parking exception was adopted by the Commission at its August 19, 2005 meeting. At least as early as 2011, the record shows that the California Department of Fish and Wildlife (previously Department of Fish and Game) began contemplating Beaches and Harbors' desire to construct a three-level parking garage within the



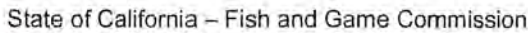
boundaries of the ecological reserve. This proposal is currently part of all three alternatives under consideration for the Ballona Wetlands Restoration Project. The “No Project” alternative is the only alternative not to include the parking structure component.

Los Angeles County currently pays the Department of Fish and Wildlife \$1,608 per year to lease approximately 254 parking spaces, the same amount it has paid since approximately 1995. Only a small portion of this lot is used by the Department of Fish and Wildlife for its vehicles and an office trailer.

Section 630 currently provides the Department with sole discretion as to whether a more appropriate use of this parcel should take precedence over the existing parking use. There is no question that this parcel of land can and would be more appropriately used if the Department exercised that discretion, but the Department has not done so. Therefore the only available remedy short of litigation available to stakeholders of the ecological reserve is to request this regulatory change.

SECTION II: Optional Information

- 5. Date of Petition: March 1, 2017**
- 6. Category of Proposed Change**
 - ☐ Sport Fishing
 - ☐ Commercial Fishing
 - ☐ Hunting
 - ☒ Other, please specify: Ecological Reserves
- 7. The proposal is to:** *(To determine section number(s), see current year regulation booklet or <https://govt.westlaw.com/calregs>)*
 - ☒ Amend Title 14 Section(s):630
 - ☐ Add New Title 14 Section(s): Click here to enter text.
 - ☐ Repeal Title 14 Section(s): Click here to enter text.
- 8. If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition** Click here to enter text.
Or ☒ Not applicable.
- 9. Effective date:** If applicable, identify the desired effective date of the regulation.
If the proposed change requires immediate implementation, explain the nature of the emergency: As soon as practically possible, but not an emergency
- 10. Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: Please see attached records relating to the existing parking use and proposed parking structure.
- 11. Economic or Fiscal Impacts:** Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: Eliminating the existing parking lease with Beaches and Harbors would result in the loss of \$1,608 in annual lease payments, which is



PETITION TO THE CALIFORNIA FISH AND GAME COMMISSION FOR REGULATION CHANGE

FGC 1 (NEW 10/23/14) Page 3 of 3

substantially below market value. That amount would be more than offset by lease payments offered by the Land Trust to use the parcel to promote environmental education and passive recreation activities consistent with the purpose of the ecological reserve. The Department could open a competitive bidding process for other appropriate uses that also generate more income than the current lease payments. Loss of parking spaces to the County and to Fisherman's Village may have some limited economic impact, but parking does not currently appear to be a constraint in the area.

Additionally, due to lease payments that are clearly well below market value, and because parking for a shopping plaza and an unrelated County agency do not further the public purpose of the ecological reserve and the Department of Fish and Wildlife generally, the state could be in violation of the constitutional provision against gifts of public funds between agencies.

12. Forms: If applicable, list any forms to be created, amended or repealed:

Click here to enter text.

SECTION 3: FGC Staff Only

Date received: [Click here to enter text.](#)

March 1, 2017 12:01 PM

FGC staff action:

- ☒ Accept - complete
☐ Reject - incomplete
☐ Reject - outside scope of FGC authority

Tracking Number

Date petitioner was notified of receipt of petition and pending action:

April 26-27, 2017

Meeting date for FGC consideration:

June 21-22, 2017

FGC action:

- ☐ Denied by FGC
- ☐ Denied - same as petition _____
Tracking Number
- ☐ Granted for consideration of regulation change



February 24, 2017

Mr. Eric Sklar
California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090

Dear Mr. President,

Given the commission's longstanding desire for greater government transparency and public participation, our organization would encourage the commission to utilize common social media tools.

It appears that the commission is among the few public agencies that does not utilize such tools as Facebook or Twitter to more effectively notice public hearing dates and communicate its policy objectives to those who are dependent on the outdoors for recreation and jobs.

Examples of other fishery related agencies:

Pacific Fishery Management Council
www.facebook.com/PacificFisheryManagementCouncil/

NOAA
www.facebook.com/NOAA/

As your communications team will confirm, such tools are common today, and even local government is live-streaming public hearings on Facebook to engage the public remotely and in real time. Such tools take on added importance given the geographical size of our state, and that several commission hearings are held in some of the most remote parts of the state.

Knowing that greater public input is critical to developing sound public policy, thank you for considering this request at your next scheduled public hearing.

Sincerely,

A handwritten signature in black ink, appearing to read "Marko Mlikotin", is written over a horizontal line.

Marko Mlikotin
Executive Director

2795 E. Bidwell Street, #100-119, Folsom, CA 95630, ph. 916.936.1777
www.sportfishingconservation.org

From: Jean Welsh
Sent: Thursday, March 02, 2017 10:02 AM
To: FGC
Subject: STOP THE MURDER OF CALIFORNIA'S WILDLIFE

From Shari Welsh

Valerie Termini
fgc@fgc.ca.gov

I am outraged by the the murder of our California's Wildlife. I AM OUTRAGED BY THE CRUELTY INFLICTED ON CALIFORNIA'S WILDLIFE. Outlaw all hunting and trapping of CA's NATIVE WILDLIFE. This barbaric ecocide of NATIVE WILDLIFE whom have more right to live here than most of us. The same genocide was used on American Indians. Hunters, trappers are sick individuals and ranchers are destroying our environment and are even a cause of GLOBAL WARMING. These native animals have evolved in North America for over 5 MILLION YEARS & we want them protected; **Canis** is a [genus](#) of [canids](#) containing multiple [extant](#) species, such as wolves, dogs and coyotes. Species of this genus are distinguished by their moderate to large size, their massive, well developed skulls and dentition, long legs, and comparatively short ears and tails.[3]

Etymology

The generic name *Canis* means "[dog](#)" in [Latin](#). The term "canine" comes from the adjective form, *caninus* ("of the dog"), from which the term [canine tooth](#) is also derived.[4] The canine family has prominent canine teeth, used for killing their prey. The word *canis* is [cognate](#) to the [Greek](#) word *kūon* ([Greek](#): *Kúων*), which means "dog", as well as (less transparently) English hound.

Terminology

- Immature males or females (that is, animals that are incapable of reproduction) are referred to as puppies.[5]
- A group of puppies from the same [gestation period](#) is referred to as a litter.[6]

Taxonomy

Canini

The [tribe](#) Canini[7] ([Fischer de Waldheim](#), 1817) is the sister group to the foxes ([vulpes](#)), and is represented today by two sub-tribes: genus *Canis*[8] that includes dogs, wolves, coyotes, jackals; and the genus *Cerdocyonina*[9] that includes the so-called foxes of South America ([Crab-eating fox](#)). The critical features that mark the Canini as a [monophyletic](#) group include: the consistent enlargement of the frontal [sinus](#), often accompanied by the correlated loss of the depression in the [dorsal surface](#) of the [postorbital process](#); the posterior expansion of the paroccipital process; the enlargement of the [mastoid process](#); and the lack of lateral flare of the orbital border of the [zygoma](#). [10] :p77

Canis

The [genus](#) Canis ([Carl Linnaeus](#), 1758) was published in the [10th edition of Systema Naturae](#)^[2] and included the dog-like carnivores: the domestic dog, wolves, coyotes and jackals. All species within the Canis genus are [phylogenetically](#) closely related with 78 [chromosomes](#) and can potentially [interbreed](#).^[11]

Evolution

The fossil record shows that [Feliforms](#) and [Caniforms](#) emerged within the super-family [Carnivoramorpha](#) 43 million YBP.^[12] The caniforms included the fox-like [Leptocyon](#) genus whose various species existed from 34 million YBP before branching 11.9 million YBP into [vulpes](#) (foxes) and canini (canines). The jackal-sized [Eucyon](#) existed in North America from 10 million YBP and by the [Early Pliocene](#) about 6-5 million YBP the coyote-like [Eucyon davisi](#)^[13] invaded Eurasia. In North America it gave rise to early Canis which first appeared in the [Miocene](#) (6 million YBP) in south-western USA and Mexico. By 5 million YBP the larger [Canis lepophagus](#) appeared in the same region.^[14] :p58

The canids that had emigrated from North America to Eurasia – [Eucyon](#), [Vulpes](#), and [Nyctereutes](#) – were small to medium-sized predators during the Late Miocene and Early Pliocene but they were not the top predators. The position of the canids would change with the arrival of Canis to become a dominant predator across the [Holarctic](#). The wolf-sized [C. chihuilensis](#) appeared in northern China in the Mid-Pliocene around 4-3 million YBP. This was followed by an explosion of Canis evolution across Eurasia in the Early Pleistocene around 1.8 million YBP in what is commonly referred to as the Wolf event. It is associated with the formation of the [Mammoth steppe](#) and continental glaciation. Canis spread to Europe in the forms of [C. arnensis](#), [C. eutruscus](#), and [C. falconeri](#).^[14] :p148 One study found that the diversity of the Canis group decreased by the end of the [Early Pleistocene](#) to [Middle Pleistocene](#) and was limited in Eurasia to the small wolves of the [Canis mosbachensis](#)–[Canis variabilis](#) group and the large hypercarnivorous [Canis \(Xenocyon\) lycaonoides](#).^[15]

Wolves, dogs and dingoes

The extant wolf-like canids

[Side-striped jackal](#)

[Black-backed jackal](#)

[Dog](#)

[Gray wolf](#)

[Coyote](#)

[African golden wolf](#)

[Golden jackal](#)

[Ethiopian wolf](#)

[Dhole](#)

[African wild dog](#)

[Phylogenetic relationships](#) between the extant wolf-like clade of canids.^[16] ^[17] See further:[Canid relationships](#)

Wolves, [dogs](#), and [dingoes](#) are [subspecies of Canis lupus](#). The original referent of the English word **wolf**, the [Eurasian wolf](#), is called C. l. lupus to distinguish it from other wolf subspecies, such as the [Indian wolf](#) (C. l. pallipes), the [Arabian wolf](#) (C. l. arabs), or the [Tibetan wolf](#) (C. l. chanco).

Some experts have suggested some subspecies of C. lupus be considered Canis species distinct from C. lupus. These include [Central Asia's Himalayan wolf](#), and the Indian wolf,[18] [19] as well as the [North America's red wolf](#) and [eastern wolf](#). [20]

The [dingo](#) (C. l. dingo), from [Australasia](#), and the [domestic dog](#) (C. l. familiaris) are also considered subspecies of C. lupus, although they are not commonly referred to or thought of as "wolves". [21]

Coyotes, jackals, and wolves

The [Gray wolf](#) (C. lupus), the [Ethiopian wolf](#) (C. simensis), and the [African golden wolf](#) (C. anthus) are three of the many Canis species referred to as "wolves"; however, all of the others are now extinct and little is known about them by the general public. One of these, the extinct [dire wolf](#) (C. dirus), has gained fame from the thousands of specimens found and displayed at the Rancho [La Brea Tar Pits](#) in [Los Angeles, California](#).

Canis species that are too small to attract the word "wolf" are called [coyotes](#) in the [Americas](#) and [jackals](#) elsewhere. Although these may not be more closely related to each other than they are to C. lupus, they are, as fellow Canis species, all more closely related to wolves and domestic dogs than they are to [foxes](#), [maned wolves](#), or other canids which do not belong to the genus Canis. The word "jackal" is applied to three distinct species of this group: the side-striped (C. adustus) and black-backed (C. mesomelas) jackals, found in sub-Saharan Africa, and the golden jackal (C. aureus), found across southwestern and south-central Asia, and [the Balkans](#).

While North America has only one small-sized species, the coyote (C. latrans), it has become very widespread, moving into areas once occupied by wolves. They can be found across much of mainland [Canada](#), in every state of the [contiguous United States](#), all of [Mexico](#) except the [Yucatán Peninsula](#), and the Pacific and central areas of [Central America](#), ranging as far as western [Panama](#).

African migration

Skulls of dire wolf (C. dirus), gray wolf (C. lupus), eastern wolf (C. lycaon), red wolf (C. rufus), coyote (C. latrans), African golden wolf (C. anthus), golden jackal (C. aureus) and black-backed jackal (C. mesomelas)

In 2015, a study of mitochondrial genome sequences and whole genome nuclear sequences of African and Eurasian canids indicated that extant wolf-like canids have colonised Africa from Eurasia at least 5 times throughout the Pliocene and Pleistocene, which is consistent with fossil evidence suggesting that much of African canid fauna diversity

resulted from the immigration of Eurasian ancestors, likely coincident with Plio-Pleistocene climatic oscillations between arid and humid conditions. When comparing the African and Eurasian golden jackals, the study concluded that the African specimens represented a distinct monophyletic lineage that should be recognized as a separate species, [Canis anthus](#) (African golden wolf). According to a phylogeny derived from nuclear sequences, the Eurasian golden jackal (Canis aureus) diverged from the wolf/coyote lineage 1.9 million years ago but the African golden wolf separated 1.3 million years ago. Mitochondrial genome sequences indicated the Ethiopian wolf diverged from the wolf/coyote lineage slightly prior to that. [22] :s1

Gallery

[Gray wolf](#) (*Canis lupus*) (includes [dog](#) and [dingo](#)).

[Eastern wolf](#) (*Canis lycaon*) (often includes *latrans* admixture)

[Red wolf](#) (*Canis rufus*) (includes *latrans* admixture)

[Coyote](#) (*Canis latrans*)

[Dire wolf](#) (*Canis dirus*) (extinct)

[African golden wolf](#) (*Canis anthus*)

[Golden jackal](#) (*Canis aureus*)

[Ethiopian wolf](#) (*Canis simensis*)

[Black-backed jackal](#) (*Canis mesomelas*)

[Side-striped jackal](#) (*Canis adustus*)

See also

- [List of Canis species](#)

References

[Wikispecies](#) has information related to: [Canis](#)

1. [Canis Linnaeus 1758](#) in [The Palaeobiology Database](#)
2. Linnæus, Carl (1758). [Systema naturæ per regna tria naturæ, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Tomus I](#) (in Latin) (10th ed.). Holmiæ (Stockholm): Laurentius Salvius. p. 38. Retrieved November 23, 2015.
3. Heptner, V. G.; Naumov, N. P. (1998). Mammals of the Soviet Union Vol.II Part 1a, SIRENIA AND CARNIVORA (Sea cows; Wolves and Bears). Science Publishers, Inc. USA. pp. 124-129. ISBN 1-886106-81-9.
4. Harper, Douglas. ["canine". Online Etymology Dictionary.](#)
5. [Puppy in the Oxford English Dictionary](#) (may also refer to a young seal or rat)
6. [Litter in the Oxford English Dictionary](#) (may also refer to young cats)
7. [Fossilworks website Canini](#)
8. [Fossilworks website Canis](#)
9. [Fossilworks website Cerdocyonina](#)
10. Tedford, R (2009). "Phylogenetic Systematics of the North American Fossil Caninae (Carnivora: Canidae)". *Bulletin of the American Museum of Natural History*. **325**: 1–218. doi:10.1206/574.1.
11. Wayne, R. (1999). "Origin, genetic diversity, and genome structure of the domestic dog". *BioEssays*. **21** (3): 247–57. doi:10.1002/(SICI)1521-1878(199903)21:3247::AID-BIES9>3.0.CO;2-Z. PMID 10333734.
12. Flynn, John J.; Wesley-Hunt, Gina D. (2005). "Phylogeny of the Carnivora: Basal Relationships Among the Carnivoramorphan, and Assessment of the Position of 'Miacoidea' Relative to Carnivora". *Journal of Systematic Paleontology*. **3**: 1–28.
13. [Fossilworks website Eucyon davisi](#)
14. Wang, Xiaoming; Tedford, Richard H.; Dogs: Their Fossil Relatives and Evolutionary History.

New York: Columbia University Press, 2008. ISBN 9780231135283

15. Sotnikova, M (2010). "Dispersal of the Canini (Mammalia, Canidae: Caninae) across Eurasia during the Late Miocene to Early Pleistocene". *Quaternary International*. **212** (2): 86–97. [doi:10.1016/j.quaint.2009.06.008](https://doi.org/10.1016/j.quaint.2009.06.008).
16. Lindblad-Toh, K.; Wade, C. M.; Mikkelsen, T. S.; Karlsson, E. K.; Jaffe, D. B.; Kamal, M.; Clamp, M.; Chang, J. L.; Kulbokas, E. J.; Zody, M. C.; Mauceli, E.; Xie, X.; Breen, M.; Wayne, R. K.; Ostrander, E. A.; Ponting, C. P.; Galibert, F.; Smith, D. R.; Dejong, P. J.; Kirkness, E.; Alvarez, P.; Biagi, T.; Brockman, W.; Butler, J.; Chin, C. W.; Cook, A.; Cuff, J.; Daly, M. J.; Decaprio, D.; et al. (2005). "Genome sequence, comparative analysis and haplotype structure of the domestic dog". *Nature*. **438** (7069): 803–819. [Bibcode:2005Natur.438..803L. doi:10.1038/nature04338. PMID 16341006](https://doi.org/10.1038/nature04338).
17. Koepfli, K.-P.; Pollinger, J.; Godinho, R.; Robinson, J.; Lea, A.; Hendricks, S.; Schweizer, R. M.; Thalmann, O.; Silva, P.; Fan, Z.; Yurchenko, A. A.; Dobrynin, P.; Makunin, A.; Cahill, J. A.; Shapiro, B.; Álvares, F.; Brito, J. C.; Geffen, E.; Leonard, J. A.; Helgen, K. M.; Johnson, W. E.; O'Brien, S. J.; Van Valkenburgh, B.; Wayne, R. K. (2015-08-17). "[Genome-wide Evidence Reveals that African and Eurasian Golden Jackals Are Distinct Species](#)". *Current Biology*. **25** (16): 2158–65. [doi:10.1016/j.cub.2015.06.060. PMID 26234211](https://doi.org/10.1016/j.cub.2015.06.060).
18. Aggarwal, R. K.; Kivisild, T.; Ramadevi, J.; Singh, L. (2007). "[Mitochondrial DNA coding region sequences support the phylogenetic distinction of two Indian wolf species](#)" (PDF). *Journal of Zoological Systematics and Evolutionary Research*. **45** (2): 163–172. [doi:10.1111/j.1439-0469.2006.00400.x](https://doi.org/10.1111/j.1439-0469.2006.00400.x).
19. Jhala, Y.; Sharma, D. K. (2004). "[The Ancient Wolves of India](#)" (PDF). *International Wolf*. **14** (2): 15–16. Archived from [the original](#) (PDF) on 2009-04-21.
20. Chambers SM, Fain SR, Fazio B, Amaral M (2012). "[An account of the taxonomy of North American wolves from morphological and genetic analyses](#)". *North American Fauna*. **77**: 1–67. [doi:10.3996/nafa.77.0001](https://doi.org/10.3996/nafa.77.0001).
21. Wilson, D.E.; Reeder, D.M., eds. (2005). "[Genus Canis](#)". *Mammal Species of the World: A Taxonomic and Geographic Reference* (3rd ed.). Johns Hopkins University Press. [ISBN 978-0-8018-8221-0. OCLC 62265494](https://doi.org/10.1017/9780801882210.001).
22. Koepfli, Klaus-Peter; Pollinger, John; Godinho, Raquel; Robinson, Jacqueline; Lea, Amanda; Hendricks, Sarah; Schweizer, Rena M.; Thalmann, Olaf; Silva, Pedro; Fan, Zhenxin; Yurchenko, Andrey A.; Dobrynin, Pavel; Makunin, Alexey; Cahill, James A.; Shapiro, Beth; Álvares, Francisco; Brito, José C.; Geffen, Eli; Leonard, Jennifer A.; Helgen, Kristofer M.; Johnson, Warren E.; o'Brien, Stephen J.; Van Valkenburgh, Blaire; Wayne, Robert K. (2015). "Genome-wide Evidence Reveals that African and Eurasian Golden Jackals Are Distinct Species". *Current Biology*. **25** (16): 2158. [doi:10.1016/j.cub.2015.06.060. PMID 26234211](https://doi.org/10.1016/j.cub.2015.06.060).

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION

2017 MAR 2 1 10 PM

Fish and Game Commission
Valerie Ternini
Executive Director, Room 1320
1416 Ninth Street
Sacramento, CA 95814

February 25, 2017

Dear Ms. Ternini,

Earlier this month, I had the opportunity to substitute teach for Laura Honda at Manor Elementary School in Fairfax, California. I filled in for Ms. Honda because she was taking several of her students to the Fish and Game Department meeting to present arguments against hunting. When her students returned to class around lunch time, they presented their experience, and though they were quite proud of themselves for standing up for what they believe in, they were disappointed that the Fish and Game Commission will continue to allow hunting and trapping.

Three years ago, my own daughter was a presenter at a similar meeting. She had similar concerns as the current students have. *Hunting is wrong*. It allows humans to disregard the lives of living beings. Would you go into another city or town and trap and kill mothers and fathers because you liked their skin? Would you trap and kill moms and dads because you felt threatened even though *you* were raiding *their homeland*? Would you trap and kill children and babies because you felt they should not be allowed to grow up in their natural world?

It is beyond my understanding how the Fish and Game Department can possibly continue its support of murder. As humans we must evolve from the blindness of being okay with "dominating" other species, killing them (and often killing them cruelly), and doing whatever we want with the animals, plants, waters, and land for our own pleasure.

It is time that all humans stand up for those without voices—for the animals, the plants, the waters, and the earth—and that human beings say **ENOUGH! IT IS TIME NOW TO LIVE ALL TOGETHER**. Please help stop this continual murder. Please end this ongoing suffering—you have the power to bring peace. I was proud of my daughter for speaking up at your meeting three years ago, though I was very sad that nothing changed. I am proud of the students for not giving up and for speaking up again. However, I am deeply troubled that you continue to ignore the important message these students are giving you.

Please stop the murder of innocent animals. Please outlaw hunting.

Thank you very much,

mia Lawrence



PLACER GROUP
P.O. Box 7167, AUBURN, CA 95604



PUBLIC INTEREST COALITION
P.O. Box 671, Loomis, CA 95650



[sent via email: fgc@fgc.ca.gov]

March 29, 2017

California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244

Ladies and Gentlemen:

RE: April 13, 2017, Agenda Item 2--Public Forum: Statute Compliance

Due to an exclusion of at least two written comments from the FGC's meeting documents (Binder), even though they were submitted before the comment deadline and followed FGC's instructions, we have grave concerns regarding transparency and compliance with laws that govern public agencies.

Underlying all our public agency transparency regulations and policies, a recurring theme is, that as frustrating as it may be, efficiency is not the top priority.¹ The Bagley-Keene Act reserves "a seat at the table" for the public, (§ 11120) and that includes the right to participate in the decision-making process.

When this "exclusion" issue was brought up at the March 15, 2017, FGC tele conf meeting during public forum (Agenda item 2), a number of reasons were given for not including all comments, such as: Small staff and budget, letters that are not relevant to any agenda item, multiple form letters (often thousands) that say exactly the same thing, all of which are available for the commissioners to come in and view between meetings. We understand the need to organize and summarize thousands of form letters in the Final Initial Statement of Reasons (FISOR), and to exclude letters that are irrelevant to the agenda items.² However, we submit that the law does not make exceptions to compliance for staff and budget limitations.

For the March 15, 2017, meeting, the Binder was only 46 pages, with four comment letters. The two that were excluded would not have burdened staff nor have added more than 2-3 pages to the Binder. If, as some legal scholars have suggested, defamatory comments may be excluded, then the one 5-page letter that was included with three pages of disparaging nonprofit bashing, that was not relevant to the agenda item, should have been a candidate for exclusion. Yet it was included while two others that were on topic were excluded.

Thus, the reasons stated by staff and the FGC for exclusion of the two comment letters in question, which were a far cry from being form letters, are unsatisfactory, insupportable, and possibly a violation of statute(s). With all due respect to staff, that does

¹ "A Handy Guide to The Bagley-Keene Open Meeting Act 2004, California Attorney General's Office, Intro, page 2. "If efficiency were the top priority, the Legislature would create a department and then permit the department head to make decisions."

² There have been times when public commenters have accidentally attached the wrong document, but these are obvious mistakes, not subject to staff judgment calls.

a tremendous job in organizing the Binder and creating time-saving links, a FGC employee should never have the authority to exclude any comment submissions simply because he/she decides the comment expresses the same position as another or many others. Public trust is at stake when unknown staff members become gatekeepers of public comments and apply their own filters to exclude some comments, but not others.

Whether it's the Bagley Keene Act (§ 11125.1.), the Brown Act, or CEQA, the public has a right to see what points others have made. "Obviously, a meeting would include a gathering where members were debating issues or voting on them. But a meeting also includes situations in which the body is merely receiving information. To the extent that a body receives information under circumstances where the public is deprived of the opportunity to monitor the information provided, and either agree with it or challenge it, the open-meeting process is deficient."³

In general, a record includes any form of writing or oral comments. When materials are provided to a majority of the body either before or during the meeting, they must also be made available to the public without delay, unless the confidentiality of such materials is otherwise protected.⁴ The FGC encourages comments and hopefully weighs all input in their decision making. If relevant, timely submitted public comments are not included in the Binder, not only may commissioners be deprived of pertinent information, but the public is deprived as well.

With the California Environmental Quality Act (CEQA), the importance of public participation as an element of the process is both declared and widely accepted. In *Concerned Citizens of Costa Mesa, Inc. v. 32nd District Agricultural, Assoc.* (1986) 42 Cal. 3d 929, the court emphasized that the public holds a "privileged position" in the CEQA process "based on a belief that citizens can make important contributions to environmental protection and on notions of democratic decision making."⁵

"(e) This section shall not be used to restrict the ability of reviewers to comment on the general adequacy of a document or of the lead agency to reject comments not focused as recommended by this section."⁶

We urge the FGC to develop and consistently implement a clear policy defining staff's authority and criteria for determining which public comment letters are included and/or excluded from the Binder when those comments are submitted in good faith, a timely manner, and pertain to an agenda item.

Thank you for considering our views,



Marilyn Jasper, Chair
Public Interest Coalition
Conservation Comm, Sierra Club Placer Group

³ Ibid. page 5.

⁴ Ibid., page 10.

⁵ CEQA, Article 13, Section 15201, Public Participation,
<http://resources.ca.gov/ceqa/guidelines/art13.html>

⁶ IBID, Sec 15204, Focus of Review

From: Francis Coats
Sent: Thursday, March 30, 2017 4:44 PM
To: FGC
Subject: Considering public rights to use navigable waters and to fish.

To the California Fish and Game Commission:

It appears that the commission overlooks generally applicable laws when adopting regulations governing public use of wildlife areas and ecological reserves. For example.

1. Sections 1528 and 1745 require the Commission to encourage multiple recreational use including boating, but the regulations severely limit access across administered lands for boating.
2. The navigable servitude law gives the public the right to be on the navigable waters including the temporarily dry banks below high water mark and there engage in lawful recreational activities, but the regulations severely limit this use.
3. Article I section 25 gives the public the right to fish on and from State owned land, but the regulations limit this use. Particularly bothersome are rules unnecessarily restricting crossing administered lands to get to navigable waters.
4. Article I section 25 also requires the reservation of the right to fish in the people upon the transfer of state-owned land, but it is not clear that the commission complies. See *State v. San Luis Obispo Sportsmans' Assc.* 1978 22 Cal. 3d 440.
5. At least at the Feather River Wildlife Area, DFW does not post signs identifying the area, does not mark the boundaries, and does not disclose the existence of some of the units on it website (Morse Road Unit, Marysville Unit).
6. Under the public trust doctrine, the Commission is obligated to avoid adversely affecting public trust uses whenever feasible. Where rules impair access across administered lands for access to navigable waters, the desirability of permitting access must be considered, interference must be avoided whenever feasible, this consideration must be public, and the decision making process must be documented. See *San Francisco Baykeeper, Inc., v. State Lands Commission* 2015.

Please consider these matters, in a public manner, and document that consideration when making decisions which may adversely affect the public's rights to access and use the navigable waters/public trust lands, and the right to fish in both navigable waters and other waters.

Francis Coats,
;

From: [Christine Lynn Harris](#)
To: [FGC](#)
Cc: info@projectcoyote.org; [Hoodline Tips](#); [ABC7 7 ON YOUR SIDE](#); [Jerry Brown](#); [Nancy Pelosi](#); [Kalama Harris](#); [Edwin Lee](#); board.of.supervisors@sfgov.org; [Craig Downer](#); [Channel 2 KTVU](#); [KCBA NEWS](#)
Subject: Wolves, Wildlife, and Preservation
Date: Thursday, April 13, 2017 2:45:21 PM

California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090
EMAIL: fgc@fgc.ca.gov

Hello California Fish and Game Commission,

Please stop trapping the wolves, these majestic sentient beings, our beloved wild life.

Trapping is very cruel, inhumane, and we would not want someone to do this to us, as

I am sure it is very painful and the wolves suffer; all animals suffer, just like us.

Please stop killing the wolves, they are part of the ecosystem, and have a right to life just like humans.

We must stop thinking as a human species that we are better than animals, and do anything to them, this is not true, they are one of us, we are one of them. We must coexist with wild life, we are encroaching on their land and food, not the other way around.

Please find it in your hearts to do the ethical and moral actions towards wild life.

"We need nature, nature does not need us." - Harrison Ford

Best Wishes,
Christine Harris

<http://www.projectcoyote.org/>

From: [Christine Lynn Harris](#)
To: [FGC](#)
Cc: info@projectcoyote.org; [Hoodline Tips](#); [ABC7 7 ON YOUR SIDE](#) [Jerry Brown](#); [Nancy Pelosi](#); [Kalama Harris](#); [Edwin Lee](#); board.of.supervisors@sfgov.org; [Craig Downer](#); [Channel 2 KTVU](#); [KCBA NEWS](#)
Subject: Wolves, Wildlife, and Preservation
Date: Thursday, April 13, 2017 2:45:21 PM

California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090
EMAIL: fgc@fgc.ca.gov

Hello California Fish and Game Commission,

Please stop trapping the wolves, these majestic sentient beings, our beloved wild life.

Trapping is very cruel, inhumane, and we would not want someone to do this to us, as

I am sure it is very painful and the wolves suffer; all animals suffer, just like us.

Please stop killing the wolves, they are part of the ecosystem, and have a right to life just like humans.

We must stop thinking as a human species that we are better than animals, and do anything to them, this is not true, they are one of us, we are one of them. We must coexist with wild life, we are encroaching on their land and food, not the other way around.

Please find it in your hearts to do the ethical and moral actions towards wild life.

"We need nature, nature does not need us." - Harrison Ford

Best Wishes,
Christine Harris

<http://www.projectcoyote.org/>



February 10, 2017

California Fish and Game Commission
1416 Ninth Street
Sacramento CA 95814

Commissioners;

The Cultured Abalone Farm, LLC (TCAF) kelp bed lease K-007 of kelp bed number 208 is expiring on March 31, 2017. TCAF would like provide written notice that it **would like to renew** the lease of kelp bed 208 for a new term.

Information required for the FGC consideration of a renewal of kelp bed lease K-007 is presented as follows:

The designation and description of Bed 208 is as follows (taken from Title 14, Section 165.5(j):

Bed 208. Leasable. 2.61 square miles. This bed extends from Point Estero to Von Helm Rock, defined as the area bounded by the mean high tide line and straight lines connecting the following points in the order listed except where noted:

35°27.621' N. lat. 121°00.173' W. long.;

35°24.609' N. lat. 121°00.704' W. long.; thence northwestward along the three nautical mile offshore boundary to

35°30.694' N. lat. 121°08.680' W. long.; and

35°32.904' N. lat. 121°06.046' W. long.

Bed 208 overlaps with the White Rock State Marine Conservation Area, and therefore any harvest that would take place within the portion that is found within that area (as described below, taken from Title 14, Section 632 (b)(90)) would conform with Section 165 rules indicated below:

(90) White Rock State Marine Conservation Area.

(A) This area is bounded by the mean high tide line and straight lines connecting the following points in the order listed:

35° 32.850 ' N. lat. 121° 05.855 ' W. long.;

35° 32.850 ' N. lat. 121° 06.700 ' W. long.;

35° 30.500 ' N. lat. 121° 05.000 ' W. long.; and

35° 30.500 ' N. lat. 121° 03.423 ' W. long.

*(B) Area restrictions defined in subsection 632(a)(1)(C) apply, with the following specified exceptions: the commercial take of giant kelp (*Macrocystis pyrifera*) and bull kelp (*Nereocystis spp.*) is allowed under the following conditions:*

- 1. A kelp harvester with a valid license issued pursuant to Section 165 and holding a valid lease to Administrative Kelp Bed 208 may take no more than 125 tons of kelp from the portion of Administrative Kelp Bed 208 within the White Rock State Marine Conservation Area in any calendar month.*
- 2. Duplicate landing records must be kept on board the harvest vessel in accordance with the requirements of Section 165.*

The Cultured Abalone Farm LLC currently has on file with CA Fish and Game Commission a Commission approved plan for mechanical harvest of kelp. Our kelp harvesting vessel, F/V Ocean Harvest, FG06640, is fully compliant with kelp harvesting regulations.

The Cultured Abalone Farm LLC has a current harvesting deposit balance of \$3570 on file with the CA Department of Fish and Wildlife.

I look forward to continuing work with the CA Fish and Game Commission and Department of Fish and Wildlife for our collective sustainable management and harvest of *Macrocystis* kelp.

Thank you,
Douglas Bush, Managing Member

From: [Cynthia Harland](#)
To: [FGC](#)
Subject: New oyster leases on Tomales Bay
Date: Sunday, February 26, 2017 12:07:19 PM

Dear Ms. Termini,

We live in Marshall, CA on Tomales Bay. We would like to register our opposition to any new oyster farming leases until the Oyster Farming Legacy trash and debris is cleaned up. It's a disgrace that the beauty of this unique natural gift is significantly degraded by the past and current practices of oyster, clam, and mussel cultivation. Over 140 years of aquaculture have left a disturbing, disgraceful legacy in Tomales Bay.

It makes sense that before any new leases are approved, the California Fish & Game Commission and the California Department of Fish & Wildlife should clean up the tons of debris littering the Bay.

Sincerely,
Cynthia & John Harland

From: [Mike Wright](#)
To: diane.Windham@noaa.gov; Lovell.Randy@Wildlife; [FGC](#)
Subject: Fwd: New shellfish lease application on Tomales Bay
Date: Thursday, March 23, 2017 10:34:43 PM

Hi,

My name is Michael Wright and I am emailing you with concerns about the proposed shellfish lease on the north end of Tomales Bay.

First, I would like to talk about the current leases on the bay. While I do enjoy some of the oysters grown by Hog island oyster co, I don't like them enough to let more of the bay be turned into leases for private individuals to profit from. This water / land is protected for ALL people by the public trust doctrine. It is also protected for animals too. Not just one person or family should be able to profit from the lands bounty at the expense of the rest of the public.

1st main concern

My wife and I are avid paddlers. Tomales Bay is an amazing place for kayaking and general boat enjoyment. That is, until you paddle around the areas where the oyster farms are. The areas where the oyster farms are located are also some of the safest and best weather and tide protected areas for boaters to explore. The mess left behind from abandoned and current operations are not pleasant and very destructive. There is trash everywhere. But with that said, I can somewhat overlook this because on the north side of Toms point all the way to Dillon beach, there are beautiful, natural beaches clear of any shellfish operations for the public's enjoyment. Well this is exactly the area where the new lease is being proposed. Please.....don't allow one individual's money making operation, spoil this part of the bay for the rest of us. If you have ever boated the shoreline where the current leases are, you will find difficult, dangerous and unpleasant conditions.

Next thought....the fish and wildlife.

Tomales Bay is a delicate ecosystem. What makes Tomales bay very cool and appealing to wildlife is the eel grass beds. Many animals rely on these to survive. As a matter of fact, the Tomales bay eel-grass beds are so delicate, much of the northern part of the bay is a no anchor zone for boats. This is to protect the remaining eel grass in the bay. If you look at where the new lease is proposed, these are some of the last few eel grass beds left in the bay. Allow this lease and the eel grass is gone. If the public is not allowed to anchor their boats, how does it make sense to let someone do as they please with the sea floor. Just take a trip to the bay and see what the floor of the bay is like around the oyster leases. Its barren, polluted and is altered from its natural state. Not to mention that the gentleman wants to grow geoduck clams on the lease. This is even more destructive than the oyster farming. That totally destroys the area where geoduck farming takes place.

Last very important reason that ties into the last point,

Pacific Black Brant.....Tomales bay plays host to thousands of brant every year. I love watching and hunting these birds. The reason they come to Tomales bay????? Eel Grass!!!!!! There are only a few places left in California where enough eel grass grows for the Brant to feed on. Tomales bay is one of them. Few Brant hang out in the area south of Toms point where the current oyster leases are. Thousands hang

out to the north of toms point. Put new oyster leases there and kill the remaining eel grass? The brant disappear.

Final thought, more people would be harmed by the new lease than there are people who would benefit from it.

Who benefits from the lease...the owner and the family.

Who benefits from not allowing it....

Boaters, hunters, bird watchers, campers, fisherman, nature lovers, outdoor enthusiast, photographers, plants, and animals.

Please submit my objection to the new lease to whom it my concern.

I would like to be notified when upcoming Fish & Game Commission meetings will occur so that you could attend or at least submit this letter. Can any of you give me a heads up when the meetings will happen?

Thanks,
Michael Wright



April 13, 2017

Re: Lease application for shellfish aquaculture in Tomales Bay

Mr. Craig Shuman
Director, Marine Region, California Department of Fish and Wildlife

Ms. Valerie Termini
Executive Director, California Fish and Game Commission

Ms. Susan Ashcraft,
Marine Advisor, California Fish and Game Commission

Dear Mr. Shuman, Ms. Ashcraft and Ms. Termini,

We write in regard to a new application for an approximately 45-acre lease for oyster and geoduck farming in Tomales Bay included in the California Fish & Game Commission's consent calendar for its February 2017 meeting.¹ We appreciate the thoughtful manner in which the Commission has addressed aquaculture permits in the past and urge the Commission to require a deliberate, fact-based planning process be implemented for Tomales Bay before any new or expanded aquaculture programs are permitted.

Tomales Bay's intertidal and subtidal areas have extraordinary resource values for birds, commercial fish and herring. In sum, the bay is too important for an ad hoc approach to aquaculture permitting that may undermine the Commission's public trust obligations for protection of natural resources, special status species, and recreation. Therefore, we oppose the Commission approving any new aquaculture lease in Tomales Bay unless and until a maximum, permanent footprint and location for aquaculture is identified and adopted by the Commission. Toward that end, we constructively suggest that at its April meeting the Commission take the following steps:

- Adopt a motion to request staff to work with partner agencies to initiate a marine spatial planning exercise to identify a set of aquaculture siting alternatives for the Commission to consider at a later meeting;
- Note that applications for new or expanded aquaculture will be evaluated following the completion of that spatial planning exercise;
- Task staff with immediately reaching out to entities that would be good candidates for the marine spatial planning exercise, e.g. the Ocean Science Trust and/or Ocean Protection Council; and

¹ http://www.fgc.ca.gov/meetings/2017/Feb/exhibits/SS_0209_Item_27_SAShellfish.pdf

- Include a discussion of this issue at the 2017 meeting of the Marine Resources Committee with the goal of providing recommendations for the full Commission.

We appreciate the Commission and Department's work to ensure existing aquaculture leases avoid farming within 10 feet of eelgrass – protecting this vital and rare habitat - and your work conducted in collaboration with local stakeholders to remediate issues associated with abandoned debris.

However, in regard specifically to birds, known impacts of these farming operations to birds in the bay include avoidance of farmed areas by most shorebirds², and disturbance to waterbirds and Pacific black brant³, a California Species of Special Concern, from vessel traffic associated with farm operations. Any new lease application must consider impacts to birds from disturbance and habitat loss or degradation.

Tomales Bay's importance was recognized in 2002 by the **International Ramsar Convention**, which designated the site as a "Wetland of International Significance." There are only 37 Ramsar sites in the United States.⁴ Tomales Bay is a **Global Important Bird Area** and of all the Pt. Reyes wetlands, it consistently supports the highest numbers of wintering and migrant waterbirds. Up to 20,000 shorebirds spend the winter, and an unknown additional number use the bay during migration in the spring and fall. Surveys have documented exceptionally large numbers of bufflehead and brant, which represent 12% and 31%, respectively, of statewide wintering populations.⁵

Remaining intertidal wetlands such as those in Tomales Bay are critical for birds. Over 90% of California's historical two million hectares of wetlands has been lost. Stralberg et al. (2011)⁶ found in California "estuarine habitats including eelgrass, tidal flats and tidal marsh are the most limited in spatial extent, yet support the highest densities of shorebirds and waterbirds." The study's lead author recently confirmed that these habitats can be considered the highest priority for protection from further loss of even small acreages from habitat degradation and conversion, and disturbance.

Black brant are showing signs of stress at the population level^{7,8}, and dramatic decreases in eelgrass areal extent in important brant migratory areas including Morro Bay and San Quintin Bay highlight the importance of evaluating the cumulative impacts to this species from any new farm development.^{9,10,11} Brant and other waterbirds using Tomales Bay, such as canvasback, teal, and northern pintail, are important recreational species for California's recreational hunting community.

² Kelley, J., J. Evens, R. Stallcup, and D. Wimpfheimer. 1996. Effects of aquaculture on habitat use by wintering shorebirds in Tomales Bay, California. *California Fish and Game* 82(4): 160-174.

³ Kelley, J. and J. Evens. 2013. Boating Disturbance to Waterbirds in California Estuaries. ACR Technical Report 89-12-6

⁴ <https://www.fws.gov/international/wildlife-without-borders/ramsar-wetlands-convention.html>

⁵ Important Bird Areas in California. National Audubon Society. <http://netapp.audubon.org/iba/Reports/161>

⁶ Stralberg, R. Cameron, M. Reynolds, C. Hickey, K. Klausmeyer, S. Busby, L. Stenzel, D. Shuford, G. Page. 2011. Identifying habitat conservation priorities and gaps for migratory shorebirds and waterfowl in California. *Biodiversity Conservation* 20: 19-40

⁷ Summary Opinion and Recommendations for Pacific Flyway Brant Management. 13 December 2016. Aaron Christ, Biometrician, USFWS Maritime National Wildlife Refuge, Alaska Region ; Josh Dooley, Wildlife Biologist, USFWS Migratory Bird Management, Headquarters Region ; David Koons, Associate Professor, Department of Wildland Resources, Utah State University; Jim Leafloor, Biologist, Canadian Wildlife Service, Environment Canada

⁸ Leach, A. et al. 2017. Survival and recovery rates of Black Brant from arctic and subarctic breeding areas. *The Journal of Wildlife Management*. In review.

⁹ Merkel & Associates. 2014. San Francisco Bay Eelgrass Inventory. Report for the National Marine Fisheries Service. Santa Rosa

¹⁰ Simancas, J.E. 2013. Assessment of the quality eelgrass habitat for black brant, *Branta bernicla nigricans*, during the non-breeding season of San Quintin, Baja California, Mexico. Master's Thesis. CICESE, Ensenada, Baja California

¹¹ Pacific Watershed Associates. 2015. Preliminary Eelgrass (*Zostera marina*) Mapping and Habitat Characterization, North Humboldt Bay, California. For: Humboldt Bay Harbor, Recreation, and Conservation District Mariculture Pre-Permitting Project, Eureka, California. Pg. 14.

In regard to shorebirds, intertidal mudflats are critical for shorebirds on the Pacific Flyway, and the new lease application overlaps with a key foraging areas in the bay. Kelly (2001) studied shorebirds during the winter only (excluding spring and fall migration, for which there are no readily available published studies) and found that the “northeast shoreline from Sand Point north to Vincent’s Landing also supported relatively high abundances of several species.” Kelly (2001) also notes that “foraging and roosting shorebirds at the northern end of the bay are vulnerable to direct disturbance from concentrated recreational use.” This site-specific information speaks to the importance of a spatial planning process to avoid further degrading or making unavailable feeding and resting habitat to shorebirds.

Key threats to shorebirds include disturbance and habitat loss in wintering and migration areas on the Pacific Flyway. The **2017 Pacific Americas Shorebird Conservation Strategy**¹², a collaboration among numerous binational agencies, academic institutions, and NGOs, notes “the habitats used by shorebirds have been altered dramatically in the last century across the Western Hemisphere and indeed around the world (Hassan *et al.* 2005). Human disturbance is recognized as a key threat in shorebird conservation and recovery plans, as well as in many published studies (see Brown *et al.* 2001; NFWF 2015), and received a high overall threat rating in this Strategy. Human disturbance does not typically destroy habitat but causes disruption to breeding and nonbreeding shorebirds. This, in turn, can have consequences on reproductive success and survivorship (Gill 2007). Shorebirds can exhibit the inability to gain weight and build fat reserves required for long-distance migration because of exclusion, interrupted access or changes in timing of access to food resources or roosting locations (Lafferty 2001).”

The Plan further notes that “even small losses in the extent or quality of available feeding habitat for shorebirds could result in proportionally greater decreases in some wintering shorebird populations,” and identifies the high priority to “protect, maintain, restore and enhance breeding habitats for species of highest conservation concern and at sites of high nonbreeding shorebird concentrations.”

We thank you for your consideration of this issue, and we look forward to Commission, Department and partner agency action toward ensuring protection of birds and other natural resource protection in Tomales Bay.

Sincerely,



Mike Lynes
Director of Public Policy



Anna Weinstein
Marine Program Director

¹² Senner, S. E., B. A. Andres and H. R. Gates (Eds.). 2016. Pacific Americas shorebird conservation strategy. National Audubon Society, New York, New York, USA. Available at: <http://www.shorebirdplan.org>.



April 13, 2017

Re: Lease application for shellfish aquaculture in Tomales Bay

Mr. Craig Shuman
Director, Marine Region, California Department of Fish and Wildlife

Ms. Valerie Termini
Executive Director, California Fish and Game Commission

Ms. Susan Ashcraft,
Marine Advisor, California Fish and Game Commission

Dear Mr. Shuman, Ms. Ashcraft and Ms. Termini,

We write in regard to a new application for an approximately 45-acre lease for oyster and geoduck farming in Tomales Bay included in the California Fish & Game Commission's consent calendar for its February 2017 meeting.¹ We appreciate the thoughtful manner in which the Commission has addressed aquaculture permits in the past and urge the Commission to require a deliberate, fact-based planning process be implemented for Tomales Bay before any new or expanded aquaculture programs are permitted.

Tomales Bay's intertidal and subtidal areas have extraordinary resource values for birds, commercial fish and herring. In sum, the bay is too important for an ad hoc approach to aquaculture permitting that may undermine the Commission's public trust obligations for protection of natural resources, special status species, and recreation. Therefore, we oppose the Commission approving any new aquaculture lease in Tomales Bay unless and until a maximum, permanent footprint and location for aquaculture is identified and adopted by the Commission. Toward that end, we constructively suggest that at its April meeting the Commission take the following steps:

- Adopt a motion to request staff to work with partner agencies to initiate a marine spatial planning exercise to identify a set of aquaculture siting alternatives for the Commission to consider at a later meeting;
- Note that applications for new or expanded aquaculture will be evaluated following the completion of that spatial planning exercise;
- Task staff with immediately reaching out to entities that would be good candidates for the marine spatial planning exercise, e.g. the Ocean Science Trust and/or Ocean Protection Council; and

¹ http://www.fgc.ca.gov/meetings/2017/Feb/exhibits/SS_0209_Item_27_SAShellfish.pdf

- Include a discussion of this issue at the 2017 meeting of the Marine Resources Committee with the goal of providing recommendations for the full Commission.

We appreciate the Commission and Department's work to ensure existing aquaculture leases avoid farming within 10 feet of eelgrass – protecting this vital and rare habitat - and your work conducted in collaboration with local stakeholders to remediate issues associated with abandoned debris.

However, in regard specifically to birds, known impacts of these farming operations to birds in the bay include avoidance of farmed areas by most shorebirds², and disturbance to waterbirds and Pacific black brant³, a California Species of Special Concern, from vessel traffic associated with farm operations. Any new lease application must consider impacts to birds from disturbance and habitat loss or degradation.

Tomales Bay's importance was recognized in 2002 by the **International Ramsar Convention**, which designated the site as a "Wetland of International Significance." There are only 37 Ramsar sites in the United States.⁴ Tomales Bay is a **Global Important Bird Area** and of all the Pt. Reyes wetlands, it consistently supports the highest numbers of wintering and migrant waterbirds. Up to 20,000 shorebirds spend the winter, and an unknown additional number use the bay during migration in the spring and fall. Surveys have documented exceptionally large numbers of bufflehead and brant, which represent 12% and 31%, respectively, of statewide wintering populations.⁵

Remaining intertidal wetlands such as those in Tomales Bay are critical for birds. Over 90% of California's historical two million hectares of wetlands has been lost. Stralberg et al. (2011)⁶ found in California "estuarine habitats including eelgrass, tidal flats and tidal marsh are the most limited in spatial extent, yet support the highest densities of shorebirds and waterbirds." The study's lead author recently confirmed that these habitats can be considered the highest priority for protection from further loss of even small acreages from habitat degradation and conversion, and disturbance.

Black brant are showing signs of stress at the population level^{7,8}, and dramatic decreases in eelgrass areal extent in important brant migratory areas including Morro Bay and San Quintin Bay highlight the importance of evaluating the cumulative impacts to this species from any new farm development.^{9,10,11} Brant and other waterbirds using Tomales Bay, such as canvasback, teal, and northern pintail, are important recreational species for California's recreational hunting community.

² Kelley, J., J. Evens, R. Stallcup, and D. Wimpfheimer. 1996. Effects of aquaculture on habitat use by wintering shorebirds in Tomales Bay, California. *California Fish and Game* 82(4): 160-174.

³ Kelley, J. and J. Evens. 2013. Boating Disturbance to Waterbirds in California Estuaries. ACR Technical Report 89-12-6

⁴ <https://www.fws.gov/international/wildlife-without-borders/ramsar-wetlands-convention.html>

⁵ Important Bird Areas in California. National Audubon Society. <http://netapp.audubon.org/iba/Reports/161>

⁶ Stralberg, R. Cameron, M. Reynolds, C. Hickey, K. Klausmeyer, S. Busby, L. Stenzel, D. Shuford, G. Page. 2011. Identifying habitat conservation priorities and gaps for migratory shorebirds and waterfowl in California. *Biodiversity Conservation* 20: 19-40

⁷ Summary Opinion and Recommendations for Pacific Flyway Brant Management. 13 December 2016. Aaron Christ, Biometrician, USFWS Maritime National Wildlife Refuge, Alaska Region ; Josh Dooley, Wildlife Biologist, USFWS Migratory Bird Management, Headquarters Region ; David Koons, Associate Professor, Department of Wildland Resources, Utah State University; Jim Leafloor, Biologist, Canadian Wildlife Service, Environment Canada

⁸ Leach, A. et al. 2017. Survival and recovery rates of Black Brant from arctic and subarctic breeding areas. *The Journal of Wildlife Management*. In review.

⁹ Merkel & Associates. 2014. San Francisco Bay Eelgrass Inventory. Report for the National Marine Fisheries Service. Santa Rosa

¹⁰ Simancas, J.E. 2013. Assessment of the quality eelgrass habitat for black brant, *Branta bernicla nigricans*, during the non-breeding season of San Quintin, Baja California, Mexico. Master's Thesis. CICESE, Ensenada, Baja California

¹¹ Pacific Watershed Associates. 2015. Preliminary Eelgrass (*Zostera marina*) Mapping and Habitat Characterization, North Humboldt Bay, California. For: Humboldt Bay Harbor, Recreation, and Conservation District Mariculture Pre-Permitting Project, Eureka, California. Pg. 14.

In regard to shorebirds, intertidal mudflats are critical for shorebirds on the Pacific Flyway, and the new lease application overlaps with a key foraging areas in the bay. Kelly (2001) studied shorebirds during the winter only (excluding spring and fall migration, for which there are no readily available published studies) and found that the “northeast shoreline from Sand Point north to Vincent’s Landing also supported relatively high abundances of several species.” Kelly (2001) also notes that “foraging and roosting shorebirds at the northern end of the bay are vulnerable to direct disturbance from concentrated recreational use.” This site-specific information speaks to the importance of a spatial planning process to avoid further degrading or making unavailable feeding and resting habitat to shorebirds.

Key threats to shorebirds include disturbance and habitat loss in wintering and migration areas on the Pacific Flyway. The **2017 Pacific Americas Shorebird Conservation Strategy**¹², a collaboration among numerous binational agencies, academic institutions, and NGOs, notes “the habitats used by shorebirds have been altered dramatically in the last century across the Western Hemisphere and indeed around the world (Hassan *et al.* 2005). Human disturbance is recognized as a key threat in shorebird conservation and recovery plans, as well as in many published studies (see Brown *et al.* 2001; NFWF 2015), and received a high overall threat rating in this Strategy. Human disturbance does not typically destroy habitat but causes disruption to breeding and nonbreeding shorebirds. This, in turn, can have consequences on reproductive success and survivorship (Gill 2007). Shorebirds can exhibit the inability to gain weight and build fat reserves required for long-distance migration because of exclusion, interrupted access or changes in timing of access to food resources or roosting locations (Lafferty 2001).”

The Plan further notes that “even small losses in the extent or quality of available feeding habitat for shorebirds could result in proportionally greater decreases in some wintering shorebird populations,” and identifies the high priority to “protect, maintain, restore and enhance breeding habitats for species of highest conservation concern and at sites of high nonbreeding shorebird concentrations.”

We thank you for your consideration of this issue, and we look forward to Commission, Department and partner agency action toward ensuring protection of birds and other natural resource protection in Tomales Bay.

Sincerely,



Mike Lynes
Director of Public Policy



Anna Weinstein
Marine Program Director

¹² Senner, S. E., B. A. Andres and H. R. Gates (Eds.). 2016. Pacific Americas shorebird conservation strategy. National Audubon Society, New York, New York, USA. Available at: <http://www.shorebirdplan.org>.

TO: Bureau of Land Management, California Dept. of Fish and Wildlife, Fish & Game Commission, Mono County Board of Supervisors

Dear Sirs,

December, 2016

The Mono County Fisheries Commission (MCFC) is concerned about our wild trout populations in the Eastern Sierra especially considering the introduction of triploid stocked Rainbow trout by CDFW. We are supportive of seeing Lahontan Cutthroat Trout (LCT) being populated into Lower Slinkard Creek in the Walker Basin.

The current strategy in the Walker Basin has been to secure and maintain the existing headwater populations of LCT and to expand the LCT habitat specifically on Lower Slinkard Creek. Since 2003, a series of fires resulted in 1.25 miles of brook trout occupation and since. CDFW has attempted to obtain funding and crews to remove the remaining brook trout from Lower Slinkard Creek. Crews have attempted to remove the brook trout with blasting and electroshocking, spending well over \$100,000 and the project is nowhere near complete. Approximately 3 miles of stream need to have brook trout removed as well as re-surveys of previously treated streams.

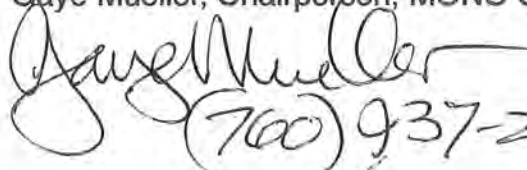
CDFW has collaborated to try other methods of eradication of the brook trout in the past decade and feels the most cost effective solution is to treat the waters with rotenone. Through the mid-1990's, active management using rotenone has restored four headwater population. Slinkard Creek, which flows through the CDFW Little Antelope Wildlife Area and BLM lands, was the first water to be treated with rotenone in the Walker Basin for LCT, but due to the presence of an effective barrier on State land, only one mile of stream was treated.

Mono County Fisheries Commission is requesting that BLM and CDFW allow the use of rotenone to restore a native population of LCT in Lower Slinkard Creek. The treatment would be timed for late Fall when water flows are lower with an attempt to conduct 2 treatments in the same season. Detoxification with potassium permanganate will occur but the detoxified water will not reach the West Walker River, as most of the whole of Slinkard Creek is diverted into agricultural ditches. Many LCT currently in the lower section of Slinkard Creek will be removed prior to treatment.

MCFC Is committed to seeing the sustainability of our LCT population. We have funded a study by Trout Unlimited and CDFW to analyze the spawning of the spring LCT in Rush Creek. Working with TU and Cal Trout, we hope to continue this study to the spawning streams in McGee Creek. And we are watching the development of a private LCT Hatchery in Smith Valley, Nevada.

Please consider our request to use rotenone to remove brook trout from wild trout LCT waters of Lower Slinkard Creek as we feel CDFW's biologists have devoted decades of study on the most effective way to sustain wild LCT populations.

Gaye Mueller, Chairperson, MONO COUNTY FISHERIES COMMISSION


(760) 937-2942

2017 JAN 23 AM 7:30
RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION

TO: Bureau of Land Management, California Dept. of Fish and Wildlife, Fish & Game Commission, Mono County Board of Supervisors

Dear Sirs,

December, 2016

The Mono County Fisheries Commission (MCFC) is concerned about our wild trout populations in the Eastern Sierra especially considering the introduction of triploid stocked Rainbow trout by CDFW. We are supportive of seeing Lahontan Cutthroat Trout (LCT) being populated into Lower Slinkard Creek in the Walker Basin.

The current strategy in the Walker Basin has been to secure and maintain the existing headwater populations of LCT and to expand the LCT habitat specifically on Lower Slinkard Creek. Since 2003, a series of fires resulted in 1.25 miles of brook trout occupation and since. CDFW has attempted to obtain funding and crews to remove the remaining brook trout from Lower Slinkard Creek. Crews have attempted to remove the brook trout with blasting and electroshocking, spending well over \$100,000 and the project is nowhere near complete. Approximately 3 miles of stream need to have brook trout removed as well as re-surveys of previously treated streams.

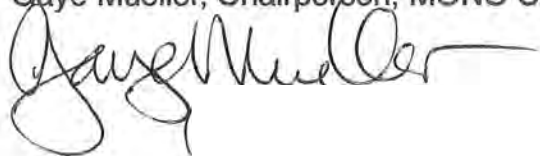
CDFW has collaborated to try other methods of eradication of the brook trout in the past decade and feels the most cost effective solution is to treat the waters with rotenone. Through the mid-1990's, active management using rotenone has restored four headwater population. Slinkard Creek, which flows through the CDFW Little Antelope Wildlife Area and BLM lands, was the first water to be treated with rotenone in the Walker Basin for LCT, but due to the presence of an effective barrier on State land, only one mile of stream was treated.

Mono County Fisheries Commission is requesting that BLM and CDFW allow the use of rotenone to restore a native population of LCT in Lower Slinkard Creek. The treatment would be timed for late Fall when water flows are lower with an attempt to conduct 2 treatments in the same season. Detoxification with potassium permanganate will occur but the detoxified water will not reach the West Walker River, as most of the whole of Slinkard Creek is diverted into agricultural ditches. Many LCT currently in the lower section of Slinkard Creek will be removed prior to treatment.

MCFC Is committed to seeing the sustainability of our LCT population. We have funded a study by Trout Unlimited and CDFW to analyze the spawning of the spring LCT in Rush Creek. Working with TU and Cal Trout, we hope to continue this study to the spawning streams in McGee Creek. And we are watching the development of a private LCT Hatchery in Smith Valley, Nevada.

Please consider our request to use rotenone to remove brook trout from wild trout LCT waters of Lower Slinkard Creek as we feel CDFW's biologists have devoted decades of study on the most effective way to sustain wild LCT populations.

Gaye Mueller, Chairperson, MONO COUNTY FISHERIES COMMISSION



2017 JAN 23 AM 7:30
RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION
MCS

2017 APR 17 10 12

Memorandum

Date: April 17, 2017

To: Valerie Termini
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director

Subject: **Evaluation of the Petition to List Foothill Yellow-legged Frog (*Rana boylii*) as Threatened under the California Endangered Species Act**

The California Department of Fish and Wildlife (Department) has completed its evaluation of the Petition to list Foothill Yellow-legged Frog as a threatened species (Petition) under the California Endangered Species Act, Fish and Game Code section 2050 et seq. The California Fish and Game Commission (Commission) received the Petition from the Center for Biological Diversity on December 14, 2016. Pursuant to Fish and Game Code section 2073, the Commission referred the Petition to the Department on December 22, 2016. In accordance with Fish and Game Code section 2073.5, subdivision (b), on February 14, 2017, the Department timely requested a 30-day extension to further analyze the Petition and complete its evaluation report.

The Department completed the attached Petition evaluation report pursuant to Fish and Game Code section 2073.5. (See also Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1).). The Department's evaluation report delineates the categories of information required in a petition, evaluates the sufficiency of the available scientific information regarding each of the Petition components, and incorporates additional relevant information that the Department possessed or received during the review period. Based upon the information contained in the petition and other relevant information in the Department's possession, the Department has determined that there is sufficient scientific information available at this time to indicate that the petitioned action may be warranted. The Department recommends that the Petition be accepted and considered.

If you have any questions or need additional information, please contact Mr. T.O. Smith, Wildlife Branch Chief, at (916) 445-3555 or by email at Timothy.Smith@wildlife.ca.gov or Mr. Kevin Shaffer, Fisheries Branch Chief, at (916) 327-8841 or by email at Kevin.Shaffer@wildlife.ca.gov.

Attachment

Valerie Termini, Executive Director
Fish and Game Commission
April 17, 2017
Page 2

cc: **California Department of Fish and Wildlife**

Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

Wendy Bogdan, General Counsel
Office of the General Counsel
Wendy.Bogdan@wildlife.ca.gov

Nathan Voegeli, Attorney
Office of the General Counsel
Nathan.Voegeli@wildlife.ca.gov

T.O. Smith, Chief
Wildlife Branch
Timothy.Smith@wildlife.ca.gov

Kevin Shaffer, Chief
Fisheries Branch
Kevin.Shaffer@wildlife.ca.gov

**State of California
Natural Resources Agency
Department of Fish and Wildlife**

REPORT TO THE FISH AND GAME COMMISSION

**EVALUATION OF THE PETITION
FROM THE CENTER FOR BIOLOGICAL DIVERSITY
TO LIST THE FOOTHILL YELLOW-LEGGED FROG (*RANA BOYLI*)
AS THREATENED UNDER THE CALIFORNIA ENDANGERED SPECIES ACT**



**Prepared by
California Department of Fish and Wildlife**

April 2017



Table of Contents

I. Executive Summary	1
II. Introduction	2
A. Candidacy Evaluation	2
B. Petition History	4
C. Overview of Foothill Yellow-legged Frog Ecology	5
III. Sufficiency of Scientific Information to Indicate the Petitioned Action May Be Warranted	6
A. Range.....	6
1. Scientific Information in the Petition	6
2. Other Relevant Scientific Information.....	7
3. Sufficiency of the Petition with regard to Range	7
B. Kind of Habitat Necessary for Survival.....	7
1. Scientific Information in the Petition	7
2. Other Relevant Scientific Information.....	8
3. Sufficiency of the Petition with regard to Kind of Habitat Necessary for Survival	9
C. Life History	9
1. Scientific Information in the Petition	9
2. Other Relevant Scientific Information.....	11
3. Sufficiency of the Petition with regard to Life History	11
D. Distribution and Abundance.....	11
1. Scientific Information in the Petition	11
2. Other Relevant Scientific Information.....	23
3. Sufficiency of the Petition with regard to Distribution and Abundance	26
E. Population Trend	26
1. Scientific Information in the Petition	26
2. Other Relevant Scientific Information.....	28
3. Sufficiency of the Petition with regard to Population Trend	28
F. Factors Affecting the Ability to Survive and Reproduce and Degree and Immediacy of Threat.....	29
1. Scientific Information in the Petition	29
2. Other Relevant Scientific Information.....	36

3. Sufficiency of the Petition with regard to Factors Affecting the Ability to Survive and Reproduce and Degree and Immediacy of Threat	36
G. Impact of Existing Management Efforts	36
1. Information in the Petition	36
2. Other Relevant Information.....	40
3. Sufficiency of the Petition with regard to Impacts of Existing Management Efforts ...	40
H. Suggestions for Future Management.....	41
1. Information in the Petition	41
2. Other Relevant Information.....	42
3. Sufficiency of the Petition with regard to Suggestions for Future Management.....	42
I. Availability and Sources of Information	43
1. Information in the Petition	43
2. Other Relevant Information.....	43
3. Sufficiency of the Petition with regard to Availability and Sources of Information	43
J. Detailed Distribution Map.....	43
1. Information in the Petition	43
2. Other Relevant Information.....	43
3. Sufficiency of the Petition with regard to a Detailed Distribution Map	43
IV. Status of the Species	43
V. Literature Cited.....	44

I. Executive Summary

The Center for Biological Diversity (CBD) submitted a petition (Petition) to the Fish and Game Commission (Commission) to list the Foothill Yellow-legged Frog (*Rana boylei*) as threatened pursuant to the California Endangered Species Act (CESA), Fish and Game Code Section 2050 et seq.

The Commission referred the Petition to the Department of Fish and Wildlife (Department) in accordance with Fish and Game Code Section 2073. (Cal. Reg. Notice Register 2017, No. 3-Z, p. 46.) Pursuant to Fish and Game Code Section 2073.5 and Section 670.1 of Title 14 of the California Code of Regulations, the Department has prepared this evaluation report for the Petition (Petition Evaluation). The Petition Evaluation is an evaluation of the scientific information discussed and cited in the Petition in relation to other relevant and available scientific information possessed by the Department during the evaluation period. The Department's recommendation as to whether to make Foothill Yellow-legged Frog a candidate for listing under CESA is based on an assessment of whether the scientific information in the Petition is sufficient under the criteria prescribed by CESA to consider listing Foothill Yellow-legged Frog as threatened.

After reviewing the Petition and other relevant information, the Department makes the following findings:

- Population Trend. The Petition contains sufficient scientific information to indicate that Foothill Yellow-legged Frog populations have declined in portions of the species' range in California.
- Range. The Petition contains sufficient scientific information to indicate that the Foothill Yellow-legged Frog's occupied range in California has been reduced from its historical extent due to population extirpations, particularly in southern California and the southern Sierra Nevada.
- Distribution. The Petition contains sufficient scientific information to indicate that the distribution of extant Foothill Yellow-legged Frog populations within the species' current range has been reduced throughout much of California.
- Abundance. The Petition contains sufficient scientific information to indicate that the abundance of remaining Foothill Yellow-legged Frog populations have been reduced from historical numbers throughout parts of California.
- Life History. The Petition contains sufficient scientific information to indicate that some of the Foothill Yellow-legged Frog's life history traits render it particularly vulnerable to natural and anthropogenic impacts.

- Kind of Habitat Necessary for Survival. The Petition contains sufficient scientific information to indicate that Foothill Yellow-legged Frogs require specific habitat conditions for survival, particularly during early life stages.
- Factors Affecting the Ability to Survive and Reproduce. The Petition contains sufficient scientific information to indicate that Foothill Yellow-legged Frogs are adversely affected by a number of threats including, but not limited to, dams and diversions, invasive species, climate change, and pollutants.
- Degree and Immediacy of Threat. The Petition contains sufficient scientific information to indicate that impacts from the main factors threatening the long-term survival of Foothill Yellow-legged Frogs will continue and potentially worsen in the future.
- Impacts of Existing Management. The Petition contains sufficient scientific information to indicate that existing regulatory mechanisms and management plans do not adequately protect Yellow-legged Frogs from some impacts that threaten their long-term survival.
- Suggestions for Future Management. The Petition contains sufficient scientific information on additional management actions that may aid in maintaining and increasing self-sustaining populations of Foothill Yellow-legged Frogs in California.
- Availability and Sources of Information. The Petition contains a 35-page bibliography of literature cited and personal communications with credible sources, nearly all of which were provided to the Department on a CD upon request.
- A Detailed Distribution Map. The Petition contains four detailed maps containing information on the historical and contemporary distribution of Foothill Yellow-legged Frogs.

In completing its Petition Evaluation, the Department has determined the Petition provides sufficient scientific information to indicate that the petitioned action may be warranted. Therefore, the Department recommends the Commission accept the Petition for further consideration under CESA.

II. Introduction

A. Candidacy Evaluation

CESA sets forth a two-step process for listing a species as threatened or endangered. First, the Commission determines whether to designate a species as a candidate for listing by determining whether the petition provides “sufficient information to indicate that the petitioned action may be warranted.” (Fish & G. Code, § 2074.2, subd. (e)(2).) If the petition is accepted for consideration, the second step requires the Department to produce within 12 months of the Commission’s acceptance of the petition a peer reviewed report based upon the best scientific information available that indicates whether the petitioned action is warranted. (Fish & G. Code,

§ 2074.6.) The Commission based on that report and other information in the administrative record, then determines whether or not the petitioned action to list the species as threatened or endangered is warranted. (Fish & G. Code, § 2075.5.)

A petition to list a species under CESA must include “information regarding the population trend, range, distribution, abundance, and life history of a species, the factors affecting the ability of the population to survive and reproduce, the degree and immediacy of the threat, the impact of existing management efforts, suggestions for future management, and the availability and sources of information. The petition shall also include information regarding the kind of habitat necessary for species survival, a detailed distribution map, and other factors the petitioner deems relevant.” (Fish & G. Code, § 2072.3; see also Cal. Code Regs., tit. 14, § 670.1, subd. (d)(1).) The range of a species for the Department’s petition evaluation and recommendation is the species’ California range. (*Cal. Forestry Assn. v. Cal. Fish and Game Com.* (2007) 156 Cal. App. 4th 1535, 1551.)

Within 10 days of receipt of a petition, the Commission must refer the petition to the Department for evaluation. (Fish & G. Code, § 2073.) The Commission must also publish notice of receipt of the petition in the California Regulatory Notice Register. (Fish & G. Code, § 2073.3.) Within 90 days of receipt of the petition, the Department must evaluate the petition on its face and in relation to other relevant information and submit to the Commission a written evaluation report with one of the following recommendations:

- Based upon the information contained in the petition, there is not sufficient information to indicate that the petitioned action may be warranted, and the petition should be rejected; or
- Based upon the information contained in the petition, there is sufficient information to indicate that the petitioned action may be warranted, and the petition should be accepted and considered.

(Fish & G. Code, § 2073.5, subd. (a)(1) and (a)(2).) The Department’s candidacy recommendation to the Commission is based on an evaluation of whether or not the petition provides sufficient scientific information relevant to the petition components set forth in Fish and Game Code Section 2072.3 and the California Code of Regulations, Title 14, Section 670.1, subdivision (d)(1).

In *Center for Biological Diversity v. California Fish and Game Commission* (2008) 166 Cal.App.4th 597, the California Court of Appeals addressed the parameters of the Commission’s determination of whether a petitioned action should be accepted for consideration pursuant to Fish and Game Code Section 2074.2, subdivision (e), resulting in the species being listed as a candidate species. The court began its discussion by describing the standard for accepting a petition for consideration previously set forth in *Natural Resources Defense Council v. California Fish and Game Commission* (1994) 28 Cal.App.4th 1104:

As we explained in *Natural Resources Defense Council* [citation], “the term ‘sufficient information’ in section 2074.2 means that amount of information, when

considered with the Department's written report and the comments received, that would lead a reasonable person to conclude the petitioned action may be warranted." The phrase "may be warranted" "is appropriately characterized as a 'substantial possibility that listing could occur.'" [Citation.] "Substantial possibility," in turn, means something more than the one-sided "reasonable possibility" test for an environmental impact report but does not require that listing be more likely than not. [Citation.]

(*Center for Biological Diversity, supra*, 166 Cal.App.4th at pp. 609-10.) The court acknowledged that "the Commission is the finder of fact in the first instance in evaluating the information in the record." (*Id.* at p. 611.) However, the court clarified:

[T]he standard, at this threshold in the listing process, requires only that a substantial possibility of listing could be found by an objective, reasonable person. The Commission is not free to choose between conflicting inferences on subordinate issues and thereafter rely upon those choices in assessing how a reasonable person would view the listing decision. Its decision turns not on rationally based doubt about listing, but on the absence of any substantial possibility that the species could be listed after the requisite review of the status of the species by the Department under [Fish and Game Code] section 2074.6.

(*Ibid.*)

B. Petition History

On December 14, 2016, CBD submitted the Petition to the Commission to list Foothill Yellow-legged Frog as threatened under CESA. On December 22, 2016, the Commission referred the Petition to the Department for evaluation. The Department requested of the Commission a 30-day extension to the 90-day Petition evaluation period on February 14, 2017. This Petition Evaluation report was submitted to the Commission on April 26, 2017.

The Department evaluated the scientific information presented in the Petition as well as other relevant information the Department possessed at the time of review. The Department did not receive any information from the public during the Petition Evaluation period pursuant to Fish and Game Code Section 2073.4. Pursuant to Fish and Game Code Section 2072.3 and Section 670.1, subdivision (d)(1), of Title 14 of the California Code of Regulations, the Department evaluated whether the Petition includes sufficient scientific information regarding each of the following petition components to indicate that the petitioned action may be warranted:

- Population trend;
- Range;
- Distribution;
- Abundance;

- Life history;
- Kind of habitat necessary for survival;
- Factors affecting ability to survive and reproduce;
- Degree and immediacy of threat;
- Impacts of existing management;
- Suggestions for future management;
- Availability and sources of information; and
- A detailed distribution map.

C. Overview of Foothill Yellow-legged Frog Ecology

Foothill Yellow-legged Frogs (*Rana boylei*) are part of the “true frog” family Ranidae. Species within the genus *Rana* from western North America possess dorsolateral folds, a glandular ridge extending from the eye area to the rump, a feature that is indistinct in Foothill Yellow-legged Frogs (Stebbins and McGinnis 2012). Foothill Yellow-legged Frogs are small- to medium-sized frogs with granular skin, even on the tympana, that gives them a rough appearance (Nussbaum et al. 1983, Stebbins and McGinnis 2012). Their dorsal coloration is typically gray, brown, reddish, or olive with brown-black flecking and mottling, which generally matches the substrate of stream in which they reside, and as their name suggests, the underside of their hind limbs and lower abdomen are yellow (Ibid.).

The Foothill Yellow-legged Frog was first described as a unique species in 1854, but a century of taxonomic uncertainty regarding its relationship with other Ranids followed before it was eventually recognized as a distinct species again by Zweifel (1955, 1968). Lind et al. (2011) identified substantial genetic partitioning between coastal and Sierra Nevada populations, two distinct northerly groupings, and a single sample in the southern Sierra Nevada from those in the central and northern Sierra Nevada. Individuals separated by a distance of 10 km (6.2 mi) may be effectively genetically isolated from one another (Dever 2007). Genetic isolation can occur at even shorter distances when populations are separated by dams, reservoirs, or reaches downstream of dams where flows fluctuate artificially (Peek 2010, 2012).

Foothill Yellow-legged Frogs historically ranged from the Willamette River drainage in Oregon to at least the San Gabriel River drainage in Los Angeles County, California, in foothill and mountain streams east of the Sierra-Cascade crest from sea level to 1,940 m (6,400 ft) (Hemphill 1952, Nussbaum et al. 1983, Stebbins 2003). Extirpations in the northern and southern portions of the species’ range have resulted in a reduction in its current range from its historical extent; it appears to have disappeared from previously occupied sites south of Monterey County and in the southern Sierra Nevada (Hayes et al. 2016, Jennings and Hayes 1994, USFS 2011).

Foothill Yellow-legged Frogs inhabit partially shaded, rocky perennial streams and rivers at low to moderate elevations across a range of vegetation types including chaparral, oak woodland, mixed coniferous forest, riparian sycamore and cottonwood forest, and wet meadows (Hayes and Jennings 1988, Nussbaum et al. 1983, Stebbins 1985). They have also been observed using isolated pools, vegetated backwaters, and streams lacking a rocky, cobble substrate (Ashton et al. 1998, Fitch 1938, Hayes and Jennings 1988). Post-metamorphic frogs (i.e., juveniles and adults) may overwinter in refugia from high winter flows such as small tributary streams, seeps, springs, and clumps of woody debris or vegetation (Bourque 2008, Gonsolin 2010, Rombough 2006, Van Wagner 1996). Breeding habitat is typically associated with low-gradient stream reaches at depositional features like lateral point bars and pool tail-outs, and egg masses are usually deposited on the downstream side of rocky substrates in shallow slow-moving water near the stream margin (Bondi et al. 2013, Kupferberg 1996a, Wheeler and Welsh 2008).

Foothill Yellow-legged Frog larvae (i.e., tadpoles) graze on algae attached to rocks and plants, while post-metamorphic frogs consume primarily terrestrial invertebrates, although aquatic invertebrates are also occasionally eaten (Ashton et al. 1998, Csuti et al. 2001, Fitch 1936, Jennings and Hayes 1994, Kupferberg 1997b, Nussbaum et al. 1983, Van Wagner 1996). A wide variety of native and non-native species prey on Foothill Yellow-legged Frogs including signal crayfish (*Pacifasticus leniusculus*), caddisfly larvae (Limnephilidae), California Giant Salamander larvae (*Dicamptodon ensatus*), Rough-skinned Newts (*Taricha granulosa*), American Bullfrogs (*Rana catesbeiana*), gartersnakes (*Thamnophis* spp.), mallards (*Anas platyrhynchos*), river otters (*Lontra* (= *Lutra*) *canadensis*), Centrarchids like bass (*Micropterus* spp.), Cyprinids like Sacramento pikeminnow (*Ptychocheilus grandis*), and other fish (Ashton and Nakamoto 2007, Corum 2003, Evenden 1948, Fidenci 2006, Fitch 1941, Hayes and Jennings 1988, Hayes et al. 2016, Kupferberg 1996a, Kupferberg 1997a, Paoletti et al. 2011, Rombough et al. 2005a, Rombough and Hayes 2005, Wiseman et al. 2005, Zweifel 1955).

III. Sufficiency of Scientific Information to Indicate the Petitioned Action May Be Warranted

The order in which the petition components are evaluated below reflects the order that they were provided in the Petition. This differs from their sequence in Fish and Game Code section 2072.3 and Section 670.1, subdivision (d)(1), of Title 14 of the California Code of Regulations, as well as in the Executive Summary and Introduction of this Petition Evaluation.

A. Range

1. Scientific Information in the Petition

The Petition, on pages 6 through 10, provides the following information on the Foothill Yellow-legged Frog's historical and current range. However, for purposes of this Petition Evaluation,

“range” is limited to the species’ California range. (*Cal. Forestry Assn. v. Cal. Fish and Game Com.*, *supra*, 156 Cal. App. 4th at p. 1551.)

The historical range of the Foothill Yellow-legged Frog included lower elevation streams draining the Pacific slope from the upper reaches of the Willamette River system in Oregon to northwestern Baja California (Hayes et al. 2016, NatureServe 2011). In California, the species occurred from the Oregon border to at least as far south as the Upper San Gabriel River, Los Angeles County, and may have occurred as far south as Orange County, southwestern San Bernardino County, and San Diego County.

The species has disappeared from more than half of its historically occupied sites in California and Oregon, which has resulted in range contractions at the northern and southern boundaries (Lind 2005). In California, the species’ decline is most severe in southern California where it appears to have been completely extirpated south of San Luis Obispo County and in the southern Sierra Nevada (Hayes et al. 2016, Jennings and Hayes 1994, USFS 2011).

2. Other Relevant Scientific Information

According to Thomson et al. (2016), the Foothill Yellow-legged Frog’s presence in Baja California is based on an unverified account described by Loomis (1965). The Foothill Yellow-legged Frog’s elevation range has been reported to extend from sea level to approximately 1,830 m (6,000 ft) (Stebbins and McGinnis 2012), although Hemphill (1952) observed the species at 1,940 m (6,400 ft).

3. Sufficiency of the Petition with regard to Range

The Department concludes that the Petition contains sufficient information on the historical and contemporary ranges of the species, which suggests the Foothill Yellow-legged Frog’s range has contracted in southern California and the southern Sierra Nevada due to extirpation of populations once occurring in these regions.

B. Kind of Habitat Necessary for Survival

1. Scientific Information in the Petition

The Petition, on pages 11 and 12, provides the following information regarding Foothill Yellow-legged Frog habitat requirements.

In general Foothill Yellow-legged Frogs inhabit partially shaded, rocky perennial streams and rivers at low to moderate elevations across a range of vegetation types including chaparral, oak woodland, mixed coniferous forest, riparian sycamore and cottonwood forest, and wet meadows (Hayes and Jennings 1988, Nussbaum et al. 1983, Stebbins 1985). Within a single watershed, Foothill Yellow-legged Frogs can be found in first- to seventh- order streams (Bury and Sisk 1997), but occupied sites are typically small- to mid-sized streams with shallow flowing water (Hayes and Jennings 1988). They are mostly found near water, often in or near riffles and on open sunny banks (Stebbins 1985) but have been found as far as 80 m (262 ft) from water

(Rombough pers. comm. in Olson and Davis 2009). Foothill Yellow-legged Frogs have also been documented in atypical habitats like isolated pools, vegetated backwaters, and streams lacking a rocky, cobble substrate (Ashton et al. 1998, Fitch 1938, Hayes and Jennings 1988). Presence of introduced aquatic predators such as bullfrogs (*Rana catesbeiana*) and bass (*Micropterus* spp.) are negatively correlated with Foothill Yellow-legged Frog occurrence and abundance, even in otherwise suitable habitat (Hayes and Jennings 1986, 1988; Kupferberg 1997a).

Habitat requirements vary seasonally and by life stage. Juveniles and adults appear to overwinter in refugia from high winter flows such as small tributary streams, seeps, springs, and clumps of woody debris or vegetation (Bourque 2008, Gonsolin 2010, Rombough 2006, Van Wagner 1996). Breeding habitat is typically associated with low-gradient stream reaches at depositional features like lateral point bars and pool tail-outs (Kupferberg 1996a, Wheeler and Welsh 2008). Within these areas, females often deposit egg masses in shallow water toward the margin of the stream on the downstream side of rocky substrates within a narrow range of flow velocities (Bondi et al. 2013, Kupferberg 1996a), although they have been documented to oviposit at depths greater than 1 m (3.3 ft) and distances up to 20 m (65.6 ft) from the water's edge (Mokelumne River, unpublished data from Garcia and Associates for PG&E). Cobble and pebble are the preferred substrate for oviposition, but egg masses have also been found attached to aquatic vegetation, woody debris, gravel, and bedrock (Ashton et al. 1998, Bondi et al. 2013, Fuller and Lind 1992). Larvae actively thermoregulate (Brattstrom 1962) and prefer warm temperatures at or above 20° C (68° F) (Kupferberg et al. 2013). They require protection from swift flowing water, especially when they are approaching metamorphosis and are poor swimmers (Kupferberg et al. 2011).

2. Other Relevant Scientific Information

The Department possesses the following additional information relating to the Foothill Yellow-legged Frog's thermal and flow velocity habitat requirements.

Based on breeding experiments undertaken by Zweifel (1955), Thomson et al. (2016) report the critical thermal maximum (the temperature above which most individuals die) for Foothill Yellow-legged Frog embryos is 26° C (79° F). Catenazzi and Kupferberg (2013) reported that larvae preferred temperatures between 16.5 and 22.2° C (61.7 to 72.0° F) and that mortality increased within increasing deviation from this range in both warmer and cooler directions. They also found that Foothill Yellow-legged Frog distribution and abundance was positively associated with larval thermal preference (Ibid.).

Eggs are often deposited in areas with flows below 5 cm/s (9.8 ft/min) (Hayes et al. 2016). The flow velocity threshold at which egg masses will be scoured and displaced depends on factors such as water depth and the amount of protection provided by the substrate to which the egg mass is attached but can occur at mean column velocities of 10 cm/s (19.7 ft/min) or greater (Ibid.). This critical velocity for egg mass shearing is expected to become slower over the duration of development as layers of egg mass jelly disintegrate (Ibid.).

Low flow velocities are also particularly important during certain stages in larval development. Immediately after hatching and as they approach metamorphosis larvae are relatively poor swimmers (Kupferberg et al. 2011). Larvae swim freely in flows between 0 and 2 cm/s (0 to 3.9 ft/min) and seek shelter within the interstices of rocky substrates when velocities increase (Ibid.). While the velocity required to flush Foothill Yellow-legged Frog larvae downstream varies inversely with size, developmental stage, and proportion of time spent swimming, median critical velocity was determined to be 20.1 cm/s (39.6 ft/min), although flows as low as 10 cm/s (19.7 ft/min) were able to displace larvae approaching metamorphosis (Ibid.).

3. Sufficiency of the Petition with regard to Kind of Habitat Necessary for Survival

The Department concludes that Petition contains sufficient information on the breadth habitat types used by Foothill Yellow-legged Frogs, including information that suggests the species requires specific habitat conditions for survival, particularly during early life stages.

C. Life History

1. Scientific Information in the Petition

The Petition, on pages 5 and 6 and 11 through 14, provides the following information on Foothill Yellow-legged Frog life history, which includes descriptions of the species' identification, taxonomy, life cycle, diet, home range and movements, and mortality.

Foothill Yellow-legged Frogs are moderate in size, adults ranging from 37 – 82 mm (1.5 – 3.2 in) snout to urostyle length (SUL), with indistinct dorsolateral folds, fully webbed feet, slightly expanded toe tips, and rough pebbly skin (Stebbins 1951, 2003; Zweifel 1955). Their dorsal coloration is usually light and dark mottled gray, olive, or brown with variable amounts of brick red; a pale triangle is often present between the eyes and snout; and the undersides of the rear legs and posterior abdomen are yellow, fading into white anteriorly (Jones et al. 2005, Nussbaum et al. 1983, Stebbins 1951, Zweifel 1955). The species is sexually dimorphic; females attain a larger size than males, and mature males possess nuptial pads and proportionately larger forearm muscles and narrower waists than females (Hayes et al. 2016, Jennings and Hayes 1994). Juveniles look similar to adults except they are smaller (14 – 36 mm [0.6 – 1.4 in] SUL), have a more contrasting color, and lack significant yellow on their undersides (Jones et al. 2005, Nussbaum et al. 1983, Stebbins 1951, Zweifel 1955). Foothill Yellow-legged Frog larvae hatch out a dark brown or black but turn olive with a coarse brown mottling above and an opaque silvery color below (Hayes et al. 2016). Their eyes are positioned dorsally when viewed from above (i.e., within the outline of the head), and their mouths are large, downward-oriented and suction-like with several tooth rows (Ibid.). Foothill Yellow-legged Frog egg masses resemble a cluster of grapes approximately 45 to 90 mm diameter length-wise (1.8 – 3.5 in) and contain anywhere from about 100 to over 3,000 eggs (Hayes et al. 2016, Kupferberg et al. 2009c). The individual eggs are dark brown to black and surrounded by three jelly envelopes that range in diameter from approximately 3.9 to 6.0 mm (0.15 – 0.25 in) (Hayes et al. 2016, Storer 1925, Zweifel 1955).

Foothill Yellow-legged Frogs belong to the family Ranidae and were first described by Baird in 1854 as *Rana boylei* (Zweifel 1955). After substantial taxonomic uncertainty and several name changes, it was eventually recognized as a distinct species again by Zweifel (1955, 1968). Previously thought to be most closely related to Mountain Yellow-legged Frogs (*R. muscosa*) based on morphology (Zweifel 1955), genetic analyses undertaken by Macey et al. (2001) suggest they are more closely related to Oregon Spotted Frogs (*R. pretiosa*). Genetic differentiation within the species was recently described by Lind et al. (2011), who identified substantial partitioning between coastal and Sierra Nevada populations, two distinct northerly groupings, and a single sample in the southern Sierra Nevada from those in the central and northern Sierra Nevada. A genetic study by Dever (2007) suggested that individuals separated by a distance of 10 km (6.2 mi) may be effectively isolated from one another and not part of the same interbreeding population. Peek (2010, 2012) found that when populations are separated by dams, reservoirs, or reaches downstream of dams where flows fluctuate artificially, genetic isolation can be observed at even shorter distances.

The Foothill Yellow-legged Frog's life cycle is closely tied to seasonal timing of streamflow. Movement to breeding sites is triggered by warming water temperatures, decreasing flows, and increasing daylight. Adult males are likely territorial during breeding season but are infrequently heard; most calling occurs underwater (MacTauge and Northen 1993). Breeding begins as early as March at relatively warm coastal sites and as late as July in areas with snowmelt-dominated rivers (Ashton et al. 1998, Storer 1925, Wheeler et al. 2015, Zweifel 1955). Larvae can hatch in as few as 5 days or greater than 35 days depending on temperature (Ashton et al. 1998, Zweifel 1955). They typically remain near the egg mass for several days and then disperse a short distance into the interstitial spaces of the rocky substrate and may move downstream with moderate currents (Ashton et al. 1998). Duration of development and survival to metamorphosis are influenced by water temperature and velocity and quality and quantity of algal resources (Catenazzi and Kupferberg 2013, Furey et al. 2014, Kupferberg et al. 2011, Railsback et al. 2016). Time to metamorphosis typically takes three to four months (Zweifel 1955), and sexual maturity is usually attained at age one or two in males and two or three in females depending on latitude and elevation (Gonsolin 2010, Kupferberg et al. 2009c).

Foothill Yellow-legged Frog diet differs by life stage. Larvae scrape algae from rocks and plants and appear to grow fastest on epiphytic diatoms on filamentous algae such as *Cladophora* sp., which they have been observed preferentially feeding on (Ashton et al. 1998, Jennings and Hayes 1994, Kupferberg 1997b). Post-metamorphic Foothill Yellow-legged Frogs primarily feed on a variety of terrestrial invertebrates, although some aquatic invertebrates are also consumed. Prey items include flies, moths, mosquitos, hornets, ants, beetles, grasshoppers, water striders, snails, and arachnids (Csuti et al. 2001, Fitch 1936, Nussbaum et al. 1983, Van Wagner 1996).

Foothill Yellow-legged Frogs are primarily diurnal and may be active year-round where winter temperatures are warm enough (Airola 1980). Peak activity is in April and May during the breeding season (Airola 1980, Gonsolin 2010). Home range size and patterns of dispersal are not well understood (Jennings and Hayes 1994). Foothill Yellow-legged Frogs often use watercourses as movement corridors (Nussbaum et al. 1983) and are rarely found greater than 12 m (39 ft) from the stream channel (Bourque 2008), although one post-breeding female was

radio-tracked over a period of 60 days moving up a perennial stream channel to intermittent and tributary channels, over a ridge, and eventually downstream into perennial waters in an adjacent watershed (Bourque pers. comm. in Olson and Davis 2009). Bourque (2008) reported movement distances to and from breeding sites as far as 0.65 km (0.4 mi) for males and 7.04 km (4.4 mi) for females with median daily movements of 65.7 m (216 ft) and 70.7 m (232 ft), respectively. During the breeding season, adults congregate around breeding pools and become scarce by late summer, potentially dispersing into uplands or tributaries or reducing diurnal behavior (Ashton et al. 1998). Recently metamorphosed frogs show a strong tendency to move upstream during the fall and winter (Twitty et al. 1967).

Foothill Yellow-legged Frogs are preyed upon by a wide range of species during different life stages. Predators on eggs and larvae include signal crayfish (*Pacifasticus leniusculus*) and caddisfly larvae (Limnephilidae) (Kupferberg 1996a, Rombough and Hayes 2005), and Rough-skinned Newts (*Taricha granulosa*) (Evenden 1948). Post-metamorphic frogs are preyed upon by gartersnakes (*Thamnophis* spp.), (Fitch 1941, Zweifel 1955), river otters (*Lontra* (= *Lutra*) *canadensis*) (Hayes et al. 2016), and mallards (*Anas platyrhynchos*) (Rombough et al. 2005a). Foothill Yellow-legged Frogs are also vulnerable to predation by fishes, native and non-native, including bass, Sacramento pikeminnow (*Ptychocheilus grandis*), and others (Ashton and Nakamoto 2007 [cited as Ashton and Nakamoto 1997 in the Petition], Corum 2003, Hayes and Jennings 1988, Paoletti et al. 2011, Rombough and Hayes 2005).

2. Other Relevant Scientific Information

The Department does not possess any relevant scientific information regarding Foothill Yellow-legged Frog life history beyond what was provided in the Petition.

3. Sufficiency of the Petition with regard to Life History

The Department concludes the Petition contains sufficient information on the Foothill Yellow-legged Frog's life history to demonstrate some aspects may render it particularly vulnerable to natural and anthropogenic impacts.

D. Distribution and Abundance

1. Scientific Information in the Petition

The Petition, on pages 14 through 95, contains extensive detail on changes in Foothill Yellow-legged Frog distribution and abundance at regional, county, and watershed scales. The Petition notes that determining the abundance of Foothill Yellow-legged Frogs is problematic due to their cryptic coloration and dispersal across a range of channel sizes after the breeding season; therefore, visual counts such as those summarized in this section may not accurately reflect Foothill Yellow-legged Frog abundance at a site. Based on a population viability analysis (Kupferberg et al. 2009c), the Petition made the following qualifications regarding relative health of populations based on abundance when that information is available: populations with hundreds of breeding adults are considered robust, while populations in the single digits are

considered to be at high risk of extinction. Figure 1 shows recent and historical records of Foothill Yellow-legged Frogs.

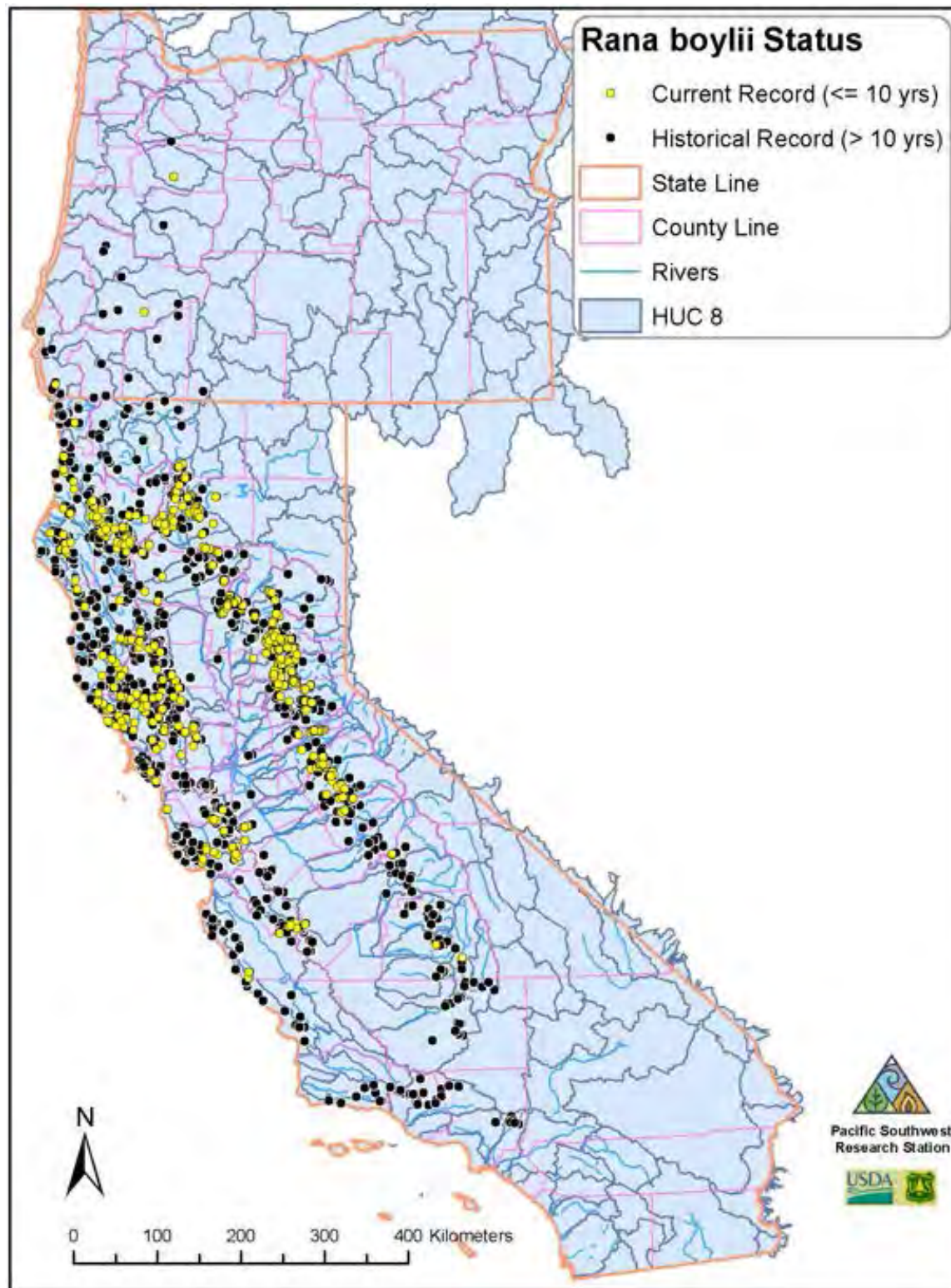


Figure 1. Foothill Yellow-legged Frog Distribution (USFS 2011)

Southern California

This region includes San Diego, Orange, San Bernardino, Los Angeles, Ventura, and Santa Barbara counties.

San Diego, Orange, and San Bernardino counties are outside of what is considered the known historical range of the Foothill Yellow-legged Frog; however, there are numerous museum specimens from this area from the 1920s to the 1960s that were labeled "*Rana boylei*". As previously mentioned, there was much taxonomic uncertainty surrounding this species' relationships with other Ranids, and many of these have since been correctly identified as Southern Mountain Yellow-legged Frogs (UCMVZ 2001, 2015; UKMNH 2001). However, the Petition states there are specimens from each of these counties that were collected well below the known elevation for Southern Mountain Yellow-legged Frogs that may warrant investigation. Nevertheless, there are no current records of Foothill Mountain Yellow-legged Frogs from these counties.

Los Angeles, Ventura, and Santa Barbara counties are within what is considered the known historical range of Foothill Yellow-legged Frogs. There are historical records of Foothill Yellow-legged Frogs at reasonably low elevations from the foothills of the San Gabriel Mountains, the greater Los Angeles floodplain, and the Santa Clara River drainage in Los Angeles County; from several creeks and tributaries within the Santa Clara River drainage in Ventura County; and from the Santa Ynez River drainage and two small coastal streams in Santa Barbara County (CAS 2011; CNDDDB 2016; Cornell University 2002; HMCZ 2001; Jennings and Hayes 1994; SBMNH 2001; UCMVZ 2011, 2015; UMMZ 2001). Despite repeated surveys, the last reliable sighting of a Foothill Yellow-legged Frog in this region is from Piru Creek in Los Angeles County in 1977, and the species is considered extirpated from Southern California (Jennings and Hayes 1994, Sweet 1983).

South Coast

This region consists of San Luis Obispo County and the portion of Monterey County that includes coastal drainages south and west of the Santa Lucia Range.

There are historical records of Foothill Yellow-legged Frogs from numerous river tributaries, streams, and creeks in this region; however, most of the museum collections only date to the 1950s (CNDDDB 2016, LPNF 2001, SBMNH 2001, UCMVZ 2015). Between 1988 to 1991, Jennings and Hayes (1994) found Foothill Yellow-legged Frogs present at 3 of 11 historically occupied sites (27%) in San Luis Obispo County; however, the last documented occurrence in the county was an individual collected from Little Pico Creek SSE of San Simeon in 1999 (CNDDDB 2016). In Monterey County, Foothill Yellow-legged Frogs were verified to be present at four drainages in the 1990s (Jennings and Hayes 1994, Stephenson and Calcarone 1999); however, none were found during resurveys of two of these in 2014 (S. Kupferberg pers. comm. 2015). The species may be near extirpation in the South Coast.

Central Coast

This region includes portions of Monterey, San Benito, Santa Cruz, San Mateo, Fresno, Merced, Stanislaus, and San Joaquin counties.

Historical records of Foothill Yellow-legged Frogs exist from several locations within the Salinas River, Carmel River, and Santa Lucia Range watersheds (CAS 2001, CNDDDB 2016, FMNH 2001, UCMVZ 2015, Zweifel 1955) in Monterey County. Jennings and Hayes (1994) were able to document presence at 5 of 12 of historical locations (42%) from 1988-1991. Small populations were observed in Salinas River tributaries in the early 2000s, and the species is presumed to occur at the Hastings Reserve within the Carmel River drainage (UCNRS 2015); however, there are no documented sightings in this county since 2002 (CNDDDB 2016).

There are numerous historical records of Foothill Yellow-legged Frogs from the Salinas River drainage, including Pinnacles National Monument, the San Benito River drainage, and Panoche Creek in San Benito County (CAS 2001, SDNHM 2001, UCMVZ 2015). The species was considered “abundant” and “quite common” in Pinnacles in the 1950s (Banta and Morafka 1967, Wauer 1958) and was still present in the mid-1960s (De Foe 1963, Morafka 1965) but was considered “rare” by the mid-1980s (Fellers 1986). Extensive surveys from 1992-1994 failed to detect them (Ely 1993, 1994), and the species was considered extirpated from Pinnacles by 2002 (Fesnock and Johnson 2002). Large populations of Foothill Yellow-legged Frogs were observed on Bureau of Land Management land in the upper San Benito River watershed above and below Hernandez Reservoir during surveys in 1992 (Ely 1992), and the species remained locally abundant in some streams through 2009 (CNDDDB 2016; USBLM 2009, 2013). Small to moderate populations were documented in tributaries to Panoche Creek in the 1990s (CAS 2001, CNDDDB 2016); however, there have been no reports of Foothill Yellow-legged Frogs from this drainage in the past two decades. Jennings and Hayes (1994) located the species in 3 of 11 historical locations (27%) between 1988 and 1991 in San Benito County.

There are historical records of Foothill Yellow-legged Frogs from the San Lorenzo River and tributaries, tributaries to the Pajaro River and Watsonville Slough, and Aptos, Soquel, and Waddell creeks in Santa Cruz County (CNDDDB 2016, HMCZ 2001, LSUMNS 2001, Slevin 1928, UCMVZ 2015). The species was considered “virtually extinct” in the Santa Cruz Mountains by the 1990s (R. Seymour and M. Westphal pers. comms. 1996). Small numbers of Foothill Yellow-legged Frogs were reported from the Aptos Creek watershed in 1998, and small to moderate populations were reported from 1992-2008 in the Soquel Creek drainage (CNDDDB 2016). Jennings and Hayes (1994) found the species at 3 of 4 historical locations (75%) they surveyed in Santa Cruz County between 1988 and 1991.

There are numerous historical records of Foothill Yellow-legged Frogs from the Pescadero Creek watershed and a couple from San Gregorio Creek in San Mateo County (CAS 2001, UCMVZ 2015). Jennings and Hayes (1994) found the species at 4 of 9 of historical sites (44%) in the county from 1988-1991, but the last documented sighting was a single individual at Pescadero Creek County Park in 1999 (CNDDDB 2016).

There are some historical records of Foothill Yellow-legged Frogs from creeks that drain into the San Joaquin Valley from western Fresno, Merced, Stanislaus, and San Joaquin counties (CAS 2001, CNDDDB 2016, Ely 1992, HWCSP 2015, UCMVZ 2015, UMMZ 2001). While Fellers (1994) reported healthy reproducing populations in western Fresno County, Jennings and Hayes (1994) were unable to find Foothill Yellow-legged Frogs at any of the six locations they surveyed there from 1988-1991. Small to large populations were documented in the mid-1990s in one watershed (CAS 2001, Ely 1992), but by the 2000s, there was only one report of a single small population (CNDDDB 2016). The last records of Foothill Yellow-legged Frogs in western Merced County were of small populations in the Los Banos Creek watershed from 1985-1988 (CNDDDB 2016). In western Stanislaus County, the most recent records of Foothill Yellow-legged Frogs were of very small populations documented along Del Puerto Creek from 2000-2008, and small numbers were reported in 2005 in a tributary to Orestimba Creek (CNDDDB 2016). Museum collections suggest Lower Corral Hollow Creek in western San Joaquin County supported a relatively large population, but the last record of a Foothill Yellow-legged Frog in this drainage is from 1971 (CNDDDB 2016).

Bay Area

This region includes portions of San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Solano, Napa, Sonoma, and Marin counties.

There is a single historical record of Foothill Yellow-legged Frogs from San Francisco in 1938 (CAS 2001), and resurvey efforts between 1988 and 1991 failed to detect the species (Jennings and Hayes 1994). Foothill Yellow-legged Frogs were collected from two localities in San Mateo County in 1899 and 1915 (CAS 2001, Slevin 1928, USNM 2001), but there have been no recent observations.

Numerous historical records exist for Foothill Yellow-legged Frog populations throughout Santa Clara County (CAS 2001, CDFG 1975, CMNH 2001, CNDDDB 2016, Cornell 2002, FMNH 2001, LSUMNS 2001, Slevin 1928, TMM 2001, UCMVZ 2015, UMMZ 2001, USACE 2001, USNM 2001), and the species was likely present in nearly all of the larger perennial streams in Santa Clara County except the lower portions of Coyote Creek and Guadalupe River (H.T. Harvey and Associates 1999). There are no recent observations of Foothill Yellow-legged Frogs from Saratoga, Stevens, or San Francisquito creeks; the species in the latter watershed was described as “fairly common” in the 1960s (Launer et al. 1999). Jennings and Hayes (1994) located the species at 8 of 14 historical locations (57%) in Santa Clara County from 1998-1991. H.T. Harvey and Associates (1999) conducted widespread surveys in 1999 and concluded Foothill Yellow-legged Frogs had essentially disappeared from low-lying areas that had been converted to agricultural and urban uses as well as many perennial streams below major reservoirs, but they were still relatively abundant in foothill and mountain streams in the eastern portion of Santa Clara County. Small populations have been documented as recently as 2000 in the Guadalupe River watershed, 2007 in the Pajaro River watershed, and 2011 in headwater tributaries of the Mountain Hamilton/Alameda Creek watershed (CNDDDB 2016). Small to moderate populations have been documented throughout the Coyote Creek watershed from

1986-2004 and as recently as 2016 (CAS 2001, CNDDDB 2016, Gonsolin 2010, HWCSP 2015, PRA 1997).

There are historical records of Foothill Yellow-legged Frogs from several locations within the Alameda Creek watershed in Alameda County, as well as a population from Corral Hollow Creek, and two specimens collected from Oakland and Berkeley around the turn of the 20th century (CAS 2001, CMNH 2001, Schoenherr 1992, Slevin 1928, UCMVZ 2015, UMMZ 2001). The largest Foothill Yellow-legged Frog population in Alameda County, and potentially the entire Bay Area, inhabited upper Alameda Creek within the Sunol Regional Park; nearly 300 individuals were found at 4 locations during surveys from July through October 1996 (CNDDDB 2016, EBRPD 1998). Jennings and Hayes (1994) found Foothill Yellow-legged Frogs in 4 of 13 historical locations (31%) surveyed between 1988 and 1991. During extensive surveys from 1997-1999 on East Bay Regional Park District lands, Foothill Yellow-legged Frogs were found in the upper Alameda Creek watershed but were extirpated or absent from all other streams surveyed (Bobzien and DiDonato 2007). One population was described as “abundant” as recently as 2006 (B. Sak pers. comm. 2006); however, this population has since crashed as a result of the drought (S. Kupferberg pers. comm. 2015). Prior to 1997, Foothill Yellow-legged Frogs were observed “frequently” along several miles of Corral Hollow Creek, but by the late 1990s it was restricted to the upper half mile of the creek (CNDDDB 2016, Jones & Stokes 2000).

There are historical records of Foothill Yellow-legged Frogs from several creeks in Contra Costa County, and the species was apparently once abundant in San Pablo Creek near Orinda (G. Beeman pers. comm. 2002; CAS 2001; CNDDDB 2016; UCMVZ 2001, 2015; USACE 2001). Jennings and Hays (1994) found the species at 3 of 9 historical locations (33%) in the county surveyed between 1988 and 1991 and suspected 8 of 11 historical populations had been extirpated. Foothill Yellow-legged Frogs were extirpated from East Bay Municipal Utility District watershed lands as early as the 1950s (EBMUD 1994); none were found by Bobzien and DiDonato (2007) during surveys of East Bay Regional Park District lands from 1997-1997; and there are no records within the East Contra Costa County Habitat Conservation Plan area (CCC 2006). Small numbers of Foothill Yellow-legged Frogs were still present in headwater tributaries draining Mt. Diablo in the early 2000s (G. Beeman pers. comm. 2002), but there have been no more recent observations from the county.

Small to moderate populations of Foothill Yellow-legged Frogs have been reported from the early to mid-2000s in tributaries to Lake Berryessa and Putah Creek, Alamo and Ulatis creeks, and a tributary to Ledgewood Creek in Solano County (CNDDDB 2016, Solano County Water Agency 2002).

Foothill Yellow-legged Frogs historically occurred in relatively large numbers at some locations in Napa County and were widely distributed within the Napa River and Putah Creek watersheds (CAS 2001, CNDDDB 2016, FMNH 2001, UCMVZ 2015). Small to very small populations were observed as recently as the 1990s in a few Putah Creek tributaries, the 2000s in some Napa River watershed creeks, and 2007 in Milliken and Capell creeks (CNDDDB 2016, Napa County 2016).

In Sonoma County, Foothill Yellow-legged Frogs were historically collected from tributaries throughout the Russian River, Gualala River, Petaluma River, and Sonoma Creek watersheds, sometimes in large numbers (CAS 2001, CMNH 2001, FMNH 2001, LSUMNS 2001, UCMVZ 2015, UMMZ 2001). The species was considered “common” and was found in “large numbers” in the Sonoma Mountains east of Petaluma in the 1990s (Harvey et al. 1992). Foothill Yellow-legged Frogs continued to be documented throughout Sonoma County into the 1990s and 2000s, but the records are of small populations with the exception of a half-dozen moderate (20+ individuals) to moderately large (50+ adults and sub-adults) populations (CNDDDB 2016).

Foothill Yellow-legged Frogs were historically found throughout Marin County, including the Lagunitas Creek drainage, tributaries on Mount Tamalpias, Redwood Creek, tributaries to Bolinas Lagoon and Tomales Bay, in apparently high abundance if collection numbers are any indication (CAS 2001, CMNH 2001, GANDA 2010a, LSUMNS 2001, TMM 2001, UCMVZ 2015, UKMNH 2001, UMMZ 2001, USNM 2001). However, surveys in the 1990s and 2000s failed to find the species in many previously occupied sites, including a population that had been considered abundant as recently as the early 2000s (Ely 1993, Fong 1997, GANDA 2010a). Foothill Yellow-legged Frogs appear to have been extirpated from most former locations and watersheds; only two known populations remain within Mount Tamalpias tributaries (CNDDDB 2016, GANDA 2010a, MMWD 2014), although small populations may still occur in some Tomales Bay tributaries (GANDA 2010a).

Upper Sacramento River

This region consists of Yolo, Colusa, Glenn, Tehama, and Shasta counties.

Small populations of Foothill Yellow-legged Frogs were reported between 1997 and 2000 at a few locations in the Cache Creek drainage in northwestern Yolo County (CAS 2001, CNDDDB 2016, Yolo County 2013), and there was a historical record from Putah Creek west of Winters (Harvey et al. 1992, Slevin 1928). The Petition notes that the paucity of Foothill Yellow-legged Frog locations in Yolo County suggests the species may never have been common (Yolo County 2013).

There are historical records of Foothill Yellow-legged Frogs from the Stony Creek drainage and one from Sand Creek 5 miles west of Arbuckle in Colusa County (CAS 2001, CNDDDB 2016, UCMVZ 2015). Based on collections, it appears the species was relatively common in the Stony Creek drainage (UCMVZ 2015) and continued to be relatively abundant in Mill Creek and Little Stony Creek as recently as 2008 (CNDDDB 2016, Fellers 1996). Small populations were observed in other creeks within this drainage as well as Cache Creek tributaries, Bear Creek, and Sulphur Creek from the 1990s and early 2000s (CNDDDB 2016).

Foothill Yellow-legged Frogs were known historically from a handful of locations in the Stony Creek and Black Bear River drainages in Glenn County (CAS 2001, CNDDDB 2016, Slevin 1928, UCMVZ 2015), and small populations were documented in the former as recently as 2000 with a single observation of a juvenile in the latter in 1999 (CAS 2001, CNDDDB 2016).

Historical records of Foothill Yellow-legged Frogs exist for Battle Creek, Paynes Creek, and Antelope Creek drainages, as well as Dye Creek, Mill Creek, Deer Creek, and the Sacramento River near Red Bluff in Tehama County (CNDDDB 2016, LNF and PNF 1999, UCMVZ 2015, UMMZ 2001). With the exception of the Sacramento River locality, which is extirpated, all of these watersheds were still supporting the species in small numbers in the 1990s and 2000s (CAS 2001, CNDDDB 2016, Fellers 1996, Hayes et al. 2013). Jennings and Hayes (1994) found the species at 3 of 7 (43%) historically occupied sites (43%) in the eastern part of the county during surveys from 1988-1991. No Foothill Yellow-legged Frogs were found during amphibian surveys from 1990-1998 in the Lassen National Forest (LNF and PNF 1999), but according to Hayes et al. (2013), there had been some scattered sightings in the area as part of Federal Energy Regulatory Commission surveys. A relatively large population (79 over 2 years) was found in the Red Bank Creek watershed in the mid-2000s (Bourque 2008), and at least 10 adults and 1 egg mass were observed in Antelope Creek in 2016 (CNDDDB 2016).

Foothill Yellow-legged Frog historical collections were made throughout the upper Sacramento River tributary creeks in Shasta County (CAS 2001, FMNH 2001, UCMVZ 2015, UMMZ 2001, USNM 2001). The species was found at 3 of 14 historical locations (21%) in the county during surveys from 1988-1999 by Jennings and Hayes (1994); however, small populations were recorded in three dozen tributaries in the 2000s (CNDDDB 2016, FERC 2001).

Northern Coastal California

This region consists of Lake, Mendocino, Humboldt, Trinity, Siskiyou, and Del Norte counties.

Foothill Yellow-legged Frogs were historically collected from the Eel River, Clear Lake, Cache Creek, and Putah Creek drainages in Lake County (CAS 2001, CNDDDB 2016, UCMVZ 2015), some of which were documented to “moderately abundant” in the mid-1950s (CNDDDB). Small to moderately large populations have been documented in all of the historically occupied watersheds as recently as 2000 (Clear Lake tributaries) with some as recent as 2008 (Eel River watershed) (CNDDDB 2016). While reported numbers are small from many sites, no known extirpations have occurred in Lake County.

There are numerous historical collection records of Foothill Yellow-legged Frogs from across several watersheds in Mendocino County including the Eel, Tenmile, Noyo, Big, Navarro, Garcia, Gualala, and Russian rivers, as well as some small coastal rivers: some collections suggest large populations like those from the South and Middle Forks of the Eel River (CAS 2001, CMNH 2001, CNDDDB 2016, FMNH 2001, LSUMNS 2001, SDNHM 2001, UCMVZ 2015, UMMZ 2001, USNM 2001). The species was still widespread in all the major watersheds as recently as the 1990s and 2000s, including some moderately abundant populations in the Eel and Russian River watersheds (CNDDDB 2016, Fellers 1996, D. Matson pers. comm. 2001).

Historical collection records of Foothill Yellow-legged Frogs exist from numerous locations throughout Humboldt County including the Klamath, Trinity, Redwood Creek, Mad, Eel, Van Duzen, and Mattole rivers and Redwood Creek; some were relatively large from Maple Creek within the Mad River drainage and from Redwood Creek (CAS 2001, CMNH 2001, CNDDDB 2016, FMNH 2001, RNSP 2001, SDNHM 2001, UCMVZ 2015, UMMZ 2001, USNM 2001). As

of the 1990s, the species was still well-distributed through the watersheds in the county (CNDDDB 2016; D. Matson pers. comm. 2001, RNSP 2001; USDA 1994, 1995a, 1995c, 1999; USDA and USDI 1996, 1998; Welsh and Hodgson 2011). In addition, relatively abundant populations were documented in some areas into the 2000s (CNDDDB 2016), as well as during single pass egg mass surveys conducted by the Department between 2010 and 2016 along reaches of the Mad River, South Fork Eel River and one of its tributaries (M. van Hattem pers. comm. 2016).

There are historical collections of Foothill Yellow-legged Frogs from the Trinity, Salmon, Mad, and Eel rivers and Cottonwood Creek within Trinity County with large numbers taken from the Trinity River and its tributaries and the Mad River (Bury 1969, CAS 2001, CMNH 2001, CNDDDB 2016, LSUMNS 2001, Slevin 1928, UCMVZ 2015, UMMZ 2001, USDA 1999). The species was common in the 1990s in the North Fork and Middle Fork Eel River drainages, but its current status is unknown, and despite declines along the mainstem Trinity River downstream of Lewiston Dam, the species continues to be widespread throughout the river basin through the 2000s with a particularly large population along the South Fork Trinity River (CNDDDB 2016).

Historical records of Foothill Yellow-legged Frogs exist from the Klamath and Sacramento River drainages in Siskiyou County (CAS 2001, CNDDDB 2016, LSUMN 2001, UCMVZ 2015, UMMZ 2001). The species was reportedly “fairly common” in the 1990s in the former (KNF 1999), and small numbers have been reported throughout the latter as recently as 2003 (CNDDDB), but overall current status is unknown.

There are historical collections of Foothill Yellow-legged Frogs from the Rogue River and Smith River watersheds in Del Norte County (CAS 2001, CMNH 2001, FMNH 2001, RNSP 2001, SDMNH 2001, UCMVZ 2015, UMMZ 2001, UTA 2001). The species was found in most Smith River tributaries in the 1990s and was considered abundant in the Middle Fork (USDA 1995b, 1999) with an apparently stable population documented on Hurdygurdy Creek as recently as the mid-2000s (Wheeler et al. 2006). In addition, a small number of Foothill Yellow-legged Frogs were discovered on a tributary to the Klamath River in 1990 (CNDDDB 2016), but there have not been any more recent records from the county.

Southern Sierra Nevada

This region consists of eastern Kern, Tulare, Fresno, Madera, and Mariposa counties. Like Southern California, there are a few dubious Foothill Yellow-legged Frog specimens based on elevation that may be Mountain Yellow-legged Frogs; the two species’ ranges historically abutted each other in mid-elevation streams in this region (Zweifel 1955).

There are historical records of Foothill Yellow-legged Frogs from the Kern River watershed, Tehachapi Creek, Caliente Creek, and Tejon Creek in Kern County (CAS 2001, CNDDDB 2016, LSUMNS 2001, UCMVZ 2015, USNM 2001). There are no records from the county since 1967, and Jennings and Hayes (1994) were unable to locate the species at 15 historical sites in the county from 1988-1991. Foothill Yellow-legged Frogs are considered extirpated from Kern County.

Historical collections of Foothill Yellow-legged Frogs exist from the Kern River, Kaweah River, Deer Creek/White River, and Tule River drainages in Tulare County (CAS 2001; CNDDDB 2016; HMCZ 2001; UCMVZ 2015; UMMZ 2001; USNM 2001). Jennings and Hayes (1994) were unable to locate the species during surveys from 1988-1991 at 17 historic locations within the county. The only records since 1970 are one small and one moderate-sized population found between 1998 and 2008 in the Kern River drainage and an observation of a single individual in the Tule River drainage from 2004 (CNDDDB 2016). The Foothill Yellow-legged Frog is nearly extirpated from Tulare County.

There are historical records of Foothill Yellow-legged Frogs from the Kings River and San Joaquin River watersheds in Fresno County (CAS 2001; CNDDDB 2016; TMM 2001; UCMVZ 2015; Wright and Wright 1949). Despite many surveys, the species has not been seen in over 30 years in the Kings River drainage (SKCNP 2001). Jennings and Hayes (1994) found the species at 4 of 9 historic locations (44%) in eastern Fresno County from 1988-1991. No Foothill Yellow-legged Frogs were found during surveys on the San Joaquin River (PG&E 2000), but small populations were found in a tributary to the San Joaquin River between 1994 and 2007 (CNDDDB 2016).

Foothill Yellow-legged Frogs were found historically in the San Joaquin River and Fresno River drainages in Madera County (CNDDDB 2016; Madera County 2007; PG&E 2000, UCMVZ 2015). In addition, Moyle (1972, 1973) documented the species in Chowchilla River in 1970; however, there are no more recent records from that watershed (CNDDDB 2016). Jennings and Hayes (1994) relocated the species at 3 of 6 of historical sites (50%) surveyed from 1988-1991. The most recent sightings were in 1991 and 1994 of small populations within the Fresno River watershed (CNDDDB 2016), but subsequent survey efforts failed to find the species (PG&E 2000). Foothill Yellow-legged Frogs may be extirpated from Madera County.

There are numerous historical collection records for Foothill Yellow-legged Frogs from throughout the Merced River drainage in Mariposa County (CNDDDB 2016, FMNH 2001, Grinnell and Storer 1924, HMCZ 2001, Martin 1940, Richards 1958, UMMZ 2001, USNM 2001). According to Storer's field notes, the species appeared to be relatively common, but extensive resurveys of the Grinnell and Storer Yosemite transect and other areas in Yosemite failed to find Foothill Yellow-legged Frogs within the park (Drost and Fellers 1994, Fellers 1997, Fellers and Freel 1995, Jennings 1996, Moritz 2007). Small populations were located in North Fork tributaries in the 1990s through 2009, but resurveys only detected a single individual (CNDDDB 2016, S. Kupferberg pers. comm. 2016). Jennings and Hayes (1994) found Foothill Yellow-legged Frogs at 1 of 5 of historical locations (20%) from 1988-1991 in Mariposa County. The species is likely extirpated from most of the county with the possible exception of small populations upstream of Lake McClure.

Central/Northern Sierra Nevada

This region consists of Tuolumne, Sutter, Calaveras, Amador, El Dorado, Placer, Nevada, Sierra, Yuba, Butte, and Plumas counties.

There are historical records of Foothill Yellow-legged Frogs from several sites within the Tuolumne River watershed in Tuolumne County (CNDDDB 2016; Martin 1940; Moyle 1972, 1973; Richards 1958, UCMVZ 2015, USNM 2001). Jennings and Hayes (1994) found the species at 2 of 6 historical locations (33%) surveyed from 1988-1991. Small populations were documented in the 1990s and early 2000s (CNDDDB 2016), but focused surveys in 2012 failed to detect the species (HDR 2013). Small populations were documented between 1998 and 2003 in portions of the Stanislaus River watershed (CNDDDB 2016), but currently there is only one known population from the Sand Bar Dam reach of the Stanislaus River (S. Kupferberg pers. comm. 2016).

There is a single historical record of Foothill Yellow-legged Frogs from the Sutter Buttes in Sutter County, but Jennings and Hayes (1994) were unable to relocate the species. This population is likely extirpated.

Foothill Yellow-legged Frogs were historically collected from a few locations within the Stanislaus River and Mokelumne River watersheds in Calaveras County (UCMVZ 2015, USNM 2001). The species was found at 2 of 9 historic sites (22%) in the county surveyed between 1988 and 1999 by Jennings and Hayes (1994). Small populations have been recorded from tributaries in both watersheds in Calaveras County from as recently as the mid- to late 2000s (CNDDDB 2016).

The Petition states there were no historical localities of Foothill Yellow-legged Frogs from Amador County; however, it also states that Jennings and Hayes (1994) resurveyed 3 historic locations between 1988 and 1991 and failed to detect the species at any of them. Since that time, small populations were found in a tributary to Dry Creek in the early 2000s and during Federal Energy Regulatory Commission amphibian surveys in 2001 and 2009 within the Mokelumne River drainage (CNDDDB 2016).

There are numerous historical records of Foothill Yellow-legged Frogs in the South Fork American River and Cosumnes River drainages in El Dorado County (UCMVZ 2015, Slevin 1928). Jennings and Hayes (1994) found the species at 1 of 9 historical sites (11%) surveyed between 1988 and 1991. Since then, small populations on the South Fork American River were documented between 2002 and 2004 (CNDDDB 2016), but several other efforts between 2002 and 2011 failed to detect the species in this watershed (Devine Tarbell & Associates and Stillwater Sciences 2005, ECORP 2011, GANDA 2010b). Numerous breeding populations of Foothill Yellow-legged Frogs were documented by the Placer County Water Agency (PCWA 2008) throughout the Middle Fork American River watershed in 2007. The species was reportedly widespread, and abundance and density of egg masses varied by stream size, flow regulation, and water temperatures, which were greatest along downstream reaches of the Rubicon River (*Ibid.*). Small populations of Foothill Yellow-legged Frogs were documented during the 1990s within the Cosumnes River watershed, but no more recent records exist from this area (CNDDDB 2016).

The Petition states there was one historical location of Foothill Yellow-legged Frogs within the North Fork American River watershed in Placer County (UCMVZ 2015); however, it also states that Jennings and Hayes (1994) resurveyed 4 historical sites from 1988-1991 and found the

species at 2 (50%). Small populations were recorded from about a dozen sites in Placer County in the 1990s and 2000s, many from undammed locations within the North Fork watershed, but also from a couple sites within the Middle Fork American River watershed (CBI 2008, CNDDDB 2016, Lehr 1998).

There are historical collections of Foothill Yellow-legged Frogs from a tributary to the mainstem Yuba River and South Fork Yuba River drainages in Nevada County (CAS 2001, UCMVZ 2015). Jennings and Hayes (1994) found the species at 2 of 5 historical sites (40%) in the county from 1988 to 1991. Foothill Yellow-legged Frogs were found in small numbers in the 1990s along some tributaries to the Middle Fork Yuba River (CNDDDB 2016), and PG&E documented relatively high numbers of egg masses and larvae in the mainstem Middle Fork Yuba River and tributaries in 2008 (FERC 2013). Small populations were reported from the South Fork Yuba River and tributaries between 1991 and 2008 (CAS 2001, CNDDDB 2016), and PG&E documented numerous small populations throughout the South Fork Yuba River drainage in 2008 and 2009 (CNDDDB 2016, FERC 2013). Declining populations were documented by the City of Grass Valley in a portion of the Bear River drainage (Grass Valley 2000), but PG&E documented all life stages in moderate to high numbers from 2002-2009 in the Bear River and its tributaries; one population was very large (349 adults, 2,082 juveniles, and 1,063 larvae in August 2008) (CNDDDB 2016, FERC 2013). Additional small populations have been documented in the watershed from 2007-2008 (CNDDDB 2016).

The Petition states there are no historical records of Foothill Yellow-legged Frogs from Sierra County; however, it also states Jennings and Hayes (1994) were successful in relocating the species at 1 of 4 historical sites (25%) in the county between 1988 and 1991. Small populations were documented in the North Fork Yuba River and a dozen of its tributaries in the late 1990s and early 2000s, as well as from three tributaries to the Middle Fork Yuba River between 1997 and 2008 (CAS 2001, CNDDDB 2016).

There are historical records of Foothill Yellow-legged Frogs from the North Fork Yuba River and one of its tributaries, as well as from the Dry Creek drainage in Yuba County (CAS 2001, UCMVZ 2015, USNM 2001). Jennings and Hayes (1994) found the species at 2 of 3 of historical locations (67%) in the county resurveyed between 1988 and 1991. Foothill Yellow-legged Frogs were documented to occur in the lower Yuba River in the 1990s (PG&E 2000), and some small populations and single individuals were observed from the mid-1990s to the mid-2000s in tributaries to the North Fork Yuba River, but there are no records from Dry Creek since the early 1950s (CAS 2001, CNDDDB 2016).

Foothill Yellow-legged Frogs were collected historically from the Feather River watershed and several creeks in Butte County including Mud Creek/Rock Creek, Big Chico Creek, Butte Creek, Dry Creek, Cottonwood Creek, and Honcut Creek (CAS 2001, CNDDDB 2016, Slevin 1928, UCMVZ 2015). Hayes and Cliff (1982) noted that Foothill Yellow-legged Frogs were found in most drainages in Butte County as low as 72 m (250 ft). By the early 1990s, the species was becoming harder to find; Koo and Vindum (1999) did not relocate them at several historical locations within the Plumas National Forest in the 1990s. Jennings and Hayes (1994) found the species at 5 of 17 historical sites (29%) in the county from 1988-1991. With the exception of a

single male and female on the North Fork Feather River in 2008 and a single individual observed in a tributary to Dry Creek, all other records in Butte County date back to the 1990s (CNDDDB 2016, Gallaway 1999, PG&E 2000).

There are historical collections of Foothill Yellow-legged Frogs from tributaries to the North Fork, the East Branch of the North Fork, and the Middle Fork Feather River in Plumas County (CAS 2001, UCMVZ 2015, UMMZ 2001). Jennings and Hayes (1994) located the species at 4 of 11 historically occupied sites (36%) in the county during surveys between 1988 and 1991, and Koo and Vindum (1999) found Foothill Yellow-legged Frogs at 45% of historical sites on the Plumas National Forest. The species appears to be extirpated from most historical sites in the East Branch of the North Fork Feather River, Little Butte Creek, Dry Creek, North Fork Yuba River, and West Branch Yuba River (Hayes et al. 2013), but populations remain in the North and South Forks of the Feather River watersheds (CNDDDB 2016).

2. Other Relevant Scientific Information

The Department possesses the following additional information regarding Foothill Yellow-legged Frog distribution and abundance. If a geographic region is not discussed below, it means the Department does not possess any additional relevant scientific information for that particular area at this time. However, due to statutory time limitations on completing the Petition Evaluation, the Department could not process all the unpublished data it possesses, so the information below should not be considered a complete record.

South Coast

A robust population of Foothill Yellow-legged Frogs was reported to exist in the Arroyo de la Cruz watershed in San Luis Obispo County in 1993 in the upper two miles of the mainstem Arroyo de la Cruz and in the two tributaries that join to form the mainstem (Burnett Creek and Marmalejo Creek). The lands in this watershed are apparently owned by the Hearst Corporation, and access is restricted. The Petition reports that there have been no documented observations of Foothill Yellow-legged Frogs in this county since 1999; however, in 2004, baseline environmental documents prepared by consultants for the Hearst Ranch noted that Foothill Yellow-Legged Frogs were still present at those sites (J. Nelson pers. comm. 2017). The population's current status is unknown.

Central Coast

Approximately 25-30 Foothill Yellow-legged Frogs were observed on July 12, 2012, in Lewis Creek near the Monterey/San Benito County line (HERP 2016), an area the Petition described as having small populations present in the 1990s but no recent records.

Recent (2013-2015) "routine sightings" of Foothill Yellow-legged Frogs have been reported in the Soquel Creek watershed in Santa Cruz County (J. Jankovitz pers. comm. 2017) in an area described in the Petition as having small to moderate populations as recently as 2008. These sightings have been anecdotal to fisheries surveys and habitat restoration project evaluations and do not represent a comprehensive population survey; however, the frequency of sightings and numbers observed suggest a potentially robust population occurs here (Ibid.).

Bay Area

The Department conducted numerous stream surveys for salmonids within the Russian River watershed (Sonoma and Mendocino counties) from 1995 to 2007 (CDFW unpublished data). Survey reaches generally ranged from around 90-460 m (300-1,500 ft) in length. Incidental observations of sensitive species of amphibians, including Foothill Yellow-legged Frogs, were also tallied during these stream surveys; however, life stage was not recorded. It is assumed that numbers represent post-metamorphic frogs. The Petition stated that nearly all populations documented in the 2000s were small throughout the Russian River drainage with the exception of a moderate-sized population (20-49 individuals) on Cherry Creek and a moderately large population (50-99 individuals) on Gird Creek with populations on Miller, Porter, and Ward creeks also being “notable.” While the following data are not any more current than the information in the Petition, they augment what was known about the distribution and abundance of the species and demonstrate that larger populations occurred at that time. Only observations of 10 or more Foothill Yellow-legged Frogs within a particular stream are reported below; in some cases, numbers are combined from more than one reach. Smaller numbers of the species were also recorded in numerous creeks within the greater Russian River watershed during the period surveys were conducted.

Black Rock Creek (Lower Russian River, Sonoma County) on 9/23/1996: 11

Devil Creek (Lower Russian River, Sonoma County) on 10/8/1996: 19

Gilliam Creek (Lower Russian River; Sonoma County) on 10/9 and 10/11/2001: 23

Kidd Creek (Lower Russian River, Sonoma County) on 10/9/2001: 10

Ingalls Creek (Middle Russian River, Sonoma County) on 10/3/1996: 18

Bluegum Creek (Middle Russian River; Sonoma County) on 10/15/1996: 53

Pechaco Creek (Middle Russian River, Sonoma County) on 10/28/1998: 10

Lovers Gulch Creek (Middle Russian River; Sonoma County) on 10/11/1999: 12

Hale Creek (Middle Russian River; Sonoma County) on 11/3/2000: 151

Gird Creek (Middle Russian River; Sonoma County) on 10/22/2001: 21

Pena Creek (Middle Russian River, Sonoma County) on 10/20/1998: 10

Pena Creek (Middle Russian River; Sonoma County) on 10/9 and 10/12/2001: 23

Redwood Creek (Middle Russian River; Sonoma County) on 10/2/2001: 10

Squaw Creek (Middle Russian River; Sonoma County) on 10/15/2001: 17

Chapman Branch (Middle Russian River; Sonoma County) on 10/20/1998: 19

Eldridge Creek (Upper Russian River; Mendocino County) on 10/22/1999: 14

Forsythe Creek (Upper Russian River; Mendocino County) on 10/26/1999: 10

Jack Smith Creek (Upper Russian River; Mendocino County) on 10/18 and 10/21/1999: 35

Johnson Creek (Upper Russian River; Mendocino County) on 10/18/2001: 17

McClure Creek (Upper Russian River; Mendocino County) on 10/24/2001: 18

Morrison Creek (Upper Russian River; Mendocino County) on 10/15 and 10/16/2001: 53

South Branch Robinson Creek (Upper Russian River; Mendocino County) on 9/28/2001: 48

Miners Creek (Upper Russian River; Mendocino County) on 8/7/2003: 10

Upper Sacramento River

The Department recorded incidental observations of Foothill Yellow-legged Frogs in the Stony Creek drainage (Colusa, Glenn, and Lake counties) during snorkel and electroshocking fish surveys in the 2000s that generally support the population distribution and abundance data in the Petition from this area (CDFW unpublished data). In 2001, a field note from surveys along the Middle Fork exclaimed “Foothill Yellow-legged Frogs (lots!).” In 2008, 33 adults were observed in the North Fork, 1 in the South Fork, 3 in the Middle Fork, and 31 in the mainstem. In 2009, “many *R. boylei* adults and larvae observed in section” was recorded from a 208 m (684 ft) survey reach along the North Fork. In the same year, the species was present at all three reaches surveyed along 11.3 km (7 mi) span of the South Fork, although no counts were recorded.

Northern Coastal California

The Department incidentally recorded Foothill Yellow-legged Frogs in the course of conducting snorkel surveys throughout much of this region between 2009 and 2015 (CDFW unpublished data, J. Garwood pers. comm. 2017), many of which occurred in Humboldt County where the Petition stated there were a paucity of surveys or records from the 2000s in many of these watersheds. The following data suggest there are still sufficiently large, reproducing, well-distributed populations of Foothill Yellow-legged Frogs in Northern Coastal California.

Blue Slide Creek (Mattole River watershed; Humboldt County) in 2015: 135 mostly subadults.

Grindstone Creek (Mattole River watershed; Humboldt County) in 2013: 25 adults.

Mattole Canyon Creek (Mattole River watershed; Humboldt County) during 2014-2015: 59 adults and 3 larvae.

Fourmile Creek (Mattole River watershed; Humboldt County) during 2014-2015: 26 adults.

North Fork Fourmile Creek (Mattole River watershed; Humboldt County) during 2014-2015: 22 adults.

Sholes Creek (Mattole River watershed; Humboldt County) during 2013-2015: 25 adults.

Mattole River mainstem (Humboldt County) during 2014-2015: 891 mixture of adults, subadults, and larvae (including 500 subadults in one survey section).

Van Duzen River mainstem (Humboldt County) during 2013-2016: 13 adults.

Big River mainstem (Mendocino County) during 2009-2010: 59 unknown life stage.

Navarro River mainstem (Mendocino County) during 2009-2013: 107 unknown life stage.

North Fork Smith River (Del Norte County) during 2012-2014: Small numbers of adults and 500 larvae.

Patrick Creek (Smith River drainage; Del Norte County) during 2012: Small numbers of adults and >100 larvae.

Cedar Creek (Smith River drainage; Del Norte County) during 2011-2016: 44 adults and subadults.

Hurdygurdy Creek (Smith River drainage; Del Norte County) during 2014-2015: 14 adults and 6 larvae.

Mill Creek (Smith River drainage; Del Norte County) during 2014-2015: 10 adults.

South Fork Smith River (Smith River drainage; Del Norte County) during 2012-2016: 32 adults, subadults, and larvae.

Smith River mainstem (Del Norte County) during 2012-2016: 199 adults, subadults, and larvae, as well as 4 egg masses.

3. Sufficiency of the Petition with regard to Distribution and Abundance

The Department concludes the Petition contains sufficient information on Foothill Yellow-legged Frog distribution and abundance to suggest both have been reduced over parts of the species' range in California.

E. Population Trend

1. Scientific Information in the Petition

The Petition, on pages 95 through 100, contains the following information on Foothill Yellow-legged Frog population trends across its complete range in California and Oregon, within California, and at regional scales.

The best measures of long-term (i.e., > 50 years) population trends for Foothill Yellow-legged Frogs involve resurveying historically occupied sites (e.g., Borisenko and Hayes 1999, Davis and Olson 2008, Drost and Fellers 1996, Jennings and Hayes 1994, Lind 2005, Olson and Davis 2009, Sweet 1983). For population trends over shorter, more recent, timeframes, repeated egg mass censuses have been undertaken by researchers, government agencies, and utility companies because each adult female Foothill Yellow-legged Frog lays one discrete clutch of eggs that are easily detectable. Peek and Kupferberg (2016) determined that there was significantly higher inter-annual variability in egg mass density in regulated river populations than those in unregulated channels. They concluded that population trends may not be detectable when high variability was combined with sparse densities (Ibid.).

Oregon and California

Lind (2005) assessed Foothill Yellow-legged Frog population status across their range in California and Oregon using a subset of historical sites and resurvey efforts. She determined that the species had disappeared from 201 of 394 of the historical localities (51%) in the dataset. Hayes et al. (2013, 2016) suggest this may be an underestimate of the number of populations that have been extirpated.

California

Jennings and Hayes (1994) thoroughly researched Foothill Yellow-legged Frog historical observations, compiling information from reports, surveys, Department files and data, searched museum specimens and naturalists' field notes, and conducted field surveys between 1988 and 1991. They found that Foothill Yellow-legged Frogs had been extirpated from at least 225 of 445 known historical locations (53%) and had disappeared from 45% of their historical range in California by 1994 (Ibid.). For a species to survive in the long-term, populations need to be large enough to be self-sustaining (Lanoo 2005). Fellers (2005) determined that 30 of the 213 sites in California (14%) with Foothill Yellow-legged Frogs had populations estimated to be 20 or more adults.

Southern California

Foothill Yellow-legged Frogs are extirpated from 21 of 21 historically occupied sites (100%) in Southern California (Jennings and Hayes 1994). Drost and Fellers (1996) also concluded the species is likely extirpated from the Tehachapi Mountains southward.

South Coast

The species is still present in some coastal drainages and in the Salinas River watershed from Monterey County to northwestern San Luis Obispo County but in lower abundance. Jennings and Hayes (1994) found that Foothill Yellow-legged Frogs had been extirpated from 81 of 118 of historical sites (69%) from the South Coast.

Central Coast/Bay Area

Foothill Yellow-legged Frogs have declined in abundance and distribution through many parts of the greater Bay Area. There appear to be relatively stable populations remaining in the Diablo Range through western Fresno, San Benito, western Stanislaus, Santa Clara, and Alameda counties. Foothill Yellow-legged Frogs appear to be extirpated from Monterey County north of the Salinas River and western San Joaquin County. They may be near extirpation in western Merced, Contra Costa, Santa Cruz, and San Mateo Counties.

Marin/Sonoma

Foothill Yellow-legged Frogs have been extirpated from many historic locations in Marin County, and there may be only one relatively stable population remaining at Big Carson Creek. The species is still widely distributed throughout Sonoma County; however, there are no published reports of populations with over 50 adults.

North Coast

The largest populations of Foothill Yellow-legged Frogs in California occur in the North Coast Range with healthy populations distributed throughout the region; however, only 6 sites have estimated populations of greater than 100 adults and an additional 9 sites with greater than 50 adults. By the early 1990s, Jennings and Hayes (1994) determined they had been lost from 39 of 165 of historically occupied sites (24%) in this region.

Upper Sacramento River

Foothill Yellow-legged Frogs have declined from the upper Sacramento River basin; the proportion of historically occupied sites that were resurveyed by Jennings and Hayes (1994) in the early 1990s was 21% for Shasta County, and 43% for western Tehama County. The species remains in dozens of tributaries and creeks, but most populations are small.

Southern Sierra Nevada

Declines in Foothill Yellow-legged Frogs in the Southern Sierra Nevada were suspected by Moyle (1973) when he found the species at only 30 of 95 of the sites he sampled (31%) from the vicinity of Yosemite south. The species was thought to be near extirpation due to the low incidence of finding them during resurvey efforts (Drost and Fellers 1996; Fellers 1994, 1997; Fellers and Freel 1995). Foothill Yellow-legged Frogs are extirpated from Yosemite and Sequoia and Kings Canyon National Parks and near extirpation in Sequoia and Sierra National Forests (Hayes et al. 2013, 2016). Remaining populations are few and limited in distribution to Mariposa, Tulare, and eastern Fresno counties.

Central/Northern Sierra Nevada

Foothill Yellow-legged Frogs have experienced widespread declines in abundance and distribution across this region. The species is now gone from at least half of known historical locations in every county within this region except Plumas. Most extant populations are small and isolated from each other with little evidence of successful reproduction. Stable populations remain in El Dorado, Placer, Nevada, and Plumas counties.

2. Other Relevant Scientific Information

The Department does not possess any additional relevant scientific information on Foothill Yellow-legged Frog population trends beyond what was provided in Section D.2. above.

3. Sufficiency of the Petition with regard to Population Trend

The Department concludes the Petition contains sufficient information to indicate that Foothill Yellow-legged Frog populations may have declined in portions of the species' range in California.

F. Factors Affecting the Ability to Survive and Reproduce and Degree and Immediacy of Threat

1. Scientific Information in the Petition

The Petition, on pages 100 through 113, contains the following information regarding threats to Foothill Yellow-legged Frog long-term survival. A combination of anthropogenic stressors have led to the decline of the species throughout its range in California, primarily through habitat loss, fragmentation, and degradation of instream habitat conditions.

Climate Change

Climate change models for terrestrial systems in the Northern Hemisphere predict warmer temperatures, more intense precipitation events, and increased summer drying (Cayan et al. 2005, Field et al. 1999, IPCC 2007). Precipitation is predicted to fall earlier in the spring as rain rather than snow, which will shift the hydrograph to lower snowpack, earlier snowmelt, more winter rain, and higher winter storm runoff events (Maurer et al. 2007, Stewart 2009, Young et al. 2009). California is likely to experience an increase in average annual temperature of 1.5 – 4.5° C (2.7 – 8.1° F) in the next century (Cayan et al. 2008, Field et al. 1999). This combined with changes in precipitation will likely increase the low flow season and increase water temperatures, which may stress species that are adapted to more moderate temperature regimes. Spring snowmelt has already declined in the Sierra Nevada over the past century as a result of changes in timing and amount of precipitation; the portion of Sierra runoff between April and June has declined by 9% (Aguado et al. 1992, Kadir et al. 2013).

As ectotherms, amphibians are particularly sensitive to changes in air and water temperatures, precipitation, and hydroperiod because their body temperatures and activity cycles depend on the availability of optimal environmental conditions in their habitat (Lind 2008). Shifts to earlier breeding have already been observed in some species of amphibians, presumably in response to warming temperatures (Bebee 1995, Blaustein et al. 2001, Gibbs and Breish 2001). If shifts in activities such as breeding are not accompanied by shifts in other critical environmental factors such as emergence of insect prey, growth and survival may be effected.

Changes in frequency, duration, and magnitude of droughts and in runoff quantity and timing may have significant adverse impacts on Foothill Yellow-legged Frogs. Jennings and Hayes (1994) attributed population declines in part to drought. Decreases in summer runoff may result in the loss of foraging and refuge habitat for adults and juveniles, and increasing stream water temperature has been shown to decrease invertebrate density and biomass (Hogg and Williams 1996), which could negatively impact the species' prey base. In addition, as streams dry, Foothill Yellow-legged Frogs congregate in remaining wetted areas, increasing their contact and probability of transmitting diseases and parasites. Increased summer water temperatures were implicated in outbreaks of the parasitic copepod *Lernaea cyprinacea* and malformations in Foothill Yellow-legged Frog larvae and young-of-the-year in California (Kupferberg et al. 2009a). Changes in climatic regimes are likely to increase pathogen virulence and amphibian susceptibility to pathogens (Alford 2011, Gervasi et al. 2008, Pounds et al. 2006, Pounds et al. 2007).

Changes in climatic patterns, particularly those linked to precipitation, may have substantial impacts on Foothill Yellow-legged Frog populations, particularly those at lower latitudes and elevations. Climate change appears to already be a contributing factor in decline of the species (Fellers 2005, Olson and Davis 2009). Low precipitation and increased variability in precipitation were both inversely related to Foothill Yellow-legged Frog presence (Lind 2005), and drought severity has been greater at lower latitudes in California (Cook et al. 2004). Davidson et al. (2002) found a north-to-south gradient of increasing Foothill Yellow-legged Frog losses, consistent with climate change hypotheses (i.e., more losses at drier sites to the south). Continued climate change is likely to cause further contraction of the Foothill Yellow-legged Frog's range with loss of southernmost populations, as well as potential habitat shift upward in elevation, as temperatures increase and precipitation becomes more variable.

Dams, Water Development, and Diversions

Water development and diversions are the primary and most well-documented cause of Foothill Yellow-legged Frog declines and have a greater potential to alter habitat for the species than any other risk factor (Hayes et al. 2013, 2016). Water management activities can produce landscape and localized changes in habitat conditions, such as water velocities, depths, and temperatures, that can lead to inconsistent environmental cues for breeding, lower growth rates in larvae, scouring and/or stranding of egg masses and larvae, reductions of overall habitat suitability for breeding and rearing, barriers to gene flow around reservoirs, and establishment of non-native predators in reservoirs that then spread into the rivers (Ibid.).

There are two major types of water developments: impoundments and diversions. Impoundments block streams with a structure (most often a dam) such that natural flows are impeded and water is pooled upstream, while diversions remove water and deliver it to off-site locations. At least one large reservoir exists in the foothill region of every major stream in the Sierra Nevada below 600 m (1,968 ft), and several major streams and rivers have two or more reservoirs in linear sequence (Ibid.) In addition, several hundred medium-sized and small reservoirs are broadly distributed at elevations within the Foothill Yellow-legged Frog's range over the Sierra Nevada (Mount 1995).

Reservoirs convert lotic (flowing) aquatic habitats to lentic (still) conditions, resulting in habitat with reduced flows, increased depths, and altered temperature and dissolved oxygen regimes (Mount 1995; Petts 1980, 1984). Because Foothill Yellow-legged Frogs have evolved to inhabit free-flowing, well-oxygenated water with coarse substrates, these alterations result in direct loss of required habitat for the species. At least eight historically occupied sites in the Sierra Nevada are currently inundated by reservoirs (Hayes et al. 2013, 2016), and given the number and location of dams, it is likely Foothill Yellow-legged Frogs could have historically occupied many of these sites.

In addition to direct loss of habitat within the footprint of the reservoir, degradation of upstream and downstream habitat can be severe. Lind et al. (1996) reported a 94% loss of potential breeding habitat after construction of the Lewiston Dam on the Trinity River in Northwestern California. Dam operations reduced flood flows to 10-30% in total volume and periodic high flows (i.e., storm runoff) from pre-dam conditions, which facilitated encroachment by riparian

vegetation and reduced cobble/gravel bar formation (Ibid.). In addition, regulated flows and lack of winter flooding can create stable pool areas with established aquatic vegetation (Kupferberg 1996a, Lind et al. 1996), which increases suitable habitat for exotic species such as bullfrogs (Ashton et al. 1998). And decreased flows that result in drying channels can force Foothill Yellow-legged Frogs into permanent pools where they are more susceptible to predation (Hayes and Jennings 1988).

Foothill Yellow-legged Frogs are adapted to the distinct hydrograph created by California's Mediterranean climate, which is marked by high and variable water flows in the fall through spring and low, receding, stable flows in the summer (Yarnell et al. 2010). Water development and diversions cause changes to the hydrograph that recurrently affect several aspects of the species' life history, which can result in reduced abundance and even extirpation (Hayes et al. 2013, 2016). Foothill Yellow-legged Frog breeding populations were five times smaller on average in rivers with regulated flows than in unregulated rivers (Kupferberg et al. 2012). In studying Foothill Yellow-legged Frog distribution, Lind (2005) identified an impoundment effect. The species was associated with streams lacking dams or with streams with small dams that were located far upstream of occupied locations, and extirpated localities were characterized by higher numbers of all dams upstream, greater number of very large dams upstream, greater maximum height of dams upstream, and closer proximity to upstream dams (Ibid.). Along with eliminating habitat and causing local extirpations, dams fragment stream habitat, which interferes with normal dispersal and movements and can impede recolonization after local extirpations (Fellers 2005, Peek 2010).

In addition to a reduction of suitable breeding habitat downstream of dams, aseasonal releases can result in significant loss of annual breeding efforts. High flow releases in late spring can result in scouring of egg masses downstream, whereas poorly timed receding flows can leave egg masses stranded on land to desiccate (Kupferberg et al. 2009b, Lind et al. 1996). Scouring of egg masses has been documented at several locations across the species' range in California including the Trinity River (Lind et al. 1996a), Pit River (Ellis and Cook 2004), and North Fork Feather River (Jackman et al. 2004). In Alameda Creek, Bobzien and DiDonato (2007) concluded that unnatural and consistently higher discharge and irregular flows appeared to be a major factor in poor reproductive conditions for Foothill Yellow-legged Frog populations below dams when compared to those occupying stream reaches with natural flows.

In addition to aseasonally high flows scouring egg masses, summer pulse flows, primarily provided for white water rafting recreation or hydroelectric power generation, can displace larvae approaching metamorphosis (Kupferberg et al. 2011). Experiments suggest that during these pulse flows, larvae seek refuge from higher velocities in the substrate, but many are washed downstream (Ibid.). Larvae exposed to repeated sub-lethal velocities grew significantly less and experienced higher predation than larvae reared at ambient velocities, suggesting there is an energetic cost associated with pulse flows during this stage of development (Ibid.)

Disease

The introduced fungal pathogen *Batrachochytrium dendrobatidis* (Bd), which causes chytridiomycosis, is responsible for amphibian declines in the United States and Central

America (Fellers 2001). This disease causes abnormalities in jaw sheaths and teeth rows of larvae and is fatal in some species. Bd has been detected in Foothill Yellow-legged Frogs in California by several researchers sampling over large areas of the state (Adams et al. in press; Fellers 2001; Davidson et al. 2007; Johnson and Saulino 2007; Lowe 2007, 2009; Padgett-Flohr and Hopkins 2009), but its population-level effects are unknown (Fellers 2005). Most post-metamorphic frogs were not infected, and all individuals >40 mm were Bd-free. While Foothill Yellow-legged Frogs are hosts to Bd, there is conflicting evidence regarding its lethality under laboratory conditions (Davidson et al. 2007, G. Padgett-Flohr pers. comm. to S. Kupferberg), although Bd infection does appear to negatively affect growth in the lab and the field (Davidson et al. 2007, Lowe 2009). In laboratory experiments, Davidson et al. (2007) found that Bd infection reduced growth of newly metamorphosed Foothill Yellow-legged Frogs by approximately one-half and that exposure to the pesticide carbaryl likely increases susceptibility to Bd infection.

In the fall of 2013, Foothill Yellow-legged Frogs in the Little Yosemite reach of Alameda Creek experienced an outbreak of Bd in which dead and dying juveniles were observed (Adams et al. in press). Padgett-Flohr and Hopkins (2009) determined through histological examination of museum specimens of Foothill Yellow-legged Frogs that Bd has likely been present in the Alameda Creek watershed in Alameda County since at least 1961. Bd had been detected by others over the last decade many miles upstream of the site, but this die-off event was the first documented negative effect of Bd infection among Foothill Yellow-legged Frogs in the watershed (Adams et al. in press). The outbreak coincided with extremely low stream flows, which concentrated frogs in drying pools and expanded the spatial distribution of non-native bullfrogs in the stream network (Ibid.). Bullfrogs may represent a reservoir for Bd when Foothill Yellow-legged Frogs in the population are Bd negative because the strongest predictor of Bd load in Foothill Yellow-legged Frogs was the presence of bullfrogs (Ibid.). Although Foothill Yellow-legged Frogs have not experienced the kind of catastrophic die-offs across its range like those observed in the Sierra Nevada Yellow-legged Frog (*R. sierrae*) and Southern Mountain Yellow-legged Frog, this die-off event proves the species is susceptible to large-scale mortality from chytridiomycosis under certain conditions.

Other potential Foothill Yellow-legged Frog pathogens include *Saprolegnia* sp., a water mold observed on amphibian egg masses in the Trinity River (Ashton et al. 1998); the bacteria *Aeromonas hydrophilia*, which is responsible for “red leg” disease; and iridioviruses (*Ranavirus* spp.), which are found in fish and frogs.

Invasive Species

Non-native predators such as predatory fishes, bullfrogs, and crayfish are a primary threat to Foothill Yellow-legged Frogs (Ashton et al. 1998, Fellers 2005, Hayes and Jennings 1986, Kupferberg 1996b, Lind et al. 2003, Lind et al. 1996, Moyle 1973, Paoletti 2009, Paoletti et al. 2011).

Bullfrogs and crayfish adversely affect amphibian populations in general through direct predation as well as competition for resources (Hayes 1985, Hayes and Jennings 1986, Jennings 1988, Kats and Ferrer 2003, Kupferberg 1996b). Centrarchid fishes readily eat Ranid

eggs (Werschkul and Christensen 1977) and may contribute to the extirpation of Foothill Yellow-legged Frog populations. Rombough et al. (2005b) reported that Foothill Yellow-legged Frog abundance and production was inversely related to abundance of smallmouth bass (*Micropterus dolomieu*) and bullfrogs. Borisenko and Hayes (1999) found bullfrogs and fishes occurred significantly more often at sites where Foothill Yellow-legged Frogs had been extirpated than extant sites. Bullfrogs have been linked to decreased Foothill Yellow-legged Frog abundance in the Sierra Nevada (Moyle 1973) and the North Coast (Kupferberg 1997a); in the latter system, it was discovered that bullfrog larvae perturbed the aquatic community structure, resulting in negative effects on Foothill Yellow-legged Frog populations (Ibid.). In addition, interspecific pairings due to mate-confusion between male Foothill Yellow-legged Frogs and female bullfrogs have been observed, which has the potential to reduce the reproductive output of Foothill Yellow-legged Frogs (Lind et al. 2003).

The invasive New Zealand mudsnail (*Potamopyrgus antipodarum*) is an emerging concern for California waterways due to their ability to grow and multiply rapidly, attaining high densities that can alter macroinvertebrate community composition and food web function (Alonso and Castro-Díez 2008). New Zealand mudsnails occur in watersheds with extant populations of Foothill Yellow-legged Frogs (Foster et al. 2016), and while experiments have demonstrated the mudsnails can have adverse effects on survival of Western Toad (*Anaxyrus boreas*) larvae (Bennett et al. 2015), their impact on Foothill Yellow-legged Frogs in the wild is unknown.

Ely (1993, 1994) reported that predation by feral pigs (*Sus scrofa*) is a concern for Foothill Yellow-legged Frogs in some locations, and as previously mentioned, Kupferberg et al. (2009a) found evidence that unusually warm summer water temperatures were associated with outbreaks of the parasitic non-native copepod *Lernaea cyprinacea* and malformations in Foothill Yellow-legged Frog larvae tadpoles and young of the year.

Livestock Grazing

Masters (1997) described the negative impacts of cattle grazing on habitat used by Foothill Yellow-legged Frogs from a site in Oregon, which included crushing eggs, larvae, juveniles, and adults; elimination of vegetation; introduction of non-native vegetation; alteration of vegetation composition and structure; degradation of water quality from urine and feces; alteration of microhabitat conditions; and erosion resulting in sedimentation covering cobble-sized rocks used for breeding and reducing the interstitial spaces used by larvae.

In addition, overgrazing that results in open vegetation can expose amphibians to increased risk of predation and desiccation (SNEP 1996), but in some locations carefully managed grazing could be used as a tool to keep vegetation from encroaching into the active channel because too much canopy cover can make sites unsuitably shady for Foothill Yellow-legged Frogs (S. Kupferberg pers. comm. 2016).

Logging

Timber harvest in the absence of sufficient riparian buffer zones can decrease populations of Foothill Yellow-legged Frogs by increasing water temperatures to lethal levels and by causing

siltation of streambeds (Corn and Bury 1989). High levels of silt can hamper attachment of egg masses to substrate (Applegarth 1994, Ashton et al. 1998), inhibit embryonic development (Jennings and Hayes 1994), reduce the interstitial spaces available for use by larvae and algal growth on which they feed (Power 1990), and negatively impact adult prey such as aquatic macro-invertebrates (Petts 1984).

Marijuana Cultivation

Cultivation of *Cannabis* (i.e., marijuana) is a threat to Foothill Yellow-legged Frogs and their habitat, particularly in Northern California where it is concentrated and its effects are magnified by prolonged drought conditions. Marijuana cultivation can adversely impact the species by legal and illegal water extraction that can dewater the streams, introducing pesticides and chemical fertilizers into waterways, denuding terrestrial habitat adjacent to streams and terracing the slopes, and promoting the growth of toxic cyanobacteria (Bauer et al. 2015, Carah et al. 2015, Gonsolin 2010). Gonsolin (2010) observed the decline of a Foothill Yellow-legged Frog population in the upper Coyote Creek watershed, Santa Clara County, due to impacts from illegal marijuana cultivation.

Mining

Mining activities, particularly suction dredging and gravel mining, can adversely affect all life stages of Foothill Yellow-legged Frogs and substantially degrade the species' habitat (Ashton et al. 1998, Olson and Davis 2009). Suction dredging can increase suspended sediment; modify stream geomorphology, directly remove aquatic organisms; and rearrange the substrate of streams (CDFG 1994, 2012). It can adversely impact reproduction by disturbing adults during courtship and breeding activities; disturbing habitat during the reproductive season; and displacing, burying, or suffocating eggs and larvae (CDFG 1994, Harvey and Lisle 1998). Suction dredging can also kill larvae that cannot escape the vacuum, remove or displace overwintering habitat such as woody debris, and adversely affect Foothill Yellow-legged Frog prey base. A moratorium in California prohibited the Department from issuing suction dredge permits and use of related equipment in any river, stream, or lake through 30 June 2016, but it may be permitted in the future.

Many northern Sierra Nevada foothill streams have regulated and unregulated recreational gold mining activities, which alter the streambed and are likely having a serious, negative impact on the frog fauna (Lannoo 2005). In addition, abandoned mine tailings and settling ponds are often contaminated with heavy metals like mercury that are detrimental (Olson and Davis 2009). Mercury concentrations in 100% of 13 Foothill Yellow-legged Frogs collected in the late 1990s from the Cache Creek watershed in Lake County exceeded the EPA mercury criterion for issuance of health advisories for human fish consumption and the methylmercury criterion for the protection of piscivorous wildlife (Hothem 2008).

Off-road Vehicles

According to Sweet (1983) off-road vehicle damage to Foothill Yellow-legged Frog habitat contributed to the species' extirpation from some Southern California coastal streams. In

addition, the disappearance of Foothill Yellow-legged Frogs from Corral Hollow in San Joaquin County may have been as a result of off-road vehicle damage (Jones & Stokes 2000).

Pollution

A number of pollutants found in the environment have the potential to adversely impact Foothill Yellow-legged Frogs including air-borne pesticides, herbicides, fertilizers, air pollution, and mercury contamination. Toxic material spills are also a concern where roads and railroads occur near streams (Ashton et al. 1998).

Easterly prevailing winds from the Central Valley carry herbicides and pesticides into the Sierra Nevada foothills where they are deposited on the land and in the water and are taken up into the tissues of amphibians, including Foothill Yellow-legged Frogs. Davidson et al. (2002) found a strong positive association between declines Foothill Yellow-legged Frogs in areas downwind of agricultural land use and that sublethal exposure to the pesticide carbaryl likely inhibits their innate immune defense, increasing susceptibility to disease. Kerby and Sih (2015) reported that exposure to carbaryl reduced Foothill Yellow-legged Frogs' ability to compete with Pacific Treefrogs (*Pseudacris regilla*) and increased mortality 50% when exposed to the pesticide with signal crayfish present. Sparling and Fellers (2007) determined that compounds derived from the breakdown of commonly used pesticides are 10-100 times more toxic than their parent compounds on Foothill Yellow-legged Frogs, and they concluded the pesticides found in the Sierra Nevada are at sufficient concentration levels to cause a significant decrease in survival rates. In addition, sublethal effects of pesticides in Foothill Yellow-legged Frogs have been observed including significant alteration of behavior and development (Kerby 2007). Studies that examine the effects of individual pesticides may be underestimating the impacts because mixtures of pesticides, like those found deposited in the wild, have much greater adverse effects on frogs than single pesticides (Hayes et al. 2006).

Hayes et al. (2003) observed hermaphroditism and deformities in Northern Leopard Frogs (*R. pipiens*) exposed to the widespread herbicide atrazine. Marco et al. (1999) reported reduced feeding activity, disequilibrium, physical abnormalities, paralysis, and even death in some larval and young Oregon Spotted Frogs exposed to moderate concentrations of nitrates and nitrites. In addition to drift from aerially applied fertilizers, nitrate can be deposited in higher elevations from air pollution and from livestock waste. Nitrate deposition from air pollution can greatly alter lake ecosystems, and may shift the normal ecological balance in a manner that increases the ability for disease to take hold in amphibians (V. Vredenburg pers. comm. 2000).

Mercury contamination is another threat to the Foothill Yellow-legged Frogs in some areas of California. Research shows that mercury can adversely affect amphibian development and decrease survival through metamorphosis (Unrine et al. 2004). Other effects can include impaired reproduction, growth inhibition, behavioral modification, and various sublethal effects (Zillioux et al. 1993). As previously mentioned under "Mining," several Foothill Yellow-legged Frogs from the Cache Creek area had mercury concentrations high enough to pose a potential hazard to human or wildlife consumption (Hothem 2008).

Recreation

Foothill Yellow-legged Frogs and their habitat can be adversely impacted by some forms of recreation. Any activities undertaken near a stream bank or in the stream could potentially disturb basking behavior or crush or displace egg masses or small larvae including wakes caused by motor boats, vehicles driving on gravel bars, people camping, angling, swimming, and waking dogs (Borisenko and Hayes 1999). There are documented cases of Foothill Yellow-legged Frog egg masses being crushed by dogs and people in Little Carson Creek in Marin County (Prado 2005), and intensive disturbance by humans and dogs in breeding habitat in the (S. Kupferberg pers. comm., J. Miller pers. obs.).

Roads and Urbanization

As the population in California continues to grow, habitat is converted to urban and suburban uses and roads are constructed to connect newly developed areas. Roads that span over streams likely have some adverse effect on Foothill Yellow-legged Frogs through sedimentation during road construction, maintenance work disturbances, potential culvert or foundation failures, or use of culverts that frogs will not pass through. Using data from Oregon and California, Lind (2005) found that Foothill Yellow-legged Frog presence was associated with less urban development nearby.

2. Other Relevant Scientific Information

The Department does not possess any additional relevant scientific information beyond what was provided in the Petition regarding factors affecting the Foothill Yellow-legged Frog's ability to survive and reproduce or the degree and immediacy of those threats.

3. Sufficiency of the Petition with regard to Factors Affecting the Ability to Survive and Reproduce and Degree and Immediacy of Threat

The Department concludes that the Petition contains sufficient information to suggest that Foothill Yellow-legged Frogs are adversely affected by a number of on-going and future threats including, but not limited to, dams and diversions, invasive species, climate change, and pollutants.

G. Impact of Existing Management Efforts

1. Information in the Petition

The Petition, on pages 113 through 119, contains the following information related to federal and state regulatory mechanisms that have the potential to provide some form of protection for the Foothill Yellow-legged Frog. Federal regulatory mechanisms include occurrence on federally managed lands, consideration under the National Environmental Policy Act (NEPA) or the Clean Water Act (CWA), and coverage under Habitat Conservation Plans (HCP). State regulatory mechanisms include coverage under Natural Community Conservation Plans (NCCP) and consideration under the California Environmental Quality Act (CEQA).

Occurrence on Federal Land

Foothill Yellow-legged Frogs occur in National Forests and on Bureau of Land Management (BLM) lands in California. The Foothill Yellow-legged Frog is listed as Sensitive by the Forest Service, a designation that offers little protection for the species or its habitat. A “Sensitive” designation requires that project impacts be considered under NEPA through a Biological Assessment and Evaluation, but it does not mean a project with substantial adverse effects to Foothill Yellow-legged Frogs cannot be approved.

The Forest Service adopted the Sierra Nevada Forest Plan Amendment (Amendment) in 2001, which was intended to shift management of 4.65 million ha (11.5 million ac) of National Forests in the Sierra Nevada to ecosystem management principles. In practice, it has not provided adequate protection for Foothill Yellow-legged Frogs from water withdrawals, river flow regulation, livestock grazing, and sedimentation from forest roads. The Amendment committed the Forest Service to completing a Foothill Yellow-legged Frog Conservation Assessment in cooperation with other federal and State agencies, universities, and research scientists, which was published in 2016 (Hayes et al. 2016); however, this document only provides management recommendations, not mandated protections. While the Amendment contains an Aquatic Conservation Strategy that focuses on reducing some threats to amphibians such as changes to livestock grazing and fish stocking, the primary focus of the Amendment is on terrestrial ecosystems. It contains some management recommendations, like fuels treatments at lower elevations due to their large wildland/urban interface areas that could increase the risk of habitat degradation for Foothill Yellow-legged Frogs. And since its adoption, the Amendment has been under attack by legislators and industry that want to weaken environmental protections and monitoring to increase logging.

The Forest Service and BLM adopted the Northwest Forest Plan (Plan) in 1994, which included an Aquatic Conservation Strategy and established “riparian reserves” that set protective buffers from logging along perennial and intermittent streams, among other measures. However, like the Amendment, in practice, it has not been effective in preventing damage and is jeopardized by efforts to weaken environmental protections by reducing Riparian Reserves to allow for more logging on near-stream and unstable lands (Frissell 2013, 2014). The Forest Service and BLM are in the process of revising the Plan to reduce stream buffers and weaken the Aquatic Conservation Strategy (USBLM 2015). If adopted, logging near streams could alter thermal regimes, increase summer stream temperatures, increase erosion and sediment delivery to streams, and diminish the capacity of riparian forests to filter nutrient loads that threaten water quality (Frissell 2013, 2014; Heiken 2013).

While the three National Parks (Yosemite, Kings Canyon, and Sequoia) within the Foothill Yellow-legged Frog’s historical range in the Sierra Nevada have guiding principles, management goals and management plans that are beneficial for aquatic ecosystems, the species is already extirpated from them, and even federal lands such as these are not protected from threats such as pesticide drift and invasive predators.

National Environmental Policy Act

NEPA requires federal agencies to consider the environmental impacts of their actions through a process where they describe a proposed action, consider alternatives, identify and disclose potential environmental impacts of each alternative, and involve the public in the decision-making process. NEPA does not prohibit agencies from choosing alternatives that will adversely affect Foothill Yellow-legged Frogs or their habitat. In spite of NEPA being in place for 45 years, the species has continued to decline on federal lands throughout most of California.

Clean Water Act

Under Section 404 of the CWA, discharge of pollutants, including dredge or fill material, into “waters of the U.S.” is prohibited without a permit from the U.S. Army Corps of Engineers (USACE). According to a report entitled “Compensating for Wetland Losses Under the Clean Water Act,” the goal of no net loss of wetlands has not been achieved through the USACE regulatory program, partly because permittees do not follow through on required mitigation packages (National Research Council 2001). In addition, the USACE regulatory program has allowed development with too few requirements to avoid and mitigate impacts, and it only looks at the project footprint when evaluating impacts.

Habitat Conservation Plans

There are four HCPs within the Foothill Yellow-legged Frog’s range in California that include it as a covered species: the San Joaquin County Multi-species HCP and Open Space Plan, East Contra Costa County HCP/NCCP, Humboldt Redwood Company (formerly Pacific Lumber, Headwaters) HCP, and Santa Clara Valley HCP/NCCP (USFWS 2015). The species is likely extirpated from the coverage areas of the first two HCPs, and very few extant populations will gain any protection from the last two.

Depending on the waterway, Foothill Yellow-legged Frogs are considered common, rare, or potentially absent in the rivers and streams within the Humboldt Redwood Company HCP (HRCHCP) area. There are no species-specific conservation measures within the HRCHCP, but there is an amphibian and reptile conservation plan that describes a promise to retain habitat diversity and a mix of forest types post-logging. The HRCHCP permits logging 57% of the remaining 10,580 ha (23,147 ac) of old growth forest within the plan area, and the total level of timber harvest and road building will likely have an overall adverse impact on the species.

Foothill Yellow-legged Frogs are considered extirpated from the lowlands and below most dams within the Santa Clara Valley HCP (SCVHCP) area, but populations are still extant in streams above the reservoirs. Approximately 9.2 km (5.7 mi) of modeled Foothill Yellow-legged Frog stream channels are expected to be permanently impacted by covered activities and 3.2 km (2.0 mi) are expected to be temporarily impacted. The SCVHCP proposed to acquire a minimum of 129 km (80 mi) of primary and secondary modeled habitat for the species into the SCVHCP’s Reserve System and to restore 1.6-16.9 km (1.0-10.4 mi) of streams with a goal of supporting Foothill Yellow-legged Frog breeding. However, the SCVHC only proposes to protect 32-44% of the 1,110 km (690 mi) of modeled primary and secondary habitat within the plan area. The HCP

Reserve System was expected to protect only four known Foothill Yellow-legged Frog populations in the plan area, although the species could be present in areas of suitable habitat and just haven't been documented yet.

Coverage under an HCP does not guarantee a species will be better off (or recovered) in the long run, and numerous analyses of the failures of HCPs to achieve their desired goals are presented on pages 117-118 in the Petition (Bowler 2000, Harding et al. 2001, Hood 1998, Kareiva et al. 1999, Owley 2015, Rahn et al. 2006, Smallwood 2000, Smallwood et al. 1998, Wilhere 2002). Issues include, but are not limited to, insufficient and/or poorly defined mitigation measures; allowance of too much take of individuals or habitat; failure to properly take inadequate data and uncertainties into account; failure to secure adequate funding for preserve acquisition and management; and improper or inadequate tracking of mitigation obligations, including recording conservation easements and effectiveness monitoring.

The State of California lists the Foothill Yellow-legged Frog as a "Species of Special Concern," but this administrative designation carries no formal legal status.

Natural Community Conservation Plans

Of the nine NCCPs approved in California, two are within the Foothill Yellow-legged Frog's range: the East Contra Costa County NCCP and the Santa Clara Valley NCCP (CDFW 2015). These plans are joint HCP/NCCPs, so the discussion above regarding the limitations of the HCPs to protect the species applies here. Currently, there is one other NCCP that's in a planning phase and lists Foothill Yellow-legged Frog as a covered species: Butte Regional Conservation Plan (Ibid.).

California Environmental Quality Act

CEQA requires State agencies, local governments, and special districts to evaluate and disclose project impacts when they undertake discretionary activities that may have a significant effect on the environment. The CEQA statute language includes "it is the policy of the State to... prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities." CEQA has procedural mandates for environmental protection that include a provision requiring lead agencies to deny approval of a project that would have significant adverse impacts when feasible alternatives or mitigation measures exist and can reduce the impacts to less than significant; however, if social or economic factors outweigh environmental costs, they can approve the project after all the feasible avoidance and mitigation measures are adopted. Under CEQA, lead agencies are only required to consider project impacts on Species of Special Concern if they meet the criteria of sensitivity under Section 15380 of the CEQA Guidelines. In practice, this means that unless a project is likely to have significantly adverse impacts at a population or regional level, the lead agency does not have to consider Foothill Yellow-legged Frogs.

Regional and Local Government Plans

Madera County adopted a Foothill Yellow-legged Frog Program in 1997 that included measures to protect suitable habitat from significant anthropomorphic activities, but the species may already be extirpated from the county.

Summary

In spite of existing regulatory and voluntary conservation mechanisms, Foothill Yellow-legged Frog populations continue to decline and disappear. They do not provide the type of protections that address impacts from invasive species, pollutants and pesticides, disease, and climate change. Without state listing, conservation methods such as reintroductions and habitat restoration are unlikely to be utilized.

2. Other Relevant Information

The Department does not possess any additional relevant information regarding the impact of existing management but does have three points of clarification. First, while the Species of Special Concern designation carries no formal protections, its intent is to draw attention to a species and implement proactive conservation measures before it warrants the special protections afforded by CESA. Second, the intent of an HCP is not to recover covered species; its measures are meant to provide protection for the species and mitigate incidental take from covered activities. Nearly all of the reports citing the failures or limitations of HCPs were written over 15 years ago when their development was still relatively new and well before the finalization of the SCVHCP.

Finally, the purpose of NCCPs is to sustain and restore covered species and habitat necessary to maintain continued viability of biological communities impacted by human changes to the landscape. NCCPs must ensure implementation of mitigation and conservation measures roughly proportional in time and extent to impacts on covered species or habitat and protect and maintain habitat areas large enough to support sustainable populations of covered species. The Petition states that only 32-44% of modeled Foothill Yellow-legged Frog habitat within the SCVHCP area is proposed for protection under the SCVHCP. However, the SCVHCP limits direct impacts from covered activities to less than 1% of the total modeled Foothill Yellow-legged Frog habitat in the plan area. Because mitigation and conservation measures under the SCVHCP must be roughly proportional to any impacts on Foothill Yellow-legged Frog and its habitat, the Department expects that implementation of the SCVHCP will protect adequate habitat to support sustainable populations of the Foothill Yellow-legged Frog.

3. Sufficiency of the Petition with regard to Impacts of Existing Management Efforts

The Department concludes that the Petition contains sufficient information to suggest that existing regulatory mechanisms and management plans do not adequately protect Yellow-legged Frogs from impacts that threaten their long-term survival.

H. Suggestions for Future Management

1. Information in the Petition

The Petition, on pages 119 to 120, contains the following suggestions for future management.

Require frog-friendly flow regimes: In rivers with Foothill Yellow-legged Frog populations below dams, prohibit aseasonal flow fluctuations that could strand or scour egg masses and larvae, develop flow regimes that mimic the natural seasonal flows the species is adapted to, and maintain thermal regimes that are conducive to larval survival and rapid development.

Restore stream channel habitat: In rivers with Foothill Yellow-legged Frog populations below dams where operations have artificially cooled the water, suppressed flood disturbance, limited sediment supply, and facilitated encroachment of woody riparian vegetation into the active channel, create thermal habitat heterogeneity by restoring gently sloping and sun-lit gravel bars used for breeding.

Eradicate invasive predators: Conduct active eradication and management efforts to decrease the abundance of bullfrogs, non-native fish, and crayfish. In managed rivers, manipulate stream flows to negatively affect non-native species that are not adapted to a winter flood/summer drought flow regime.

Mitigate impacts of marijuana cultivation: Direct some of the money collected through taxes on *Cannabis* sales through Proposition 64 to rehabilitate streams with Foothill Yellow-legged Frogs. This includes funding law enforcement to find and stop illegal dewatering of streams as well as site remediation to remove pollutants.

Prohibit habitat damage: Ensure that State regulations for timber harvests within watersheds occupied by Foothill Yellow-legged Frogs adequately prevent siltation in streambeds or increases in water temperatures above lethal levels. Prohibit instream gravel mining or dredging in occupied reaches. Ensure all State-managed off-road vehicle areas are not adversely affecting the species and its habitat.

Restrict pesticides: Determine where and which pesticide uses should be restricted to reduce harm to Foothill Yellow-legged Frogs.

Reintroduction: Explore reintroduction of Foothill Yellow-legged Frogs to sites within the species' historic range with appropriate habitat, starting with National Parks once the stressors have been removed (e.g., post-bullfrog eradication in Yosemite National Park).

Curate locality data: The Department should take responsibility for, or find a curator to maintain a repository of, all Foothill Yellow-legged Frog survey data collected by agencies, utilities, and researchers, and submitted to the California Natural Diversity Database.

2. Other Relevant Information

Most of the following recommendations are adapted from the Foothill Yellow-legged Frog species account in the recently published California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016).

Explore dam removal: Where appropriate, removing dams can benefit multiple species and improve ecosystem function.

Consider Foothill Yellow-legged Frogs during river restoration projects: Sometimes habitat management and restoration projects target specific taxa and don't consider the potentially negative effects to sympatric species. For example, placement of instream structures to improve habitat for fish can adversely impact Foothill Yellow-legged Frogs (Fuller and Lind 1992).

Prioritize conservation of southern populations: Due to the degree of losses experienced in the southern part of California and the high degree of genetic diversity found in this part of the species' range (Lind et al. 2011), funding and conservation efforts should be prioritized here, including an attempt to relocate potentially remnant populations.

Remove anthropogenic features that support invasive species: Remove artificial pools such as abandoned mine tailing ponds that support bullfrog breeding.

Increase understanding of population dynamics: Currently, the mechanisms underlying hydrological impacts on Foothill Yellow-legged Frogs are best understood at the egg mass stage, but more research is needed into survival of larvae and juveniles, particularly during overwintering.

Conduct a range-wide landscape genomics study: Advances in genetic techniques allow for analysis of large datasets at reasonable prices, and the results can help identify genetic hotspots, barriers to dispersal, and where management units should be drawn that can inform potential future reintroductions.

Maintain adequate riparian buffers: Reduce the risk of habitat degradation from adjacent activities like timber harvest, agriculture, and grazing by maintaining robust riparian buffers around extant populations and in sites suitable for or identified for potential future reintroductions.

3. Sufficiency of the Petition with regard to Suggestions for Future Management

The Department concludes that the Petition contains sufficient information to demonstrate that additional management efforts may aid in maintaining and increasing self-sustaining populations of Foothill Yellow-legged Frogs in California.

I. Availability and Sources of Information

1. Information in the Petition

The Petition contains a 35-page bibliography, on pages 121 through 155, of literature cited and personal communications with credible sources, the vast majority of which were provided to the Department on a CD upon request.

2. Other Relevant Information

The Department used publicly available information and provided citations. The Department also used unpublished reports and data as well as personal communications that can be provided upon request. The Department did not receive any information from the public during the Petition Evaluation period pursuant to Fish and Game Code Section 2073.4.

3. Sufficiency of the Petition with regard to Availability and Sources of Information

The Department concludes the Petition contains sufficient sources of information that are readily available to attempt to determine the status of the Foothill Yellow-legged Frog.

J. Detailed Distribution Map

1. Information in the Petition

The Petition contains four detailed maps, on pages 7 through 10, depicting historical and current distribution of Foothill Yellow-legged Frogs.

2. Other Relevant Information

The Department does not possess any additional relevant information regarding Foothill Yellow-legged Frog distribution that would substantively change the maps provided in the Petition.

3. Sufficiency of the Petition with regard to a Detailed Distribution Map

The Department concludes the Petition contains a sufficient depiction of the Foothill Yellow-legged Frog's historical and current distribution.

IV. Status of the Species

The Foothill Yellow-legged Frog's range has contracted in California; the species appears to be extirpated from its former range in Southern California and near extirpated from the southern Sierra Nevada. Within its current range, the Foothill Yellow-legged Frog's distribution and abundance have declined in some areas. The species' life cycle is closely tied to seasonal stream flows, and it requires specialized habitat conditions for successful reproduction.

Changes in natural flow regimes as a result of dams and diversions appear to be a primary threat to long-term survival of the species. As an ectotherm with highly permeable skin, the Foothill Yellow-legged Frog is particularly sensitive to climate change and pollution. Invasive species and incompatible land uses near stream habitats may also threaten the species' long-term survival.

Having reviewed and evaluated the Petition on its face and in relation to other relevant information, including the material referenced in the Petition and other information in possessed or received by the Department, the Department has determined that there is sufficient scientific information available at this time to indicate that the petitioned action may be warranted and recommends that the Petition be accepted and considered. (See Fish & G. Code, § 2073.5, subd. (a)(2); Cal. Code Regs., tit. 14, § 670.1, subd. (d).)

V. Literature Cited

- Adams, A.J., S.J. Kupferberg, M. Q. Wilber, A.P. Pessier, S. Bobzien, M. Grefsrud, V. Vredenburg, and C.J. Briggs. In press. Extreme Drought, Host Density, Sex, and Bullfrogs Influence Fungal Pathogen Infection in a Declining Lotic Amphibian. *Ecosphere*.
- Aguado E, D. Cayan, L. Riddle, and M. Roos. 1992. Climatic Fluctuations and the Timing of West Coast Streamflow. *Journal of Climate* 5:1468-1483.
- Airola, D.A. 1980. California Wildlife Habitat Relationships Program – Northeast Interior Zone. Volume II – Reptiles and Amphibians.
- Alford, R. 2011. Bleak Future for Amphibians. *Nature* 480:461.
- Alonso, A. and P. Castro-Díez. 2008. What Explains the Invading Success of the Aquatic Mud Snail *Potamopyrgus antipodarum* (Hydrobiidae, Mollusca)? *Hydrobiologia* 614:107-116.
- Applegarth, J.S. 1994. Special Status Amphibians and Reptiles of the Eugene District: A Guide for Their Conservation. Division of Resources, Eugene District Office, U.S. Bureau of Land Management, Eugene, Oregon.
- Ashton, D.T., A.J. Lind, and K.E. Schlick. 1998. Foothill Yellow-Legged Frog (*Rana boylei*) Natural History. USDA Forest Service, Pacific Southwest Research Station, Redwood Sciences Laboratory, Arcata, CA.
- Ashton, D.T., and R.J. Nakamoto. 2007. *Rana boylei* (Foothill Yellow-legged Frog). Predation. *Herpetological Review* 38(4):442.
- Banta, B.H., and D.J. Morafka. 1967. An Annotated Check List of the Recent Amphibians and Reptiles of the Pinnacles National Monument and Bear Valley, San Benito and Monterey Counties, California, With Some Ecological Observations. Unpublished report provided by K. Hutchinson, Monument Superintendent.

- Bauer S.D., J.L. Olson, A.C. Cockrill, M.G. van Hattem, L.M. Miller, M. Tauzer, and G. Leppig. 2015. Impacts of Surface Water Diversions for Marijuana-Cultivation on Aquatic Habitat in Four Northwestern California Watersheds. 2015. PLOS ONE 10 (art.e0120016). doi:10.1371/journal.pone.0120016.
- Beebee, T.J.C. 1995. Amphibian Breeding and Climate. *Nature* 374:219-220.
- Bennett, D.M., T.L. Dudley, S.D. Cooper, and S.S. Sweet. 2015. Ecology of the Invasive New Zealand Mud Snail, *Potamopyrgus antipodarum* (Hydrobiidae), in a Mediterranean-Climate Stream System. *Hydrobiologia* 746(1):375–399.
- Blaustein, A.R., L.K. Belden, D.H. Olson, D.M. Green, T.L. Root, and J.M. Kiesecker. 2001. Amphibian Breeding and Climate Change. *Conservation Biology* 15:1804-1809.
- Bobzien, S. and J.E. DiDonato. 2007. The Status of the California Tiger Salamander (*Ambystoma californiense*), California Red-legged Frog (*Rana draytonii*), Foothill Yellow-legged Frog (*Rana boylei*), and Other Aquatic Herpetofauna in the East Bay Regional Park District, California. East Bay Regional Park District.
- Bondi, C.A., S.M. Yarnell, and A.J. Lind. 2013. Transferability of Habitat Suitability Criteria for a Stream Breeding Frog (*Rana boylei*) in the Sierra Nevada, California. *Herpetological Conservation and Biology* 8(1):88-103.
- Borisenko, A.N., and M.P. Hayes. 1999. Status of the Foothill Yellow-Legged Frog (*Rana boylei*) in Oregon. Final Report to The Nature Conservancy under contract to the U.S. Fish and Wildlife Service with assistance from the Oregon Department of Fish and Wildlife, the U.S. Army Corps of Engineers, and the U.S. Geological Survey.
- Bourque, R.M. 2008. Spatial Ecology of an Inland Population of the Foothill Yellow-legged Frog (*Rana boylei*) in Tehama County, California. Master's Thesis. Humboldt State University, Arcata, CA.
- Bowler, P.A. 2000. Ecological Restoration of Coastal Sage Scrub and Its Potential Role in Habitat Conservation Plans. *Environmental Management* 26 (suppl. 1):85-96.
- Brattstrom, B.H., 1962. Thermal Control of Aggregation Behavior in Tadpoles. *Herpetologica* 18:38-46.
- Bury, R.B. 1969. An Analysis of the Herpetofauna of Trinity County, California. Unpublished research report under the guidance of Dr. Robert Stebbins. March 7, 1967, revised October 25, 1969.
- Bury, R.B., and N.R. Sisk. 1997. Amphibians and reptiles of the Cow Creek Watershed in the BLM-Roseburg District. Report submitted to BLM-Roseburg District and Oregon Department of Fish and Wildlife, Roseburg. Biological Resources Division, USGS, Corvallis, OR.
- [CAS] California Academy of Sciences. 2001. Files on *Rana boylei* holdings provided in 2001.

- [CDFG] California Department of Fish and Game. 1975. Upper Penetencia Creek and Fisher Creek Stream Surveys. From CDFG files, Yountville, California.
- [CDFG] California Department of Fish and Game. 1994. Adoption of Regulations for Suction Dredge Mining. Amended Draft Environmental Impact Report, California CDFG, Rancho Cordova, California. 182 pp.
- [CDFG] California Department of Fish and Game. 2012. Findings of Fact of the California Department of Fish and Game as a Lead Agency under the California Environmental Quality Act (Pub. Resources Code §21000 et seq.) for the Suction Dredge Permitting Program (Fish & G. Code, §5653 et seq.) as Analyzed in the Suction Dredge Permitting Program Subsequent Environmental Impact Report (SCH No. 2009112005). California Department of Fish and Game, Sacramento, California.
- [CDFW] California Department of Fish and Wildlife (CDFW). 2015. Summary of Natural Community Conservation Plans (NCCPs), July 2015. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=108719&inline>.
- [CNDDB] California Natural Diversity Database. 2016. Rare Find species query for Foothill Yellow-legged Frog (*Rana boylei*). Accessed December 2016.
- Carah, J.K., J.K. Howard, S.E. Thompson, A.G. Short, S.D. Bauer, S.M. Carlson, D.N. Dralle, M.W. Gabriel, L.L. Hulette, B.J. Johnson, C.A. Knight, S.J. Kupferberg, S.L. Martin, R.L. Naylor, and M.E. Power. 2015. High Time for Conservation: Adding the Environment to the Debate on Marijuana Liberalization. BioScience Advance Access published June 24, 2015.
- [CMNH] Carnegie Museum of Natural History. 2001. Files on *Rana boylei* holdings provided by S. Rogers, Collection Manager, Section of Amphibians and Reptiles, Carnegie Museum of Natural History, Pittsburgh, PA.
- Catenazzi, A., and S.J. Kupferberg. 2013. The Importance of Thermal Conditions to Recruitment Success in Stream-breeding Frog Populations Distributed across a Productivity Gradient. Biological Conservation 168:40-48.
- Cayan, D., M. Dettinger, I. Stewart, and N. Knowles. 2005. Recent Changes Towards Earlier Springs: Early Signs of Climate Warming in Western North America? U.S. Geological Survey, Scripps Institution of Oceanography, La Jolla, CA.
- Cayan, D.R., E.P. Maurer, M.D. Dettinger, M. Tyree, and K. Hayhoe. 2008. Climate Change Scenarios for the California Region. Climatic Change, published online, 26 Jan. 2008, doi:10.1007/s10584-007-9377-6.
- [CBI] Conservation Biology Institute. 2008. Conservation Assessment for the Shrittail Creek Forest Property. Prepared for Endangered Habitats Conservancy and California Wildlife Foundation by Michael D. White, January 2008.
- [CCC] Contra Costa County. 2006. East Contra Costa County HCP/NCCP. Species Accounts. Foothill Yellow-Legged Frog.

- Cook, E.R., C.A. Woodhouse, C.M. Eakin, D.M. Meko, and D.W. Stahle. 2004. Long-term Aridity Changes in the Western United States. *Science* 306:1015-1018.
- Corn, P.S., and R.B. Bury. 1989. Logging in Western Oregon: Responses of Headwater Habitats and Stream Amphibians. *Forest Ecology and Management* 29:1-19.
- Cornell University. 2002. Cornell University *Rana boylei* holdings from Species Analyst Network. www.speciesanalyst.net accessed 2002.
- Corum, S. 2003. Effects of Sacramento Pikeminnow on Foothill Yellow-legged Frogs in Coastal Streams. Master's Thesis. California State University, Humboldt, Arcata, CA.
- Csuti, B., T.A. O'Neil, M.M. Shaughnessy, E.P. Gaines, and J.C. Hak. 2001. Atlas of Oregon Wildlife: Distribution, Habitat, and Natural History. Second Edition. Oregon State University Press, Corvallis, OR.
- Davidson, C., M.F. Bernard, H.B. Shaffer, J.M. Parker, C. O'Leary, J.M. Conlon, and L.A. Rollins-Smith. 2007. Effects of Chytrid and Carbaryl Exposure on Survival, Growth and Skin Peptide Defenses in Foothill Yellow-legged Frogs. *Environmental Science and Technology* 41:1771-1776.
- Davidson, C., H.B. Shaffer, and M.R. Jennings. 2002. Spatial Tests of the Pesticide Drift, Habitat Destruction, UV-B, and Climate-Change Hypotheses for California Amphibian Declines. *Conservation Biology* 16(6):1588-1601.
- Davis, R., and D. Olson. 2008. Field Validation of a Landscape Habitat Model for the Foothill Yellow-Legged Frog (*Rana boylei*) in Oregon. USDA Forest Service, Umpqua National Forest, Roseburg, OR and Pacific Northwest Research Center, Corvallis, OR.
- De Foe, D.H. 1963. Check List of Amphibians and Reptiles, Pinnacles National Monument, California. Unpublished report provided by K. Hutchinson, Monument Superintendent.
- Dever, J.A. 2007. Fine-scale Genetic Structure in the Threatened Foothill Yellow-legged Frog (*Rana boylei*). *Journal of Herpetology* 41(1):168-173.
- Devine Tarbell & Associates, Inc. and Stillwater Sciences. 2005. Sacramento Municipal Utility District Upper American River Project and Pacific Gas and Electric Company Chili Bar Project Amphibians and Aquatic Reptiles Technical Report. April 2005, Version 3.
- Drost, C.A. and G.M. Fellers. 1994. Decline of Frog Species in the Yosemite Section of the Sierra Nevada. Cooperative National Park Resources Studies Unit. Technical Report No. NPS/WRUC/NRTR 94-02. University of California Institute of Ecology, Davis, CA.
- Drost, C.A., and G.M. Fellers. 1996. Collapse of a Regional Frog Fauna in the Yosemite Area of the California Sierra Nevada, USA. *Conservation Biology* 10(2):414-425.

- [EBMUD] East Bay Municipal Utility District. 1994. East Bay Municipal Utility District East Bay Watershed Master Plan, Natural Resources Inventory. Prepared by EA Engineering, Science, and Technology.
- [EBRPD] East Bay Regional Park District. 1998. EBRPD 1996 Aquatic Surveys. Provided by Joe DiDonato, EBRPD Wildlife Department.
- ECORP Consulting, Inc. 2011. Surveys for the Foothill Yellow-Legged Frog (*Rana boylei*) and Western Pond Turtle (*Actinemys marmorata*) in Lower Iowa Canyon Creek and South Fork American River. Prepared for: Sacramento Municipal Utility District.
- Ellis, M.J., and J.D. Cook. 2004. Pulsed Flows Effects on Foothill Yellow-legged Frog Egg Masses, Filamentous Green Algae, and Fish Stranding in the Pit River. Spring River Ecological Services presentation given at the annual meeting of The Wildlife Society, Western Section.
- Ely, E. 1992. Federal Candidate Herpetological Survey. Submitted to Hollister Resource Area Bureau of Land Management, Hollister, CA.
- Ely, E. 1993. Current Status of *Rana aurora*, *Rana boylei*, and *Bufo boreas* at Pinnacles National Monument, California. Unpublished report provided by K. Hutchinson, Monument Superintendent.
- Ely, E. 1994. Report and Findings 1994 Amphibian Surveys, Pinnacles National Monument, California. Unpublished report prepared for the National Park Service, Point Reyes, CA.
- Evenden, F.G., Jr. 1948. Food Habitats of *Triturus granulosus* in Western Oregon. *Copeia* 1948(3):219-220.
- [FERC] Federal Energy Regulatory Commission. 2001. Pit 3,4,5 Project, FERC 233. Pacific Gas & Electric Company Preliminary Draft.
- [FERC] Federal Energy Regulatory Commission. 2013. Draft Environmental Impact Statement for the Drum-Spaulding Project (P-2310-173) and Yuba-Bear Hydroelectric Project (P-2266-096). Issued May 17, 2013. Office of Energy Projects, Division of Hydropower Licensing, Washington, DC.
- Fellers, G.M. 1986. An Annotated Check List of Amphibians and Reptiles, Pinnacles National Monument. Unpublished report provided by K. Hutchinson, Monument Superintendent.
- Fellers, G.M. 1994. An Assessment of the Status of Amphibians in the Vicinity of California National Parks. National Biological Survey, Point Reyes, CA.
- Fellers, G.M. 1996. 1995 Aquatic Amphibian Surveys, Mendocino National Forest. National Biological Service, Point Reyes, California.
- Fellers, G.M. 1997. Aquatic Amphibian Surveys, Yosemite National Park. U.S. Geological Survey, Biological Resources Division. Point Reyes National Seashore, Point Reyes, CA.

- Fellers, G.M. 2001. Recent Observations of Chytridiomycosis among Amphibians in California. Presentation to Declining Amphibian Populations Task Force, California and Nevada Working Group.
- Fellers, G.M. 2005. *Rana boylei* Baird, 1854(b). p. 534-536 In M. Lannoo (Editor). Amphibian Declines: The Conservation Status of United States Species. University of California Press, Berkeley.
- Fellers, G.M. and K.L. Freel. 1995. A Standardized Protocol for Surveying Aquatic Amphibians. Technical Report NPS/WRUC/NRTR-95-01. Western Region Cooperative National Park Studies Unit. University of California, Davis, CA.
- Fesnock, A., and P. Johnson. 2002. Checklist of Amphibians and Reptiles Pinnacles National Monument. National Park Service. Available at: https://www.nps.gov/pinn/learn/nature/upload/List_of_apmhians_2015.pdf
- Fidenci, P. 2006. *Rana boylei* (Foothill Yellow-Legged Frog) Predation. Herpetological Review 37(2):208.
- Field, C.B., G.C. Daily, F.W. Davis, S. Gaines, P.A. Matson, J. Melack, and N.L. Miller. 1999. Confronting Climate Change in California. Ecological Impacts on the Golden State. A report of the Union of Concerned Scientists, Cambridge, Massachusetts, and the Ecological Society of America, Washington, DC.
- [FMNH] Field Museum of Natural History. 2001. Files on *Rana boylei* holdings provided in 2001 by A. Resetar, Curator, Field Museum of Natural History, Chicago, IL.
- Fitch, H.S. 1936. Amphibians and Reptiles of the Rogue River Basin, Oregon. The American Midland Naturalist 17:634-652.
- Fitch, H.S. 1938. *Rana boylei* in Oregon. Copeia 3:148.
- Fitch, H.S. 1941. The Feeding Habits of California Garter Snakes. California Fish and Game 27:1-32.
- Fong, D. 1997. 1996-1997 Redwood Creek Spawner and Carcass Survey. Prepared by Darren Fong, Aquatic Ecologist, Golden Gate National Recreation Area. Prepared for National Park Service and Golden Gate National Recreation Area. May 1997.
- Foster, A.M., P. Fuller, A. Benson, S. Constant, D. Raikow, J. Larson, and A. Fusaro. 2016. *Corbicula fluminea*. USGS Nonindigenous Aquatic Species Database, Gainesville, Florida. Accessed 12/7/2016. Available at: <https://nas.er.usgs.gov/>.
- Frissell, C.A. 2013. Aquatic Resource Protections in the Northwest Forest Plan: Evaluating Potential Consequences of Proposed Riparian Reserve Reductions for Clean Water, Streams and Fish. Report prepared for the Coast Range Association, Corvallis, OR. Available at: www.coastrange.org.

- Frissell, C.A. 2014. Conservation of Aquatic and Fishery Resources in the Pacific Northwest: Implications of New Science for the Aquatic Conservation Strategy of the Northwest Forest Plan. Prepared for the Coast Range Association.
- Fuller, D.D., and A.J. Lind. 1992. Implications of Fish Habitat Improvement Structures for Other Stream Vertebrates. p. 96-104 *In*: Proceedings of the Symposium on Biodiversity of Northwestern California. R. Harris and D. Erman (Editors). Santa Rosa, CA.
- Furey, P.C., S.J. Kupferberg, and A.J. Lind. 2014. The Perils of Unpalatable Periphyton: *Didymosphenia* and Other Mucilaginous Stalked Diatoms as Food for Tadpoles. *Diatom Research* 29(3):267-280.
- Gallaway, J. 1999. Simmons Ranch: Natural Resource Inventory and Wildlife Evaluation. Report to the University Foundation, California State University, Chico. February 1999.
- [GANDA] Garcia and Associates. 2010a. Feasibility Study for the Reintroduction of the Foothill Yellow-legged Frog (*Rana boylei*) within the Mt. Tamalpais Watershed, Marin County, California. Prepared for: Marin Municipal Water District.
- [GANDA] Garcia and Associates. 2010b. Flow Fluctuation Monitoring for Foothill Yellow-legged Frog (*Rana boylei*) on the South Fork American River, El Dorado County, California for the El Dorado Hydroelectric Project (FERC No. 184). Prepared for: El Dorado Irrigation District.
- Gervasi, S.S., and J. Foufopoulos. 2008. Costs of Plasticity: Responses to Desiccation Decrease Postmetamorphic Immune Function in a Pond-Breeding Amphibian. *Functional Ecology* 22:100-108.
- Gibbs, J.P., and A.R. Breisch. 2001. Climate Warming and Calling Phenology of Frogs near Ithaca, New York, 1900-1999. *Conservation Biology* 15:1175-1178.
- Grass Valley. 2000. City of Grass Valley 2020 General Plan Draft Environmental Impact Report.
- Grinnell, J., and T. I. Storer. 1924. Animal Life in the Yosemite: An Account of the Mammals, Birds, Reptiles, and Amphibians in a Cross-section of the Sierra Nevada. University of California Press, Berkeley, CA.
- Gonsolin, T.E. 2010. Ecology of Foothill Yellow-legged Frogs in Upper Coyote Creek, Santa Clara County, CA. Master's Thesis. San Jose State University, San Jose, CA.
- H.T. Harvey and Associates. 1999. Santa Clara Valley Water District Foothill Yellow-legged Frog Distribution and Status-1999. Prepared for Santa Clara Valley Water District, San José, CA.
- Harding, E.K., E.E. Crone, B.D. Elder, J.M. Hoekstra, A.J. McKerrow, J.D. Perrine, J. Regetz, L.J. Rissler, A.G. Stanley, E.L. Walters, and NHCPW Group. 2001. The Scientific Foundations of Habitat Conservation Plans: a Quantitative Assessment. *Conservation Biology* 15:488–500. doi:10.1046/j.1523-1739.2001.015002488.x

- [HMCZ] Harvard Museum of Comparative Zoology. 2001. Harvard Museum of Comparative Zoology Herpetology Collection. World wide web publication accessed 2001.
- Harvey, B.C., and T.E. Lisle. 1998. Effects of Suction Dredging on Streams: A Review and an Evaluation Strategy. *Fisheries*, 23:8-17.
- Harvey, T.E., K.J. Miller, R.L. Hothem, M.J. Rauzon, G.W. Page, and R.A. Keck. 1992. Status and Trends Report On Wildlife of the San Francisco Estuary. Prepared by the U.S. Fish and Wildlife Service, Sacramento, CA.
- Hayes, M.P. 1985. *Rana catesbeiana* (Bullfrog) Food. *Herpetological Review* 16(4):109.
- Hayes, M.P., C. Brown, A.J. Lind, C.A. Wheeler, G.A. Green, and D.C. Macfarlane (Technical Coordinators). 2013. Draft Foothill Yellow-legged Frog Conservation Assessment. Foothill Yellow-legged Frog Working Group.
- Hayes, T.B., P. Case, S. Chui, D. Chung, C. Haeffele, K. Haston, M. Lee, V.P. Mai, Y. Marjuoa, J. Parker, and M. Tsui. 2006. Pesticide Mixtures, Endocrine Disruption, and Amphibian Declines: Are We Underestimating the Impact? *Environmental Health Perspectives* 114(suppl. 1):40-50.
- Hayes, M.P., and F.S. Cliff. 1982. A Checklist of the Herpetofauna of Butte County, the Butte Sink, and Sutter Buttes, California. *Herpetological Review* 13:85-87.
- Hayes, M.P., and M.R. Jennings. 1986. Decline of Ranid Frog Species in Western North America: Are Bullfrogs (*Rana catesbeiana*) Responsible? *Journal of Herpetology* 20(4):490-509.
- Hayes, M.P., and M.R. Jennings. 1988. Habitat Correlates of Distribution of the California Red-legged Frog (*Rana aurora draytonii*) and the Foothill Yellow-Legged Frog (*Rana boylei*): Implications for Management. p. 144-158 *In*: Management of Amphibians, Reptiles, and Small Mammals in North America, Gen. Tech. Rep. RM-166 R.C. Szaro, K. E. Severson, and D. R. Patton (Technical Coordinators). USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.
- Hayes, M.P., C.A. Wheeler, A.J. Lind, G.A. Green, and D.C. Macfarlane (Technical Coordinators). 2016. Foothill Yellow-Legged Frog Conservation Assessment in California. Gen. Tech. Rep. PSW-GTR-248. U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station, Albany, CA.
- Hayes, T., K. Haston, M. Tsui, A. Hoang, C. Haeffle, and A. Vonk. 2003. Atrazine-induced Hermaphroditism at 0.1 ppb in American Leopard Frogs (*Rana pipiens*): Laboratory and Field Evidence. *Environmental Health Perspectives* 11(4):568-575.
- HDR Engineering, Inc. 2013. Special-Status Amphibians and Reptiles Study Report, Don Pedro Project, FERC No. 2299. Prepared for Turlock Irrigation District and Modesto Irrigation District.

- Heiken, D. 2013. Riparian Reserves Provide both Aquatic and Terrestrial Benefits – A Critical Review of Reeves, Pickard and Johnson (2013). Oregon Wild.
- Hemphill, D.V. 1952. The Vertebrate Fauna of the Boreal Areas of the Southern Yolla Bolly Mountains, California. PhD Dissertation. Oregon State University, Corvallis.
- [HWCSP] Henry W. Coe State Park. 2015. Amphibians and Reptiles of Henry W. Coe State Park. Published by the Pine Ridge Association of Henry W. Coe State Park.
- [HERP] Herpetological Education & Research Project. 2016. *Rana boylei* query. Data provided to the California Department of Fish and Wildlife on October 11, 2017.
- Hogg, I.D., and D.D. Williams. 1996. Response of Stream Invertebrates to a Global-Warming Thermal Regime: An Ecosystem Level Manipulation. *Ecology* 77:395-408.
- Hood, L. 1997. Frayed Safety Nets: Conservation Planning Under the Endangered Species Act. Defender of Wildlife, Washington, D.C.
- Hothem, R.L. 2008. Mercury Contamination in Foothill Yellow-legged Frogs (*Rana boylei*) and Invertebrates from Harley Gulch, California, 2007. U.S. Geological Survey Western Ecological Research Center. Prepared for the Bureau of Land Management.
- [IPCC] Intergovernmental Panel on Climate Change. 2007. Climate Change 2007: the Physical Science Basis. Summary for policymakers. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, IPCC Secretariat, World Meteorological Organization and United Nations Environment Programme, Geneva, Switzerland.
- Jackman, R.E., J.E. Drennan, K.R. Marlow, and K.D. Wiseman. 2004. Some Effects of Spring and Summer Pulsed Flows on River Breeding Foothill Yellow-Legged Frogs (*Rana boylei*) Along the North Fork Feather River. Garcia and Associates presentation given at the annual meeting of The Wildlife Society, Western Section.
- Jennings, M.R. 1996. Status of Amphibians. Sierra Nevada Ecosystem Project: Final Report to Congress, vol. II, Assessments and Scientific Basis for Management Options. University of California, Centers for Water and Wildland Resources, Davis, CA.
- Jennings, M.R., and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Final Report submitted to the California Department of Fish and Game, Inland Fisheries Division. Contract No. 8023.
- Johnson, P., and R. Saulino. 2007. Investigating Chytrid Fungus in and Around Pinnacles National Monument. National Park Service, Pinnacles National Monument. Presentation to Declining Amphibian Populations Task Force, California and Nevada Working Group.
- Jones, L.L.C., W. P. Leonard, and D. H. Olson (Editors). 2005. Amphibians of the Pacific Northwest. Seattle Audubon Society, Seattle, WA.

- Jones & Stokes. 2000. California Department of Parks and Recreation Carnegie State Vehicle Recreation Area General Plan Amendment Environmental Impact Report. Prepared for the California Department of Parks and Recreation and Off-Highway Motor Vehicle Recreation Division.
- Kadir, T., L. Mazur, C. Milanese, and K. Randles. 2013. Indicators of Climate Change in California. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, August 2013.
- Kareiva, P., and the NCEAS HCP Working Group. 1999. Using Science in Habitat Conservation Plans. National Center for Ecological Analysis & Synthesis, Santa Barbara, CA, and the American Institute of Biological Sciences, Washington, D.C.
- Kats, L.B., and R.P. Ferrer. 2003. Alien Predators and Amphibian Declines: Review of Two Decades of Science and the Transition to Conservation. *Diversity and Distributions* 9:99-110.
- Kerby, J.L. 2007. Pesticide Effects on Amphibians: A Community Ecology Perspective; DAI-B 68(02):130.
- Kerby, J.L. and A. Sih. 2015. Effects of Carbaryl on Species Interactions of the Foothill Yellow Legged Frog (*Rana boylei*) and the Pacific Treefrog (*Pseudacris regilla*). *Hydrobiologia* 746:255–269. DOI 10.1007/s10750-014-2137-5.
- [KNF] Klamath National Forest. 1999. Klamath National Forest documents provided by C. Hendryx, Forest FOIA Coordinator.
- Koo, M.S., and J.V. Vindum. 1999. Amphibians and Reptiles of the Plumas National Forest: Historical Collections and California Academy of Sciences 1998 and 1999 Surveys. Department of Herpetology, California Academy of Sciences. 1-C.
- Kupferberg, S.J. 1996a. Hydrologic and Geomorphic Factors Affecting Conservation of a River-Breeding Frog (*Rana boylei*). *Ecological Applications* 6(4):1322-1344.
- Kupferberg, S.J. 1996b. The Ecology of Native Tadpoles (*Rana boylei* and *Hyla regilla*) and the Impact of Invading Bullfrogs (*Rana catesbeiana*) in a Northern California River. PhD Dissertation. University of California, Berkeley, CA.
- Kupferberg, S.J. 1997a. Bullfrog (*Rana catesbeiana*) Invasion of a California River: The Role of Larval Competition. *Ecology* 78(6):1736-1751.
- Kupferberg, S.J. 1997b. The Role of Larval Diet in Anuran Metamorphosis. *American Zoologist* 37(2):146-159.
- Kupferberg, S.J., A. Catenazzi, K. Lunde, A. Lind, and W. Palen. 2009a. Parasitic Copepod (*Lernaea cyprinacea*) Outbreaks in Foothill Yellow-legged Frogs (*Rana boylei*) Linked to Unusually Warm Summers and Amphibian Malformations in Northern California. *Copeia* 2009(3): 529-537.

- Kupferberg, S.J., A. Catenazzi, and M.E. Power. 2013. The Importance of Water Temperature and Algal Assemblage for Frog Conservation in Northern California Rivers with Hydroelectric Projects. Final Report. California Energy Commission, PIER. CEC-500-2014-033.
- Kupferberg, S.J., A. Lind, J. Mount , and S. Yarnell. 2009b. Pulsed Flow Effects on the Foothill Yellow-Legged Frog (*Rana boylei*): Integration of Empirical, Experimental, and Hydrodynamic Modeling Approaches. Final Report. California Energy Commission, PIER. CEC-500-2009-002.
- Kupferberg, S.J., A.J. Lind, and W.J. Palen. 2009c. Pulsed Flow Effects on the Foothill Yellow-legged Frog (*Rana boylei*): Population modeling. Final Report to the California Energy Commission, PIER. CEC-500-2009-002a.
- Kupferberg, S.J., A.J. Lind, V. Thill, and S.M. Yarnell. 2011. Water Velocity Tolerance in Tadpoles of the Foothill Yellow-legged Frog (*Rana boylei*): Swimming Performance, Growth, and Survival. *Copeia* 2011(1):141-152.
- Kupferberg, S.J., W.J. Palen, A.J. Lind, S. Bobzien, A. Catenazzi, J. Drennan, and M.E. Power. 2012. Effects of Flow Regimes Altered by Dams on Survival, Population Declines, and Range-wide Losses of California River-Breeding Frogs. *Conservation Biology* 26(3):513-524.
- Lannoo, M. (Editor). 2005. Amphibian Declines: The Conservation Status of United States Species. University of California Press.
- [LNF and PNF] Lassen National Forest and Plumas National Forest. 1999. Biological Assessment and Evaluation of Herger-Feinstein Quincy Library Group Forest Recovery Act.
- Launer, A.E., G.W. Holtgrieve and D. Gordon. 1999. Stanford University Natural Resources Inventory. Center for Conservation Biology.
- Lehr, S.K. 1998. Biological and Aquatic Resources Assessment of Brushy Creek and the North Fork American River; Placer County, California. Unpublished report, California Department of Fish and Game, Rancho Cordova, CA.
- Lind, A.J. 2005. Reintroduction of a Declining Amphibian: Determining an Ecologically Feasible Approach for the Foothill Yellow-legged Frog (*Rana boylei*) Through Analysis of Decline Factors, Genetic Structure, and Habitat Associations. PhD Dissertation. University of California, Davis.
- Lind, A.J. 2008. Amphibians and Reptiles and Climate Change. (May 20, 2008). U.S. Department of Agriculture, Forest Service, Climate Change Resource Center.
- Lind, A.J., J.B. Bettaso, and S.M. Yarnell. 2003. Natural History Notes: *Rana boylei* (Foothill Yellow-legged Frog) and *Rana catesbeiana* (Bullfrog). Reproductive behavior. *Herpetological Review* 34(3):234–235.

- Lind, A.J., P.Q. Spinks, G.M. Fellers, and H.B. Shaffer. 2011. Rangewide Phylogeography and Landscape Genetics of the Western U.S. Endemic Frog *Rana boylei* (Ranidae): Implications for the Conservation of Frogs and Rivers. *Conservation Genetics* 12:269-284.
- Lind, A.J., H.H. Welsh, Jr., and R.A. Wilson. 1996. The Effects of a Dam on Breeding Habitat and Egg Survival of the Foothill Yellow-legged Frog (*Rana boylei*) in Northwestern California. *Herpetological Review* 27(2):62-67.
- Loomis, R.B. 1965. The Yellow-legged Frog, *Rana boylei*, from the Sierra San Pedro Martir, Baja California Norte, México. *Herpetologica* 21:78-80.
- [LPNF] Los Padres National Forest. 2001. Data Table Indicating Sightings of Foothill Yellow-legged Frogs on the Los Padres National Forest within the Last 5 Years. Provided in 2001 by J. Derby, Forest Supervisor.
- [LSUMNS] Louisiana State University Museum of Natural Science. 2001. Files on *Rana boylei* holdings provided in 2001 by J. McGuire, Curator, Collection of Amphibians and Reptiles, Louisiana State University Museum of Natural Science, Baton Rouge, LA.
- Lowe, J. 2007. Chytrid Distribution in Foothill Yellow-legged Frogs and Pacific Tree Frogs in the Diablo Mountains and San Joaquin Valley Foothills of Central Coastal California. Presented at California-Nevada Amphibian Populations Task Force Meeting, January 18-20, 2007, Las Vegas, Nevada. Bureau of Land Management, Hollister Field Office, CA.
- Lowe, J. 2009. Amphibian Chytrid (*Batrachochytrium dendrobatidis*) in Postmetamorphic *Rana boylei* in Inner Coast Ranges of Central California. *Herpetological Review* 40(2):180.
- Macey, R.J., J.L. Strasburg, J.A. Brisson, V.T. Vredenburg, M. Jennings, and A. Larson. 2001. Molecular Phylogenetics of Western North American Frogs of the *Rana boylei* Species Group. *Molecular Phylogenetics and Evolution* 19(1):131-143.
- MacTague, L., and P.T. Northen. 1993. Underwater Vocalization by the Foothill Yellow-legged Frog (*Rana boylei*). *Transactions of the Western Section of the Wildlife Society* 29:1-7.
- Madera County. 2007. Sierra Meadows Estates Subdivision Environmental Impact Report.
- Marco, A., C. Quilchano, and A.R. Blaustein. 1999. Sensitivity to nitrate and nitrite in pond breeding amphibians from the Pacific Northwest, USA. *Environmental Toxicology and Chemistry* 18:2836-2839.
- [MMWD] Marin Municipal Water District. 2014. Frog Docent Season Summary 2014.
- Martin, C. 1940. A New Snake and Two Frogs for Yosemite National Park. *Yosemite Nature Notes* 19(11):83-85.
- Masters, C. 1997. Amphibian and Reptile Habitat Monitoring in Relation to Cattle Grazing on the Tiller Ranger District of the Umpqua National Forest. Unpublished report provided by D. Otsby, Forest Supervisor.

- Maurer E.P., I.T. Stewart, C. Bonfils, P.B. Duffy, and D. Cayan. 2007. Detection, Attribution, and Sensitivity of Trends toward Earlier Streamflow in the Sierra Nevada. *Journal of Geophysical Research-Atmospheres* 112:12.
- Morafka, D. 1965. A Check List of the Reptiles and Amphibians Inhabiting Pinnacles National Monument, California. Unpublished report provided by K. Hutchinson, Monument Superintendent.
- Moritz, C. 2007. Final Report: A Re-survey of the Historic Grinnell-Storer Vertebrate Transect in Yosemite National Park, California. Submitted to the Sierra Nevada Network Inventory & Monitoring Program, Sequoia & Kings Canyon National Parks.
- Mount, J.F. 1995. *California Rivers and Streams: The Conflict Between Fluvial Processes and Land Use*. University of California Press, Berkeley. 376 pp.
- Moyle, P.B. 1972. Effects of Bullfrog (*Rana catesbeiana*) Introductions on Populations of the Red-legged Frog (*R. aurora*) and the Yellow-legged Frog (*R. boylei*) in the San Joaquin Valley, CA.
- Moyle, P.B. 1973. Effects of Introduced Bullfrogs, *Rana catesbeiana*, on the Native Frogs of the San Joaquin Valley, California. *Copeia* 1973:18-22.
- Napa County. 2016. Final Environmental Impact Report, Walt Ranch Erosion Control Plan. Appendix D, Biological Resources Assessment.
- National Research Council. 2001. *Compensating for wetlands under the Clean Water Act*. National Academy Press. Available at: <http://www.nap.edu/>.
- NatureServe. 2011. NatureServe Explorer: An Online Encyclopedia of Life. Available at: <http://www.natureserve.org/explorer>.
- Nussbaum, R.A., E.D. Brodie, Jr., and R.M. Storm. 1983. *Amphibians & Reptiles of the Pacific Northwest*. University Press of Idaho, Moscow, ID.
- Olson, D.H., and R.J. Davis. 2009. Conservation Assessment for the Foothill Yellow-legged Frog (*Rana boylei*) in Oregon. USDA Forest Service Region 6 and USDI Bureau of Land Management, Interagency Special Status Species Program.
- Owley, J. 2015. Keeping Track of Conservation. *Ecology Law Quarterly* Vol. 42:79.
- [PG&E] Pacific Gas & Electric Company. 2000. Draft EIR for Pacific Gas & Electric Company's Application for Authorization to Divest Its Hydroelectric Generating Facilities and Related Assets. Prepared for the California Public Utilities Commission.
- Padgett-Flohr, G.E., and R.L. Hopkins. 2009. *Batrachochytrium dendrobatidis*, a Novel Pathogen Approaching Endemism in Central California. *Diseases of Aquatic Organisms* 83:1-9.

- Paoletti, D.P. 2009. Responses of Foothill Yellow-legged Frog (*Rana boylei*) Larvae to an Introduced Predator. Unpubl. Master's thesis, Oregon State University, Corvallis, Oregon.
- Paoletti, D.J., D.H. Olson, and A.R. Blaustein. 2011. Responses of Foothill Yellow-legged Frog (*Rana boylei*) Larvae to an Introduced Predator. *Copeia* 2011(1):161–168.
- Peek, R. 2010. Landscape Genetics of Foothill Yellow-legged Frogs (*Rana boylei*) in Regulated and Unregulated Rivers: Assessing Connectivity and Genetic Fragmentation. Master's Thesis. University of San Francisco. San Francisco, CA.
- Peek, R. 2012. Analysis of Long-term River Regulation Effects on Genetic Connectivity of Foothill Yellow-legged Frogs (*Rana boylei*) in the Alameda Creek Watershed. Prepared by Stillwater Sciences for San Francisco Public Utilities Commission.
- Peek, R. and S.J. Kupferberg. 2016. Assessing the Need for Endangered Species Act Protection of the Foothill Yellow-legged Frog: What do Breeding Censuses Indicate? California Nevada Amphibian Population Task Force Meeting, January 2016, Davis, CA.
- Petts, G.E. 1980. Long-term Consequences of Upstream Impoundment. *Environmental Conservation* 7:325-332.
- Petts, G.E. 1984. *Impounded Rivers: Perspectives for Ecological Management*. John-Wiley and Sons. Chichester, England. 285 pp.
- [PRA] Pine Ridge Association. 1997. A Resource Inventory of the Redfern Addition to Henry W. Coe State Park. Compiled by volunteers and members of the Pine Ridge Association, provided by K. Robinson, Park Superintendent.
- [PCWA] Placer County Water Agency. 2008. Middle Fork American River Project (FERC No. 2079) Draft Special-Status Amphibian and Aquatic Reptile Technical Study Report – 2007
- Pounds, J.A., M.R. Bustamante, L.A. Coloma, J.A. Consuegra, M.P.L. Fogden, P.N. Foster, E. La Marca, K.L. Masters, A. Merino-Viteri, R. Puschendorf, S.R. Ron, G.A. Sánchez-Azofeifa, C.J. Still, and B.E. Young. 2006. Widespread Amphibian Extinctions from Epidemic Disease Driven By Global Warming. *Nature* 439:161-167.
- Pounds, A., A.C.O.Q. Carnaval, and S. Corn. 2007. Climate Change, Biodiversity Loss, and Amphibian Declines. *In* IUCN's Amphibian Conservation Action Plan. C. Gascon, J.P. Collins, R.D. Moore, D.R. Church, J.E. McKay, J.R. and Mendelson III (Editors).
- Power, M.E. 1990. Resource Enhancement by Indirect Effects of Grazers: Armored Catfish, Algae, and Sediment. *Ecology* 71(3):897-904.
- Prado, M. 2005. Rare Frogs Put at Risk by Visitors in West Marin. Marin Independent Journal newspaper article, May 09, 2005.
- Rahn, M., H. Doremus, and J. Diffendorfer. 2006. Species Coverage in Multispecies Habitat Conservation Plans: Where's the Science? *BioScience* 56(7):613-619.

- Railsback, S.F., B.C. Harvey, S.J. Kupferberg, M.M. Lang, S. McBain, and H.H. Welsh, Jr. 2016. Modeling potential conflicts between frogs and salmonids. *Canadian Journal of Fisheries and Aquatic Sciences* 73(5):773-784.
- [RNSP] Redwood National and State Parks. 2001. Redwood National and State Parks files, including RNSP Wildlife Observation Database, Redwood Creek Basin Fish Surveys, and Amphibian Survey Data from Gary Fellers and fisheries biologists. Unpublished data provided by A. Ringgold, Park Superintendent.
- Richards, L.P. 1958. Some Locality Records of Yosemite Herps. *Yosemite Nature Notes* 37(9):118-126.
- Rombough, C.J. 2006. Wintering Habitat Use by Juvenile Foothill Yellow-Legged Frogs (*Rana boylei*): The Importance of Seeps. *Northwestern Naturalist* 87:159.
- Rombough, C.J., J. Chastain, A.M. Schwab, and M.P. Hayes. 2005a. *Rana boylei* (Foothill Yellow-Legged Frog). Predation. *Herpetological Review* 36(4):438-439.
- Rombough, C.J., and M.P. Hayes. 2005. *Rana boylei* (Foothill Yellow-Legged Frog). Predation: Eggs and Hatchlings. *Herpetological Review* 36(2):163-164.
- Rombough, C., M.P. Hayes and, N.L. Duncan. 2005b. Foothill Yellow-Legged Frog Abundance in Cow Creek. *Northwestern Naturalist* 86(2):114-16.
- [SDNHM] San Diego Natural History Museum. 2001. Files on *Rana boylei* holdings provided in 2001 by B. Hollingsworth, Assistant Curator, Department of Herpetology, San Diego Natural History Museum, San Diego, CA.
- [SBNHM] Santa Barbara Natural History Museum. 2001. Files on *Rana boylei* holdings provided in 2001.
- Schoenherr, A.A. 1992. A Natural History of California. *California Natural History Guides*: 56. University of California Press.
- [SKCNP] Sequoia and Kings Canyon National Parks. 2001. Correspondence regarding *Rana boylei* with David M. Graber, Ph.D., Sr. Science Advisor, National Park Service.
- [SNEP] Sierra Nevada Ecosystem Project. 1996. Sierra Nevada Ecosystem Project Report. University of California, Davis, Centers for Water and Wildland Resources.
- Slevin, J.R. 1928. The Amphibians of Western North America. *California Academy of Sciences*, San Francisco, CA.
- Smallwood, S.K. 2000. A Crosswalk from the Endangered Species Act to the HCP Handbook and Real HCPs. *Environmental Management* 26 (suppl. 1):23-35.
- Smallwood, S.K., B. Wilcox, R. Leidy, and K. Yarris. 1998. Indicators Assessment for Habitat Conservation Plan of Yolo County, California, USA. *Environmental Management* 22: 947-958.

- Solano County Water Agency. 2002. Draft Habitat Conservation Plan.
- Sparling, D.W. and G.M. Fellers. 2007. Comparative Toxicity of Chlorpyrifos, Diazinon, Malathion and Their Oxon Derivatives to *Rana boylei*. *Environmental Pollution* 147:535-539.
- Stebbins, R.C. 1951. *Amphibians of Western North America*. University of California Press, Berkeley, CA.
- Stebbins, R.C. 1985. *A Field Guide to Western Reptiles and Amphibians*. Peterson Field Guide Series. Houghton Mifflin Company, Boston, MA.
- Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians*. Third Edition. Houghton Mifflin Company, Boston, MA.
- Stebbins, R.C., and S.M. McGinnis. 2012. *Field Guide to Amphibians and Reptiles of California*. Revised Edition. University of California Press, Berkeley, CA.
- Stephenson, J.R., and G.M. Calcarone. 1999. Southern California Mountains and Foothills Assessment, Habitat and Species Conservation Issues. General Technical Report GTR-PSW-172. Pacific Southwest Research Station, USDA Forest Service, Albany, CA.
- Stewart, I.T. 2009. Changes in Snowpack and Snowmelt Runoff for Key Mountain Regions. *Hydrological Processes* 23:78-94.
- Storer, T.I. 1925. A Synopsis of the Amphibia of California. University of California Publication Zoology 27:1-342.
- Sweet, S. 1983. Mechanics of A Natural Extinction Event: *Rana boylei* in Southern California. Abstract of paper presented at 26th annual meeting of the Society for the Study of Amphibians and Reptiles and 31st annual meeting of the Herpetologist's League, Salt Lake City, UT, 7-12 August 1983.
- [TMM] Texas Memorial Museum. 2001. Files on *Rana boylei* holdings provided by J. Rosales, Collection Manager, Texas Memorial Museum, Austin, TX.
- Thomson, R.C., A.N. Wright, and H.B. Shaffer. 2016. *California Amphibian and Reptile Species of Special Concern*. University of California Press, Berkeley, CA.
- Twitty, V.C., D. Grant, and O. Anderson. 1967. Amphibian Orientation: An Unexpected Observation. *Science* 155(3760):352-353.
- [UCMVZ] University of California Museum of Vertebrate Zoology. 2001. Files on *Rana boylei* holdings provided in 2001.
- [UCMVZ] University of California Museum of Vertebrate Zoology. 2015. MVZ Herpetological Collection. Available at: http://mvz.berkeley.edu/Herp_Collection.html
- [UCNRS] University of California Natural Reserve System. 2015. Hastings Natural History Reservation. World wide web publication www.hastingsreserve.org

- [UKMNH] University of Kansas Museum of Natural History. 2001. Files on *Rana boylei* holdings provided in 2001 by L. Trueb, Curator, University of Kansas Museum of Natural History, Lawrence, Kansas.
- [UMMZ] University of Michigan Museum of Zoology. 2001. Files on *Rana boylei* holdings provided by G. Schneider, Curator, Division of Reptiles & Amphibians, UMMZ, Ann Arbor, MI.
- Unrine, J.M., C.H. Jagoe, W.A. Hopkins and H.A. Brant. 2004. Adverse Effects of Ecologically Relevant Dietary Mercury Exposure in Southern Leopard Frog (*Rana sphenoccephala*) Larvae. *Environmental Toxicology and Chemistry* 23: 2964-2970.
- [USACE] U.S. Army Corps of Engineers. 2001. Public Notice #25907S – Montanera Project, September 21, 2001. Regulatory Branch, San Francisco, CA.
- [USBLM] U.S. Bureau of Land Management. 2009. Draft Clear Creek Management Area Resource Management Plan & Environmental Impact Statement. Hollister, CA.
- [USBLM] U.S. Bureau of Land Management. 2013. Clear Creek Management Area Proposed Resource Management Plan & Final Environmental Impact Statement. Hollister, CA.
- [USBLM] U.S. Bureau of Land Management. 2015. Western Oregon Draft RMP/EIS.
- [USDA] U.S. Department of Agriculture. 1994. Pilot Creek Watershed Analysis: An Analysis of Ecosystems at the Watershed Scale. Review Draft, September 8, 1994. USDA Forest Service, Six Rivers National Forest, Eureka, CA
- [USDA] U.S. Department of Agriculture. 1995a. Red Cap Watershed Analysis. USDA Forest Service, Six Rivers National Forest, Orleans Ranger District.
- [USDA] U.S. Department of Agriculture. 1995b. Smith River Ecosystem Analysis: Basin and Subbasin Analyses and Late-Successional Reserve Assessment. USDA Smith River National Recreation Area and USDA Forest Service, Six Rivers National Forest.
- [USDA] U.S. Department of Agriculture. 1995c. Grouse Creek Watershed Analysis. USDA Forest Service, Pacific Southwest Region, Six Rivers National Forest.
- [USDA] U.S. Department of Agriculture. 1999. Unpublished data files provided by S.E. Woltering, Forest Supervisor, Six Rivers National Forest.
- [USDA and USDI] U.S. Department of Agriculture and U.S. Department of the Interior. 1996. North Fork Eel River Watershed Analysis. USDA Forest Service Pacific Southwest Region, Six Rivers National Forest and USDI Bureau of Land Management California State Office, Arcata Resource Area.
- [USDA and USDI] U.S. Department of Agriculture and U.S. Department of the Interior. 1998. Van Duzen Watershed Analysis. USDA Forest Service Pacific Southwest Region, Six Rivers

National Forest and USDI Bureau of Land Management, California State Office, Arcata Resource Area.

[USFWS] U.S. Fish and Wildlife Service. 2015. Habitat Conservation Plans as of July 31, 2015. Available at:

<http://ecos.fws.gov/ecp0/conservationPlan/region/summary?region=8&type=HCP>.

[USFS] U.S. Forest Service. 2011. Foothill Yellow-legged Frog (*Rana boylei*) Ecology, River Regulation, and Conservation. Pacific Southwest Research Station. Available at:

https://www.fs.fed.us/psw/topics/wildlife/herp/rana_boylei/index.shtml

[USNM] U.S. National Museum of Natural History. 2001. Files on *Rana boylei* holdings provided in 2001 by K. Tighe, Data Coordinator, Division of Amphibians and Reptiles, U.S. National Museum of Natural History, Washington, D.C.

[UTA] University of Texas at Arlington. 2001. Files on *Rana boylei* holdings provided by J. Campbell, Curator, University of Texas at Arlington, Arlington, TX.

Van Wagner, T.J. 1996. Selected Life-history and Ecological Aspects of a Population of Foothill Yellow-legged Frogs (*Rana boylei*) from Clear Creek, Nevada County, California. Master's Thesis. California State University, Chico, CA.

Wauer, R. 1958. A General Report on the Vertebrates of Pinnacles National Monument. Unpublished report provided by K. Hutchinson, Monument Superintendent.

Welsh, H.H. Jr., and G.R. Hodgson. 2011. Spatial Relationships in a Dendritic Network: The Herpetofaunal Metacommunity of the Mattole River Catchment of Northwest California. *Ecography* 34:49-66.

Werschkul, D.F., and M.T. Christensen. 1977. Differential Predation by *Lepomis macrochirus* on the Eggs and Tadpoles of *Rana*. *Herpetologica* 33:237-241.

Wheeler, C.A., J.B. Bettaso, D.T. Ashton and H.H. Welsh, Jr. 2015. Effects of Water Temperature on Breeding Phenology, Growth, and Metamorphosis of Foothill Yellow-legged Frogs (*Rana boylei*): A Case Study of the Regulated Mainstem and Unregulated Tributaries of California's Trinity River. *River Research and Applications* 31:1276-1286.

Wheeler, C.A., and H.H. Welsh, Jr. 2008. Mating Strategy and Breeding Patterns of the Foothill Yellow-legged Frog (*Rana boylei*). *Herpetological Conservation and Biology* 3(2):128-142.

Wheeler, C.A., H.H. Welsh, Jr. and T. Roelofs. 2006. Oviposition Site Selection, Movement, and Spatial Ecology of the Foothill Yellow-Legged Frog (*Rana boylei*). Prepared for California Department of Fish and Game, Habitat Conservation Planning Branch, June 2006.

Wilhere, G.F. 2002. Adaptive Management in Habitat Conservation Plans. *Conservation Biology* 16:20-29.

- Wiseman, K.D, K.R. Marlow, R.E. Jackman, and J.E. Drennan. 2005. *Rana boylei* (Foothill Yellow-legged Frog). Predation. Herpetological Review 36(2):162-163.
- Wright, A.H., and A.A. Wright. 1949. Handbook of frogs and toads of the United States and Canada. Comstock Publishing Company, Inc., Ithaca, NY.
- Yarnell, S.M., J.H. Viers, and J.F. Mount. 2010. Ecology and Management of the Spring Snowmelt Recession. Bioscience 60(2):114-127.
- Yolo County. 2013. Yolo County Natural Heritage Program Plan. First Administrative Draft, June 28, 2013.
- Young, C.A., M. Escobar, M. Fernandes, B. Joyce, M. Kiparsky, J.F. Mount, V. Mehta, J.H. Viers, and D. Yates. 2009. Modeling the Hydrology of California's Sierra Nevada for Sub-Watershed Scale Adaptation to Climate Change. Journal of American Water Resources Association 45:1409-1423.
- Zillioux, E.J., D.B. Porcella and J.M. Benoit. 1993. Mercury Cycling and Effects in Freshwater Wetland Ecosystems. Environmental Toxicology and Chemistry 12: 2245-2264.
- Zweifel, R.G. 1955. Ecology, Distribution, and Systematics of Frogs of the *Rana boylei* Group. Univ. of California Publ. Zool. 54:207-292.
- Zweifel, R.G. 1968. *Rana boylei* Baird, Foothill Yellow-legged Frog. Catalogue of American Amphibians and Reptiles. pp. 71.1-71.2.

Personal Communications

- Beeman, Gary. Beeman & Associates, Lafayette, CA.
- Garwood, Justin. Environmental Scientist. California Department of Fish and Wildlife. Electronic mail received January 26, 2017.
- Jankovitz, Jon. District Fisheries Biologist, California Department of Fish and Wildlife. Electronic mail received February 2, 2017.
- Kupferberg, Sarah. Visiting Scholar, Ph.D. Integrative Biology, U.C. Berkeley.
- Matson, Dan. Ranger Unit Chief, Jackson Demonstration State Forest, Department of Forestry and Fire Protection, Willits, CA.
- Miller, Jeff. Alameda Creek Alliance, Center for Biological Diversity.
- Nelson, Jennifer. Environmental Scientist, California Department of Fish and Wildlife. Electronic mail received February 2, 2017.
- Sak, Brian. Fisheries Biologist, San Francisco Public Utilities Commission.

Seymour, Rich. Wildlife Biologist, Coyote Creek Riparian Station.

van Hattem, Michael. Senior Environmental Scientist Specialist, Habitat Conservation Branch,
California Department of Fish and Wildlife.

Vredenburg, Vance. University of California Museum of Vertebrate Zoology, Department of
Integrative Biology, Berkeley, CA.

Westphal, Mike. Biologist, Coyote Creek Riparian Station.



February 7, 2017

VIA U.S. Postal Service/Email

California Fish and Game Commission
1416 Ninth Street, Room 1320
Sacramento, CA 95814

RE: Fish and Game Commission Hearing, February 8-9, 2017
Agenda Item 7: Petition requesting CESA listing of yellow-legged frog

Dear Commissioners,

The Center for Biological Diversity has submitted a petition requesting that the yellow-legged frog (*Rana boylii*) be listed as endangered under the California Endangered Species Act (CESA).

As noted in the commission's staff report, listing the yellow-legged frog as endangered could restrict or prohibit recreational fishing where habitat exists today, or has in the past. As part of the commission's deliberative process, we request that the commission analyze which bodies of water would be impacted, and to what extent and for how long fish stocking and recreational fishing would be restricted in these areas. Such information would be of great value to California aquaculture and to communities dependent on recreational fishing for outdoor tourism and jobs.

As a leading advocate for California recreational anglers, the California Sportfishing League thanks you in advance for considering the impact your decisions can have on the cost and accessibility of recreational fishing.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Marko", followed by a long horizontal line that ends in a small dot.

Marko Mlikotin
Executive Director

CC: California Travel Association, Barb Newton, President/CEO
Rural Counties Representatives of California, Greg Norton, President/CEO
California Aquaculture Association, Michael Lee, Executive Director

2795 E. Bidwell Street, #100-119, Folsom, CA 95630, ph. 916.936.1777
www.sportfishingconservation.org

A PETITION TO THE STATE OF CALIFORNIA FISH AND GAME COMMISSION

For action pursuant to Section 670.1, Title 14, California Code of Regulations (CCR) and Sections 2072 and 2073 of the Fish and Game Code relating to listing and delisting endangered and threatened species of plants and animals.

I. SPECIES BEING PETITIONED:

Common Name: Cascades frog

Scientific Name: (*Rana cascadae*)

II. RECOMMENDED ACTION:

(Check appropriate categories)

a. List **X**

As endangered or threatened

b. Change Status ☐

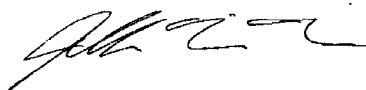
c. Or Delist ☐

III. AUTHOR OF PETITION:

Name: Jeff Miller
Address: 1212 Broadway, Suite 800
Oakland, CA 94612
Phone Number: (510) 499-9185

I hereby certify that, to the best of my knowledge, all statements made in this petition are true and complete.

Signature:



Date: March 1, 2017

BEFORE THE FISH AND GAME COMMISSION

**Petition to List the
Cascades Frog (*Rana cascadae*)
As Endangered or Threatened Under the
California Endangered Species Act**



Photo by Tierra Curry, Center for Biological Diversity

Submitted To: California Fish and Game Commission
1416 Ninth Street
Box 944209
Sacramento, CA 94244-2090
FGC@fgc.ca.gov

Submitted By: Center for Biological Diversity

Date: March 1, 2017

EXECUTIVE SUMMARY

The Center for Biological Diversity is petitioning the California Fish and Game Commission to list the Cascades frog (*Rana cascadae*) as an endangered or threatened species under the California Endangered Species Act.

The Cascades frog is a medium sized frog that inhabits lakes, ponds, wet meadows, and streams at moderate to high elevations in the Cascades Range. In California, Cascades frogs historically ranged from the Shasta-Trinity region to the Modoc Plateau, south through the Lassen National Forest to the upper Feather River. Once considered widespread and abundant in the northern mountains of California, Cascades frogs are now extirpated from most of their former range in the state. The Cascades frog currently persists in California in mountainous areas from the Klamath-Trinity region and the Cascades Mountain axis in the vicinity of Mount Shasta, southward to the headwater tributaries of the Feather River, at altitudes from 230 to 2500 meters.

Cascades frog numbers and populations have been declining precipitously in California since about 1970. In the southern Cascades/Lassen area, Cascades frog populations have declined greatly and gone from being abundant historically to very rare. Cascades frogs have disappeared from more than 95 percent of historical localities in the Lassen area, and are still declining in this region. The species appears to be extirpated from Lassen Volcanic National Park. Despite multiple extensive surveys, only 12 remaining sites in the Lassen area support Cascades frogs, all of them with low numbers of frogs. Population viability at these sites is a concern because each of these populations is slowly declining. Half of the remaining Lassen area populations are at risk of extirpation while the others are likely to continue declining. Without active management, some of the remaining populations may disappear within 10 years and the rest will be at risk of extirpation.

In the Klamath Mountains, Cascades frogs are still widespread and relatively abundant; however, there have been some recent extirpations in this region. At most sites recently surveyed in the Klamath Mountains, frog populations have been small, and frog abundance at some previously robust Klamath populations has clearly declined. Populations in the eastern portion of the region in the Castle Crags Wilderness and the Klamath National Forest may be particularly at risk owing to low population numbers and more sites where frogs have recently disappeared.

Major threats to Cascades frogs include nonnative fish that have been introduced to formerly fishless lakes, and pathogens. Introduced trout predate upon and compete with Cascades frogs. Cascades frogs are susceptible to a particularly virulent strain of *Batrachochytrium dendrobatidis*, a fungal pathogen that causes the disease chytridiomycosis in amphibians. Remaining Cascades frog populations in California are also threatened by pesticides, climate change, fire suppression, habitat loss from vegetation management and timber harvest, livestock grazing, impacts from recreational activities, and reduced viability due to small population sizes.

NOTICE OF PETITION

Center for Biological Diversity
1212 Broadway, Suite 800
Oakland, CA 94612
Contact: Jeff Miller
Phone: (510) 499-9185
E-mail: jmiller@biologicaldiversity.org

Petitioner Center for Biological Diversity formally requests that the California Fish and Game Commission list the Cascades frog (*Rana cascadae*) as an endangered species under the California Endangered Species Act ("CESA"), Fish and Game Code §§ 2050 et seq. Petitioner alternatively requests that the Commission list the Cascades frog as a threatened species under CESA. This petition sets in motion a specific administrative process as defined by Fish and Game Code §§ 2070-2079, placing mandatory response requirements on the Commission and very specific time constraints upon those responses.

Petitioner Center for Biological Diversity is a national nonprofit organization with more than 1.2 million members and online activists dedicated to the protection of endangered species and wild places, through science, policy, education, citizen activism and environmental law.

Contents:

Executive Summary.	1
Notice of Petition.	2
NATURAL HISTORY AND STATUS OF CASCADES FROG	4
NATURAL HISTORY.	4
Description.	4
Taxonomy.	4
Range in California.	5
Life History.	5
Habitat Requirements	7
Natural Mortality.	8
CHANGES IN DISTRIBUTION AND ABUNDANCE	8
Southern Cascade Range/Lassen Region.	9
Klamath Mountains.	10
Population Trends	12
Documented Range Contraction.	12
THREAT FACTORS.	12
Airborne Contaminants.	12
Climate Change.	13
Disease	16
Fire Suppression.	18
Habitat Loss and Alteration	19
Introduced Fish	21
Livestock Grazing.	23
Recreational Activities.	24
Small Population Sizes.	25
INADEQUACY OF EXISTING REGULATORY MECHANISMS	26
RECOMMENDED MANAGEMENT AND RECOVERY ACTIONS	30
BIBLIOGRAPHY OF LITERATURE CITED.	31

NATURAL HISTORY AND STATUS OF CASCADES FROG

NATURAL HISTORY

Description

The Cascades frog (*Rana cascadae*) is a medium-sized member of the “true frog” family, Ranidae. Cascades frogs are brown, copper, tan, or olive green and spotted on the back with a yellowish to cream underside, dark mottling around the groin, and a cream-colored stripe extending from the jaw to the shoulders. Adult Cascades frogs grow to from 1.75 to 3 inches in length, with females being larger than males (Stebbins 2003; Nafis 2013). Cascades frog tadpoles have oval bodies with dorsal eyes, and grow to about 5 centimeters in length. Tadpoles are dark brown with copper and pinkish speckling, golden coloring on the sides and a finely speckled tail (Nafis 2013). Cascades frog eggs are black above, white below, and spaced out in a gelatinous mass (Nafis 2013).

Taxonomy

The Cascades frog is a morphologically (Slater 1939; Dunlap 1955) and genetically (Case 1976, 1978; Green 1986a, 1986b) distinct species. Published data on genetic variation within *R. cascadae* (Case 1976, 1978; Monsen and Blouin 2003, 2004) indicate some potentially significant within-species variation. Genetic evidence indicates that California’s populations of Cascades frogs differ significantly from and have been isolated from Oregon and Washington populations for approximately 2 million years (Monsen and Blouin 2003). This physical separation occurs over a known faunal break across Oregon and California’s border that causes a similar biogeographical pattern in numerous taxa (Steinhoff et al. 1983; Brown et al. 1997; Demboski and Cook 2001; Janzen et al. 2002; Monsen and Blouin 2003), including several amphibians (Daugherty et al. 1983; Good 1989; Good and Wake 1992; Howard et al. 1993; Nielson et al. 2001; Monsen and Blouin 2003). California’s Cascade frogs were most likely separated, and never experienced secondary contact, during the last glacial maximum (Monsen and Blouin 2003). This has led to a 3.2 percent difference in mtDNA loci between frog populations in California and Oregon as well as substantial divergence in the nuclear genome (Monsen and Blouin 2003).

There are two disjunct populations of Cascades frogs in California – in the southern Cascades, which comprise about 40 percent of their California range, and in the Klamath Mountains, which comprise about 60 percent (Pope et al. 2014). The exact degree of isolation between these two populations is unknown (Pope et al. 2014).

Cascades frog populations typically occur in a meta-population structure, but genetic studies indicate high degrees of isolation for some local populations in relatively small geographic scales (Monsen and Blouin 2004; Pope et al. 2014). Population exchange likely drops after a distance of just 6.2 miles (10 km) between populations (Pope et al. 2014).

Range in California

The Cascades frog, as its name suggests, is distributed along the length of the Cascades Range. Cascades frogs historically occupied moderate and high elevation (about 400–2,500 m) lentic habitats throughout the Cascade Range, from northern Washington State within 15 miles of British Columbia to the northern edge of California's Sierra Nevada (Dunlap and Storm 1951; Dunlap 1955; Dumas 1966; Bury 1973a; Hayes and Cliff 1982; Nussbaum et al. 1983; Fellers and Drost 1993; Jennings and Hayes 1994; Blaustein et al. 1995; Stebbins 2003; Pearl and Adams 2005; Pope et al. 2014).

In California, Cascades frogs historically ranged from the Shasta-Trinity region to the Modoc Plateau, south through the Lassen National Forest to the upper Feather River (Jennings and Hayes 1994). Once considered widespread and abundant in the northern mountains of California, Cascades frogs are now extirpated from most of their range in the state (Pearl and Adams 2005). In California, the Cascades frog currently occurs in mountainous areas from the Klamath-Trinity region and the Cascades Mountain axis in the vicinity of Mount Shasta southward to the headwater tributaries of the Feather River, and has a known altitudinal range from 230 to approximately 2500 m (Jennings and Hayes 1994).

Life History

Cascades frogs are long-living, late-maturing amphibians (Pope et al. 2014). Male frogs reach maturity between 3 and 4 years of age while female frogs mature between 4 and 5 years of age (Pope et al. 2014). Cascades frogs can live from 5 to 10 years (Pope et al. 2014; NatureServe 2015). These frogs are diurnal, active during the day (Stebbins 1985).

Cascades frogs breed shortly after spring snowmelt (Nussbaum et al. 1983; Stebbins 1985; Briggs 1987; Olson 1988; Garwood and Welsh 2007; Nafis 2013). Depending on the location, that could be anytime between March to mid-August (Stebbins 1985). Males appear first and form chorusing groups when melting ice and snow creates open water along the edges of water bodies (Briggs 1987; Garwood and Welsh 2007). Cascades frogs call from above or below water's surface (Stebbins 1985). Males do not defend territories, but male-male interactions may produce a regular spacing pattern in the breeding habitat (Olson 1988). Females are highly cryptic during breeding, swimming primarily underwater to breeding sites and leaving the site as soon as breeding is complete (Olson 1992).

Oviposition occurs between April and July, depending on seasonal conditions and elevation. Eggs are laid in a mass of 300-800 eggs. Egg masses are often laid communally in pond and lake habitats (Garwood et al. 2007; Garwood 2009; Pope and Larson 2010). In the southern Cascades, more than 90 percent of the egg masses found in pond habitats were clumped, whereas more than 80 percent of the egg masses found in meadow pools were singletons (Pope and Larson 2010). A small percentage of egg masses in the southern portion of the southern Cascades have been found in small, low-gradient channels with slow flow (Pope 2008b). Egg masses are usually found at the surface in shallow water with emergent vegetation, but have been found in deep water (2 m) and free-floating in lakes (Garwood et al. 2007, Pope and Larson 2010). They can also be attached to emergent vegetation, wood, boulders, or the shoreline (Pope and Larson 2010).

Length of embryonic development appears highly temperature-dependent as shown by both laboratory and field studies (Syte 1975; Olson 1988; Blouin and Brown 2000), but generally takes about 3 weeks in both the Klamath Mountains and southern Cascades (Garwood and Larson, no date). Consistently cold water conditions (2 to 10 °C), such as found in some springs, may delay hatching by a few days but eggs generally are laid in shallow open-water locations where the sun quickly warms the water surrounding the egg mass to temperatures above 13 °C that are more optimal for development. In the high-elevation habitats in California, larvae usually hatch in early to mid-July and metamorphose into frogs in September. However, some larvae do not successfully complete metamorphosis prior to the onset of winter (Garwood and Welsh 2007). No larvae have been observed to survive the winter (Garwood 2009). In the southern Cascades, larvae usually hatch in June and metamorphose in late August (Pope and Larson 2010).

Tadpoles can tolerate a wide range of water temperatures. They tend to aggregate in the warmest areas of ponds and lakes during the day (Brattstrom 1963; Wollmuth et al. 1987; Pope, no date); this generally consists of wind-protected, gently sloping, shallow near-shore areas (O'Hara 1981; Olson 1992; Welsh et al. 2006) where temperatures can warm to more than 20 °C on a sunny afternoon but drop to near freezing at night. In shallow meadow breeding pools in the southern Cascades, daytime water temperatures have been measured at 38 °C. This seems to be above their temperature tolerance as the tadpoles appeared highly stressed (Pope and Larson, no date).

Tadpoles and metamorphs are known to discriminate between kin and nonkin and preferentially associate with kin in laboratory and field experiments (Blaustein and O'Hara 1982a, 1982b, 1987; Blaustein et al. 1984; O'Hara and Blaustein 1981, 1985). Kin association can influence growth, predator avoidance, and other factors (Hokit and Blaustein 1994, 1995, 1997). Tadpoles are sensitive to visual and physical disturbances of the water and have an explosive escape response when startled (Hews and Blaustein 1985). Tadpoles occasionally become stranded at sites with short hydroperiods and desiccate as the water evaporates (Syte 1975; O'Hara 1981; Garwood 2009; Pope et al. 2011). Tadpoles will develop over 2 to 4 months depending on water temperature (Nafis 2013; Pope et al. 2014). Newly metamorphosed frogs tend to stay near their natal ponds (Garwood 2009).

Adult Cascades frogs display a high degree of site fidelity (Briggs and Storm 1970; Blaustein and Olson 1992; Olson 1992; Garwood 2009). At Deep Creek Basin in the Trinity Alps Wilderness, Garwood (2009) found that adults commonly move among unique breeding, feeding, and overwintering habitats following a consistent annual pattern. At other sites where breeding, feeding, and overwintering habitat occur at the same site, frogs may remain at the same water body throughout the year (Pope 2008a).

Survival rates of adult Cascades frogs in the Trinity Alps Wilderness were found to be between 68 and 93 percent (Pope 2008b; Pope et al. 2014).

Postmetamorphic Cascades frogs are generalist predators, primarily of aquatic and terrestrial insects and spiders (Joseph et al. 2011; Larson 2012). In the Trinity Alps Wilderness, Larson (2012) identified insects from 102 different families in the stomach contents of frogs. Only rarely were larval aquatic insects found in stomach contents, suggesting that most foraging is terrestrial or on the surface of the water (Larson 2012).

In the Klamath Mountains, five prey categories were most important in Cascades frogs diet: Acrididae (grasshoppers), Aranae (spiders), Formicidae (ants), insect larvae, and Tipulidae (crane flies) (Larson 2012).

Joseph et al. (2011) found that the diet of Cascades frogs varied in lakes with fish versus those without; in lakes with fish, the frogs ate more terrestrial insects such as grasshoppers, and in lakes without fish they ate more adult aquatic insects such as caddisflies. Joseph et al. (2011) concluded that introduced trout may influence native amphibians indirectly through competition for food resources. Although their diet primarily consists of invertebrates, Cascades frogs occasionally prey upon larvae and recently metamorphosed Pacific chorus frogs and conspecifics (Pope et al. 2014).

Habitat Requirements

Cascades frogs inhabit a range of mostly lentic aquatic habitats, including large lakes, ponds, wet meadows, and flowing streams, depending on life stage and season (Jennings and Hayes 1994; Pope et al. 2014). This frog occurs at 230-2500m of elevation – most often at elevations greater than 600m (Nafis 2013). Cascades frogs generally are closely associated with water, but can sometimes move between drainages by crossing over high mountain ridges.

Reproduction occurs in shallow, still-water habitats first to form by snowmelt early in the spring such as shallow alcoves of lakes, ponds, potholes, flooded meadows, and sometimes slow-moving streams. Adults and breeding can also sometimes occur in anthropogenic wetland habitats (Quinn et al. 2001). Eggs are laid in open shallow water or among submerged vegetation. Breeding sites must contain water long enough for egg and tadpole development, which takes about three to four months, depending on water temperature (Pope and Larson 2010; Pope et al. 2014). Tadpoles can tolerate a wide range of temperatures and tend to congregate in warmer areas of their ponds or lakes during the day (Brattstrom 1963; Wollmuth et al. 1987; Pope et al. 2014; Pope, no date); however, observed behaviors in southern Cascades pools with temperatures around 38°C or higher seem to be indicative of high stress levels and a thermal tolerance threshold (Pope et al. 2014; Pope and Larson, no date).

Newly metamorphosed frogs stay near their natal ponds (Garwood 2009). Non-breeding adult frogs occupy a wider array of aquatic habitat, often with open, sunny areas along shorelines which have basking and foraging opportunities (Brown 1977; Fellers and Drost 1993; Bury and Major 1997, 2000; Garwood 2009; Pope et al. 2011; Pope et al. 2014). In the summer months, Cascades frogs may utilize streams more often (Garwood 2009; Pope et al. 2011; Pope et al. 2014). Cascades frogs are less likely to occupy wetland sites that are farther away from lakes, and population sizes are typically smaller at such sites (Cole and North 2014). Cascades frogs maintain site fidelity, where adults will move among unique breeding, feeding and overwintering habitats following a consistent annual pattern (Garwood 2009; Pope et al. 2014).

Overwintering habitat is considered to be almost as restrictive as breeding habitat (Garwood 2009; Pope et al. 2014). Cascades frogs likely hibernate in mud at the bottom of ponds, spring-water saturated ground, and aquatic sites that do not freeze solid in the winter, such as deep ponds and springs, similar to the mountain yellow-legged frog in the Sierra Nevada (Bradford 1983; Briggs 1987; Pope et al. 2014).

Natural Mortality

Cascades frogs are susceptible to a variety of stochastic environmental events. Breeding occurs soon after thaw, so eggs can be vulnerable to late freezes (Pope and Larson 2010; Pope et al. 2014). In some ephemeral habitats that dry out during the summer, larvae may desiccate before metamorphosis (Pope et al. 2011). Tadpoles can occasionally become stranded and die when all the water evaporates from sites with short hydroperiods (Syte 1975; O'Hara 1981; Garwood 2009; Pope et al. 2011; Pope et al. 2014). Survival of juvenile and adults may also be affected by unusually long winters with heavy snowfall if the frogs do not have enough energy stored to last until the thaw (Pope et al. 2014). Briggs and Storm (1970) estimated a relatively high mortality rate for adults (about 45 percent) in the central Oregon Cascades and suggested that most adult mortality occurred during overwintering.

Natural predators of Cascades frogs include: garter snakes (Garwood and Welsh 2007; Pope et al. 2008); birds such as American dippers (Garwood and Welsh 2007), American robins (Briggs and Storm 1970) and Clark's nutcrackers (Garwood 2006); mammals such as river otters (Pope et al. 2014); other amphibians including rough-skinned newts (Peterson and Blaustein 1991); aquatic insects including diving beetles, giant water bugs, and dragonfly naiads (Peterson and Blaustein 1991; Nauman and Dettlaff 1999; Garwood and Wheeler 2007); and predatory leeches, which are potential predators of eggs and larvae (Stead and Pope 2010).

Predatory leeches such as *Haemopsis marmorata* and *Erpobdella punctata* in the Lassen region may also contribute to the decline of Cascades frogs (Stead and Pope 2010). Glossiphoniidae and Erpobdellidae leeches are known to prey on Cascades frog eggs in Oregon (Chivers et al. 2001; Stead and Pope 2010), and *H. marmorata* is known to eat tadpoles (Riggs and Ulner 1983; Stead and Pope 2010). The proliferation of leech species correlates with the dramatic declines seen in Cascades frogs in the Lassen region of California and may be the cause through direct predation, behavioral alterations which reduces fitness, displacement to less optimal habitats, and the spread of disease (Stead and Pope 2010). It is unknown which leech species are native to the Lassen region (Stead and Pope 2010).

CHANGES IN DISTRIBUTION AND ABUNDANCE

In California, surveys suggest that the Cascades frog is rare to nonexistent in most Californian portions of the historical range (Pearl and Adams 2005). Pope et al. (2014) conducted a comprehensive review on the status of Cascades frogs in California, and found that although the species remains "fairly widespread" in the Klamath Mountains it has become extremely rare in the southern Cascades. See Figure 1 below from Pope et al. (2014) showing the recent and historical distribution of the Cascades frog in California.

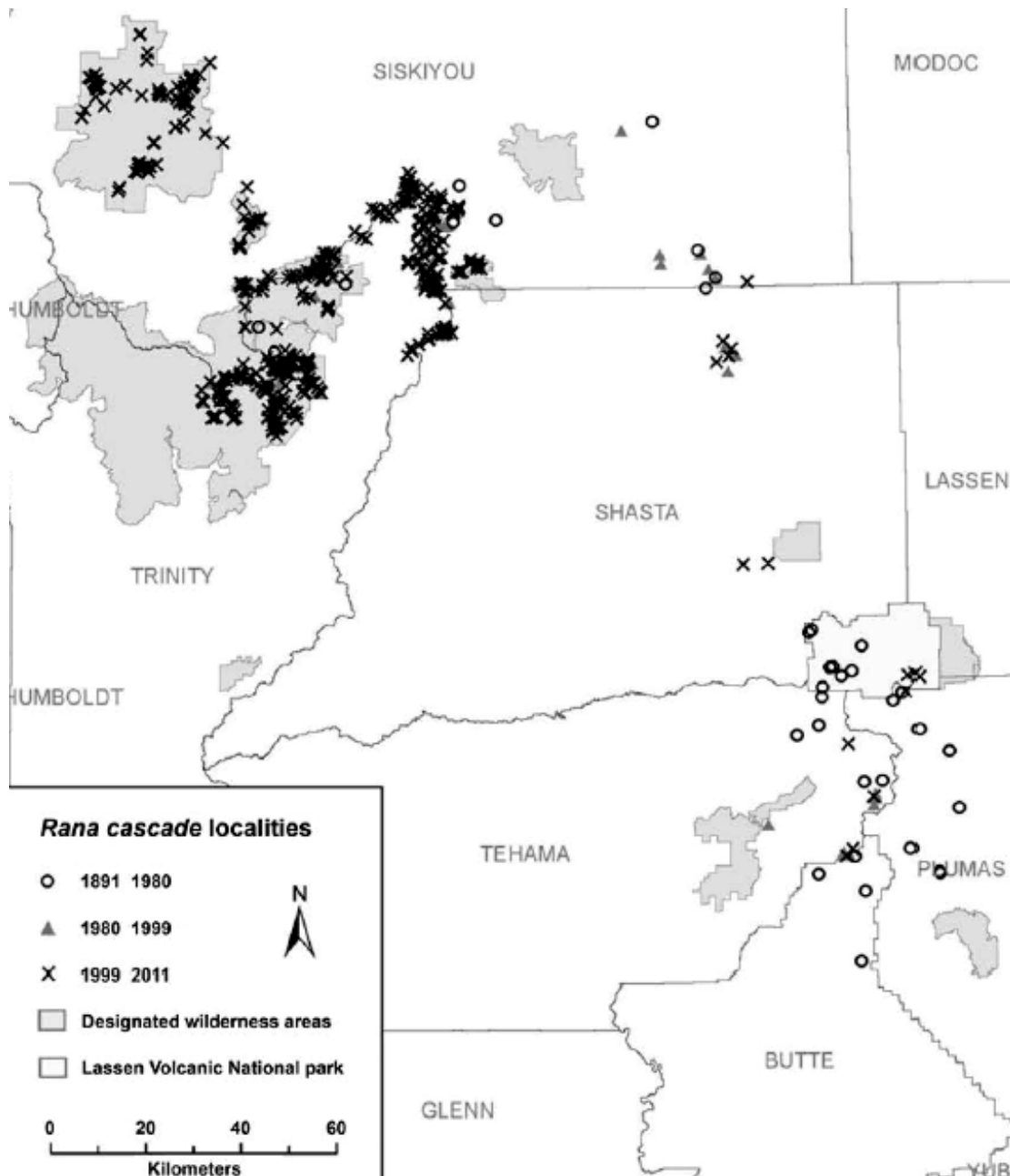


Figure 1: Recent and historical distribution of the Cascades frog (*Rana cascadae*) in California. This map contains known localities up to 2011. The sites in Trinity and Siskiyou Counties are in the Klamath Mountains and the sites in Shasta, Tehama, Butte, and Plumas Counties are in the southern Cascade Range. The southernmost grouping of points around Lassen Volcanic National Park is considered the Lassen region (from Pope et al. 2014).

Southern Cascade Range/Lassen Region

Historic accounts and museum records indicate that the frog was previously abundant in the Mount Lassen area, but have declined greatly and are now very rare (Fellers et al. 2008). For example, Borrel (1924, as cited in Pope et al. 2014) described Cascades frogs as abundant at Lake Helen; and Grinnell et al. (1930) implied that the species was abundant in 1925 at Emerald Lake, recording “one frog for nearly every meter around

the lake.” There were no surveys for Cascades frogs in the southern Cascades before 1980, but collection data indicate that they were widespread and abundant, especially in and around the Lassen Volcanic National Park and the northwestern and southern portions of Lassen National Forest, encompassing portions of the Pit River and most of the headwater tributaries of Hat, Deer, Mill, Battle, and Butte creeks, and upper North Fork and West Branch Feather River (Pope et al. 2014). Declines in these populations were not noted until the 1970s (Pope et al. 2014).

By the 1990s, surveys of Lassen Volcanic National Park sites that historically had frogs found few or no frogs. A 1991 survey located no Cascades frogs at 16 historic localities, and found that the frog occupied only 2 percent of the suitable sites surveyed (1 of 50 sites) (Fellers and Drost 1993). Jennings and Hayes (1994) estimated that the species had disappeared from about 99 percent of its historical range in the Lassen region. Davidson et al. (2002) reevaluated these data, and found that only 3 percent (1 of 32 sites) of historical Cascades frog sites (defined as pre-1990) was still occupied in the early 1990s. Since 1991, four large-scale surveys have been conducted to evaluate the occurrence of aquatic-breeding amphibians throughout the Lassen region (Fellers 1998; Koo et al. 2004; Welsch and Pope 2004; Stead et al. 2005). These data were analyzed by Fellers et al. (2008) and show that the situation has worsened significantly.

From 1993 to 2007, Fellers et al. (2008) conducted 1,873 amphibian surveys at 856 sites within Lassen Volcanic National Park and Lassen National Forest, California. These surveys encompassed all Cascades frog habitats: ponds, lakes, meadows, and streams on those lands. They found Cascades frogs at only 6 sites during 14 years of surveys, and obtained one report of a single frog at one additional locality. These occupied sites represented less than 1 percent of the historically suitable habitat within the Lassen region. Fellers et al. (2008) found no evidence of reproduction in most of the populations, and reproduction at all but one of the other sites remained lower than the annual reproductive output of one breeding pair for greater than 12 years.

Despite extensive surveys, only 12 remaining sites harboring Cascades frogs have been documented in the Lassen area since 1993, all with low numbers, ranging from 5 individuals at Colby Creek to 150 at Carter Meadow in Lassen National Forest (Pope et al. 2014). Each population was found to be slowly declining over a four year mark-recapture study (2008-2011); researchers concluded that about half are at risk of extirpation while the others are likely to continue declining (Pope et al. 2014). No remaining populations have been found in from Lassen Volcanic National Park since 2008 despite multiple resurveys of the most recent known locations and additional extensive surveys of appropriate meadow habitat (Pope et al. 2014) The species appears to be extirpated from Lassen Volcanic National Park (Pope et al. 2014), but 3 populations have been found to the south on private land and 3 populations to the north near Lassen National Forest (Pope and Larson, no date).

Klamath Mountains

In the Klamath Mountains, Cascades frogs were known from about 25 localities in and around Shasta-Trinity National Forest in the 1970s, and few populations had been recorded in Klamath National Forest (Pope et al. 2014). Available data provide no evidence for or against the decline of Cascades frogs on the Shasta-Trinity NF through the 1970s (Pope et al. 2014). Up to the mid-1990s, Cascades frogs seemed common in appropriate habitat in the Klamath Mountains (Jennings and Hayes 1994). Davidson et

al. (2002) estimated that 77 percent (20 of 26) historical Cascades frog sites (defined as pre-1990) associated with the Shasta-Trinity National Forest were still occupied in the early 1990s. Systematic surveys were carried out in wilderness areas of the Cascades frog range in the Klamath Mountains from 1999-2002. Abundance data as well as occupancy data were collected for all mapped lakes, ponds, and wet meadows in the Trinity Alps Wilderness, Russian Wilderness, Marble Mountains Wilderness, Siskiyou Wilderness, Red Buttes Wilderness, Castle Crags Wilderness, and parts of the Shasta-Trinity and Klamath National Forests outside of wilderness areas (Welsh and Pope 2004; Welsh et al. 2006). Those results are summarized below in Table 1.

Table 1: Summary of Cascades Frogs Population Data in Klamath Mountains, California (Data from Welsh and Pope 2004, cited in Pope et al. 2014, p. 15).

Wilderness Area	Occupied (%)	n (sites) =	Reproducing (%)	n (sites) =
Trinity Alps	58.7	223/380	30.5	116/380
Russian	31	17/54	5.5	3/54
Marble Mountains	32	80/250	11	28/250
Castle Crags	19	3/16	-	-
Shasta-Trinity	100	15/15	-	-

Of 380 water bodies surveyed in the Trinity Alps Wilderness by Welsh and Pope (2004), 58.7 percent (n = 223) were found to support at least one individual of any life stage of Cascades frogs. Evidence of reproduction (egg masses or larvae) was recorded at 30.5 percent (n = 116) of the sites. Approximately 250 water bodies were searched in the Marble Mountains and 54 water bodies were searched in the Russian Wilderness. Cascades frogs were recorded from 32 percent of the water bodies in the Marble Mountains (n = 80) and at 31 percent of water bodies in the Russian Wilderness (n = 17). However, evidence of reproduction (egg masses or tadpoles) was found at even fewer sites: only 11 percent of sites in the Marble Mountains (n = 28) and at only 5.5 percent of sites in the Russian Wilderness (n = 3). Cascades frogs were also detected at 3 of 16 water bodies in Castle Crags Wilderness, three sites on the Klamath National Forest outside of a wilderness area and 15 sites on the Shasta-Trinity National Forest outside of a wilderness area (Welsh and Pope 2004). No Cascades frogs were found in the Siskiyou or Red Buttes wilderness areas (Welsh and Pope 2004).

In 2008, 112 sites in the Klamath Mountains where Cascades frogs were previously found were re-surveyed, and 79 percent were found to still support frog populations (Piovia-Scott et al. 2011; Pope et al. 2014). No major declines were noted, but the abundances of some previously robust populations seemed low (Pope et al. 2014). At the majority of sites surveyed since 1999, abundances of Cascades frogs have appeared low (Welsh et al. 2006). Of 695 water bodies searched from 1999 to 2001 in the Trinity Alps, Marble Mountains, and Russian Wildernesses, the maximum number of adults seen at a water body was 32 and the mean number of adults encountered at sites with Cascades frogs was only 4 (Welsh and Pope 2004). Since then, 8 frog populations in the Trinity Alps Wilderness were studied for 9 years using mark-recapture techniques (Garwood, no date; Pope 2008a). While adult numbers were less than 25 in five of these populations, three populations appeared fairly robust. Two headwater lakes were

estimated to support more than 500 adult frogs in 2010 (Pope and Piovia-Scott, 2010). Only one other site in the Trinity Alps is thought to have comparable numbers (Pope et al. 2014).

Overall, Cascades frogs have not seen the dramatic declines in the Klamath Mountains that has been noted in the southern Cascades, but small populations and some extirpations are cause for concern (Pope et al. 2014).

Population Trends

In the southern Cascades/Lassen area, Cascades frog populations have declined greatly and gone from being abundant historically to very rare. The species appears to be extirpated from Lassen Volcanic National Park. Despite multiple extensive surveys, only 12 remaining sites in the Lassen area support Cascades frogs, all of them with low numbers of frogs. Population viability at these sites is a concern because each of these populations is slowly declining. Half of the remaining Lassen area populations are at risk of extirpation while the others are likely to continue declining. Pope et al. (2014) concluded that without active management, some of the remaining populations may disappear within 10 years and the rest will be at risk of extirpation.

In the Klamath Mountains, Cascades frogs are still widespread and fairly abundant. However, there have been some recent extirpations. At most sites recently surveyed in the Klamath Mountains, frog populations have been small and frog abundance at some previously robust populations has clearly declined. Populations in the eastern portion of the region in the Castle Crags Wilderness and the Klamath National Forest may be particularly at risk owing to low population numbers and more sites where frogs have recently disappeared.

Documented Range Contraction

Severe range contractions have been documented in the southern end of the Cascades frog's range (Fellers and Drost 1993; Jennings and Hayes 1994a). Jennings and Hayes (1994a) and Fellers and Drost (1993) estimate that Cascades frogs are extirpated from about 99 percent of their southernmost population clusters in Mount Lassen and surrounding areas, and 50 percent of their total historical distribution in California. Since that time, further range contractions have occurred (Fellers et al. 2008). The historic range of the Cascades frog might have once included much lower altitudes (Leonard et al. 1993).

THREAT FACTORS

Airborne Contaminants

Agrochemicals are a threat to Cascades frog survival, and pollution from pesticides and other agrochemicals has likely contributed to Cascades frog population declines seen in some regions (Davidson et al. 2002; Davidson 2004; Fellers et al. 2004). In California, the transport of agrochemical pollution from the Central Valley to the Sierra Nevada and southern Cascades has been well documented (Aston and Seiber 1997; Datta et al. 1998; McConnell et al. 1998; Lenoir et al. 1999; Davidson et al. 2002; Davidson 2004; Hageman et al. 2006; Bradford et al. 2010; Pope et al. 2014). An annual average of 168 million pounds of pesticides was used between 1998 and 2014 in agricultural areas in

California (primarily in the Central Valley) (CDPR 2017). Where Cascades frogs had mostly disappeared in the Lassen region, about four times as much agricultural land use can be found upwind compared to where frog populations are still present (Pope et al. 2014). However, no significant pattern was found in pesticide concentrations compared between Cascades frog populations in the Klamath Mountains and Southern Cascades (Davidson et al. 2012; Pope et al. 2014). Regardless, Chlorpyrifos, Dacthal, and Endosulfans, banned organochlorines, and polycyclic aromatic hydrocarbons (PCBs) were found in frog tissues collected within the range of the Cascades frog (Davidson et al. 2012; Pope et al. 2014).

Paulk and Wagner (2004) found that glyphosate and malathion significantly affect Cascades frog larval mortality and development at levels below EPA-recommended maximum levels for surface water. In addition to impaired growth and development, deformities, and behavioral alterations that have been documented in amphibians as a result to pesticide exposure, these chemicals may be interacting with other environmental stressors to exacerbate the impacts of disease and invasive species (Davidson et al. 2007; Blaustein et al. 2011; Pope et al. 2014). Pesticides could be weakening frogs' immune systems and facilitating chytrid outbreaks (Bradford et al. 2011; Bruhl et al. 2011).

Fertilizers such as urea likely pose a threat; in laboratory studies, juvenile Cascades frogs were unable to sense and avoid toxic levels (Hatch et al. 2001). Nitrites can affect behavior and metamorphosis of frog larvae (Marco and Blaustein 1999).

The risk factor to Cascades frogs in California from airborne contaminants is thought to be low, but complex interactions may exist between contaminants and other stressors that have not been thoroughly examined (Pope et al. 2014). Such indirect effects would likely be strongest in low- to mid-elevation habitats downwind of agricultural areas (Pope et al. 2014).

Climate Change

Climate change is a major threat to Cascades frogs. Higher average temperatures, varying precipitation patterns, and alterations in disturbance regimes such as fire are already affecting many wildlife species across North America, including Cascades frogs (Root et al. 2003; Parmesan 2006; Chen et al. 2011; Case et al. 2015). As ectothermic animals, all aspects of amphibians' life history are strongly influenced by the external environment, particularly temperature and moisture.

Most climate change research that analyzes the impacts on wildlife species have focused on physiological sensitivities, projected range shifts, and changes in phenology (Parmesan and Yohe 2003; Chen et al. 2011; Pinsky et al. 2013; Case et al. 2015), but Case et al. (2015) argue that more emphasis should be placed on ecosystem responses to climate change, thus better understanding how species dependent on those ecosystems may be impacted. Case et al. (2015) determined that out of the four taxonomic groups and 195 species they studied in the Pacific Northwest, amphibians and reptiles were on average the most sensitive to climate change, largely due to the fact that 90 percent of the 20 amphibians and reptiles studied were identified as having at least one highly sensitive habitat upon which they depended. Among studied amphibians was the Cascades frog, which had a sensitivity score of 77 (out of a

potential range of 14-100, with a higher number indicating a higher sensitivity) and an average confidence in that score of 4 out of 5 (Case et al. 2015). For context, the overall average sensitivity score for reptiles and amphibians was 76 (Case et al. 2015). Similar to the other studied amphibians of the Pacific Northwest, Cascades frogs depend on seasonal wetlands which are sensitive to climate-driven changes in hydrology (Case et al. 2015).

Numerous studies have documented climate-associated shifts in amphibian phenology, range, and pathogen-host interactions (Corn 2005; Blaustein et al. 2010; Li et al. 2013), with emerging evidence for climate change-related population declines (Lowe 2012; Rohr and Palmer 2013). Li et al. (2013) reported the results of 14 long-term studies of the effects of climate change on amphibian timing of breeding in the temperate zone of the U.S. and Europe. This meta-analysis indicated that more than half of studied populations (28 of 44 populations of 31 species) showed earlier breeding dates, while 13 showed no change, and 3 populations showed later breeding dates, where spring-breeding species tended to breed earlier and autumn-breeding species tended to breed later. Several studies indicate that shifts in timing of breeding can have fitness and population-level consequences. For example, amphibians that emerge earlier in the spring can be vulnerable to winter freeze events or desiccation if they arrive at breeding sites prior to spring rains (Li et al. 2013).

Climate-associated shifts in amphibian ranges can be particularly problematic for restricted range and high-elevation species that have specific habitat requirements and limited options for movement (Li et al. 2013). As greenhouse gas emissions continue to grow, studies project high turnover of amphibian species as habitats become climatically unsuitable. For example, Lawler et al. (2014) projected 50 percent or greater climate-induced turnover of amphibian species in many regions of the U.S. by the later part of the century.

Cascades frogs thrive in montane wetland habitats, where habitat diversity and life histories of wetland species are adapted to and sorted by coarse hydrologic gradients (Ryan et al. 2014; Lee et al. 2015). Because these habitats are naturally variable, they are extremely vulnerable to climate change (Ryan et al. 2014; Lee et al. 2015). Specifically, “hydrologically intermediate ponds” - which hold water in most years but may occasionally dry up during droughts – provide the best habitat for Cascades frogs and will become less available to them as the distribution and composition of montane wetlands in the Pacific Northwest are significantly altered by climate change (Ryan et al. 2014; Lawler et al. 2014; Lee et al. 2015).

Most of the factors that determine the condition of montane wetlands – snowpack volume, runoff, direct precipitation, and evapotranspiration – are projected to change in the western U.S. over the next century (Hamlet et al. 2005; IPCC 2007; Ryan et al. 2014). Snowpack has become a particular concern in recent years, and it is estimated to have declined by more than 50 percent over the last half century (Hamlet et al. 2005; Mote et al. 2005; Ryan et al. 2014). Climate projections indicate a significant reduction in the range of snow-dominated landscapes in most of the western U.S., with the exception of regions with much higher elevations such as the Rockies (Klos et al. 2014). Additionally, snowmelt runoff and peak water availability is occurring earlier in the spring, and soil moisture is receding (Hamlet et al. 2007; Ryan et al. 2014). As temperatures continue to increase in all seasons and summer precipitation decreases, mountain

snowpack will continue to decrease while evapotranspiration and soil-moisture stress increases in late summer months (Lee et al. 2015). Projections of climate impacts on wetlands in the Pacific Northwest show that many ephemeral wetlands will likely disappear, and more than half of the intermediate montane wetlands will become ephemeral wetlands by the 2080s (Lee et al. 2015).

In the Cascades Range, wetland drawdown is occurring earlier and faster, water availability is greatly reduced, complete drying is occurring more often, and summers have longer dry periods (Ryan et al. 2014). These changes, and the changes likely to happen in the future explained above, will reduce habitat availability and recruitment, and cause declines or extinctions in some regions for wetland-reliant amphibians and their invertebrate prey (Walls et al. 2013; Ryan et al. 2014; Lee et al. 2015). In addition to the direct loss of breeding grounds through wetland drying, Cascades frogs may experience a decrease in larval densities, a change in size at metamorphosis, and reduced recruitment success through an increase in water temperatures and changes in timing of water availability, especially since Cascades frog tadpoles metamorphose within a single summer (Smith 1987; Semlitsch et al. 1988; Walls et al. 2013; Lawler et al. 2014; Lee et al. 2015). Cole and North (2014) found that the number of pools and the distance to the nearest lake are among the most important environmental factors that determine the presence of Cascades frogs.

Climate change has also been implicated in stimulating the emergence of infectious amphibian diseases at the local and global scale. Increases in climate variability and extreme weather events resulting from climate change appear to provide an advantage to pathogens such as chytridio-mycosis (chytrid fungus), which is driving amphibian declines worldwide (Li et al. 2013; Raffel et al. 2013). Raffel et al. (2013) found a causal link between increased temperature variability and chytrid-induced mortality in frogs, which in the context of other studies linking chytrid outbreaks to temperature shifts, provides compelling evidence for a climate-change role in amphibian mortality from chytrid fungus (Li et al. 2013). Several recent studies indicate a role of climate change in amphibian population declines, in combination with other stressors (Lowe 2012; Rohr and Palmer 2013).

For all these reasons, climate change threatens the survival of Cascades frogs, which were found to be at the highest risk of climate-induced declines among three common northwest amphibians (Lawler et al. 2014). Scientists are especially concerned about the adaptability of this species in the face of climate impacts because the loss of high elevation, intermediate wetlands will force the frogs to move to larger, deeper lakes that likely have introduced predators, a factor known to decrease the abundance and survival rates of the Cascades frog (Ryan et al. 2014). Climate impacts are likely to also interact with other threats such as disease and pollution (Lee et al. 2015).

The current drought in parts of the Pacific Northwest provides an analog for what is predicted under climate change projections. Already, scientists have observed near complete reproductive failure at monitored Cascades frog sites due to ponds drying early, and many of these ponds are ones that do not usually dry at all. Even dead adults have been observed (Dr. Maureen Ryan, personal communication).

The risk factor to Cascades frogs in California from climate change is potentially high, particularly for populations that breed in ephemeral waters (Pope et al. 2014). More

frequent weather extremes could increase in the probability of Cascades frog extirpations (Pope et al. 2014). This risk is greatest in the southern Cascades where the species is already rare and, therefore, highly susceptible to environmental stochasticity (Pope et al. 2014).

Disease

Batrachochytrium dendrobatidis (Bd) is a fungal pathogen that causes the disease chytridiomycosis in amphibians. The rate of infection and mortality it has caused in amphibians worldwide has been described as ‘the most spectacular loss of vertebrate biodiversity due to disease in recorded history’ (Skerratt et al. 2007; Piovia-Scott et al. 2015). Adult amphibians infected with chytrid exhibit symptoms such as lethargy and reluctance to flee, skin abnormalities, loss of righting reflex, and extended back legs (Fellers et al. 2001). In tadpoles infected with chytrid fungus, jaw sheaths and tooth rows are abnormally formed or lack pigment, and this type of deformity likely inhibits tadpole foraging ability (Fellers et al. 2001). The effect of Bd on individual species, however, is considerably variable and often dependent on other environmental factors, including temperature, other environmental stressors such as predation pressures, pesticide exposure, and UV-B radiation (Pope et al. 2014; Piovia-Scott et al. 2015). Also, the virulence of different Bd strains may vary (Berger et al. 2005; Retallick and Miera 2007; Fisher et al. 2009; Farrer et al. 2011; Gahl et al. 2012; Piovia-Scott et al. 2015).

Cascades frogs are susceptible to Bd (Garcia et al. 2006; Piovia-Scott et al. 2015), and Bd occurs throughout the species’ range (Adams et al. 2010; Piovia-Scott et al. 2011; Piovia-Scott et al. 2015). Bd exposure experiments resulted in significant mortality rates for Cascades frog metamorphs (Garcia et al. 2006), however declines in Cascades frogs in nature due to Bd are not universal (Piovia-Scott et al. 2011; Pope et al. 2011; Pope et al. 2014). The reasons why some populations infected with Bd dramatically suffer while others remain stable are not well known (Pope et al. 2014).

The decline of Cascades frog populations in parts of California is thought to be due to a particularly virulent strain of Bd (Fellers et al. 2008; Pope et al. 2014; Piovia-Scott et al. 2015). At Section Line Lake in the Klamath Mountains, where Cascades frogs were found to be infected with this viral strain, juvenile frog abundance decreased by more than 99 percent between 2009 and 2012. Whereas hundreds of juvenile frogs were observed at Section Line Lake in 2010, juvenile frog numbers dwindled to only 2 seen in 2012 (Piovia-Scott et al. 2015). Adult frogs began to decline at Section Line Lake three years following the collapse of juvenile abundance (Piovia-Scott et al. 2015). For this population, there was no evidence for other causes of decline such as predation or desiccation, and the high overwintering mortality is consistent with other declines associated with Bd infection (Piovia-Scott et al. 2015).

Regardless of the variation of susceptibility to Bd observed in Cascades frogs, the significant decline in Cascades frog populations in the southern portion of their range due to Bd and the prevalence of the disease throughout the species’ range is cause for concern (Pope et al. 2014), especially given the finding that larger populations of Cascades frogs likely increase their resistance to the disease (Knapp et al. 2011; Pope et al. 2014). Efforts to increase Cascades frog population sizes, by removing predatory trout, for example, are crucial to ensuring their survival in light of the spread of Bd (Pope et al. 2014).

Chytrid was detected at 64 percent of sites surveyed in the Klamath Mountains of California and Cascades frogs were often infected (Piovia-Scott et al. 2011). While Cascades frogs have experienced increased mortality from exposure to the fungus in laboratory experiments (Garcia et al. 2006; Piovia-Scott et al. 2011), the current impact on wild frogs is unclear as many infected frogs appear asymptomatic (Gaulke et al. 2011) and many extant populations appear to be coexisting with the pathogen (Piovia-Scott et al. 2011).

Other infectious diseases present challenges to Cascades frog survival as well. *Saprolegnia ferax*, a species of water mold that commonly infects fish, can spread to amphibians, and has caused die-offs of Cascades frogs in Oregon (Blaustein et al. 1994; Kiesecker and Blaustein 1997; Pope et al. 2014). Romansic et al. (2007) found that juvenile Cascades frogs exposed to *Saprolegnia* had significantly greater rates of mortality than unexposed controls. Prevalence of *Saprolegnia* has increased due to movement of hatchery-raised fish (Blaustein et al. 1994; Bucciarelli et al. 2014), and because *Saprolegnia* strains have also been found to vary in virulence, introduced fish may transmit a strain more virulent to amphibians (Bucciarelli et al. 2014). The spread of *S. ferax* is especially concerning when combined with UV-B radiation (Kiesecker and Blaustein 1995; Pope et al. 2014), which is becoming more of an issue for Cascades frogs as climate change reduces the depth of wetlands and increases their exposure to the sun. Increased mortality has been documented in toad embryos from *Saprolegnia* infection during El Nino/Southern Oscillation events which decreased winter precipitation and snowpack, thus increasing exposure to UV-B radiation (Kiesecker et al. 2001; Bucciarelli et al. 2014).

Antifungal drugs such as itraconazole and terbinafine hydrochloride have been used to treat Bd diseased frogs with some success (Berger et al. 2010; Bowerman et al. 2010). Among the most promising treatments is application of anti-Bd bacteria such as *Janthinobacterium lividum* to the skin of frogs to help protect them from the disease (Harris et al. 2009). Hardy et al. (2015) found some success with treatment of Bd in wild-caught Cascades frogs from the Cascades Mountains with the antifungal drug itraconazole. Bd prevalence was low at the time of treatment and did not differ between treated frogs and controls immediately following treatment, but following release, Bd prevalence gradually increased in controls but not in treated frogs, with noticeable differences 3 weeks after treatment and strong differences 5 weeks after treatment (Hardy et al. 2015). Recaptures of frogs from this population the next year suggested that over-winter survival was higher for treated frogs. The itraconazole treatment did appear to reduce frog growth rates: treated frogs weighed 22 percent less than control frogs 3 weeks after treatment and were 9 percent shorter than control frogs 5 weeks after treatment (Hardy et al. 2015). Hardy et al. (2015) concluded that itraconazole treatment can be effective against Bd infection in wild amphibians, and that the beneficial effects on survivorship may outweigh the detrimental effects on growth. Though these results are encouraging, attempting to treat entire wild populations would be highly resource intensive.

The risk factor to Cascades frogs in California from disease is high, since *Chytridiomycosis* is present in Cascades frog populations across the range in California (Pope et al. 2014). Although extant populations appear to be coexisting with the pathogen in the short term, it appears that Bd is significantly reducing juvenile frog

survival in many populations (Pope et al. 2014). Reduced recruitment resulting from the disease increases extinction risk for the Cascades frog (Pope et al. 2014).

Fire Suppression

Fire-suppression activities in California may negatively affect Cascades frogs. The effects of fire suppression activities on amphibians have not been well studied, so most evidence is anecdotal (Pilliod et al. 2003). Fire-suppression impacts have the potential to be strong in the southern Cascades. Pope et al. (2014) concluded that the risk of negative impacts to Cascades frogs from fire-suppression activities is potentially high for Lassen National Forest populations, primarily because so few populations and animals remain. However, in the Klamath Mountains the Cascades frog primarily occurs within subalpine aquatic habitats with long fire return intervals and in wilderness areas where fire suppression activities are less than in areas where they are closer to the wildland-urban interface. Fire suppression activities do occur regularly in the frog's lower elevation forested habitats outside of wilderness areas, and potential direct impacts include water drafting from ponds and streams, application of fire retardant, and construction of fuel breaks. These activities could also produce changes in aquatic and riparian habitats via sedimentation changes, alteration in down woody debris, and reduction (producing both positive and negative effects) in amounts of vegetation associated with the habitat.

Only anecdotal evidence is available specific to Cascades frogs for any of these activities. In June 2008, northern California was struck by a severe dry lightning storm that started more than 2,700 fires. With dry conditions and heavy fuel loads, several strikes turned into major fires, including those in the Marble Mountains Wilderness, Trinity Alps Wilderness, and Lassen National Forest. In the Marble Mountains and Trinity Alps, no known Cascades frog populations were harmed because fire suppression activities occurred in lower elevations and wilderness edges, and the fires only patchily burned inside the areas where the majority of the frog populations are found. On the Lassen National Forest, fires got close to two southern populations of Cascades frogs and a fire line was placed on the ridge above one meadow population. In the following 3 years, no noticeable damage occurred to the frog population or its habitat from the fire suppression activities that occurred in the area. Fire crews and other fire personnel attempt to minimize impacts to aquatic and semiaquatic species and their habitats, but inadvertent impacts can occur. During the severe 1987–1991 drought in California, fire suppression personnel in the Sierra Nevada were forced to take water from locations where aquatic amphibians and reptiles had often concentrated.

The construction of fire lines or firebreaks by firefighters using hand tools or machinery such as bulldozers may be extensive and result in habitat changes similar to those associated with road and road construction. Fire line or firebreak restoration features, such as water bars and revegetation, may mitigate erosion rates and roadlike effects (Pilliod et al. 2003). Sedimentation may be the most detrimental roadlike effect of firelining on amphibians, as unpaved roads are responsible for greater increases in sediment mobility and erosion than either logging or fire per se (Rieman and Clayton 1997). Mechanized equipment is not a permitted activity in wilderness areas for fire suppression.

Application of retardant has become an important wildlife issue (Pilliod et al. 2003). In large wildfires, large amounts of ammonia-based fire retardants and surfactant-based fire-suppressant foams are dropped from air tankers and sprayed from fire engines to slow or stop the spread of fire. Some fire-suppressant cocktails are toxic or hazardous to aquatic organisms (Buhl and Hamilton 2000, Gaikowski et al. 1996, MacDonald et al. 1996). Concerns regarding the effects of aerial application of fire retardant on aquatic systems and threatened, endangered, or candidate species were addressed in the Forest Service Chief's Record of Decision (USDA 2011). This directs tanker pilots to avoid aerial application of retardant or foam within 91 m of waterways. A "waterway" is considered to be any body of water including lakes, rivers, streams, and ponds irrespective of whether they contain aquatic life. This is considered binding direction, subject to qualifications and exceptions only as noted in the Decision Notice. However, accidental contamination of aquatic habitats can and has occurred, especially from aerial applications (Minshall and Brock 1991). For example, during fire-suppression activities, a direct "hit" of fire-retardant was dropped adjacent to the Buck's Lake Wilderness in a small mountain yellow-legged frog breeding pond. No studies occurred to determine the effects, but there was a noticeable decline in the tadpoles within this pond (Hopkins, pers. comm. 2007, as cited in Pope et al. 2014).

Successful forest fire suppression over the past century has resulted in dense forests with very high fuel loads. The Forest Service initiated a program of active management to reduce fuel loading in an effort to reduce the intensity and extent of wildfires. Catastrophic fire can produce some of the most intensive and extensive changes in watershed condition of any disturbance (Kattelman 1996). In addition, dense forests reduce snowpack on forested slopes and take up water for transpiration, resulting in reduced water yields downslope (Kattelman 1996). These indirect large-scale effects of fire suppression can affect Cascades frog habitats by decreasing water input, altering peak flows, and increasing sediment yield.

The risk factor to Cascades frogs in California from fire suppression is unlikely to be high where frog habitat occurs in wilderness and high-elevation areas with sparse vegetation, where fire-suppression activities are rarely conducted and mechanized equipment is not used (Pope et al. 2014). However, the risk is potentially high for Lassen National Forest frog populations primarily because so few populations and animals remain (Pope et al. 2014).

Habitat Loss and Alteration

Activities such as vegetation and fuels management, water development and diversion, and mining, as well as impacts from roads, have the potential to degrade or destroy suitable habitat within the California range of the Cascades frog. Most of these factors pose relatively low or moderate risk for Cascades frogs (Pope et al. 2014).

Vegetation management on national forest lands outside of wilderness areas, such as timber harvest, fuels management, salvage logging, and prescribed fire, pose a risk to Cascades frogs (Pope et al. 2014). Changes in vegetation, shade, and woody debris can alter breeding, active-season, refuge, and overwintering habitat quality for Cascades frogs; and changes in vegetation can also influence soil stability, erosion, and sediment loading to aquatic habitats (Pope et al. 2014). The effects of controlled burns for fuel reduction on Cascades frogs are poorly understood (Pilliod et al. 2003). Cascades frogs are thought to be losing suitable habitat in Lassen Volcanic National Park in part due to

fire suppression and drought, which has increased the natural invasion of shrubs and trees into open meadows, so that former open frog breeding sites are now clogged with vegetation (Fellers and Drost 1993). Some of the Cascades frog range is on granitic soils, so improperly implemented prescribed burning could be risky because erosion rates of burned areas on such soils can be 66 times as great as in undisturbed watersheds, and can elevate annual sediment yields for 10 years or more (Megahan et al. 1995). Prescribed fire could benefit Cascades frogs if it reduced the risk of future high-intensity wildfire or reduced encroachment of woody vegetation into meadows that provide aquatic habitat for frogs.

Water developments, such as dams and diversions, can radically change aquatic habitats and are a prominent component of the landscape in the Sierra Nevada Forest Planning Area (Harris et al. 1987, Moyle and Randall 1998) and Klamath Mountains. Dams can raise the levels of existing lakes or ponds or flood meadow habitat, eliminating or in some cases creating Cascades frog habitat. Diversions may alter the hydrology and water retention at a site potentially affecting frog breeding. Although most major water development and diversions occur at lower elevations (Moyle and Randall 1998), some water developments for hydroelectric power generation and water storage also exist in higher elevation areas that overlap with the Cascades frog range (Pope et al. 2014). Major water projects within the southern Cascades that overlap with the Cascades frog's range are limited in the Pit River system and North Fork Feather River (e.g., Lake Almanor, Butt Valley Reservoir). Smaller water projects are located within the West Branch Feather River watershed (e.g., Snag Lake and Philbrook Lake). Major water projects within the Klamath Mountains include Shasta Dam on the upper Sacramento River and Trinity Dam on the and upper Trinity River. About 15 small lakes and meadow systems in the known historical range of the Cascades frog in California have some form of hydrological development. The majority of these consist of small dam structures to raise the water level of an existing water body (e.g., Gumboot Lake). Although existing dams and water diversions are not a widespread risk for Cascades frogs, local impacts from dams and diversions can be significant and permanent (Pope et al. 2014).

Suction-dredge gold mining of streams and rivers increases suspended sediment, rearranges stream substrate, changes stream geomorphology, and can directly trap or kill aquatic organisms including Cascades frogs (CDFG 2011). Since 2009, all California instream suction dredge mining has been suspended with the passage of SB 670. The legacy effects of historic hydraulic mining include alteration of stream geomorphology and release of pollutants such as acid, cadmium, mercury, and asbestos in waterways (Larson 1996). Although hydraulic mining has long been banned, legacy effects on water quality may still be apparent in portions of the mid-elevation Pit and Feather River systems within the range of Cascades frogs (Pope et al. 2014).

Although most populations of Cascades frogs are not likely to be affected by roads directly, indirect effects to their habitats and dispersal ability may be significant (Pope et al. 2014). Roads can alter soil density, temperature, soil water content, light, dust, surface-waterflow, pattern of runoff, and sedimentation (Trombulak and Frissell 2000). Roads may also serve as barriers to frog movement. Six major highways (Interstate 5 and Highways 32, 36, 44, 89, and 299) partly or completely fragment portions of the Cascades frog range in California. Roughly 62 percent of the Cascades frog range occurs on national forest lands that contain a total of 115 km of paved roads, 258 km of gravel roads, 1,714 km of dirt roads, and 300 km of trails (USDA 2001b). Road crossings

of water courses may block in-channel migrations and dispersal events because culverts are too steep, become blocked by debris, or become disconnected from the streambed. Barriers or partial barriers as a result of fragmentation may have a strong effect on populations of Cascades frog if they operate as metapopulations (Bradford 1991). Barriers, such as roads, could prevent recolonization of locations where extirpations have occurred. Risks to Cascades frogs from roads associated with population isolation and habitat alteration are expected to be moderate on private lands and on the Lassen and Klamath national forests, and low in Lassen Volcanic National Park and wilderness areas in the Klamath Mountains (Pope et al. 2014).

Introduced Fish

Cascades frogs are threatened by introduction of fish into historically fishless habitats (Knapp and Matthews 2000; Knapp 2005; Welsh et al. 2006). Cascades frogs have suffered population declines as a result of non-native fish stocking due to high levels of predation and competition (Knapp et al. 2003; Welsh et al. 2006; Morgan et al. 2007; Piovia-Scott et al. 2011; Hartman et al. 2013; Cole and North 2014; Pope et al. 2014). Because most montane species are unable to adapt to the presence of nonnative fish (Knapp et al. 2001; Ryan et al. 2014), fish introduction often leads to a direct loss of range in amphibian species, and this is true of the Cascades frog.

Nonnative trout and other salmonids occupy 95 percent of large mountain lakes and 60 percent of smaller ponds and lakes in the western U.S. that were formerly fishless (Bahls 1992; Ryan et al. 2014). The widespread introductions of these species have had severe consequences on ecosystem functions and native species assemblages (Bradford 1989; Knapp and Matthews 2000; Knapp et al. 2001; Schindler et al. 2001; Knapp 2005; Welsh et al. 2006; Ryan et al. 2014; Pope et al. 2014). The impacts that introduced trout have on amphibians are particularly severe (Pilliod and Peterson 2001; Vredenburg 2004; Hartel et al. 2007; Hartman et al. 2013). The stocking of predatory fishes has contributed to the endangered status of two other high elevation Ranid frogs in California, the mountain yellow-legged frog (*Rana muscosa*) and Sierra Nevada yellow-legged frog (*Rana sierrae*) (Ryan et al. 2014).

Introduced fishes alter amphibian assemblages through multiple mechanisms. Introduced fish and native species compete for resources such as invertebrate prey (Finlay and Vredenburg 2007; ICF Jones and Stokes 2010; Bucciarelli et al. 2014). Adult Cascades frogs that co-occurred with introduced trout were found to have smaller proportions of aquatic invertebrate prey in their stomachs than frogs that live in areas without trout (Joseph et al. 2011; Bucciarelli et al. 2014). Introduced fish may also prey directly upon native amphibians, driving population declines (Simons 1998; Finlay and Vredenburg 2007; ICF Jones and Stokes 2010; Bucciarelli et al. 2014). Where trout were present Cascades frog tadpoles were most often found in shallow, vegetated areas that serve as a refuge from the fish (Hartman et al. 2013). In some cases, the presence of nonnative fish has also allowed for the increase in prevalence of other predators. For example, in the Klamath Mountains, the Pacific coast aquatic garter snake was able to expand its range as a result of more prey availability (introduced fish) thus facilitating opportunities to also prey upon Cascades frogs, exacerbating their declines (ICF Jones and Stokes 2010).

In the Klamath-Siskiyou region of northwestern California, Welsh et al. (2006) found that Cascades frog distribution negatively correlates with fish distribution, and that larvae occurred 3.7 times more frequently in lakes without trout. Garwood and Welsch (2007) found summer Cascades frog densities to be 6.3 times higher in a stream lacking trout than at a similar stream with high densities of brook trout. Pope (2008a) found that within three years of fish removals from three lakes, Cascades frog densities increased by a factor of 13.6. In addition, the survival of young adult frogs increased from 59 to 94 percent, and realized population growth and recruitment rates at the fish-removal lakes were more than twice as high as the rates for fish-free reference lakes and lakes that contained fish (Pope 2008a).

In a species assemblage study of the Klamath Mountains, nonnative trout had an exclusively negative correlation with Cascades frog occupancy (Cole and North 2014). This study determined that nonnative trout presence was one of the most important factors in determining Cascades frog distribution (Cole and North 2014). At higher elevations where trout were absent, assemblages were dominated by Cascades frogs (Cole and North 2014). In the context of climate change, the frog's inability to co-exist with nonnative fish, which now occupy the majority of large ponds, lakes, and streams within the species range, is especially troubling. As higher elevation, intermediate wetlands dry up due to a lack of snowpack in the western U.S., Cascades frogs will be forced to move to areas likely occupied by fish. The shallow refuges that protect tadpoles from fish will likely also dry up, forcing the species into deeper waters with predators that it has no defenses from (Ryan et al. 2014; Pope et al. 2014).

The declines of Cascades frog populations as well as two other native amphibians in California led to a successful lawsuit that ruled that the California Department of Fish and Wildlife must consider the impacts of fish stocking on the environment and native ecosystems (Knapp and Matthews 2000; Vredenburg 2004; Welsh et al. 2006; Hartman et al. 2013). The resulting Environmental Impact Statement (ICF Jones and Stokes 2010) concluded that the impacts of nonnative trout on Cascades frogs were "potentially significant." There are 175 trout stocking locations within the range of the Cascades frog in California (ICF Jones and Stokes 2010). Although new stocking has since ceased in areas known to support Cascades frogs (ICF Jones and Stokes 2010; Pope et al. 2014), many populations of stocked fish are likely self-sustaining (Pope et al. 2014). The majority of large and deep lakes in the Klamath Mountains and southern Cascades support nonnative populations of brook trout (*Salvelinus fontinalis*) or rainbow trout (*Oncorhynchus mykiss*) (Welsh et al. 2006; Pope et al. 2014).

Fish removal and the restoration and protection of wetlands that do not already contain fish are likely the most important actions needed to recover and protect Cascades frogs throughout their range (Cole and North 2014), especially when faced with other, less manageable, threats such as climate change and disease (Ryan et al. 2014). Previous fish removals have resulted in the rapid recolonization of native amphibians and invertebrates (Drake and Naiman 2000; Knapp et al. 2005; Ryan et al. 2014), including the Cascades frog (Pope 2008a; Pope et al. 2014). Survival, recruitment, and population densities of Cascades frog all rapidly increased when fish were removed from lakes in the Klamath Mountains (Pope et al. 2014).

The risk factor to Cascades frogs in California from introduced fish and other predators is high and widespread, since introduced fish are found over most of the California range

of the species and are known to affect presence and densities of Cascades frogs (Pope et al. 2014). Fish introductions across most of its California range coupled with evidence of a fish effect in the Klamath Mountains strongly implicates fish as a contributor to frog declines in the southern Cascades (Pope et al. 2014). Risks associated with the interactive effects of fish and other stressors, such as climate change and disease, may also be high (Pope et al. 2014).

Livestock Grazing

Livestock grazing has been considered the most widespread influence on native ecosystems of western North America (Fleischner 1994; Kattlemann 1996). Seasonal grazing of sheep and cattle across the mountains of California has occurred since the early 1800s and continues today, except in national parks (Fleischner 1994; Menke et al. 1996). Researchers have found widespread negative impacts from livestock grazing, including loss of native species, changes in species composition, alteration of hydrology including lowered water tables, soil deterioration, degradation of fish and aquatic insect habitat, and changes in ecosystem structure and function (Kauffman and Krueger 1984; Fleischner 1994; Belsky et al. 1999; Flenniken et al. 2001). The negative impacts of livestock grazing on high elevation wetland ecosystems and Ranid frog habitat include reducing vegetative cover, creating excess nitrogen pollution, increasing siltation of breeding ponds, and altering the local hydrology through erosion (Jennings 1988, 1996; Jennings and Hayes 1994). Where historical grazing has resulted in channel incision and lowered water tables, Cascades frogs may be affected by less available breeding habitat and shorter hydroperiods (Pope et al. 2011), but these long-term effects are difficult to quantify. Short-term direct impacts such as trampling and local water quality degradation are also a concern, especially in the southern Cascades where populations are small (Pope et al. 2014).

Although livestock distribution and numbers on public lands have been reduced dramatically compared to historical numbers, livestock grazing currently still occurs throughout much of the range of the Cascades frog. One recently discovered occupied Cascades frog site in Childs Meadow includes a portion of the Lassen National Forest that is currently grazed, but exclusion fencing is planned for around the breeding pool (Foote, pers. comm. 2012, as cited in Pope et al. 2014). Meadow sites occupied by Cascades frogs on private lands both north and south of Lassen Volcanic National Park in the southern Cascades are still grazed by livestock. Much of the Cascades frog range in the Klamath Mountains is still grazed, although portions of the wilderness areas are inaccessible by cattle or are not permitted for grazing.

Minimal data exists on the impacts of livestock grazing on Cascades frogs. A research team in the Sierra Nevada recently assessed the short-term impacts of grazing on Yosemite toads (*Anaxyrus canorus*) through a 5-year exclosure experiment over nine meadows (Allen-Diaz et al. 2010; Lind et al. 2011; Roche et al. 2012). The researchers did not detect differences between grazed and ungrazed meadows in survival or abundance of Yosemite toads and saw no improvement in toad breeding habitat quality after cattle were removed from meadows (Lind et al. 2011; Roche et al. 2012). However, these studies had major limitations and the U.S. Fish and Wildlife Service commented extensively on why conclusions about grazing impacts should not be drawn based on the results (USFWS 2014, pages 24290-24291). Also, although Yosemite toads breed in aquatic habitats within meadows similar to those of Cascades frogs, they differ in that after breeding and metamorphosis, toads leave aquatic habitats and move into nearby

upland habitats (Liang 2010), so conclusions about lack of impacts to toads may not be assumed for Cascades frogs.

The risk factor to Cascades frogs in California from livestock grazing is thought to be low, because livestock use has not been permitted for more than 10 years in most breeding habitats on public lands in the Lassen region where sensitive frog populations occur, livestock numbers have been reduced on other public lands across the range, and recent studies have not found significant evidence of direct effects on meadow-associated amphibian population numbers (Pope et al. 2014). However, livestock grazing is still fairly widespread throughout the California range of the Cascades frog, and even minimal effects such as trampling of a couple of adult frogs could be harmful to population persistence of some small populations in the southern Cascades (Pope et al. 2014). Legacy effects from grazing to riparian and wet meadow habitats are likely extensive, especially in the southern Cascades and eastern Klamath Mountains, and some montane meadows in northern California have become too degraded and desiccated to support appropriate habitats for Cascades frogs (Pope et al. 2014).

Recreational Activities

The geographic range of the Cascades frog in California occurs primarily on public lands with about 5 percent on national park land and 62 percent on national forest lands (USDA 2001). About half of the range on national forest lands occurs within designated wilderness areas where recreational use is limited to non-motorized and dispersed activities such as hiking, backpacking, fishing, and camping. Outside the wilderness areas and national parks, recreational activities can include motorized activities such as off-highway vehicle use that have the potential for greater impact. About 33 percent of the historical range of the Cascades frog in California lies on private lands with restricted public recreation (owned by timber companies), but some private lands with camps and lodges support heavy recreational use.

To date, no studies have specifically examined the impacts of recreational activities on Cascades frogs. However, some information exists on the effects of selected recreational activities on the aquatic habitats also used by Cascades frogs. The mid to high mountain lakes, streams, ponds, and wet meadows inhabited by Cascades frogs receive a disproportionate amount of recreational use through trail networks, campsites, angling opportunities, and swimming. Establishment of trails and camps has been shown to disturb vegetation and soil structure, resulting in changes in habitat structure and microclimate (Garton et al. 1977; Boyle and Samson 1985; Knight and Cole 1991). Anglers often create shoreline trails for access to fishing spots even at remote wilderness lakes. These activities that occur near high-elevation meadows, ponds, lakes and streams can result in increases in pool sediments, modification of pool mudflats, erosion, bank trampling, and vegetation disturbance (Bronmark and Hansson 2002). Generally, studies have found that recreation impacts can happen rapidly even with light use, whereas recovery occurs only after lengthy periods of no use (Cole and Marion 1988).

Studies examining the effects of recreational packstock (usually horses and mules used to assist travel into the backcountry) grazing on alpine meadow habitat have found significant changes in meadow structure resulting from horse and mule grazing (Olson-Rutz et al. 1996a, 1996b; Moore et al. 2000; Cole et al. 2004). These changes in meadow condition may affect breeding habitat of Cascades frogs. Cascades frogs

typically breed in small potholes in meadows or fens, and shallow areas of ponds and lakes. These shallows are especially prone to damage by trampling of hikers, packstock, or off-highway vehicles. Recreational activities may also result in direct mortality to Cascades frogs through trampling (see Bartelt 1998).

Recreational activities that reduce habitat quality or frequently disturb normal basking and feeding behaviors of Cascades frogs can increase the glucocorticoid stress hormones in the frogs. Long-term physiological effects of glucocorticoid exposure include the suppression of growth, reproduction, and immune system components (Moore and Jessop 2003). Stress hormones in amphibians are also elevated by exposure to *Bd* and cause increases in metabolic rates which are energetically costly (Peterson 2012; Wack et al. 2012). The interactive effects of *Bd* and environmental stress on amphibians are currently being studied and initial results suggest that stressed Australian green treefrogs (*Litoria caerulea*) experience lower energy stores and lower survival when exposed to *Bd* compared to unstressed frogs (Peterson 2012).

The risk factor to Cascades frogs in California from recreational activities is assumed to be low to moderate, since recreational use through most of the range of the Cascades frog is light and dispersed (Pope et al. 2014). However in high-use areas, such as lakes outside of wilderness areas with road access, recreational activities likely have measurable impacts to frogs and their habitats (Pope et al. 2014). Recreational impacts also act synergistically with other stressors to increase stress, which reduces the health and resilience of Cascades frogs (Pope et al. 2014).

Small Population Sizes

Montane habitats tend to promote strong genetic isolation among frog populations (Monsen and Blouin 2004), and small population sizes of already declining populations, such as in the Lassen area of California, reduces the species' long-term viability (Fellers et al. 2008). Cascades frogs are particularly vulnerable, and they exhibit extreme genetic isolation in relatively small geographic scales compared to other anurans, with reduced gene flow at distances starting at just 10 km (Monsen and Blouin 2004). This species spends over half the year in hibernation and given the limited amount of time that they are active, combined with their ephemeral habitat, it is not surprising long distance gene flow is rare in this species (Monsen and Blouin 2004). These population dynamics make Cascades frogs vulnerable to not only genetic isolation (ODFW 2016) but also to chance events where local extirpations have a low likelihood of recolonization (Pope et al. 2014). For example, the recolonization of one historic Cascades frog site in Oregon was reported to have taken 12 years despite the presence of a population within 2 km (Blaustein et al. 1994; Pope et al. 2014). Adult frogs rarely move more than a couple miles (Monsen and Blouin 2004), and isolated sites are less likely to support Cascades frogs for the long term (Pope et al. 2014). Therefore, population recovery and habitat connectivity are important factors in ensuring the long term viability of Cascades frogs. Young and Clarke (2000) observed that the small size of, and lack of connectivity between, the current populations of the Cascades frog in the Lassen area greatly reduces their long-term viability, potentially leading to a genetic bottleneck.

INADEQUACY OF EXISTING REGULATORY MECHANISMS

There are no existing regulatory mechanisms that provide adequate protection for the Cascades frog in California.

Federal Regulatory Mechanisms

The Cascades frog is not currently protected under the federal Endangered Species Act (ESA). The Center for Biological Diversity petitioned for federal ESA listing for the Cascades frog in 2012 (CBD 2012). In 2015 the U.S. Fish and Wildlife Service found that the petition presented substantial information indicating that the petitioned action may be warranted, and initiated a status review of the species (USFWS 2015). However, according to the USFWS Listing Workplan, the agency will not make a 12-month finding on the petition until 2022 at the earliest (USFWS 2016). Other federal regulatory mechanisms that could potentially provide some form of protection for the Cascades frog include occurrence on federally protected land, or consideration under the National Environmental Policy Act. There are no federal Habitat Conservation Plans in California that cover the Cascades frog (USFWS 2017).

Occurrence in National Forests and National Parks

Populations of Cascades frogs in California occur in National Parks, National Forests and other federal lands, where their habitat is mostly protected from development. However, this does not necessarily protect Cascades frogs from harmful management activities or ensure their long-term survival. Adams et al. (2013) noted that amphibian declines are occurring on federally protected lands where management policies are designed to protect natural resources, with some of the greatest rates of declines occurring on National Park Service lands. Even on federal lands that are protected for ecological values, foothill yellow-legged frogs are not protected from threats such as drifting pesticides or impacts from nonnative predators. For example, although nonnative fish stocking has been halted in California where Cascades frogs occur (ICF Jones and Stokes 2010), there do not appear to be any current efforts to remove invasive fish that have already established self-sustaining populations within Cascades frog habitat on federal lands.

Within the range of the Cascades frog in California, management of National Forest lands fall under the direction of different land and resource management plans developed for the Lassen National Forest, Shasta-Trinity National Forest, and Klamath National Forest. Although management direction for aquatic areas differs slightly among the forests, all three forest plans include direction specific for management and protection of aquatic and riparian-dependent species, including habitat for the Cascades frog (Pope et al. 2014). In areas of national forest lands that are designated “multiple-use” management areas (e.g., most non-wilderness areas), riparian and aquatic ecosystems are supposed to receive special consideration through the designation of riparian management zones. Riparian management zones are land area allocations designated around all water bodies and fluvial systems to ensure riparian-dependent resources receive primary emphasis and serve to help maintain the integrity of aquatic ecosystems. In general, only activities that contribute to the maintenance or restoration of riparian-driven objectives and goals are permitted. However, these plans do not preclude timber harvest, road building, cattle grazing and other activities that have the potential to degrade Cascades frog habitat.

The Forest Service adopted the Sierra Nevada Forest Plan Amendment in 2001 after more than a decade of scientific study, to direct the management of 11.5 million acres of California's national forest lands in the Sierra. The Sierra Nevada Forest Plan Amendment represented a shift in Forest Service management to ecosystem management principles. The Sierra Nevada Plan's primary emphasis is on terrestrial species, but it also contains an Aquatic Conservation Strategy focused on reducing some threats to amphibians, including the Cascades frog. Some of these measures include changes to livestock grazing and exotic fish stocking practices. Yet at the same time, the plan contains proposed management activities (such as fire and fuels management) that may increase risk of habitat degradation for Cascades frogs. In addition, the Sierra Nevada Forest Plan Amendment has been under attack since its adoption, with ongoing efforts by legislators and industry to increase the amount of logging allowed, limit protections for forests, water quality and wildlife, and to weaken forest monitoring requirements by reducing the management indicator species lists that are tracked across Sierra Nevada national forests.

The Sierra Nevada Forest Plan Amendment also committed the Forest Service to complete a conservation assessment for the Cascades frog in cooperation with other federal agencies, state agencies, universities, and research scientists (USDA 2001a). The conservation assessment (Pope et al. 2014) was published in 2014. It is important to note that Conservation Assessments provide only management recommendations, not mandated habitat protections. The conservation assessment is envisioned to be the first of a three-phase process that also includes a conservation strategy and a conservation agreement. However, this process is moving far too slowly to provide prompt protection for Cascades frogs. The Conservation Assessment alone took more than a decade to produce.

The Pacific Southwest Region (Region 5) of the Forest Service includes the Cascades frog on its Sensitive Species List (USDA 1998). Forest Service policy is that "sensitive species" must receive special management emphasis to ensure their viability and to preclude trends toward endangerment that would result in the need for federal listing. Sensitive species cannot be affected without an analysis of significance of adverse effects on the populations, their habitat, and on the viability of the species in the area covered by the forest land and resource management plan. However, this designation as a "sensitive species" translates into little protection for individual frogs, frog populations or frog habitat. The designation merely requires that the impacts to the species be considered, but does not prevent agency actions, such as logging, road building, fire suppression, recreational activities, or cattle grazing, that could harm the species or its habitat. All Forest Service planned, funded, executed, or permitted programs and activities are reviewed under NEPA for possible effects on sensitive species, through a Biological Assessment and Evaluation. Yet the Forest Service can conclude in a Biological Evaluation that even though individual frogs or frog populations will be harmed or destroyed by an action, it can still carry out this action.

The one National Park within the California range of the Cascades frog, Lassen Volcanic National Park, has guiding principles, management goals and a management plan that are beneficial for protecting aquatic ecosystems and maintaining park ecosystems and native wildlife (NPS, 1999, 2006). The Resource Management Plan for Lassen Volcanic National Park (NPS 1999) recognizes that Cascades frog populations have declined in the park and provides management guidance relevant to Cascades frog conservation:

1. Maintain, rehabilitate, and perpetuate water and aquatic systems to preserve their inherent natural integrity.
2. Populations of endangered, threatened, and other species of concern are protected from population decline and are monitored sufficiently to detect significant changes in population trends.
3. The health of Lassen region ecosystems, of which park lands are only a part, will be preserved as a result of cooperative work among federal, state, and private entities.
4. Exotic animal species that have the potential to substantially disrupt native animal populations or plant communities are eliminated or controlled.
5. Extirpated animal species are, to the extent feasible, restored in accordance with NPS policy.

However, the Cascades frog is now extirpated from Lassen Volcanic National Park.

Fish stocking began in Lassen Volcanic National Park prior to the establishment of the park in 1916; a gradual phase-out was initiated in 1968; and fish stocking was discontinued at all sites within the park by 1992 (Stead et al. 2005). Because of the long history of stocking, it is unclear which park lakes and streams naturally contained fish, and what species of fish are native to each system. As of 2004, 16 percent (9 of 57) of the park's lakes still supported introduced trout fish (Stead et al. 2005).

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) (42 U.S.C.4321-4370a) requires federal agencies to consider the environmental impacts of their actions. The NEPA process requires these agencies to describe a proposed action, consider alternatives, identify and disclose potential environmental impacts of each alternative, and involve the public in the decision-making process. Most actions taken by the federal agencies such as the U.S. Forest Service and National Park Service that could affect the Cascades frog are subject to the NEPA process. NEPA does not, however, prohibit these agencies from choosing alternatives that will negatively affect individual frogs, populations of Cascades frogs, or potential Cascades frog habitat. De facto evidence of NEPA's inability to protect the Cascades frog is that the species has declined precipitously in spite of the existence of NEPA for more than 45 years.

State Regulatory Mechanisms

The state of California lists the Cascades frog as a "Species of Special Concern" (CDFW 2017a). However this status is an administrative designation which merely reflects the fact that the species is suffering population declines, but it does not afford any substantive or legal protection. There are no state Natural Community Conservation Plans in California that cover the Cascades frog (CDFW 2017b). Other state regulatory mechanisms that could potentially provide some form of protection for the Cascades frog include a state aquatic biodiversity strategy, and consideration under the California Environmental Quality Act.

Aquatic Biodiversity Strategy

The California Department of Fish and Wildlife has initiated a conservation strategy for maintaining aquatic biodiversity in high-elevation wilderness ecosystems. This strategy is aimed to protect and enhance native amphibian species while attempting to optimize recreational trout fishing opportunities (Garwood and Welch 2007). Starting in 1999, the

Department began implementing this conservation strategy in the Sierra Nevada Mountains through watershed-based management plans, but these plans are focused on mountain (and Sierra) yellow-legged frogs, not Cascades frogs (Garwood and Welsch 2007). Garwood and Welsch (2007) concluded that important differences between the ecology of Cascades frogs and mountain yellow-frogs make these watershed plans inadequate to fully protect Cascades frogs.

California Environmental Quality Act

The environmental review process under the California Environmental Quality Act ("CEQA", California Public Resources Code §§ 21000-21177) requires state agencies, local governments and special districts to evaluate and disclose impacts from "projects" in the state. CEQA declares that it is the policy of the state to prevent "the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities" (California Public Resources Code, section 21001(c)). The CEQA process is triggered when discretionary activities of state agencies may have a significant effect on the environment. When the CEQA process is triggered, it requires full disclosure of the potential environmental impacts of proposed projects. The operative document for major projects is usually the Environmental Impact Report.

Under CEQA, Species of Special Concern must be considered during the environmental review process, with an analysis of the project impacts on the species, only if they meet the criteria of sensitivity under Section 15380 of the CEQA Guidelines. However, project impacts to Cascades frogs would not need to be analyzed if project proponents are able to claim insignificant impacts to non-listed species, if the project does not have population-level or regional effects or impacts a small proportion of the species' range.

Theoretically, besides ensuring environmental protection through procedural and informational means, CEQA also has substantive mandates for environmental protection. The most important of these is the provision requiring public agencies to deny approval of a project with significant adverse effects when feasible alternatives or feasible mitigation measures can substantially lessen such effects. In practice, however, this substantive mandate is rarely implemented, particularly with regard to instream projects, water diversions, mining permits, grazing permits and projects causing pollution and sedimentation that have the potential to impact habitat for Cascades frogs. If significant impacts remain after all mitigation measures and alternatives deemed feasible by a lead agency have been adopted, a lead agency is allowed under CEQA to approve a project despite environmental impacts if it finds that social or economic factors outweigh the environmental costs. It is important to note that CEQA is not, nor was it ever intended to be, a habitat protection mechanism.

Summary: There are no existing federal or state regulatory mechanisms that adequately protect Cascades frog populations or habitat. Without state listing, significant conservation efforts for the Cascades frog, reintroduction of the species at unoccupied historic sites, and implementation of frog habitat enhancement methods are unlikely to occur.

RECOMMENDED MANAGEMENT AND RECOVERY ACTIONS

Invasive Fish Removal: Begin trout removal in former and current high montane habitats for Cascades frogs in the Klamath Mountains and Lassen area, to increase the amount of fishless habitat available. Continue current state policy to not stock fish in waters supporting Cascades frogs.

Investigate Treatments for Disease: Experimentally research effectiveness of techniques to reduce mortality of juvenile frogs caused by Bd, such as bioaugmentation of anti-Bd skin microbes or the use of antifungal drugs. Determine the feasibility of treating wild populations.

Modify Fuel Management and Livestock Grazing: Determine the effects of vegetation and fuels management and livestock grazing on Cascades frogs and their habitat in Shasta-Trinity, Klamath and Lassen National Forests. Modify vegetation management practices and grazing leases to protect and restore frog habitat.

Habitat Restoration: Determine the effectiveness of restoration and habitat enhancement measures, such as modifying breeding pools, removing livestock from breeding habitats, thinning riparian vegetation in occupied streams to improve basking habitat, or thinning lodgepole pines adjacent to breeding pools in meadow habitats in the southern Cascades. Test methods and monitor Cascades frog populations pre- and post-treatments. Prioritize sites for targeted restoration actions and monitor their effects on frog populations.

Restrict Pesticide Use: Determine where and which pesticide uses should be restricted to prevent exposure and harm to Cascades frogs.

Reduce Recreational Impacts: In Shasta-Trinity, Klamath and Lassen National Forests, and Lassen Volcanic National Park, encourage diffuse recreation and limit camping at lakes inhabited by Cascades frogs, to reduce potential impacts of recreational activities on frogs.

Consider a Captive Breeding Program: Begin a captive breeding program for eventual reintroduction of Cascades frogs if local populations are extirpated.

Reintroduction: Explore reintroduction of Cascades frogs into appropriate habitat within the historical range of the species. Investigate the feasibility and options for translocation or reintroduction of captive raised frogs to historically occupied habitats, particularly in Lassen Volcanic National Park.

Monitoring: Institute a long-term, rangewide program to monitor remaining Cascades frog populations in California.

BIBLIOGRAPHY OF LITERATURE CITED

- Adams, M.J., C.A. Pearl, B. McCreary, S.K. Galvan, S.J. Wessell, W.H. Wente, C.W. Anderson and A.B. Kuehl. 2009. Short-Term Effect of Cattle Exclosures on Columbia Spotted Frog (*Rana luteiventris*) Populations and Habitat in Northeastern Oregon. *Journal of Herpetology* 43: 132–138.
- Adams, M.J., N.D. Chelgren, D. Reinitz, R.A. Cole, L.J. Rachowicz and S. Galvan. 2010. Using Occupancy Models To Understand the Distribution of An Amphibian Pathogen *Batrachochytrium dendrobatidis*. *Ecological Applications* 20: 289–302.
- Adams, M.J., D.A.W. Miller, E. Muths, P.S. Corn and E.H.C. Grant. 2013. Trends in Amphibian Occupancy in the United States. *PLoS ONE* 8(5): e64347.
- Allen-Diaz, B., A. Lind, A., S.L. McIlroy, L. Roche and R. Grasso. 2010. Determining the Effects of Livestock Grazing on Yosemite Toads (*Bufo canorus*) and Their Habitat: Final Report to USDA Forest Service Region 5. Vallejo, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Region. 45 p.
- Aston, L.S. and J.N. Seiber. 1997. Fate of Summertime Organophosphate Pesticide Residues in the Sierra Nevada Mountains. *Journal of Environmental Quality* 26: 1483–1492.
- Bahls, P. 1992. The Status of Fish Populations and Management of High Mountain Lakes in the Western United States. *Northwest Science* 66: 183–93.
- Bartelt, P.E. 1998. *Bufo boreas* (Western Toad) Mortality. *Herpetological Review* 29: 96.
- Belsky, A.J., A. Matzke and S. Uselman. 1999. Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States. *Journal of Soil and Water Conservation* 54: 419–431.
- Berger, L., G. Marantelli, L.L. Skerratt and R. Speare. 2005. Virulence of the Amphibian Chytrid Fungus *Batrachochytrium dendrobatidis* Varies With the Strain. *Diseases of Aquatic Organisms* 68: 47–50.
- Berger, L., R. Speare, A. Pessier, J. Voyles and L.F. Skerratt. 2010. Treatment of Chytridiomycosis Requires Urgent Clinical Trials. *Diseases Aquatic Organisms* 92: 165–174.
- Blaustein, A.R. and R.K. O'Hara. 1982a. Kin Recognition in *Rana cascadae* Tadpoles: Maternal and Paternal Effects. *Animal Behavior* 30: 1151–1157.
- Blaustein, A.R. and R.K. O'Hara. 1982b. Kin Recognition Cues in *Rana cascadae* Tadpoles. *Behavioral and Neural Biology* 36: 77–87.
- Blaustein, A.R. and R.K. O'Hara. 1987. Aggregation Behavior in *Rana cascadae* Tadpoles: Association Preferences among Wild Aggregations and Responses to Nonkin. *Animal Behavior* 35: 1549–1555.

- Blaustein, A.R. and D.H. Olson. 1992. Amphibian Losses in the Oregon Cascades Range [Abstract]. Bulletin of the Ecological Society of America 73 (2, Supplement): 113.
- Blaustein, A.R., R.K. O'Hara and D.H. Olson. 1984. Kin Preference Behaviour Is Present after Metamorphosis in *Rana cascadae* Frogs. Animal Behavior 32: 445–450.
- Blaustein, A.R., D.G. Hokit, R.K. O'Hara and R.A. Holt. 1994. Pathogenic Fungus Contributes to Amphibian Losses in the Pacific Northwest. Biological Conservation 67: 251–254.
- Blaustein, A.R., J.J. Beatty, D.H. Olson and R.M. Storm. 1995. The Biology of Amphibians and Reptiles in Old-Growth Forests in the Pacific Northwest. Gen. Tech. Rep. PNW-GTR-337. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 98 p.
- Blaustein, A.R., S.C. Walls, B.A. Bancroft, J.J. Lawler, C.L. Searle, and S.S. Gervasi. 2010. Direct and Indirect Effects of Climate Change on Amphibian Populations. Diversity 2: 281–313.
- Blaustein, A.R., B.A. Han, R.A. Reylea, P.T.J. Johnson, J.C. Buck, S.S. Gervasi and L.B. Kats. 2011. The Complexity of Amphibian Population Declines: Understanding the Role of Cofactors in Driving Amphibian Losses. Annals of the New York Academy of Sciences 1223: 108–119.
- Blouin, M.S. and S.T. Brown. 2000. Effects of Temperature-Induced Variation in Anuran Larval Growth Rate on Head Width and Leg Length At Metamorphosis. Oecologia 125: 358–361.
- Borrel, A.E. 1924. Unpublished Field Notes. On file with Museum of Vertebrate Zoology, University of California, Berkeley, CA 94720-3161.
- Bowerman, J., C. Rombough, S.R. Weinstock and G.E. Padgett-Flohr. 2010. Terbinafine Hydrochloride in Ethanol Effectively Clears *Batrachochytrium dendrobatidis* in Amphibians. Journal of Herpetological Medicine and Surgery 20: 24–28.
- Boyle, S.A. and F.B. Samson. 1985. Effects of Non-Consumptive Recreation on Wildlife. A Review. Wildlife Society Bulletin 13: 110–116.
- Bradford, D.F. 1983. Winterkill, Oxygen Relations, and Energy Metabolism of a Submerged Dormant Amphibian, *Rana muscosa*. Ecology 64: 1171–1183.
- Bradford, D.F. 1989. Allotropic Distribution of Native Frogs and Introduced Fishes in High Sierra Nevada Lakes of California: Implication of the Negative Effect of Fish Introductions. Copeia 1989: 775–778.
- Bradford, D.F. 1991. Mass Mortality and Extinction in a High Elevation Population of *Rana muscosa*. Journal of Herpetology 25: 174–177.
- Bradford, D.F., K.A. Stanley, L.L. McConnell, N.G. Tallent-Halsell, M.S. Nash and S.M. Simonich. 2010. Spatial Patterns of Atmospherically Deposited Organic Contaminants at

High-Elevation in the Southern Sierra Nevada Mountains, California. *Environmental Toxicology and Chemistry* 29: 1056–1066.

Bradford, D.F., R.A. Knapp, D.W. Sparling, M.S. Nash and K.A. Stanley. 2011. Pesticide Distributions and Population Declines of California, USA, Alpine Frogs, *Rana muscosa* and *Rana sierrae*. *Environmental Toxicology and Chemistry* 30: 682–691.

Brattstrom, B.H. 1963. A Preliminary Review of the Thermal Requirements of Amphibians. *Ecology* 44: 238–255.

Briggs, J.L., Sr. 1987. Breeding Biology of the Cascade Frog, *Rana cascadae*, with Comparisons to *R. aurora* and *R. pretiosa*. *Copeia* 1987: 241–245.

Briggs, J.L. and R.M. Storm. 1970. Growth and Population Structure of the Cascades Frog, *Rana cascadae* Slater. *Herpetologica* 26: 283–300.

Bronmark, C. and L.A. Hansson. 2002. Environmental Issues in Lakes and Ponds: Current State and Perspectives. *Environmental Contamination* 29: 290–306.

Brown, C. 1997. Habitat Structure and Occupancy Patterns of the Montane Frog, *Rana cascadae*, in the Cascades Range, Oregon, at Multiple Scales: Implications for Population Dynamics in Patchy Landscapes. Corvallis, OR: Oregon State University. 161 p. M.S. thesis.

Brown, J.M., J.H. Leebens-Mack, J.N. Thompson, O. Pellmyr and R.G. Harrison. 1997. Phylogeography and Host Association in a Pollinating Seed Parasite *Greya politella* (Lepidoptera: Prodoxidae). *Molecular Ecology* 6: 215–224.

Brühl, C.A., S. Pieper and B. Weber. 2011. Amphibians at Risk? Susceptibility of Terrestrial Amphibian Life Stages to Pesticides. *Environmental Toxicology and Chemistry* 30(11): 2465–2472.

Bucciarelli, G.M., A.R. Blaustein, T.S. Garcia and L.B. Kats. 2014. Invasion Complexities: The Diverse Impacts of Nonnative Species on Amphibians. *Copeia* 14(4): 611–632.

Buhl, K.J. and S.J. Hamilton. 2000. Acute Toxicity of Fire-Control Chemicals, Nitrogenous Chemicals, and Surfactants to Rainbow Trout. *Transactions of the American Fisheries Society* 129: 408–418.

Bull, E.L. and M.P. Hayes. 2000. Livestock Effects on Reproduction of the Columbia Spotted Frog. *Journal of Range Management* 53: 291–294.

Bury, R.B. 1973. The Cascade Frog, *Rana cascadae*, in the North Coast Range of California. *Northwest Science* 47: 228–229.

Bury, R.B. and D.J. Major. 1997. Integrated Sampling for Amphibian Communities in Montane Habitats. In: Olson, D.H., W.P. Leonard and R.B. Bury (editors), *Sampling Amphibians in Lentic Habitats: Methods and Approaches for the Pacific Northwest*, Northwest Fauna 4. Olympia, WA: Society for Northwestern Vertebrate Biology: 75–82, Chapter 5.

Bury, R.B. and D.J. Major. 2000. Sampling Pond Amphibian Communities in Montane Habitats. *In*: Bury, R.B. and M.J. Adams (editors), Inventory and Monitoring of Amphibians in North Cascades and Olympic National Parks, 1995–1998. Final report of the Forest and Rangeland Ecosystem Science Center in cooperation with Olympic National Park. Corvallis, OR: U.S. Department of the Interior, U.S. Geological Survey: 45.

California Department of Fish and Game (CDFG). 2011. Suction Dredge Permitting Program Draft Subsequent Environmental Impact Report. California Department of Fish and Game, February 2011.

California Department of Fish and Wildlife (CDFW). 2017a. Special Animals List.

California Department of Fish and Wildlife (CDFW). 2017b. [Summary of Natural Community Conservation Plans](#). Accessed February 2, 2017.

California Department of Pesticide Regulation (CDPR). 2017. Pesticide Use Statistics. <http://www.cdpr.ca.gov/docs/pur/pur14rep/tables/table2.pdf>

Case, M.J., J.J. Lawler and J.A. Tomasevic. 2015. Relative Sensitivity to Climate Change of Species in Northwestern North America. *Biological Conservation* 187: 127–133.

Case, S.M. 1976. Evolutionary Studies in Selected North American Frogs of the Genus *Rana* (Amphibia, Anura). Berkeley, CA: University of California. 57 p. Ph.D. dissertation.

Case, S.M. 1978. Biochemical Systematics of Members of the Genus *Rana* Native to Western North America. *Systematic Zoology* 27: 299–311.

Center for Biological Diversity (CBD). 2012. [Petition to List 53 Amphibians and Reptiles in the United States as Threatened or Endangered Species Under the Endangered Species Act](#).

Chen, I.C., J.K. Hill, R. Ohlemuller, D.B. Roy and C.D. Thomas. 2011. Rapid Range Shifts of Species Associated with High Levels of Climate Warming. *Science* 333: 1024–1026.

Chivers, D.P., J.M. Kiesecker, A. Marco, J. DeVito, M.T. Anderson and A.R. Blaustein. 2001. Predator Induced Life History Changes in Amphibians: Egg Predation Induces Hatching. *Oikos* 92: 135–142.

Cole, D.N. and J.L. Marion. 1988. Recreation Impacts in Some Riparian Forests of the Eastern United States. *Environmental Management* 12: 99–107.

Cole, E.M. and M.P. North. 2014. Environmental Influences on Amphibian Assemblages across Subalpine Wet Meadows in the Klamath Mountains, California. *Herpetologica* 70(2): 135–148.

- Cole, D.N., J.W. Van Wagtendonk, M.P. McClaran, P.E. Moore and N. McDougald. 2004. Response of Mountain Meadows to Grazing By Recreational Packstock. *Journal of Range Management* 57: 153–160.
- Corn, P.S. 2005. Climate Change and Amphibians. USGS Staff Published Research Paper 90.
- Datta, S., L. Hansen, L. McConnell, J. Baker, J. Lenoir and J.N. Seiber. 1998. Pesticides and PCB Contaminants in Fish and Tadpoles from the Kaweah River Basin, California. *Bulletin of Environmental Contamination and Toxicology* 60: 829–836.
- Daugherty, C.H., F.W. Allendorf, W.W. Dunlap and K.L. Knudsen. 1983. Systematic Implications of Geographic Patterns of Genetic Variation in the Genus *Dicamptodon*. *Copeia* 1983: 679–691.
- Davidson, C. 2004. Declining Downwind: Amphibian Population Declines in California and Historical Pesticide Use. *Ecological Applications* 14: 1892–1902.
- Davidson, C., H.B. Shaffer and M.R. Jennings. 2002. Spatial Tests of the Pesticide Drift, Habitat Destruction, UV-B, and Climate-Change Hypotheses for California Amphibian Declines. *Conservation Biology* 16: 1588–1601.
- Davidson, C., M.F. Benard, H.B. Shaffer, J.M. Parker, C. O'Leary, J.M. Conlon and L.A. Rollins-Smith. 2007. Effects of Chytrid and Carbaryl Exposure on Survival, Growth and Skin Peptide Defenses in Foothill Yellow-Legged Frogs. *Environmental Science and Technology* 41: 1771–1776.
- Davidson, C., K. Stanley and S.M. Simonich. 2012. Contaminant Residues and Declines of the Cascades Frog (*Rana cascadae*) in the California Cascades, USA. *Environmental Toxicology and Chemistry* 31(8): 1895–1902.
- Demboski, J.R. and J.A. Cook. 2001. Phylogeography of the Dusky Shrew *Sorex monticolus* (Insectivora, Soricidae): Insight into Deep and Shallow History in Northwestern North America. *Molecular Ecology* 10: 1227–1240.
- Drake, D.C. and R.J. Naiman. 2000. An Evaluation of Restoration Efforts in Fishless Lakes Stocked with Exotic Trout. *Conservation Biology* 6: 1807–20.
- Dumas, P.C. 1966. Studies of the *Rana* Species Complex in the Pacific Northwest. *Copeia* 1966: 60–74.
- Dunlap, D.G. 1955. Inter- and Intraspecific Variation in Oregon Frogs of the Genus *Rana*. *American Midland Naturalist* 54: 314–331.
- Dunlap, D.G. and R.M. Storm. 1951. The Cascade Frog in Oregon. *Copeia* 1951: 81.
- Farrer, R.A., L.A. Weinert, J. Bielby, T.J. Garner, F. Balloux and F. Clare. 2011. Multiple Emergences of Genetically Diverse Amphibian-Infecting Chytrids Include a Globalized Hypervirulent Recombinant Lineage. *Proceedings of the National Academy of Sciences USA* 108: 18732–18736.

- Fellers, G. 1998. 1996–1997 Aquatic Amphibian Surveys. Unpublished report. On file with U.S. Department of Agriculture, Forest Service, Lassen National Forest, 2550 Riverside Drive, Susanville, CA 96130.
- Fellers, G.M. and C.A. Drost. 1993. Disappearance of the Cascades Frog *Rana cascadae* at the Southern End of Its Range, California, USA. *Biological Conservation* 65: 177-181.
- Fellers, G.M., D.E. Green and J.E. Longcore. 2001. Oral Chytridiomycosis in the Mountain Yellow-legged Frog (*Rana muscosa*). *Copeia* 2001: 945-953.
- Fellers, G.M., L.L. McConnell, D. Pratt and S. Datta. 2004. Pesticides in Mountain Yellow-legged Frogs (*Rana muscosa*) from the Sierra Nevada Mountains of California, USA. *Environmental Toxicology and Chemistry* 23: 2170-2177.
- Fellers, G.M., K.L. Pope, J.E. Stead, M.S. Koo and H.H. Welsh, Jr. 2008. Turning Population Trend Monitoring Into Active Conservation: Can We Save the Cascades Frog (*Rana cascadae*) in the Lassen Region of California? *Herpetological Conservation and Biology* 3(1): 28-39.
- Finlay, J. and V.T. Vredenburg. 2007. Introduced Trout Sever Trophic Connections Between Lakes and Watersheds: Consequences for a Declining Montane Frog. *Ecology* 88: 2187–2198.
- Fisher, M.C., J. Bosch, Z. Yin, D.A. Stead, J. Walker and L. Selway. 2009. Proteomic and Phenotypic Profiling of the Amphibian Pathogen *Batrachochytrium dendrobatidis* Shows That Genotype Is Linked to Virulence. *Mol Ecol* 18: 415–429.
- Fleischner, T.L. 1994. Ecological Costs of Livestock Grazing in Western North America. *Conservation Biology* 8: 629–644.
- Flenniken, M.R., R. McEldowney, W.C. Leininger, G.W. Frasier and M.J. Trlica. 2001. Hydrologic Responses of a Montane Riparian Ecosystem Following Cattle Use. *Journal of Range Management* 54: 567–574.
- Foote, R. 2012. Personal communication. Fish biologist, Lassen National Forest, Almanor Ranger District, 900 E. Hwy 36, PO Box 767, Chester, CA 96020.
- Gahl, M.K., J.E. Longcore and J.E. Houlahan. 2012. Varying Responses of Northeastern North American Amphibians to the Chytrid Pathogen *Batrachochytrium dendrobatidis*. *Conservation Biology* 26: 135–141.
- Gaikowski, M.P., S.J. Hamilton, K.J. Buhl, S.F. McDonald and C.H. Summers. 1996. Acute Toxicity of Three Fire-Retardant and Two Fire-Suppressant Foam Formulations to the Early Stages of Rainbow Trout (*Oncorhynchus mykiss*). *Environmental Toxicology and Chemistry* 15: 1365–1374.
- Garcia, T.S., J.M. Romansic and A.R. Blaustein. 2006. Survival of Three Species of Anuran Metamorphs Exposed to UV-B Radiation and the Pathogenic Fungus *Batrachochytrium dendrobatidis*. *Diseases of Aquatic Organisms* 72(2): 163-169.

Garton, E.O., T.C. Foin, C.W. Bowen, J.M. Everingham, R.O. Schultz and B. Holton, Jr. 1977. Quantitative Studies of Visitor Impacts on Environments of Yosemite National Park, California, USA and Their Implications for Park Management Policy. *Journal of Environmental Management* 5: 1–22.

Garwood, J.M. 2006. Natural History Notes: *Rana cascadae* (Cascades frog). Tadpole Predation. *Herpetological Review* 37: 76.

Garwood, J.M. 2009. Spatial Ecology of the Cascades Frog: Identifying Dispersal, Migration, and Resource Uses at Multiple Spatial Scales. Arcata, CA: Humboldt State University. 97 p. M.S. thesis.

Garwood, J.M. and M. Larson. No date. Unpublished data. On file with USDA Forest Service, Pacific Southwest Research Station, 1700 Bayview Drive, Arcata, CA 95521.

Garwood, J.M. and H.H. Welsh, Jr. 2007. Ecology of the Cascades Frog (*Rana cascadae*) and Interactions with Garter Snakes and Non-Native Trout in the Trinity Alps Wilderness, California. Final report prepared for the California Department of Fish and Game and the National Fish and Wildlife Foundation. Arcata, California. *Biology* 3(1): 28-39.

Garwood, J.M. and C.A. Wheeler. 2007. *Rana cascadae* Predation. *Herpetological Review* 38: 193–194.

Garwood, J.M., C.A. Wheeler, R.M. Bourque, M.D. Larson and H.H. Welsh, Jr. 2007. Egg Mass Drift Increases Vulnerability During Early Development of Cascades Frogs (*Rana cascadae*). *Northwestern Naturalist* 88: 95–97.

Gaulke, C.A., J.T. Irwin and R.S. Wagner. 2011. Prevalence and Distribution of *Batrachochytrium dendrobatidis* at Montane Sites in Central Washington State, USA. *Herpetological Review* 42(2): 209-211.

Good, D.A. 1989. Hybridization and Cryptic Species in *Dicamptodon*. *Evolution* 43: 728–744.

Good, D.A. and D.B. Wake. 1992. [Geographic Variation and Speciation in the Torrent Salamanders of the Genus *Rhyacotriton* \(Caudata: Rhyacotritinidae\)](#). University of California Publications in Zoology 126: 1–91.

Green, D.M. 1986a. Systematics and Evolution of Western North American Frogs Allied to *Rana aurora* and *Rana boylei*: Electrophoretic Evidence. *Systematic Zoology* 35: 283–296.

Green, D.M. 1986b. Systematics and Evolution of Western North American Frogs Allied to *Rana aurora* and *Rana boylei*: Karyological Evidence. *Systematic Zoology* 35: 273–282.

Grinnell, J.J., J. Dixon and J.M. Linsdale. 1930. Vertebrate Natural History of a Section of Northern California Through the Lassen Peak Region. University of California Publications in Zoology 25: 1–594.

- Hageman, K.J., S.L. Simonich, D.H. Campbell, G.R. Wilson and D.H. Landers. 2006. Atmospheric Deposition of Current-Use and Historic-Use Pesticides in Snow at National Parks in the Western United States. *Environmental Science and Technology* 40: 3174–3180.
- Hamlet, A.F., P.W. Mote and M.P. Clark. 2005. Effects of Temperature and Precipitation Variability on Snowpack Trends in the Western United States. *J Climate* 19: 4545–61.
- Hamlet, A.F., P.W. Mote and M.P. Clark. 2007. Twentieth-Century Trends in Runoff, Evapotranspiration, and Soil Moisture in the Western United States. *Journal of Climate* 20: 1468–86.
- Hardy, B.M., K.L. Pope, J. Piovia-Scott, R.N. Brown and J.E. Foley. 2015. Itraconazole Treatment Reduces *Batrachochytrium dendrobatidis* Prevalence and Increases Overwinter Field Survival in Juvenile Cascades Frogs. *Diseases of Aquatic Organisms* 112: 243–250.
- Harris, R.R., C.A. Fox and R. Risser. 1987. Impacts of Hydroelectric Development on Riparian Vegetation in the Sierra Nevada Region, California, USA. *Environmental Management* 11: 519–527.
- Harris R., R. Brucker, K. Minbiole, J. Walke, M. Becker and C. Schwantes. 2009. Skin Microbes on Frogs Prevent Morbidity and Mortality Caused by a Lethal Skin Fungus. *ISME Journal* 3(7): 818–824.
- Hartel, T., S. Nemes, D. Cogalniceanu, K.O. Ilerer, O. Schweiger, C.I. Moga and L. Demeter. 2007. The Effect of Fish and Aquatic Habitat Complexity on Amphibians. *Hydrobiologia* 583:173-182.
- Hartman, R., K. Pope and S. Lawler. 2013. Factors Mediating Co-Occurrence of an Economically Valuable Introduced Fish and Its Native Frog Prey. *Conservation Biology* 28(3): 763–772.
- Hatch, A.C., L.K. Belden, E. Scheessele and A.R. Blaustein. 2001. Juvenile Amphibians Do Not Avoid Potentially Lethal Levels of Urea on Soil Substrate. *Environmental Toxicology and Chemistry* 20: 2328–2335.
- Hayes, M.P. and F.S. Cliff. 1982. A Checklist of the Herpetofauna of Butte County, the Butte Sink, and Sutter Buttes, California. *Herpetological Review* 13: 85–87.
- Hews, D.K. and A.R. Blaustein. 1985. An Investigation of the Alarm Response in *Bufo boreas* and *Rana cascadae* Tadpoles. *Behavioral and Neural Biology* 43: 47–57.
- Hokit, D.G. and A.R. Blaustein. 1994. The Effects of Kinship on Growth and Development in Tadpoles of *Rana cascadae*. *Evolution* 48: 1383–1388.
- Hokit, D.G. and A.R. Blaustein. 1995. Predator Avoidance and Alarm-Response Behaviour in Kin-Discriminating Tadpoles (*Rana cascadae*). *Ethology* 101: 280–290.
- Hokit, D.G. and A.R. Blaustein. 1997. The Effects of Kinship on Interaction Between Tadpoles of *Rana cascadae*. *Ecology* 78: 1722–1735.

- Hopkins, T. 2007. Personal Communication. Fisheries biologist, Plumas National Forest, P.O. Box 11500, Quincy, CA 95971.
- Howard, J.H., L.W. Seeb and R. Wallace. 1993. Genetic Variation and Population Divergence in the *Plethodon vandykei* Species Group. *Herpetologica* 49: 238–247.
- ICF Jones and Stokes. 2010. [Final Hatchery and Stocking Program Environmental Impact Report/Environmental Impact Statement](#). Prepared for the California Department of Fish and Game and U.S. Fish and Wildlife Service, Sacramento, CA.
- Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland.
- Janzen, F.J., J.G. Krenz, T.S. Haselkorn and E.D. Brodie. 2002. Molecular Phylogeography of Common Garter Snakes (*Thamnophis sirtalis*) in Western North America: Implications for Regional Historical Forces. *Molecular Ecology* 11: 1739–1751.
- Jennings, M.R. 1988. Natural History and Decline of Native Ranids in California. *Proc. Conference on California Herpetology, Southwestern Herpetologists Society*, pp. 61-72.
- Jennings, M. R. 1996. Status of Amphibians. Pages 921-944 *In* Sierra Nevada Ecosystem Project: Final Report to Congress. Volume II, Chapter 31. Centers for Water and Wildland Resources, University of California, Davis.
- Jennings, M.R. and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Final Report submitted to the California Department of Fish and Game, Inland Fisheries Division. Contract No. 8023. 255 pp.
- Joseph, M.B., J. Piovra-Scott, S.P. Lawler and K.L. Pope. 2011. Indirect Effects of Introduced Trout on Cascades Frogs (*Rana cascadae*) Via Shared Aquatic Prey. *Freshwater Biology* 56: 828–838.
- Kattelman, R. 1996. Status of the Sierra Nevada. *In*: Sierra Nevada Ecosystem Project: Final Report to Congress, Volume II. Centers for Water and Wildland Resources Report 37. Davis, CA: University of California: 866–899. Chapter 30.
- Kauffman, J.B. and W.C. Krueger. 1984. Livestock Impacts on Riparian Ecosystems and Streamside Management Implications: A Review. *Journal of Range Management* 37: 430–438.
- Kiesecker, J.M. and A.R. Blaustein. 1995. Synergism Between UV-B Radiation and a Pathogen Magnifies Amphibian Embryo Mortality in Nature. *Proc. Natl. Acad. Sci. USA* 92: 11049-11052.
- Kiesecker, J.M. and A.R. Blaustein. 1997. Influences of Egg Laying Behavior on Pathogenic Infection of Amphibian Eggs. *Conservation Biology* 11: 214-220.

- Kiesecker, J.M., A.R. Blaustein and C.L. Miller. 2001. Transfer of a Pathogen from Fish to Amphibians. *Conservation Biology* 15: 1064–1070.
- Klos, P.Z., T.E. Link and J.T. Abatzoglou. 2014. Extent of the Rain-Snow Transition Zone in the Western U.S. Under Historic and Projected Climate. *Geophys. Res. Lett.* 41: 4560-4568.
- Knapp, R.A. 2005. Effects of Nonnative Fish and Habitat Characteristics on Lentic Herpetofauna in Yosemite National Park, USA. *Biological Conservation* 121: 265-279.
- Knapp, R.A. and K.R. Matthews. 2000. Non-Native Fish Introductions and the Decline of the Mountain Yellow-legged Frog from Within Protected Areas. *Conservation Biology* 14: 428-438.
- Knapp, R.A., P.S. Corn and D.E. Schindler. 2001. The Introduction of Nonnative Fish into Wilderness Lakes: Good Intentions, Conflicting Mandates, and Unintended Consequences. *Ecosystems* 4: 275–78.
- Knapp, R.A., K.R. Matthews, H.K. Preisler and R. Jellison. 2003. Developing Probabilistic Models to Predict Amphibian Site Occupancy in a Patchy Landscape. *Ecological Applications* 13: 1069–1082.
- Knapp, R.A., C.P. Hawkins and J. Ladau. 2005. Fauna of Yosemite National Park Lakes Has Low Resistance But High Resilience to Fish Introductions. *Ecological Applications* 15: 835–47.
- Knapp, R.A., C.J. Briggs, T.C. Smith and J.R. Maurer. 2011. Nowhere to Hide: Impact of a Temperature-Sensitive Amphibian Pathogen along an Elevation Gradient in the Temperate Zone. *Ecosphere* 2: 1–26.
- Knight, R.L. and D.N. Cole. 1991. Effects of Recreational Activity on Wildlife in Wildlands. *Transactions of the 56th North American Wildlife and Natural Resources Conference* 56: 238–247.
- Koo, M.S., J.V. Vindum and M. McFarland. 2004. Results of 02-CS-11050650-029, the 2003 California Academy of Sciences Survey: Amphibians and Reptiles of the Lassen National Forest. San Francisco, CA: California Academy of Sciences, Department of Herpetology. Unpublished report. On file with U.S. Department of Agriculture, Forest Service, Lassen National Forest, 2550 Riverside Drive, Susanville, CA 96130. 172 p.
- Larson, D.J. 1996. Historical Water-Use Priorities and Public Policies. *In: Sierra Nevada Ecosystem Project. Final Report to Congress. Volume II.* University of California, Davis. Centers for Water and Wildland Resources Report (37): 163–185. Chapter 8.
- Larson, M.D. 2012. Diet of the Cascades Frog (*Rana cascadae*) as it Relates to Prey Availability in the Klamath Mountains of Northwest California. Masters Thesis, Humboldt State University.
- Lawler, J., A. Hamlet, M. Ryan, S. Lee, M. Halabisky, L.M. Moskal and W. Palen. 2014. Northwest Climate Science Center, Final Report.

- Lee, S., M.E. Ryan, A.F. Hamlet, W.J. Palen, J.J. Lawler and M. Halabisky. 2015. Projecting the Hydrologic Impacts of Climate Change on Montane Wetlands. PLoS ONE.
- Lenoir, J.S., L.L. McConnell, G.M. Fellers, T.M. Cahill and J.N. Seiber. 1999. Summertime Transport of Current-Use Pesticides from California's Central Valley to the Sierra Nevada Mountain Range, USA. *Environmental Toxicology and Chemistry* 18: 2715–2722.
- Leonard, W.P., H.A. Brown, L.L.C. Jones, K.R. McAllister and R.M. Storm. 1993. *Amphibians of Washington and Oregon*. Seattle Audubon Society, Seattle, Washington. viii + 168 pp.
- Li, Y., J.M. Cohen and J.R. Rohr. 2013. Review and Synthesis of the Effects of Climate Change on Amphibians. *Integrative Zoology* 8: 145-161.
- Liang, C.T. 2010. Habitat Modeling and Movements of the Yosemite Toad (*Anaxyrus* (= *Bufo*) *canorus*) in the Sierra Nevada, California. Davis, CA: University of California. 126 p. Ph.D. dissertation.
- Lind, A.J., R. Grasso, J. Nelson, K. Vincent and C. Liang. 2011. Determining the Effects of Livestock Grazing on Yosemite Toads (*Bufo canorus*) and Their Habitat: Final Report Addendum to USDA Forest Service Region 5. Vallejo, CA: U.S. Department of Agriculture, Forest Service, Region 5. 25 p.
- Lowe, W.H. 2012. Climate Change Is Linked to Long-Term Decline In A Stream Salamander. *Biological Conservation* 145: 48-53.
- MacDonald, S.F., S.J. Hamilton, K.J. Buhl and J.F. Heisinger. 1996. Acute Toxicity of Fire Control Chemicals to *Daphnia magna* (Straus) and *Selenastrum capricornutum* (Printz). *Ecotoxicology and Environmental Safety* 33: 62–72.
- Marco, A. and A.R. Blaustein. 1999. The Effects of Nitrite on Behavior and Metamorphosis in Cascades Frogs (*Rana cascadae*). *Environmental Toxicology and Chemistry* 18: 946–949.
- McConnell, L.L., J.S. LeNoir, S. Datta and J.N. Seiber. 1998. Wet Deposition of Current-Use Pesticides in the Sierra Nevada Mountain Range, California, USA. *Environmental Toxicology and Chemistry* 10: 1908–1916.
- Megahan, W.F., J.G. King and K.A. Seyedbagheri. 1995. Hydrologic and Erosional Responses of a Granitic Watershed to Helicopter Logging and Broadcast Burning. *Forest Science* 41: 777–795.
- Menke, J.W., C. Davis and P. Beesley. 1996. Rangeland Assessment. In: Menke, J.W., C. Davis and P. Beesley (editors). *Sierra Nevada Ecosystem Project. Volume III, Sierra Nevada Ecosystem Project*. Davis, CA: University of California, Centers for Water and Wildland Resources: 901–972. Chapter 22.
- Minshall, G.W. and J.T. Brock. 1991. Observed and Anticipated Effects of Forest Fire on Yellowstone Stream Ecosystems. In: Keiter, R.B. and M.S. Boyce (editors). *Greater*

Yellowstone Ecosystem: Redefining America's Wilderness Heritage. New Haven, CT: Yale University Press: 123–135.

Monsen, K.J. and M.S. Blouin. 2003. Genetic Structure in a Montane Ranid Frog: Restricted Gene Flow and Nuclear-Mitochondrial Discordance. *Molecular Ecology* 12: 3275–3286.

Monsen, K.J. and M.S. Blouin. 2004. Extreme Isolation by Distance in a Montane Frog *Rana cascadae*. *Conservation Genetics* 5: 827–835.

Moore, I.T. and T.S. Jessop. 2003. Stress, Reproduction, and Adrenocortical Modulation in Amphibians and Reptiles. *Hormones and Behavior* 43: 39–47.

Moore, P.E., D.N. Cole, J.W. Wagtendonk, M.P. McClaran and N. McDougald. 2000. Meadow Response to Packstock Grazing in the Yosemite Wilderness: Integrating Research and Management. *In*: Cole, D.N., S.F. McCool, W.T. Borrie and J. O'Loughlin (compilers). *Wilderness Science in A Time of Change Conference— Volume 5: Wilderness Ecosystems, Threats, and Management*. Proceedings RMRS-P-15-VOL-5. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: 160–164.

Morgan, J.A.T., V.T. Vredenburg, L.J. Rachowicz, R.A. Knapp, M.J. Stice, T. Tunstall, R.E. Bingham, J.M. Parker, J.E. Longcore, C. Mortitz, C.J. Briggs and J.W. Taylor. 2007. Population Genetics of the Frog-Killing Fungus *Batrachochytrium dendrobatidis*. *Proceedings of the National Academy of Sciences (USA)* 104: 13845–13850.

Mote, P.W., A.F. Hamlet and M.P. Clark. 2005. Declining Mountain Snowpack in Western North America. *B Am Meteorol Soc* 86: 39–49.

Moyle, P.B. and P.J. Randall. 1998. Evaluating the Biotic Integrity of Watersheds in the Sierra Nevada, California. *Conservation Biology* 12: 1318–1326.

Nafis, G. 2013. A Guide to the Amphibians and Reptiles of California. Available at: <http://www.californiaherps.com/>.

NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available at: <http://explorer.natureserve.org>.

Nauman, R.S. and Y. Dettlaff. 1999. *Rana cascadae* (Cascades Frog): Predation. *Herpetological Review* 30: 93.

Nielson, M., K. Lohman and J. Sullivan. 2001. Phylogeography of the Tailed Frog (*Ascaphus truei*): Insights on the Biogeography of the Pacific Northwest. *Evolution* 55: 147–160.

Nussbaum, R.A., E.D. Brodie, Jr. and R.M. Storm. 1983. *Amphibians and Reptiles of the Pacific Northwest*. University Press of Idaho, Moscow, Idaho. 332 pp.

- O'Hara, R.K. 1981. Habitat Selection Behavior in Three Species of Anuran Larvae: Environmental Cues, Ontogeny and Adaptive Significance. Corvallis, OR: Oregon State University. 146 p. Ph.D. dissertation.
- O'Hara, R.K. and A.R. Blaustein. 1981. An Investigation of Sibling Recognition in *Rana cascadae* Tadpoles. *Animal Behavior* 29: 1121–1126.
- O'Hara, R.K. and A.R. Blaustein. 1985. *Rana cascadae* Tadpoles Aggregate with Siblings: An Experimental Field Study. *Oecologia* 67: 44–51.
- Olson, D.H. 1988. The Ecological and Behavioral Dynamics of Breeding in Three Sympatric Anuran Amphibians. Corvallis, OR: Oregon State University. 260 p. Ph.D. dissertation.
- Olson, D.H. 1992. Ecological Susceptibility of Amphibians to Population Declines. *In* Harris, R.R., H.M. Kerner and D.C. Erman (editors). *Proceedings of the Symposium on Biodiversity of Northwestern California*. Berkeley, CA: University of California: 55–62.
- Olson-Rutz, K.M., C.B. Marlow, K. Hansen, L.C. Gagnon and R.J. Rossi. 1996a. Packhorse Grazing Behavior and Immediate Impact on a Timberline Meadow. *Journal of Range Management* 49: 546–550.
- Olson-Rutz, K.M., C.B. Marlow, K. Hansen, L.C. Gagnon and R.J. Rossi. 1996b. Recovery of a High Elevation Plant Community after Packhorse Grazing. *Journal of Range Management* 49: 541–545.
- Oregon Department of Fish and Wildlife (ODFW). 2016. [Cascades Frog](#). Oregon Conservation Strategy.
- Parmesan, C. 2006. Ecological and Evolutionary Responses to Recent Climate Change. *Annu. Rev. Ecol. Evol. Syst.* 37: 637–669.
- Parmesan, C. and G. Yohe. 2003. A Globally Coherent Fingerprint of Climate Change Impacts across Natural Systems. *Nature* 421: 37–42.
- Paulk, N.K. and R.S. Wagner. 2004. Interaction of Glyphosate and Malathion on Mortality and Development in Cascades Frogs (*Rana cascadae*). *Northwestern Naturalist* 85(2): 24.
- Pearl, C. and M.J. Adams. 2005. *Rana cascadae*. Pages 538–540 *In* M. Lannoo (editor), *Amphibian Declines: The Conservation Status of United States Species*. University of California Press, Berkeley.
- Peterson, J.A. and A.R. Blaustein. 1991. Unpalatability in Anuran Larvae as a Defense Against Natural Salamander Predators. *Ethology, Ecology and Evolution* 3: 63–72.
- Peterson, J.D. 2012. Physiological Effects of Chytridiomycosis, a Cause of Amphibian Population Declines. Auburn, AL: Auburn University. 80 p. Ph.D. dissertation.
- Pilliod, D.S. and C.R. Peterson. 2001. Local and Landscape Effects of Introduced Trout on Amphibians in Historically Fishless Watersheds. *Ecosystems* 4: 322–333.

Pilliod, D.S., R.B. Bury, E.J. Hyde, C.A. Pearl and P.S. Corn. 2003. Fire and Amphibians in North America. *Forest Ecology and Management* 178: 163–181.

Pinsky, M.L., B. Worm, M.J. Fogarty, J.L. Sarmiento and S.A. Levin. 2013. Marine Taxa Track Local Climate Velocities. *Science* 341: 1239–1242.

Piovia-Scott, J., K.L. Pope, S.P. Lawler, E.M. Cole and J.E. Foley. 2011. Factors Related to the Distribution and Prevalence of the Fungal Pathogen *Batrachochytrium dendrobatidis* in *Rana cascadae* and Other Amphibians in the Klamath Mountains. *Biological Conservation* 144: 2913–2921.

Piovia-Scott, J., K. Pope and S.J. Worth. 2015. Correlates of Virulence in a Frog-Killing Fungal Pathogen: Evidence from a California Amphibian Decline. *The ISME Journal* 9: 1570–1578.

Pope, K.L. 2008a. Assessing Changes in Amphibian Population Dynamics Following Experimental Manipulations of Introduced Fish. *Conservation Biology* 22(6): 1572.

Pope, K.L. 2008b. Population Monitoring of Remnant Populations of Cascades Frogs (*Rana cascadae*) in the Lassen Region of California. Final Report to the Lassen National Forest, December 2008. Unpublished report. On file with USDA Forest Service, Pacific Southwest Research Station, 1700 Bayview Drive, Arcata, CA 95521.

Pope, K.L. No date. Unpublished data. On file with USDA Forest Service, Pacific Southwest Research Station, 1700 Bayview Drive, Arcata, CA 95521.

Pope, K.L. and M.D. Larson. 2010. Second Year of Population Monitoring of Remnant Populations of Cascades Frogs (*Rana cascadae*) in the Lassen Area of California. Final report to the U.S. Fish and Wildlife Service, FWS #81420-8-H158. 28 p. Unpublished report on file with U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station, 1700 Bayview Drive, Arcata, CA 95521.

Pope, K.L., J.M. Garwood, H.H. Welsh, Jr. and S.P. Lawler. 2008. Evidence of Indirect Impacts of Introduced Trout on Native Amphibians via Facilitation of a Shared Predator. *Biological Conservation* 141: 1321–1331.

Pope, K.L., M.D. Larson and J. Piovia-Scott. 2011. Status of Remnant Populations of Cascades Frogs (*Rana cascadae*) in the Lassen Area of California. Final report for year 2008 to the Lassen National Forest, ISA #05-06-03. 38 p. Unpublished report on file with U.S. Department of Agriculture, Forest Service, Lassen National Forest, 2550 Riverside Drive, Susanville CA 96130.

Pope, K., C. Brown, M. Hayes, G. Green and D. Macfarlane (technical coordinators). 2014. Cascades Frog Conservation Assessment. Gen. Tech. Rep. PSW-GTR-244. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 116 p.

Quinn, T., J. Gallie and D.P. Volen. 2001. Amphibian Occurrences in Artificial and Natural Wetlands of the Teanaway and Lower Sauk River Drainages of Kittitas County, Washington. *Northwest Science* 75: 84–89.

Raffel, T.R., J.M. Romansic, N.T. Halstead, T.A. McMahon, M.D. Venesky and J.R. Rohr. 2013. Disease and Thermal Acclimatization in a More Variable and Unpredictable Climate. *Nature Climate Change* 3: 146-151.

Retallick, R.W. and V. Miera. 2007. Strain Differences in the Amphibian Chytrid *Batrachochytrium dendrobatidis* and Non-Permanent, Sub-Lethal Effects of Infection. *Diseases of Aquatic Organisms* 75: 201–207.

Rieman, B. and J. Clayton. 1997. Wildlife and Native Fish: Issues of Forest Health and Conservation of Sensitive Fish Species. *Fisheries* 22: 6–15.

Riggs, M. and M.J. Ulner. 1983. Host-Parasite Relationships of Helminth Parasites in Leeches of the Genus *Haemopsis*. II. Associations at the Host-Species Level. *Transactions of the American Microscopical Society* 102: 227–239.

Roche, L.M., B. Allen-Diaz, D.J. Eastburn and K.W. Tate. 2012. Cattle Grazing and Yosemite Toad (*Bufo canorus* Camp) Breeding Habitat in Sierra Nevada Meadows. *Rangeland Ecology and Management* 65: 56–65.

Rohr, J.R. and B.D. Palmer. 2013. Climate Change, Multiple Stressors, and the Decline of Ectotherms. *Conservation Biology* 27: 741-751.

Romansic, J.M., E.M. Higashi, K.A. Diez and A.R. Blaustein. 2007. Susceptibility of Newly Metamorphosed Frogs to a Pathogenic Water Mould (*Saprolegnia* sp.). *Herpetological Journal* 17(3): 161.

Root, T.L., J.T. Price, K.R. Hall, S.H. Schneider, C. Rosenzweig and J.A. Pounds. 2003. Fingerprints of Global Warming on Wild Animals and Plants. *Nature* 421: 57–60.

Ryan, M.E., W.J. Palen, M.J. Adams and R.M. Rochefort. 2014. Amphibians in the Climate Vise: Loss and Restoration of Resilience of Montane Wetland Ecosystems in the Western US. *Front Ecol Environ* 12(4): 232-240.

Schindler, D.E., R.A. Knapp and P.R. Leavitt. 2001. Alteration of Nutrient Cycles and Algal Production Resulting from Fish Introductions into Mountain Lakes. *Ecosystems* 4: 308–21.

Semlitsch, R.D., D.E. Scott and J.H.K. Pechmann. 1988. Time and Size at Metamorphosis Related to Adult Fitness in *Ambystoma talpoideum*. *Ecology* 69: 184-192.

Simons, L.H. 1998. Natural History Notes: *Rana cascadae* (Cascades Frog). Predation. *Herpetological Review* 29: 232.

Skerratt, L.F., L. Berger, R. Speare, S. Cashins, K.R. McDonald and A.D. Phillott. 2007. Spread of *Chytridiomycosis* Has Caused the Rapid Global Decline and Extinction of Frogs. *Ecohealth* 4: 125–134.

Slater, J.R. 1939. Description and Life History of a New *Rana* from Washington. *Herpetologica* 1: 145–149.

- Smith, D.C. 1987. Adult Recruitment in Chorus Frogs: Effects of Size and Date at Metamorphosis. *Ecology* 68: 344-350.
- Stead, J.E. and K.L. Pope. 2010. Predatory Leeches (*Hirudinida*) May Contribute to Amphibian Declines in the Lassen Region, California. *Northwestern Naturalist* 91: 30-39.
- Stead, J.E., H.H. Welsh and K.L. Pope. 2005. Survey of Amphibians and Fishes at All Lentic Habitats in Lassen Volcanic National Park: A Report to the National Park Service. LVNP Study Number: LAVO-00717 contracted with Southern Oregon University and U.S. Forest Service, Redwood Sciences Laboratory.
- Stebbins, R.C. 1985. *A Field Guide to Western Reptiles and Amphibians*. Houghton Mifflin, Boston.
- Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians*. 3rd Edition. Houghton Mifflin Company.
- Steinhoff, R.J., D.G. Joyce and L. Fins. 1983. Isozyme Variation in *Pinus monticola*. *Canadian Journal of Forest Research* 13: 122–1132.
- Sype, W.E. 1975. Breeding Habits, Embryonic Thermal Requirements and Embryonic and Larval Development of the Cascades Frog, *Rana cascadae* Slater. Corvallis, OR: Oregon State University. 113 p. Ph.D. dissertation.
- Trombulak, S.C. and C.A. Frissell. 2000. Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities. *Conservation Biology* 14: 18–30.
- U.S. Department of Agriculture, Forest Service (USDA). 1998. Region 5 Sensitive Species List. San Francisco, CA: Pacific Southwest Region.
- U.S. Department of Agriculture, Forest Service (USDA). 2001a. [Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement](#). San Francisco, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Region.
- U.S. Department of Agriculture, Forest Service (USDA). 2001b. Unpublished Geographic Information System (GIS) Data. On file with: Pacific Southwest Region, 1323 Club Drive, Vallejo, CA 94592.
- U.S. Department of Agriculture, Forest Service (USDA). 2011. [Nationwide Aerial Application of Fire Retardant on National Forest System Land, Record of Decision](#). Washington, DC: U.S. Department of Agriculture, Forest Service. 74 p.
- U.S. Fish and Wildlife Service (USFWS). 2014. [Endangered Species Status for Sierra Nevada Yellow-Legged Frog and Northern Distinct Population Segment of the Mountain Yellow-Legged Frog, and Threatened Species Status for Yosemite Toad; Final Rule](#). Federal Register, Vol. 79, No. 82, April 29, 2014.
- U.S. Fish and Wildlife Service (USFWS). 2015. [Endangered and Threatened Wildlife and Plants; 90-Day Findings on 31 Petitions](#). Federal Register, Vol. 80, No. 126, July 1, 2015.

U.S. Fish and Wildlife Service (USFWS). 2016. [National Listing Workplan. 7-Year Workplan \(September 2016 Version\)](#).

U.S. Fish and Wildlife Service (USFWS). 2017. [California/Nevada Region Habitat Conservation Plans](#). Accessed February 2, 2017.

Vredenburg, V.T. 2004. Reversing Introduced Species Effects: Experimental Removal of Introduced Fish Leads to Rapid Recovery of a Declining Frog. *Proceedings of the National Academy of Sciences of the United States of America* 101: 7646–7650.

Wack, C.L., S.E. DuRant, W.A. Hopkins, M.B. Lovern, R.C. Feldhoff and S.K. Woodley. 2012. Elevated Plasma Corticosterone Increases Metabolic Rate in A Terrestrial Salamander. *Comparative Biochemistry and Physiology—Part A: Molecular and Integrative Physiology* 161: 153–158.

Walls, S.C., W.J. Barichivich, M.E. Brown, D.E. Scott and B.R. Hossack. 2013. Influence of Drought on Salamander Occupancy of Isolated Wetlands on the Southeastern Coastal Plain of the United States. *Wetlands* 33: 345-354.

Welsh, H.W. and K.L. Pope. 2004. Impacts of Introduced Fishes on the Native Amphibians of Northern California Wilderness Areas. Final Report to the California Department of Fish and Game, contract number P0010025 AM#1 with U.S. Forest Service, Redwood Sciences Laboratory.

Welsh, H.H., K.L. Pope and D. Boiano. 2006. Subalpine Amphibian Distributions Related to Species Palatability to Non-Native Salmonids in the Klamath Mountains of Northern California. *Diversity and Distributions* 12: 298-309.

Wollmuth, L.P., L.I. Crawshaw, R.B. Forbes and D.A. Grahn. 1987. Temperature Selection During Development in a Montane Anuran Species, *Rana cascadae*. *Physiological Zoology* 60: 472–480.

Young, A.G. and G.M. Clarke (editors). 2000. *Genetics, Demography and Viability of Fragmented Populations*. Cambridge University Press, Cambridge, UK.

State of California
Department of Fish and Wildlife

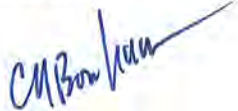
Memorandum

2017 MAR 21 AM 7:52

Date: March 13, 2017

To: Valerie Termini
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director



Subject: **Agenda Item for the April 26, 2017 Fish and Game Commission Meeting Private Lands Wildlife Habitat Enhancement and Management (PLM) Area Licenses**

The Department of Fish and Wildlife has reviewed the Annual and 5-year renewals for 56 properties in 16 counties consisting of approximately 570,621 acres.

The Annual renewal PLM areas were previously licensed under Commission regulations Section 601, Title 14, California Code of Regulations. Full payment was made for all tags used in 2016, and all habitat work was completed.

The 5-year renewal management plans are in compliance with Commission policy for private lands management. The applicants have identified the location where records will be kept and made available for inspection.

Habitat improvements accomplished under these plans will enhance and maintain wildlife resources on and around the PLM areas. The goals and objectives stated in the management plans are compatible with Department management plans for appropriate species in these areas. In addition, access to public lands will not be diminished under implementation of these management plans.

The Department recommends that the Commission approve the specified wildlife management plans, applications, and each 2017/18 harvest program under conditions specified in the attached table.

If you have any questions, please contact Ms. Victoria Barr at (916) 445-4034 or by email at victoria.barr@wildlife.ca.gov.

Attachment

Valerie Termini, Executive Director
Fish and Game Commission
March 13, 2017
Page 2

cc: Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

T.O. Smith, Branch Chief
Wildlife Branch
Timothy.Smith@wildlife.ca.gov

Craig Stowers
Environmental Program Manager
Wildlife Branch
craig.stowers@wildlife.ca.gov

Stuart Itoga
Senior Environmental Scientist
Wildlife Branch
stuart.itoga@wildlife.ca.gov

Victoria Barr
Environmental Scientist
Wildlife Branch
victoria.barr@wildlife.ca.gov

PLM AREA LICENSE
NEW 5-YEAR MANAGEMENT PLANS, 2017-2022
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
NORTHERN REGION		
STOVER RANCH HUMBOLDT 7,000 ACRES	<p>Authorized Harvest: 4 bull elk and 2 antlerless elk</p> <ul style="list-style-type: none"> • Issue 4 bull elk tags for the period September 1, 2017 through November 30, 2017. • Issue 2 antlerless elk tags for the period October 1, 2017 through November 30, 2017. • One of the antlerless elk tags will be made available for DFW to distribute to an Apprentice Hunter through the SHARE Program. The SHARE Program will reimburse Stover Ranch for the tag fee, but Stover Ranch will otherwise provide the hunt free of charge. 	<ul style="list-style-type: none"> ➤ Remove all conifer trees less than 4 inches diameter-breast-height from at least 11 acres of oak woodland. ➤ Remove all conifer trees less than 12 inches diameter-at-breast height from at least 78 acres of Grassland Core Treatment areas ➤ Remove all conifer trees less than 8 inches diameter-at-breast height along at least 3,300 linear yards of grassland margins. Treated areas will extend from the grassland margins back to areas dominated by larger conifers.
BAY DELTA REGION		
CONNOLLY AND CORRAL HOLLOW RANCH SAN JOAQUIN 11,758 ACRES	<p>Authorized Harvest: 2 bull elk</p> <ul style="list-style-type: none"> • Issue 2 bull elk tags for the periods of July 15, 2017 through September 15, 2017 and November 15, 2017 through December 15, 2017. 	<ul style="list-style-type: none"> ➤ Provide 800 acres of grasslands on the Connolly ranch for exclusive use by elk from July through March. ➤ Provide 480 acres of grasslands on the Corral Hollow ranch for exclusive use by elk. ➤ Continue to implement a rotational cattle grazing regime to provide adequate forage for elk. ➤ Fell 3 acres of gray pines to provide additional forage for elk and to increase cover for small mammals, birds and reptiles. Trees will be felled outside bird breeding season (March 1 – June 30) and any trees with birds of prey nests shall be avoided altogether.

PLM AREA LICENSE
NEW 5-YEAR MANAGEMENT PLANS, 2017-2022
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
CENTRAL REGION		
<p>AVENALES RANCH</p> <p>SAN LUIS OBISPO COUNTY</p> <p>11,300 ACRES</p>	<p>Authorized Harvest: 4 bull elk, 3 antlerless elk</p> <ul style="list-style-type: none"> • Issue 2 bull elk tags for the period of July 15, 2017 through December 31, 2017. • Issue 2 antlerless elk tags for the period of September 15, 2017 through December 31, 2017. <p>Note: Avenales Ranch is <u>not</u> requesting the full approved allocation (“authorized harvest”) of tags.</p>	<ul style="list-style-type: none"> ➤ Install 2 “Elk Crossings” in barbed wire fence lines (East Fields and Eperly Ridge) to facilitate elk movement through property. ➤ Install new water point at entrance to Machesna Canyon to provide water for cattle and wildlife. ➤ Construct 10 brush piles around the water trough at the old homestead to provide cover for wildlife. ➤ Assist the Department in conducting a mountain lion study on the ranch over the next 3 years. ➤ Check on and maintain projects constructed in 2012.
<p>LEWIS RANCH</p> <p>SAN BENITO</p> <p>512 ACRES</p>	<p>Authorized Harvest: 1 bull elk, 1 antlerless elk. (1 bull elk tag available every <u>other</u> year)</p> <ul style="list-style-type: none"> • Issue 1 antlerless elk tag for the period of August 15, 2017 through December 31, 2017. <p>Note: This is an off cycle year where Lewis Ranch is only eligible for the antlerless tag.</p>	<ul style="list-style-type: none"> ➤ No cattle grazing on 512 acres to provide high quality habitat for tule elk, quail and other wildlife. ➤ Maintain perennial water for wildlife in four guzzlers. ➤ Maintain 12 brush piles by adding to them as needed. ➤ Disc 5 fields, seed with barley and fertilize to provide supplemental food and cover for wildlife. ➤ Clean and repair 4 existing owl boxes for the upcoming nesting season. ➤ Disc 1 field in spring, seed with safflower and fertilize to provide supplemental food and cover for wildlife. ➤ Plant 4 Red huckleberry bushes in each of the 3 guzzler locations. Fence to protect them. Water as needed to help establish.
<p>TRINCHERO RANCH</p> <p>SAN BENITO</p> <p>4,452 ACRES</p>	<p>Authorized Harvest: 3 bull elk, 1 antlerless elk</p> <ul style="list-style-type: none"> • Issue 2 bull elk tags for the period of July 15, 2017 through December 31, 2017. <p>Note: Trinchero Ranch is <u>not</u> requesting the full approved allocation (“authorized harvest”) of tags.</p>	<ul style="list-style-type: none"> ➤ Limited cattle grazing on approximately 4,000 acres in Black and Red Mountain pastures from December through May. ➤ Burn or “brush crush” 5 acres to stimulate new forage growth for wildlife. ➤ Reseed 5 acres of brushed areas with grasses and legumes to improve forage quality for wildlife. ➤ Construct 4-6 brush piles for use by wildlife.

Approve five-year Private Lands Wildlife Habitat Enhancement and Management Area (PLM) plans and 2017-2022 licenses for: (Pursuant to Section 601, Title 14, CCR)

- (A) Avenales Ranch (San Luis Obispo County)
- (B) Connolly and Corral Hollow Ranch (San Joaquin County)
- (C) Lewis Ranch (San Benito County)
- (D) Stover Ranch (Humboldt County)
- (E) Trincherro Ranch (San Benito County)

State of California
Department of Fish and Wildlife

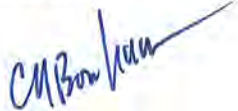
Memorandum

2017 MAR 21 AM 7:52

Date: March 13, 2017

To: Valerie Termini
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director



Subject: **Agenda Item for the April 26, 2017 Fish and Game Commission Meeting Private Lands Wildlife Habitat Enhancement and Management (PLM) Area Licenses**

The Department of Fish and Wildlife has reviewed the Annual and 5-year renewals for 56 properties in 16 counties consisting of approximately 570,621 acres.

The Annual renewal PLM areas were previously licensed under Commission regulations Section 601, Title 14, California Code of Regulations. Full payment was made for all tags used in 2016, and all habitat work was completed.

The 5-year renewal management plans are in compliance with Commission policy for private lands management. The applicants have identified the location where records will be kept and made available for inspection.

Habitat improvements accomplished under these plans will enhance and maintain wildlife resources on and around the PLM areas. The goals and objectives stated in the management plans are compatible with Department management plans for appropriate species in these areas. In addition, access to public lands will not be diminished under implementation of these management plans.

The Department recommends that the Commission approve the specified wildlife management plans, applications, and each 2017/18 harvest program under conditions specified in the attached table.

If you have any questions, please contact Ms. Victoria Barr at (916) 445-4034 or by email at victoria.barr@wildlife.ca.gov.

Attachment

Valerie Termini, Executive Director
Fish and Game Commission
March 13, 2017
Page 2

cc: Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

T.O. Smith, Branch Chief
Wildlife Branch
Timothy.Smith@wildlife.ca.gov

Craig Stowers
Environmental Program Manager
Wildlife Branch
craig.stowers@wildlife.ca.gov

Stuart Itoga
Senior Environmental Scientist
Wildlife Branch
stuart.itoga@wildlife.ca.gov

Victoria Barr
Environmental Scientist
Wildlife Branch
victoria.barr@wildlife.ca.gov

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
NORTHERN REGION		
3D RANCH DEER ZONE B5 TEHAMA 1,732 ACRES	<p>Authorized Harvest: 7 buck deer forked horn or better, 5 bear and 75 quail</p> <ul style="list-style-type: none"> • Issue 7 buck deer tags for the period of August 15, 2017 through November 30, 2017. • No more than 4 buck deer may be harvested after October 22, 2017. • Issue 5 bear tags for the period of August 15, 2017 through December 31, 2017 or when the season closes because the Department has determined that 1,700 bears have been harvested. • Issue 75 quail seals for the period of September 1, 2017, through February 28, 2018. 	<ul style="list-style-type: none"> ➤ Mechanically crush 15 acres of decadent brush to improve forage for wildlife. ➤ Maintain a total of 7 acres of forage plots planted with legumes and clover by replanting as necessary and irrigating. ➤ Maintain 4 water sources to provide water for wildlife by checking for broken pipes and repairing as necessary. ➤ Remove at least ¼ mile of unnecessary interior fencing to prevent wildlife entanglement.
ALEXANDRE ECODAIRY FARMS PLM DEL NORTE 1,728 ACRES	<p>Authorized Harvest: 2 bull elk and 4 antlerless elk</p> <ul style="list-style-type: none"> • Issue 2 bull elk tags for the period of September 1, 2017 through December 31, 2017. • Issue 4 antlerless elk tags for the period of October 1, 2017 through December 31, 2017. 	<ul style="list-style-type: none"> ➤ Create 5 acres of perennial wetlands by using heavy equipment to excavate areas and modify existing surface drainage.
AMANN RANCH MENDOCINO 369 ACRES	<p>Authorized Harvest: 1 bull elk</p> <ul style="list-style-type: none"> • Issue 1 bull elk tag for the period of August 1, 2017 through November 30, 2017. 	<ul style="list-style-type: none"> ➤ Irrigate at least 60 acres of pasture for use by wildlife. ➤ Maintain 16 water troughs by ensuring they are holding adequate water for wildlife. ➤ Leave unharvested the second cutting of hay on 342 acres. This will retain approximately 500 tons of forage accessible to elk.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
AMANN RANCH CONT.		<ul style="list-style-type: none"> ➤ Install 1 rail-type elk fence crossing. The top cross rail will be no higher than 48" above the ground to accommodate adult elk and the bottom cross rail will be no lower than 22" to facilitate crossing by elk calves.
BELL RANCH DEER ZONE C4 TEHAMA 15,000 ACRES	<p>Authorized Harvest: 19 buck deer forked horn or better</p> <ul style="list-style-type: none"> • Issue 22 buck deer tags to take 19 buck deer for the period October 21, 2017 through December 3, 2017. • No more than 3 buck deer may be harvested after November 30, 2017. • In no case shall the number of tags issued be used to exceed the authorized harvest. • The number of tag holders actively hunting shall not exceed the number of deer available to harvest. 	<ul style="list-style-type: none"> ➤ Maintain 16 previously developed springs by checking for broken pipes and repairing as necessary. ➤ Complete construction on 3 new water sources. Each water source will consist of a 300 gallon tank protected by bear-resistant fencing, an 8x10' roof/collection apron and a drinking trough. ➤ Maintain 6 reservoirs by inspecting spillways and dams for damage and making any necessary repairs. ➤ Mechanically treat (by crushing with a bull dozer and masticating) at least 15 acres of decadent brush to encourage the growth of nutritious deer forage. ➤ Remove at least ¼ mile of woven wire interior fencing to enhance wildlife movement. ➤ Restrict off-road vehicle use within the recent brush treatment areas and minimize disturbance to wildlife. ➤ Maintain 4 wood duck boxes around Rattlesnake Pond by checking use and replacing nesting material as necessary.
BIG LAGOON PLM HUMBOLDT 109,367 ACRES	<p>Authorized Harvest: 3 bull elk and 2 antlerless elk</p> <ul style="list-style-type: none"> • Issue 3 bull elk tags for the period of August 1, 2017 through October 31, 2017. • Issue 2 antlerless elk tags for the period of October 1, 2017 through October 31, 2017. 	<ul style="list-style-type: none"> ➤ All habitat projects have been completed under the Big Lagoon PLM 5-year management plan (contributing and delivering logs and associated root wads to a stream restoration site). Therefore, no habitat work is required during this license year.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
CARLEY RANCH DEER ZONE B1 MENDOCINO 1,660 ACRES	<p>Authorized Harvest: 22 deer of which no more than 15 may be forked horn or better buck deer and 7 may be antlerless deer</p> <ul style="list-style-type: none"> • Issue 10 either-sex deer tags for the period of August 1, 2017 through November 30, 2017. • No antlerless deer shall be harvested before September 15, 2017. • No more than 7 buck deer may be harvested after October 22, 2017. • On or before October 15, 2017, the licensee may request (in writing) up to 12 additional either-sex deer tags to accomplish the authorized harvest. 	<ul style="list-style-type: none"> ➤ Maintain all previously developed water sources (3 springs and 4 guzzlers; guzzlers total 3,200 gallons) to provide water for wildlife. Maintenance includes repairing broken and deteriorating pipes and other components. ➤ Burn at least 15 acres of decadent chaparral and/or annual grasses to increase forage for wildlife. ➤ Use cattle to help remove thatch buildup of medusahead and other nonnative grasses. Cattle will be limited to 30 head and grazing will only occur from December through May. ➤ Maintain the wildlife-friendly livestock exclusion fencing around developed springs by repairing any damage. ➤ Reseed a 5 acre dryland food plot if the current alfalfa, chicory, and plantain crop has less than 50% cover. ➤ Irrigate the 1 acre alfalfa food plot during the dry season. The plot is fenced with wildlife-friendly fencing to exclude livestock. ➤ Use a brush rake to remove 15 acres of decadent chamise to improve browse and reduce the fire hazard.
CHRISTENSEN RANCH DEER ZONE B1 MENDOCINO 1,061 ACRES	<p>Authorized Harvest: 22 deer of which no more than 15 may be forked horn or better buck deer and 7 may be antlerless deer</p> <ul style="list-style-type: none"> • Issue 22 either-sex deer tags for the period of August 1, 2017 through November 30, 2017. • No antlerless deer shall be harvested before September 15, 2017. • No more than 7 buck deer may be harvested after October 22, 2017. • On or before October 25, 2017, the licensee may request (in writing) up to 12 additional either-sex tags to accomplish the authorized harvest. 	<ul style="list-style-type: none"> ➤ Maintain a well on the property to fill the numerous water tanks that provide water to troughs for wildlife use. ➤ Annually check 6 developed springs and repair any broken water pipes. ➤ Irrigate and reseed the $\frac{3}{4}$ acre and the $\frac{1}{2}$ acre <i>Brassica</i> forage plots to provide green forage during summer, and reseed areas that did not grow. ➤ Plant <i>Brassica</i> seed in the fall by manually seeding and raking in fresh pig rooting areas. The extent of this activity will depend on pig activity but is expected to represent at least 6 sites this year, scattered throughout the ranch.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
CHRISTENSEN RANCH CONT.		<ul style="list-style-type: none"> ➤ Exclude cattle from the ranch; no cattle leases are proposed under the PLM 5-year management plan. ➤ Improve fish habitat in Woodman Creek by continuing to work with California Trout and State Agencies on the Woodman Creek Barrier Removal Project. The project proponents will be provided open access to the PLM property through 2018.
CORNING LAND AND CATTLE COMPANY DEER ZONE B5 TEHAMA 6,200 ACRES	<p>Authorized Harvest: 7 buck deer forked horn or better, 3 antlerless deer, and 150 quail</p> <ul style="list-style-type: none"> • Issue 7 buck deer tags and 3 antlerless deer tags for the period of August 5, 2017 through November 30, 2017. • Issue 150 quail seals for the period of September 1, 2017, through February 28, 2018. 	<ul style="list-style-type: none"> ➤ Retain 8 irrigated forage plots, totaling 20 acres planted in a grain/vetch/forb combination for use by wildlife. ➤ Continue reduced livestock numbers at 150 head and graze only from December 1, 2017 through May 1, 2018. ➤ Develop a 1 acre irrigated forage plot of alfalfa in an area that lacks green forage for use by wildlife. ➤ Maintain 25 acres of canola for wildlife use. ➤ Mechanically treat at least 20 acres of decadent brush to improve wildlife forage.
COTTRELL RANCH DEER ZONE B1 HUMBOLDT 6,500 ACRES	<p>Authorized Harvest: 12 deer of which no more than 10 may be antlerless deer, 1 bull elk, and 1 antlerless elk</p> <ul style="list-style-type: none"> • Issue 12 either-sex deer tags for the period of July 15, 2017 through December 15, 2017. • No antlerless deer shall be harvested before October 1, 2017. • No more than 7 buck deer may be harvested after October 22, 2017. • Buck deer must be forked horn or better. • Issue 1 bull elk tag for the period of August 1, 2017 through December 15, 2017. • Issue 1 antlerless elk tag for the period of October 1, 2017 through December 15, 2017. 	<ul style="list-style-type: none"> ➤ Remove encroaching conifers less than or equal to 4 inches diameter-at-breast-height (DBH) from at least 40 acres of oak woodlands in sections 25, 28, 29, 30, 31, 32, 33, or 36.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
DIAMOND C OUTFITTERS DEER ZONE B1 HUMBOLDT 3,200 ACRES	<p>Authorized Harvest: 17 deer of which no more than 10 may be antlerless deer</p> <ul style="list-style-type: none"> • Issue 17 either-sex deer tags for the period of July 15, 2017 through December 15, 2017. • No antlerless deer shall be harvested before October 1, 2017. • No more than 7 forked horn or better buck deer may be harvested after October 22, 2017. 	<ul style="list-style-type: none"> ➤ Remove encroaching conifers less than or equal to 6 inches diameter-at-breast height from at least 20 acres of oak woodlands in Tracts 1, 3, or 4.
DUNCAN CREEK RANCH DEER ZONE B5 SHASTA 1,366 ACRES	<p>Authorized Harvest: 6 buck deer forked horn or better</p> <ul style="list-style-type: none"> • Issue 8 buck deer tags for the period September 1, 2017 through November 30, 2017. • In no case shall the number of tags issued be used to exceed the authorized harvest. • The number of tag holders actively hunting shall not exceed the number of deer available to harvest. 	<ul style="list-style-type: none"> ➤ Burn at least 50 acres of decadent brush to improve wildlife forage.
EDEN VALLEY RANCH DEER ZONE B1 MENDOCINO 20,879 ACRES	<p>Authorized Harvest: 8 bull elk, 7 antlerless elk, 20 forked horn or better buck deer, and 5 antlerless deer</p> <ul style="list-style-type: none"> • Issue 6 bull elk tags for the period of July 9, 2017 through December 17, 2017. • Issue 7 antlerless elk tags for the period of September 15, 2017 through December 17, 2017. • On or before October 15, 2017, the licensee may request (in writing) up to 2 additional bull elk tags to accomplish the authorized harvest. 	<ul style="list-style-type: none"> ➤ Plant 80 acres of grain in the Valley to improve wildlife forage. ➤ Maintain 23 water sources, including 12 springs by repairing any damaged parts. ➤ Plant and irrigate a 3 acre area with oats, legumes, and grasses outside of the Valley Area and use wildlife friendly fencing to exclude livestock. ➤ Treat at least 40 acres of yellow star thistle in the main Valley Area with appropriate herbicides. ➤ Exclude livestock from 10,000 acres on the east side of Eden Valley to improve wildlife forage.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
EDEN VALLEY RANCH CONT.	<ul style="list-style-type: none"> • Issue 20 buck deer tags for the period of July 9, 2017 through November 30, 2017. • No more than 7 buck deer may be taken after October 22, 2017. • Issue 5 antlerless deer tags for the period of September 15, 2017 through November 30, 2017. 	<ul style="list-style-type: none"> ➤ Monitor and maintain the 4 rail-type elk crossings. ➤ Construct at least 4 brush piles in Paradise pasture to provide wildlife cover. ➤ Burn at least 10 acres of non-native weeds to improve wildlife habitat. ➤ To improve wildlife forage, manage livestock grazing in the 4 pastures on a rest-rotation basis, with cattle primarily spending spring/summer in the upland pastures and fall/winter in the lowland pastures. ➤ Remove 1 mile of unnecessary fence in Pigtail pasture to reduce the potential for wildlife entanglement. ➤ Irrigate and fertilize 30 acres of triticales in Toni Field on the eastside of the ranch. ➤ Improve irrigation in the 3 acre spring/wildlife area by contouring the field in the southwest part of valley, east of Stage Coach Road.
ELK CREEK RANCH DEER ZONE B1 MENDOCINO 2,241 ACRES	<p>Authorized Harvest: 7 buck deer forked horn or better</p> <ul style="list-style-type: none"> • Issue 7 buck deer tags for the period of July 8, 2017 through November 30, 2017. • No more than 3 buck deer may be taken after October 22, 2017. • On or before October 15, 2017, the licensee may request (in writing) up to 3 additional buck deer tags to accomplish the authorized harvest. • In no case shall the number of tags issued be used to exceed the authorized harvest. • The number of tag holders actively hunting shall not exceed the number of deer available to harvest. 	<ul style="list-style-type: none"> ➤ Exclude livestock grazing from Bennett Valley (15 acres) to improve wildlife forage and cover. ➤ Maintain the livestock exclusion fencing around the ponds in sections 8 and 5. ➤ Maintain spring and water tank to irrigate the southern portion of Bennett Valley. ➤ Mechanically treat at least 20 acres of decadent brush to improve wildlife forage and create 10 brush piles to provide wildlife cover.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
<p>FOUR PINES RANCH</p> <p>DEER ZONE B1</p> <p>MENDOCINO</p> <p>2,001 ACRES</p>	<p>Authorized Harvest: 12 buck deer forked horn or better and 4 antlerless deer</p> <ul style="list-style-type: none"> • Issue 12 buck deer tags and 4 antlerless deer tags for the period of July 16, 2017 through November 30, 2017. • No more than 6 buck deer may be harvested after October 22, 2017. • No antlerless deer shall be harvested before September 15, 2017. 	<ul style="list-style-type: none"> ➤ Maintain 6 previously improved springs and 2 existing ponds. ➤ Develop 1 spring in section 1, 7, 11, 12, or 13. ➤ Plant a ¼ acre forage plot with legumes for wildlife use in section 1, 7, 11, 12, or 13. ➤ Treat ¼ acre of invasive weeds in section 1, 7, 11, 12, or 13, by hand manipulation or herbicides, to allow native vegetation to grow. ➤ Remove 100 feet of interior fence to enhance wildlife passage in section 1, 7, 11, 12, or 13. ➤ Create a ¼ acre opening through dense brush in section 1, 7, 11, 12, or 13 to enhance wildlife access to forage. ➤ Remove encroaching conifer seedlings and saplings in ¼ acre of oak woodlands in section 1, 7, 11, 12, or 13. ➤ Restrict livestock grazing to no more than 50 head of cattle during the winter and spring. ➤ Plant 50 willow shoots at existing water sources; improve existing willow patches by trimming to encourage growth. ➤ Create at least 3 new brush piles annually for wildlife cover.
<p>FULTON RANCH</p> <p>HUMBOLDT</p> <p>2,844 ACRES</p>	<p>Authorized Harvest: 1 bull elk</p> <ul style="list-style-type: none"> • Issue 1 bull elk tag for the period of August 15, 2017 through October 31, 2017. 	<ul style="list-style-type: none"> ➤ All habitat projects have been completed under the Fulton Ranch 5-year management plan (removal of encroaching conifers from oak woodlands). Therefore, no habitat work is required during this license year.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
HUNTER RANCH DEER ZONE B1 HUMBOLDT 16,103 ACRES	<p>Authorized Harvest: 20 deer of which no more than 5 may be antlerless deer and 1 bull elk</p> <ul style="list-style-type: none"> • Issue 20 either-sex deer tags for the period of July 15, 2017 through November 30, 2017. • No antlerless deer shall be harvested before October 1, 2017. • Buck deer must be forked horn or better. • No more than 7 buck deer may be harvested after October 22, 2017. • Issue 1 bull elk tag for the period September 1, 2017 through September 30, 2017. 	<p>➤ All habitat projects have been completed under the Hunter Ranch 5-year management plan (removal of encroaching conifers from oak woodlands). Therefore, no habitat work is required during this license year.</p>
KLAMATH PLM HUMBOLDT 32,594 ACRES	<p>Authorized Harvest: 3 bull elk and 2 antlerless elk</p> <ul style="list-style-type: none"> • Issue 3 bull elk tags for the period of August 15, 2017 through October 31, 2017. • Issue 2 antlerless elk tags for the period of October 1, 2017 through October 31, 2017. 	<p>➤ All habitat projects have been completed under the Klamath PLM 5-year management plan (removal of encroaching conifers from oak woodlands). Therefore, no habitat work is required during this license year.</p>
MILLER-ERIKSEN RANCH DEER ZONE B1 MENDOCINO 1,000 ACRES	<p>Authorized Harvest: 25 deer of which no more than 17 may be forked horn or better buck deer and 8 may be antlerless deer and 1 bull elk</p> <ul style="list-style-type: none"> • Issue 14 either-sex deer tags for the period of July 15, 2017 through November 30, 2017. • Issue 1 bull elk tag for the period of August 1, 2017 through November 30, 2017. • No antlerless deer shall be harvested before September 15, 2017. • No more than 9 buck deer may be harvested after October 22, 2017. 	<p>➤ Maintain 27 water sources to provide additional water for wildlife by replacing floats, rusted and/or cracked pipes, leaking tanks and clogged lines.</p> <p>➤ Hand thin at least ½ acre of understory conifer and decadent browse species in oak woodlands habitat to provide forage for wildlife.</p> <p>➤ Plant 100 pounds of perennial bunch grass seed mix across 4 plots that are approximately 200 square feet in size to provide food and cover for wildlife.</p> <p>➤ Plant 100 pounds of commercial pasture seed mix in glade areas that have been damaged by wild pig rooting.</p> <p>➤ Burn 1 acre of decadent chaparral brush to provide forage for wildlife.</p>

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
MILLER-ERIKSEN RANCH CONT.	<ul style="list-style-type: none"> On or before November 1, 2017, the licensee may request (in writing) up to 11 additional either-sex tags to accomplish the authorized harvest. The number of deer tag holders actively hunting shall not exceed the number of deer available to harvest. 	<ul style="list-style-type: none"> Maintain 100 brush piles throughout the property to provide wildlife cover. Maintain the reduced number of livestock, not to exceed 25 cow/calf pairs.
POTTER VALLEY WILDLIFE MANAGEMENT AREA MENDOCINO 7,767 ACRES	<p>Authorized Harvest: 6 bull elk and 10 antlerless elk</p> <ul style="list-style-type: none"> Issue 3 bull elk tags for the period of August 1, 2017 through December 1, 2017. Issue 7 antlerless elk tags for the period of September 15, 2017 through December 1, 2017. On or before October 12, 2017, the licensee may request (in writing) up to 3 bull tags and 3 additional antlerless tags to accomplish the authorized harvest. 	<ul style="list-style-type: none"> Irrigate the 5 acre permanent pastures on the Guntly Cold Creek subunit to provide summer forage for wildlife. Maintain the livestock exclusion fence around the 5 acre permanent pasture on the Guntly Cold Creek subunit. Maintain the livestock exclusion fence along 1.4 miles of the Russian River. Maintain the livestock exclusion fence on the 4-acre pond on the Mathews subunit. Continue reduced livestock numbers at 120 cow/calf pairs. Maintain all elk crossings. Maintain 9 springs by checking annually and repairing as necessary. Maintain the bull elk wallow. Maintain the new water system which includes a well, 2,000 gallon storage tank, a pump, a generator, and a 500 gallon water trough to provide water for elk. Fertilize 10 acres of rangeland pasture to increase forage for wildlife. Maintain the 825 acre livestock exclusion on the Guntly Cold Creek Subunit by checking for damaged fencing and repairing as necessary.
R WILD HORSE RANCH DEER ZONE B5 TEHAMA 4,000 ACRES	<p>Authorized Harvest: 4 buck deer forked horn or better</p> <ul style="list-style-type: none"> Issue 4 buck deer tags for the period of November 27, 2017 through November 30, 2017. 	<ul style="list-style-type: none"> Mechanically treat (by crushing) at least 10 acres of decadent brush to promote new growth and create wildlife travel corridors. Plant 10 acres of brush treatment areas with legumes and grasses. Create a ½ acre water catchment basin to provide a water source for wildlife. Build at least 10 brush piles (each 20 feet in diameter) to provide escape cover for wildlife.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
RAINBOW RIDGE PLM DEER ZONE B4 HUMBOLDT 20,321 ACRES	<p>Authorized Harvest: 15 buck deer forked horn or better</p> <ul style="list-style-type: none"> • Issue 15 buck deer tags for the period of August 1, 2017 through November 30, 2017. • No more than 8 buck deer may be harvested after October 1, 2017. 	<ul style="list-style-type: none"> ➤ Remove encroaching conifers less than or equal to 8 inches diameter-at-breast height from at least 20 acres of oak woodlands and prairies.
REDWOOD HOUSE RANCH DEER ZONE B1 HUMBOLDT 8,419 ACRES	<p>Authorized Harvest: 20 buck deer forked horn or better and 1 bull elk</p> <ul style="list-style-type: none"> • Issue 20 buck deer tags for the period of August 12, 2017 through November 30, 2017. • Issue 1 bull elk tag for the period of September 16, 2017 through October 8, 2017. • No more than 7 buck deer may be harvested after October 22, 2017. 	<ul style="list-style-type: none"> ➤ Remove encroaching conifers less than or equal to 6 inches diameter-at-breast height from at least 40 acres of oak woodlands and prairies.
ROBERTS RANCH DEER ZONE X1 MODOC 2,313 ACRES	<p>Authorized Harvest: 2 buck deer forked horn or better and 1 buck pronghorn antelope</p> <ul style="list-style-type: none"> • Issue 2 buck deer tags for the period of October 1, 2017 through November 30, 2017. • No person shall take more than 1 buck deer annually in the X zones. • Issue 1 buck pronghorn antelope tag for the period of August 20, 2017 through September 20, 2017. 	<ul style="list-style-type: none"> ➤ Remove 300 regenerating western junipers (less than 6 inches diameter at breast height) within previous juniper removal areas to create more forage for wildlife. ➤ In a separate portion of the ranch, remove all western junipers from at least 3 acres. ➤ Maintain all previously developed springs, levees, and ponds by ensuring that recent earthwork (levees, water control structures and pipes) continue to function as designed. ➤ Restrict cattle grazing to 50 cow/calf pairs, a level much reduced from what occurred prior to the current ownership.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
SANHEDRIN RANCH DEER ZONE B1 MENDOCINO 11,595 ACRES	<p>Authorized Harvest: 15 buck deer forked horn or better</p> <ul style="list-style-type: none"> • Issue 15 buck deer tags for the period of July 8, 2017 through November 30, 2017. • No more than 7 buck deer may be taken after October 22, 2017. • On or before October 15, 2017, the licensee may request (in writing) up to 5 additional buck deer tags to accomplish the authorized harvest. • In no case shall the number of tags issued be used to exceed the authorized harvest. • The number of tag holders actively hunting shall not exceed the number of deer available to harvest. 	<ul style="list-style-type: none"> ➤ Exclude all livestock grazing from the PLM area to improve forage and cover for wildlife. ➤ Maintain 5 developed springs. ➤ Improve spring S4 by cleaning and digging out silt to improve water availability. ➤ Mechanically treat 20 acres of brush with a tractor and by hand. ➤ Create at least 10 brush piles for use by wildlife.
SEVEN SPRINGS RANCH DEER ZONE A MENDOCINO 2,250 ACRES	<p>Authorized Harvest: 9 buck deer forked horn or better</p> <ul style="list-style-type: none"> • Issue 9 buck deer tags for the period of July 8, 2017 through November 30, 2017. • No more than 4 buck deer may be harvested after September 24, 2017. 	<ul style="list-style-type: none"> ➤ Exclude livestock grazing from the PLM area to increase habitat quality for wildlife. ➤ Plant 5 pounds of clover and vetch seed on roads and cut banks. ➤ Mechanically treat 1 acre of Douglas-fir saplings encroaching into oak woodlands at Cow Springs.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
SHAMROCK RANCH DEER ZONE B1 MENDOCINO 16,400 ACRES	<p>Authorized Harvest: 8 bull elk, 10 antlerless elk, 50 deer of which no more than 30 may be forked horn or better buck deer and 20 may be antlerless deer</p> <ul style="list-style-type: none"> • Issue 6 bull elk tags for the period of July 12, 2017 through November 30, 2017. • Issue 5 antlerless elk tags for the period of September 15, 2017 through November 30, 2017. • On or before October 15, 2017, the licensee may request (in writing) up to 2 additional bull elk tags to accomplish the authorized harvest. • On or before October 15, 2017, the licensee may request (in writing) up to 5 additional antlerless elk tags to accomplish the authorized harvest. • Issue 35 either-sex deer tags for the period of July 12, 2017 through November 30, 2017. • No antlerless deer shall be harvested before September 15, 2017. • No more than 15 buck deer may be taken after October 22, 2017. • On or before October 15, 2017, the licensee may request (in writing) up to 15 additional either-sex deer tags to accomplish the authorized harvest. 	<ul style="list-style-type: none"> ➤ Construct a ½ acre pit pond in the Meyers livestock enclosure to provide water and riparian habitat for wildlife. Water will be provided to the pond by installing a solar pump on an existing well. ➤ Mechanically treat and/or burn approximately 2 acres of decadent brush in the Farley Peak and/or Meyers Pasture sub-areas to improve wildlife forage. ➤ Fertilize and irrigate 15 acres of hay meadow from mid-July through mid-September to provide forage for wildlife. ➤ Maintain the livestock exclusion fencing along the tributary to Long Valley Creek and the Meyers Pasture sub-pasture area by checking for damage and repairing as necessary. ➤ Inspect and repair the fencing at the 3-acre Horse Hollow spring livestock enclosure. ➤ Repair 1 elk crossing in the Meyers Pasture sub-area. ➤ Limit cattle grazing on approximately 200 acres in the Anderson Pasture sub-area to mid-October through mid-December. ➤ Mechanically hedge 1/8 of an acre of blackberry and/or wild rose brush in the Anderson pasture sub-area to rejuvenate browse for wildlife. ➤ Create 3 new brush piles in the Meyers Pasture sub-area. ➤ Burn 4 mature brush piles in the Meyers Pasture and Anderson Pasture sub-areas to provide ash for deer use. Subsequently seed the burn areas with a legume mix to improve forage for wildlife. ➤ Thin ¼ acre of dense mature tan oak in the Meyers Pasture sub-area to rejuvenate browse and improve acorn production for wildlife. ➤ Remove 660 feet of old woven wire fencing in the Grosscup sub-area to reduce wildlife entanglement.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
SMITH RIVER PLM HUMBOLDT 24,949 ACRES	<p>Authorized Harvest: 3 bull elk and 6 antlerless elk</p> <ul style="list-style-type: none"> • Issue 3 bull elk tags for the period of September 1, 2017 through October 31, 2017. • Issue 6 antlerless elk tags for the period of October 1, 2017 through October 31, 2017. • 5 of the antlerless elk tags will be made available for CDFW to distribute to licensed hunters through the SHARE Program. The SHARE Program will reimburse Smith River PLM for the tag fees, but Smith River PLM will otherwise provide the hunts free of charge. 	<p>➤ All habitat projects have been completed under the Smith River PLM 5-year management plan (enhancing coho salmon habitat on Rowdy Creek). Therefore, no habitat work is required during this license year.</p>
STACKHOUSE RANCH DEER ZONE C3 SHASTA 400 ACRES	<p>Authorized Harvest: 2 deer of which no more than 1 may be antlerless deer</p> <ul style="list-style-type: none"> • Issue 2 either-sex deer tags for the period of September 1, 2017 through November 30, 2017. • No more than 1 buck deer may be harvested after October 22, 2017. • Buck deer must be forked horn or better. • No antlerless deer shall be harvested before September 15, 2017. 	<p>➤ Complete repair of the incised and leaking headwall of the dam at the Lower pond to provide water for wildlife.</p> <p>➤ Re-treat invasive blackberry thickets above and below the Lower Pond with herbicide.</p> <p>➤ Plant at least 1-2 willow and alder stems every 8 feet around the edge of the Barn Pond to provide cover for wildlife.</p> <p>➤ Maintain 7 acres of meadow by removing invasive blackberries to provide forage for wildlife.</p> <p>➤ Enhance 43 acres of conifer habitat by removing non-native understory shrubs from most of the area. At least 3 acres dominated native vegetation will be left intact.</p>

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
<p>STEWART RANCH</p> <p>DEER ZONE B1</p> <p>TRINITY</p> <p>11,006 ACRES</p>	<p>Authorized Harvest: 36 buck deer forked horn or better and 5 antlerless deer</p> <ul style="list-style-type: none"> • Issue 36 buck deer tags for the period of August 1, 2017 through November 30, 2017. Of those tags, 10 shall be provided to apprentice hunters. • Issue 5 antlerless deer tags for the period of September 15, 2017 through November 30, 2017. • No more than 18 buck deer may be harvested after October 22, 2017. • On or before October 15, 2017, the licensee may request (in writing) up to 5 additional buck tags to accomplish the authorized harvest. • In no case shall the number of tags issued be used to exceed the authorized harvest. • The number of tag holders actively hunting shall not exceed the number of deer available to harvest. 	<ul style="list-style-type: none"> ➤ Remove encroaching conifers less than or equal to 6 inches diameter-at-breast height from at least 20 acres of oak woodland. ➤ Replant 4 irrigated food plots (10 acres total) with clover, chicory, and brassica to provide forage for wildlife. ➤ Replant 31 acres of dry land forage plots in grain and forbs to provide forage for wildlife. ➤ Maintain electric livestock exclusion fencing around all fenced food plots. ➤ Install 1 wood duck nest box along Kekawaka Creek. ➤ Check use and replace nesting material in 15 wood duck nest boxes. ➤ Maintain 8 water sources (ponds and springs) with cattle exclusion fencing by inspecting and repairing any damaged parts. ➤ Plant 25 willow or alder stems around 8 water sources if needed to regenerate riparian cover for wildlife. ➤ Maintain ½ mile of livestock exclusion fencing along Kekawaka Creek to improve riparian vegetation by inspecting and repairing any damaged parts.
<p>SUMMER CAMP RANCH</p> <p>DEER ZONE B1</p> <p>MENDOCINO</p> <p>38,502 ACRES</p>	<p>Authorized Harvest: 80 buck deer forked horn or better and 1 bull elk</p> <ul style="list-style-type: none"> • Issue 80 buck deer tags for the period of July 8, 2017 through November 30, 2017. • Issue 1 bull elk tag for the period of July 8, 2017 through November 30, 2017. • No more than 40 buck deer may be taken after October 22, 2017. • On or before October 15, 2017, the licensee may request (in writing) up to 20 additional buck deer tags and 1 additional bull elk tag to accomplish the authorized harvest. 	<ul style="list-style-type: none"> ➤ Maintain 3 irrigated wildlife forage areas, totaling 12 acres. ➤ Develop 1 spring by cleaning out and installing an off-site water trough. ➤ Exclude livestock from a 300 square foot area around 1 spring by installing wildlife-friendly fencing. ➤ Maintain 2 riparian exclusion areas totaling ¾ acre by repairing any damaged fencing and planting willows inside the 2 enclosures. ➤ Maintain 13 developed springs by checking and repairing any damage. ➤ Exclude livestock grazing from mid-June through October.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
SUMMER CAMP RANCH CONT.	<ul style="list-style-type: none"> In no case shall the number of tags issued be used to exceed the authorized harvest. The number of deer tag holders actively hunting shall not exceed the number of deer available to harvest. 	<ul style="list-style-type: none"> ➤ Remove encroaching conifers less than or equal to 6 inches diameter-at-breast height from at least 10 acres of oak woodlands. ➤ Construct a minimum of 20 brush piles within oak woodland habitat. ➤ Maintain approximately 7 miles of riparian fencing on the Eel River and repair any damage. ➤ Maintain a minimum of 10 miles of road to prevent sedimentation into the Eel River system. Road maintenance will generally include grading roads, pulling inside ditches where they exist, shaping the road surface to promote proper drainage, and inspection/repair of drainage facilities such as cross drains and culverts. ➤ Burn 10 acres of grasslands to rejuvenate vegetation.
TRAVIS RANCH DEER ZONE B1 TRINITY 11,907 ACRES	<p>Authorized Harvest: 15 deer of which no more than 5 may be antlerless deer</p> <ul style="list-style-type: none"> Issue 15 either-sex deer tags for the period of July 15, 2017 through November 30, 2017. Buck deer must be forked horn or better. No antlerless deer shall be harvested before September 15, 2017. No more than 7 buck deer may be harvested after October 22, 2017. 	<ul style="list-style-type: none"> ➤ Remove encroaching conifers less than or equal to 12 inches diameter-at-breast height from at least 20 acres of oak woodland in Areas I and G. ➤ Improve a spring in Area H by installing wildlife friendly fence around the natural spring area to keep livestock in order to provide water and riparian habitat for wildlife. ➤ Treat at least 70 acres of yellow star thistle with herbicide and biological controls in Areas J and F.
WIGGINS RANCH HUMBOLDT 16,657 ACRES	<p>Authorized Harvest: 2 bull elk and 2 antlerless elk</p> <ul style="list-style-type: none"> Issue 2 bull elk tags for the period of August 15, 2017 through October 31, 2017. Issue 2 antlerless elk tags for the period of October 1, 2017 through November 14, 2017. 	<ul style="list-style-type: none"> ➤ All habitat projects have been completed under the PLM 5-year management plan (removal of encroaching conifers from oak woodlands). Therefore, no habitat work is required during this license year.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
WIGGINS RANCH CONT.	<ul style="list-style-type: none"> 1 of the antlerless elk tags will be made available for CDFW to distribute to an Apprentice Hunter through the SHARE Program. The SHARE Program will reimburse Wiggins Ranch for the tag fee, but the Wiggins Ranch will otherwise provide the hunt free of charge. 	
BAY DELTA REGION		
BUCKEYE RANCH DEER ZONE A SOLANO 3,000+ ACRES	<p>Authorized Harvest: 12 bucks and 4 antlerless deer tags</p> <ul style="list-style-type: none"> Issue 12 buck deer tags to take forked horn or better bucks for the period of the July 8, 2017 to November 30, 2017. No more than 4 buck may be taken after the close of A Zone deer rifle hunt. Issue 4 antlerless deer tags for the period of the July 8, 2017 in July to November 30, 2017. 	<ul style="list-style-type: none"> ➤ Install 3 wildlife guzzler. ➤ Inspect and maintain on-site wildlife water sites 2 times per year. ➤ High-blade 3 to 4 acres of chamise-chaparral before July 15, 2017. ➤ Construct 3 piles of chamise-chaparral or other woody vegetation for bird nesting habitat. Piles should measure at least 15' x 15' wide x 4' tall. ➤ Disk and plant 4 one-acre wildlife habitat plots. The planting mix should contain a mixture of forbs such as clover. NOTE: safflower requires reliable water throughout the growing season; consider drought tolerant alfalfa.
COON CREEK RANCH DEER ZONE A SANTA CLARA 1,650 ACRES	<p>Authorized Harvest: 8 buck deer</p> <ul style="list-style-type: none"> Issue 8 buck deer tags to take forked horn or better bucks for the period of July 11, 2017 through November 30, 2017. 	<ul style="list-style-type: none"> ➤ Brush approximately 30 new acres of chaparral. ➤ Plant seed/cover crops on small areas for quail and other wildlife. ➤ Develop one spring. ➤ Limit cattle grazing to 80 acres of ranch. ➤ Conduct morning deer surveys on property in October.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
<p>PACHECO RANCH</p> <p>DEER ZONE A</p> <p>SANTA CLARA</p> <p>673+ ACRES</p>	<p>Authorized Harvest: 4 buck deer</p> <ul style="list-style-type: none"> • Issue 4 buck deer tags to take forked horn or better bucks for the period of the July 8, 2017 to November 30, 2017. 	<ul style="list-style-type: none"> ➤ Mechanical removal (0.5 acre minimum) and hand pruning (0.5 acre minimum) of decadent chamise. Broadcast native seed in cleared area. ➤ Enclose at least 25 blue oak seedlings with no-climb horse fencing. ➤ Collect and plant at least 100 blue oak acorns in open grassy area placing 3 acorns per hole. ➤ Remove approximately 1,000 yards of bottom wire from internal barb wire fencing. Completely remove fence where appropriate. ➤ Plant native willows, maple and/or other riparian vegetation at waterworks spring location.
CENTRAL REGION		
<p>ALEXANDER RANCH</p> <p>DEER ZONE A</p> <p>MONTEREY</p> <p>786 ACRES</p>	<p>Authorized Harvest: 1 bull elk, 2 antlerless elk and 1 forked horn or better buck deer</p> <ul style="list-style-type: none"> • Issue 1 bull elk tag for the period of July 2, 2017 through December 31, 2017. • Issue 2 antlerless elk tags for the period of August 15, 2017 through December 31, 2017. • Issue 1 buck deer tag to take a forked horn or better buck deer for the period July 2, 2017 through November 30, 2017. 	<ul style="list-style-type: none"> ➤ Maintain existing springs, troughs and reservoirs to provide water for wildlife. ➤ Limit cattle stocking rate to 75 animals to enhance and provide habitat and feed for wildlife. ➤ Create 5 brush piles for use by wildlife. ➤ Plant 5 acres to benefit wildlife forage (elk and deer). ➤ Conduct 2 elk counts per year (count deer when possible too).

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
<p>CAMP 5 OUTFITTERS - ROTH RANCH PLM</p> <p>DEER ZONE A</p> <p>MONTEREY/SAN LUIS OBISPO</p> <p>5,400 ACRE</p>	<p>Authorized Harvest: 2 bull elk, 1 antlerless elk, 6 buck deer (forked horn or better) and 3 antlerless deer</p> <ul style="list-style-type: none"> • Issue 2 bull elk tags for the period of July 2, 2017 through December 31, 2017. • Issue 1 antlerless elk tag for the period of August 15, 2017 through December 31, 2017. • Issue 6 buck deer tags for the period of July 2, 2017 through November 30, 2017. • Issue 3 antlerless deer tags for the period of July 2, 2017 through November 30, 2017. 	<ul style="list-style-type: none"> ➤ Clear 5 acres of old growth brush to stimulate growth of new forage for wildlife. ➤ Re-seed 5 acre cleared area with appropriate range mix. ➤ Install second solar pump and tank system. ➤ Maintain and improve water system. ➤ Build 3-5, 100 square foot brush piles to provide cover for wildlife. ➤ No grazing allowed in the 40 acre riparian area. ➤ Plant 70 acres of barley or other suitable cover crop for wildlife use. ➤ No grazing on the Fowler or Roth ranches. ➤ Install 1 elk crossing in the Roth ranch fence line or where best utilized on the other ranches to facilitate elk movement between properties.
<p>CHIMNEY ROCK RANCH</p> <p>DEER ZONE A</p> <p>SAN LUIS OBISPO</p> <p>6,500 ACRES</p>	<p>Authorized Harvest: 3 bull elk, 10 forked horn or better buck deer annually</p> <ul style="list-style-type: none"> • Issue 3 bull elk tags for the period July 1, 2017 through December 31, 2017. • Issue 16 buck deer tags to take no more than 10 forked horn or better buck deer for the period beginning with the opening day of archery season 2017 through November 30, 2017. At the request of the licensee on or before October 26, 2017, the licensee may request (in writing) up to an additional 4 deer tags to accomplish the authorized harvest. 	<ul style="list-style-type: none"> ➤ Continue with the solar pump project in the "Triangle" pasture to provide water for wildlife. ➤ Defer cattle from the "Lake" pasture from mid-spring through mid-summer to allow cover for ground nesting birds to grow out and in turn enhance forage for wildlife. ➤ Maintain existing water sources to provide water for wildlife. ➤ Construct 10 brush piles for use as cover for wildlife. ➤ Place water tank at Bald Mountain and install solar to existing well.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
<p>CLARK AND WHITE RANCHES</p> <p>SAN LUIS OBISPO</p> <p>5,660 ACRES</p>	<p>Authorized Harvest: 2 bull elk and 2 antlerless elk</p> <ul style="list-style-type: none"> • Issue 1 bull elk tag for the period of July 15, 2017 through December 15, 2017. • Issue 1 antlerless elk tag for the period of August 15, 2017 through December 15, 2017. <p>Note: Clark and White Ranches are not requesting the full approved allocation (“authorized harvest”) of tags because no tag increases are being allowed until the new state elk management plan is approved.</p>	<ul style="list-style-type: none"> ➤ Plant 1,000 acres of barley for use by elk and other wildlife. ➤ Repair 1 dam to increase standing water and enhance riparian/marsh habitats. ➤ Plant 100 willow stalks around dam to enhance riparian habitat for use by wildlife.
<p>D- RAFTER- “L” RANCH, LLC</p> <p>SAN LUIS OBISPO</p> <p>3,156 ACRES</p>	<p>Authorized Harvest: 1 bull elk and 1 antlerless elk. (An additional bull elk may be added in years 3-5 provided the ranch completes its work and the herd data support the increase). The current herd estimates do not support raising the tag quota nor are any increases being allowed in the state right now.</p> <ul style="list-style-type: none"> • Issue 1 bull elk tag for the period July 1, 2017 through December 31, 2017. • Issue 1 antlerless elk tag for the period August 15, 2017 through December 31, 2017. 	<ul style="list-style-type: none"> ➤ Maintain brush piles 1-4 by adding new brush to enhance cover for wildlife. Create brush piles #5 and #6 for bird and small animal cover. ➤ Plant 10 acres of barley or other forage mix to enhance cover and forage for wildlife. ➤ Install 2 wood duck boxes at each of the 8 ponds on the ranch.
<p>DEFRANCESCO/ EATON RANCH</p> <p>A DEER ZONE</p> <p>MERCED COUNTY</p> <p>4,149 ACRES</p>	<p>Authorized Harvest: 10 buck deer tags; 2 bull elk tags; 1 antlerless elk tag</p> <ul style="list-style-type: none"> • Issue 10 buck deer tags for the period of July 8, 2017 through November 30, 2017. • Issue 2 bull elk tags for the period July 8, 2017 through November 30, 2017. • Issue 1 antlerless elk tag for the period of September 16, 2017 through November 30, 2017. 	<ul style="list-style-type: none"> ➤ Eliminate cattle grazing on APNs 087-070-011 and 087-070-013 between May 15 and December 15, 2017. ➤ Maintain water troughs at Main Spring, Deer Camp, Laurel Spring, and Hay Barn for wildlife. ➤ Remove juniper trees in the Dry Lake area.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
<p>GABILAN RANCH</p> <p>MONTEREY</p> <p>10,000 ACRES</p>	<p>Authorized Harvest: 3 bull elk and 1 antlerless elk</p> <ul style="list-style-type: none"> • Issue 1 bull elk tag for the period of July 1, 2017 through December 31, 2017. <p>Note: Gabilan Ranch is <u>not</u> requesting the full approved allocation (“authorized harvest”) of tags.</p>	<ul style="list-style-type: none"> ➤ Burn 200 acres of chaparral and woodland with heavy brush undergrowth to stimulate new forage growth. ➤ Construct 10 brush piles for use by wildlife. ➤ Remove cattle in May to conserve feed and reduce competition for wildlife. ➤ Continue an erosion control program to reduce sedimentation in the area creeks. ➤ Treat 1/4 acre of purple star thistle to enhance and maintain habitats for wildlife. ➤ Let the “gathering pasture” (250 acres) near the house grow up between March 1st-April 30th for cover for early ground nesting birds. ➤ Continue the reduced stocking rate of 625 animals which is 375 head less than normal. ➤ Follow Smoke Management Plan with CDF and Monterey Air Quality Control Board in order to improve burn scheduling flexibility.
<p>HARTNELL RANCH</p> <p>DEER ZONE A</p> <p>MONTEREY</p> <p>4,600 ACRES</p>	<p>Authorized Harvest: 1 bull elk, 2 antlerless elk and 2 forked horn or better buck deer</p> <ul style="list-style-type: none"> • Issue 1 bull elk tag for the period of July 2, 2017 through December 31, 2017. • Issue 2 antlerless elk tags for the period August 15, 2017 through December 31, 2017. • Issue 2 buck deer tags to take forked horn or better buck deer for the period of July 2, 2017 through November 30, 2017. 	<ul style="list-style-type: none"> ➤ Plant 10 acres to benefit wildlife forage (elk and deer). ➤ Maintain existing springs, troughs and reservoirs to provide water for wildlife. ➤ Create 8 brush piles for use by wildlife. ➤ Limit cattle stocking rate to 250 animals to enhance and maintain habitats for wildlife. ➤ Conduct 3 counts during the year for elk and deer.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
<p>INDIAN VALLEY CATTLE COMPANY (LOMBARDO RANCH)</p> <p>MONTEREY</p> <p>12,500 ACRES</p>	<p>Authorized Harvest: 3 bull elk, 2 antlerless elk and 4 forked horn or better buck deer</p> <ul style="list-style-type: none"> • Issue 3 bull elk tags for the period of July 15, 2017 through December 31, 2017. • Issue 2 antlerless elk tags for the period of August 15, 2017 through December 31, 2017. • Issue 4 buck deer tags to take forked horn or better bucks for the period of July 2, 2017 through November 30, 2017. 	<ul style="list-style-type: none"> ➤ Construct 6 brush piles for use by wildlife. ➤ Maintain a lower cattle stocking rate of 300 animals on 12,500 acres to share high quality habitats with wildlife. ➤ Plant 350 acres of barley for use by wildlife. ➤ Employ a rotational grazing regime to maintain high quality habitats for wildlife. ➤ Maintain 16 ground level water access points. ➤ Provide 300 acres of ungrazed area in Big Sandy creek to maintain high quality habitats for wildlife. ➤ Install 3,500 feet of water line from existing well to feed into livestock and wildlife water system.
<p>LONE RANCH</p> <p>DEER ZONE A</p> <p>SAN BENITO</p> <p>12,500 ACRES</p>	<p>Authorized Harvest: 3 bull elk, 2 antlerless elk and 4 forked horn or better buck deer</p> <ul style="list-style-type: none"> • Issue 3 bull elk tags for the period of August 1, 2017 through December 31, 2017. • Issue 2 antlerless elk tags for the period of August 15, 2017 through December 31, 2017. • Issue 4 buck deer tags to take forked horn or better bucks for the period of August 1, 2017 through November 30, 2017. 	<ul style="list-style-type: none"> ➤ Clean and repair spring box in McCoy canyon to provide water for wildlife. ➤ Continue to rest entire ranch pastures. ➤ Replace old leaking steel water tank at Oat springs with new poly tank to reduce water waste. ➤ Spray Transline to control yellow star thistle (50 acres) and promote forage plants.
<p>MORISOLI RANCH</p> <p>MONTEREY AND SAN BENITO COUNTIES</p> <p>14,700 ACRES</p>	<p>Authorized Harvest: 4 bull elk and 4 antlerless elk</p> <ul style="list-style-type: none"> • Issue 3 bull elk tags for the period of July 2, 2017 through December 31, 2017. • Issue 3 antlerless elk tags for the period August 15, 2017 through December 31, 2017. <p>Note: The Morisoli Ranch wished to request their full allocation of elk tags for the upcoming season but that would represent an increase in tags and is not possible without a new elk management plan for the state.</p>	<ul style="list-style-type: none"> ➤ Build 1 elk crossing. ➤ Construct 5 brush piles for use by wildlife. ➤ Develop 1 new water source for wildlife. ➤ Build and install 1 bird nest box. ➤ Plant 10 acres of forage mix for use by wildlife. ➤ Clear 5 acres of old growth brush to stimulate new forage growth for use by wildlife. ➤ Seed cleared areas with barley/vetch mixture to provide additional forage for wildlife.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
PEACHTREE RANCH MONTEREY 13,000 ACRES	<p>Authorized Harvest: 4 bull elk and 2 antlerless elk</p> <ul style="list-style-type: none"> • Issue 4 bull elk tags for the period of July 15, 2017 through December 31, 2017. • Issue 2 antlerless elk tags for the period of August 15, 2017 through December 31, 2017. 	<ul style="list-style-type: none"> ➤ Build 1 elk crossing to facilitate elk movement through the PLM. ➤ Spray strips with Round-up around ground level water sources in late spring to promote the regrowth on turkey mullein and dove weed to provide feed for dove, quail, and other small birds. ➤ Install 1 ground level water source for quail and other small animals. ➤ Take 10 to 12 detailed counts of the elk on the property. ➤ Build and install 6 bird nesting boxes. ➤ Monitor and report the height of the vegetation by pasture after the steers have been shipped. ➤ Install 8 escape ladders in water troughs.
RANCHO LA CUESTA DEER ZONE A SAN BENITO 4,000 ACRES	<p>Authorized Harvest: 3 bull elk, 1 antlerless elk and 4 forked horn or better buck deer</p> <ul style="list-style-type: none"> • Issue 4 bull elk tags (to take no more than 3 bull elk) for the period of July 15, 2017 through December 31, 2017. • Issue 2 buck deer tags to take forked horn or better bucks for the period of July 15, 2017 through November 30, 2017. <p>Note: Rancho La Cuesta is not requesting antlerless elk tags this year, nor are they requesting all their authorized deer tags.</p>	<ul style="list-style-type: none"> ➤ Plant 5 acres of grasses and legumes to provide high quality food for elk and deer. ➤ Clean out and maintain water points on the ranch to provide water for wildlife. ➤ Maintain a 2,530 acre cattle-free refuge on the upper portion of the ranch for exclusive use by wildlife. ➤ Burn or mechanically manipulate 5 acres of decadent chaparral to stimulate growth of quality browse for wildlife. ➤ Build 5 brush piles for use by wildlife.
ROOSTERCOMB RANCH STANISLAUS COUNTY 4,862 ACRES	<p>Authorized Harvest: 2 buck deer tags; 1 bull elk tag</p> <ul style="list-style-type: none"> • Issue 2 buck deer tags for the period of August 12, 2017 through November 26, 2017. • Issue 1 bull elk tag for the period of September 9, 2017 through December 31, 2017. 	<ul style="list-style-type: none"> ➤ Clear up to 20 acres of decadent brush in all areas. ➤ Reseed Areas C & D with wild rye or grains. ➤ Plant 30-40 acres with wild rye or vetch/forage mixes in Areas A & B. ➤ Maintain all water sources. ➤ Maintain fences and elk crossings. ➤ Create brush piles to enhance habitat for upland game.

PLM AREA LICENSE
ANNUAL RENEWALS, 2017/2018
PROPOSED SEASONS, HARVESTS, AND HABITAT IMPROVEMENTS

PLM Area	Proposed Season and Harvest	Habitat Improvement Program
<p>WORK RANCH</p> <p>DEER ZONE A</p> <p>MONTEREY</p> <p>19,500 ACRES</p>	<p>Authorized Harvest: 1 bull elk, 4 antlerless elk, 6 buck deer (forked horn or better), and 2 antlerless deer</p> <ul style="list-style-type: none"> • Issue 1 bull elk tag for the period of July 2, 2017 through December 31, 2017. • Issue 4 buck deer tags and 4 either sex deer tags to take no more than 6 forked horn or better bucks and 2 antlerless deer for the period of July 2, 2017 through November 30, 2017. <p>Note: Work Ranch is <u>not</u> requesting to use their antlerless tag allocation.</p>	<ul style="list-style-type: none"> ➤ Continue to practice holistic range management to maintain high quality habitats for wildlife. ➤ Plant 300 acres of barley or appropriate forage crop for wildlife. ➤ Maintain all existing water points for use by wildlife. ➤ Maintain existing Conservation Reserve Program contracts to maintain high quality habitats for wildlife. ➤ Rehabilitate 1 upland bird guzzler. ➤ Construct 10 brush piles to provide cover for wildlife.
INLAND DESERTS REGION		
<p>BIG MORONGO SPRINGS RANCH</p> <p>DEER ZONE D14</p> <p>SAN BERNARDINO</p> <p>6,632 ACRES</p>	<p>Authorized Harvest: 10 buck deer, 2 antlerless deer, and 7 black bear</p> <ul style="list-style-type: none"> • Issue 10 buck deer tags to take forked horn or better bucks and 2 antlerless deer tags to take antlerless deer for the period of September 9, 2017 through December 3, 2017. • Issue 7 tags to take black bear for the period of September 9, 2017 through December 31, 2017 or when the statewide quota of 1,700 is met. 	<ul style="list-style-type: none"> ➤ Continue non-use by livestock. ➤ Repair or replace all pipelines and tanks damaged by Sawtooth wildfire. ➤ Repair fire-damaged roads within PLM. ➤ Continue monitoring of water sources with trail cameras.

Approve annual PLM plans and 2017-2018 licenses for: (Pursuant to Section 601, Title 14, CCR)

- (A) 3D Ranch (Tehama County)
- (B) Alexander Ranch (Monterey County)
- (C) Alexandre Ecodairy Farms PLM (Del Norte County)
- (D) Amann Ranch (Mendocino County)
- (E) Bell Ranch (Tehama County)
- (F) Big Lagoon PLM (Humboldt County)
- (G) Big Morongo Springs Ranch (San Bernardino County)
- (H) Buckeye Ranch (Solano County)
- (I) Camp 5 Outfitters – Roth Ranch PLM
(Monterey and San Luis Obispo Counties)
- (J) Carley Ranch (Mendocino County)
- (K) Chimney Rock Ranch (San Luis Obispo County)
- (L) Christensen Ranch (Mendocino County)
- (M) Clark and White Ranches (San Luis Obispo County)
- (N) Coon Creek Ranch (Santa Clara County)
- (O) Corning Land and Cattle Company (Tehama County)
- (P) Cottrell Ranch (Humboldt County)
- (Q) DeFrancesco Eaton Ranch (Merced County)
- (R) Diamond C Outfitters (Humboldt County)
- (S) D-Rafter-“L” Ranch, LLC (San Luis Obispo County)
- (T) Duncan Creek Ranch (Shasta County)
- (U) Eden Valley Ranch (Mendocino County)
- (V) Elk Creek Ranch (Mendocino County)
- (W) Four Pines Ranch (Mendocino County)
- (X) Fulton Ranch (Humboldt County)
- (Y) Gabilan Ranch (Monterey County)
- (Z) Hartnell Ranch (Monterey County)
- (AA) Hunter Ranch (Humboldt County)
- (BB) Indian Valley Cattle Company (Lombardo Ranch) (Monterey County)
- (CC) Klamath PLM (Humboldt County)
- (DD) Lone Ranch (San Benito County)
- (EE) Miller-Eriksen Ranch (Mendocino County)
- (FF) Morisoli Ranch (Monterey and San Benito counties)
- (GG) Pacheco Ranch (Santa Clara County)
- (HH) Peachtree Ranch (Monterey County)
- (II) Potter Valley Wildlife Management Area (Mendocino County)
- (JJ) R Wild Horse Ranch (Tehama County)
- (KK) Rainbow Ridge PLM (Humboldt County)
- (LL) Rancho La Cuesta (San Benito County)
- (MM) Redwood House Ranch (Humboldt County)
- (NN) Roberts Ranch (Modoc County)
- (OO) Roostercomb Ranch (Stanislaus County)

- (PP) Sanhedrin Ranch (Mendocino County)
- (QQ) Seven Springs Ranch (Mendocino County)
- (RR) Shamrock Ranch (Mendocino County)
- (SS) Smith River PLM (Humboldt County)
- (TT) Stackhouse Ranch (Shasta County)
- (UU) Stewart Ranch (Trinity County)
- (VV) Summer Camp Ranch (Mendocino County)
- (WW) Travis Ranch (Trinity County)
- (XX) Wiggins Ranch (Humboldt County)
- (YY) Work Ranch (Monterey County)

Wildlife Resources Committee (WRC) 2016-2017 Draft Work Plan: Schedule topics and timeline for items referred to WRC by the California Fish and Game Commission (Updated for April 2017 FGC meeting)

Topic	Type of Topic	2017			2018
		JAN (Redding)	MAY (Sacramento)	SEP (Riverside)	JAN (TBD)
Annual Game Regulations					
Upland Game Birds	Annual	X / R		X	X / R
Sport Fish	Annual	X	X / R		X
Mammals	Annual			X / R	
Waterfowl	Annual			X / R	
Central Valley Salmon	Annual			X / R	
Klamath River Sport Fish	Annual			X / R	
Regulations & Legislative Mandates					
Falconry	Referral for review	X	X	X / R	
Russian River sport fishing	Referral for review				X
Emerging Management Issues					
Lead Ban Implementation	DFW project	X	X	X	X
Wild Pig Management	Referral for review	X	X	X	X / R
Special Projects					
Predator Policy Workgroup	WRC workgroup	X	X	X	X
Delta Fisheries Forum (May 24, 2017)	Referral			X / R	

KEY **X** Discussion scheduled **R** Recommendation developed and moved to FGC

California Fish and Game Commission
Attn: Executive Director Valerie Termini

Re: Predatory Policy Workgroup Reviewer science submissions

April 9, 2017

Dear Executive Director Termini and Commissioners,

We enthusiastically support of California's commitment to examine best available science when establishing and revising wildlife policy. In light of this, we are submitting the following studies and journal publications. These documents speak to much larger bodies of study, and represent only a few among hundreds of publications that lead us to conclude that:

- descriptions of relationships as single predator/prey are unscientific
- random removals disrupt predator social structures/established territories and often result in higher depredation frequency by promoting chaotic breeding, dispersal of inexperienced young animals, and predator exchange (i.e. unnatural coyote succession and mesopredator release)
- positive ungulate habitat and genetics are reliant on processes driven by keystone predator species
- culling predators is not efficacious: although this approach may show desired results immediately, stochastic removals can compound conflicts over time periods as short as one year
- livestock husbandry is a key element in avoiding depredation

Please note that some of these studies were previously submitted to the Wildlife Resources Committee for Predator Policy discussions, and we have taken this comment opportunity to provide additional applicable works. For manageability, data graphics such as complex modeling, information on study methodology, and acknowledgments have been excluded here but full studies are available through links provided. Particularly relevant text has been highlighted in red by our group and not by the authors, and study text deletions are denoted with ellipsis.

Thank you for your consideration of the important works that follow. We hope to see these collective years of insightful fieldwork reflected in California's wildlife management, and we plan to continue gathering further research on topics such as the trophic benefits of predators in habitat preservation and restoration, pumas, and trends in megafauna declines.

Respectfully,

Miriam Seger, Project Bobcat
Keli Hendricks, Project Coyote, Sonoma County Wildlife Rescue
Fauna Tomlinson, Project Coyote
Lynn Cullens, Mountain Lion Foundation
Erin Hauge, Certified Naturalist
Sharon Ponsford, California Council of Wildlife Rehabilitators
Tom O'Key, Project Bobcat

TABLE OF CONTENTS

I. THE LETHAL REMOVAL DILEMMA

1. Dead or Alive? Comparing Costs and Benefits of Lethal and Nonlethal Human-Wildlife Mitigation on Livestock Farms.....pg. 4
2. Nonlethal Techniques for Managing Predation: Primary and Secondary Repellents.....4-5
3. Effects of Wolf Mortality on Livestock Depredations.....5
4. When the Hunter Becomes the Hunted.....6
5. Predator Control Should Not be a Shot in the Dark.....6-7
6. License to Kill: Reforming Federal Wildlife Control to Restore Biodiversity and Ecosystem Function.....7-8

II. THE FAILURES OF SINGLE PREDATOR-PREY MANAGEMENT APPROACHES

7. Human-Predator-Prey Conflicts: Ecological Correlates, Prey Losses, and Patterns of Management.....9
8. Shoot a Coyote, Save a Fawn.....10
9. Ducks, Habitat Conservation, and Predators.....11

III. COMPLEX RELATIONSHIPS BETWEEN HUMANS AND PREDATORS

10. A Natural Cure for Lyme Disease.....12
11. Human Predators Outpace Other Agents of Trait Change in the Wild.....13

IV. LANGUAGE EXAMPLES OF OTHER AGENCIES

12. Environmental Assessment Predator Damage and Conflict Management in Montana.....13

V. ADDITIONAL STUDIES, APRIL 10, 2017

13. Carnivore Conservation:	
Shifting the Paradigm from Control to Coexistence.....	14-18
14. Adaptive use of Nonlethal Strategies for Minimizing	
Wolf-Sheep Conflict in Idaho.....	18-19
15. Heavily Hunted Wolves have Higher Stress and Reproductive	
Steroids than Wolves with Lower Hunting Pressure.....	19-20
16. Coyotes, Ducks, and People.....	21
17. Cattle Mortality on a Predator-Friendly Station in	
Central Australia.....	22-24
18. Managing Dingoes on Frazier Island.....	24-31

I. THE LETHAL REMOVAL DILEMMA

Conflict mitigation, social tolerance/intolerance of predators, long term efficacy v short term lethal approaches, increased predation following removals, stakeholder polarity

1. McManus, J.S., Dickman, A.J., Gaynor D., Smuts, B.H., Macdonald, D.W., (2014) Dead or Alive? Comparing costs and benefits of lethal and non-lethal human-wildlife mitigation on livestock farms

Full study here:

https://www.researchgate.net/publication/263163546_Dead_or_Alive_Comparing_the_costs_and_benefits_of_lethal_and_non-lethal_human-wildlife_conflict_mitigation_on_livestock_farms

ABSTRACT

Livestock depredation has implications for conservation and agronomy; it can be costly for farmers and can prompt retaliatory killing of carnivores. Lethal control measures are readily available and are reportedly perceived to be cheaper, more practical and more effective than nonlethal methods. However, the costs and efficacy of lethal vs non-lethal approaches have rarely been compared formally. We conducted a **3-year** study on **11** South African livestock farms, examining costs and benefits of lethal and non-lethal conflict mitigation methods. Farmers used existing lethal control in the first year and switched to guardian animals (dogs *Canis familiaris* and alpacas *Lama pacos*) or livestock protection collars for the following **2** years. During the first year the mean cost of livestock protection was USD **3.30** per head of stock and the mean cost of depredation was USD **20.11** per head of stock. In the first year of non-lethal control the combined implementation and running costs were similar to those of lethal control (USD **3.08** per head). However, the mean cost of depredation decreased by **69.3%**, to USD **6.52** per head. In the second year of non-lethal control the running costs (USD **0.43** per head) were significantly lower than in previous years and depredation costs decreased further, to USD **5.49** per head. Our results suggest that non-lethal methods of human-wildlife conflict mitigation can reduce depredation and can be economically advantageous compared to lethal methods of predator control.

2. Shivik, John A., Treves, A., (2003) Nonlethal Techniques for Managing Predation: Primary and Secondary Repellents

Full study here:

https://www.researchgate.net/publication/227619210_Nonlethal_Techniques_for_Managing_Predation_Primary_and_Secondary_Repellents

“(excerpted)...To promote the existence and expansion of large carnivores, conservation biologists should assist with the real-world problems predators. New, especially nonlethal, tools for management are important for us as conservation biologists in our interface with the public and policy-makers, and the concepts we describe here are designed to help us to effectively operate within this real world... it is preferable from a biological point of view to maintain natural predator demographics and behavior while attempting to minimize the conflicts between humans and wildlife. Thus, nonlethal techniques that preserve

stabilization of social and demographic structure may limit conflicts with humans and have additional benefits in management efficiency. That is, removal of territorial predators results in a breakdown of territorial defense and allows access to livestock by predators that were formerly excluded. Nonlethal methods for managing predation allow continuance of territorial defense and may have longer-term effects by preventing other predators from intruding into an area containing livestock. Furthermore, efficiency of nonlethal techniques may be greater because they can last beyond the year of management ... Clearly, when cultural history, ecology, management, and the policy process conflict, reasonable compromises must be identified to mollify all parties. Nonlethal approaches to managing predation are not without costs and limitations, but they do provide a means for conservation biologists to target areas with high predation levels and increase acceptance of large mammalian predators."

3. Weiglus, Robert B., Peebles, Kaylie A., (2014) Effects of Wolf Mortality on Livestock Depredations

Full study here:

https://www.researchgate.net/publication/269097204_Effects_of_Wolf_Mortality_on_Livestock_Depredations

excerpted: Predator control and sport hunting are often used to reduce predator populations and livestock depredations, – but the efficacy of lethal control has rarely been tested...We found that the number of livestock depredated was positively associated with the number of livestock and the number of breeding pairs. However, we also found that the number of livestock depredated the following year was positively, not negatively, associated with the number of wolves killed the previous year. Our results do not support the "remedial control" hypothesis of predator mortality on livestock depredations the following year. However, lethal control of wolves appears to be related to increased depredations in a larger area the following year. Our results are supported by the findings of Harper et al. (2008) in Minnesota where they found that across the state (large scale) none of their correlations supported the hypothesis that killing a high number of wolves reduced the following year's depredations... Culling of wolves may also cause frequent breeder turnover [11] and related social disruption – which can result in reduced effective prey use (through loss of knowledge of prey sources and ability to subdue prey) which may also result in increased livestock depredations [27], [28]. All of these effects could potentially result in increased livestock depredations...We would expect to see increased depredations, wolves killed, and breeding pairs as the wolf population grows and recolonizes the area - but our data suggest that lethal control exacerbates these increases."

4. Woodroffe, R., Redpath, S., (2015) When the Hunter Becomes the Hunted

Full study here:

https://www.researchgate.net/publication/281414973_CONSERVATION_When_the_hunter_becomes_the_hunted

(excerpted)the complexity of ecological systems means that predator control does not invariably benefit wild prey. In some ecosystems, factors such as habitat loss or weather conditions influence prey numbers more strongly than does predation. Suppressing the populations of one predator species may cause other predators to increase in number, leaving prey to face unchanged or even heightened predation rates. For example, Ellis-Felege et al. have shown in an experimental study that predator control efforts reduce mammalian predation on bobwhite quail nests in the southeastern United States, but these benefits are offset by increased predation from snakes (7). Similarly, pronghorn (which are preyed on by coyotes but seldom by wolves) appear to have declined in response to the extirpation of wolves, which caused a dramatic expansion of coyotes across North America (8). Robust scientific evidence alone is not sufficient to manage predators effectively; social acceptability is equally important....Predator control conducted for a specific purpose often has broader consequences, which may be as unwelcome as they are unintended....Controversy about predator management can lead to intense social discord, which may undermine management decisions...Where social conflict is intense, scientific evidence is often used selectively, contested, or dismissed. In such situations, involving stakeholders in the design, implementation, and interpretation of experimental studies may help to build trust and improve social learning. For example, controversy over grizzly bear management in Banff National Park, Canada, was successfully resolved by engaging stakeholders in a problem-solving group, which shared responsibility for interpreting scientific evidence and making management decisions (15)..... The challenge, especially in more intense social conflicts over predators, is that polarized views may prevent parties from engaging with the process at all. If policy-makers, scientists, and stakeholders from all sides can show leadership in overcoming this challenge, predator management might become more evidence-based, as well as more responsive to changing social perspectives. ■

5. Treves, A., Krofel, M., McManus J. (2016) Predator Control should not be a shot in the Dark

Full study here:

https://www.researchgate.net/publication/307569182_Predator_control_should_not_be_a_shot_in_the_dark

(excerpted) Non-lethal methods were more effective than lethal methods in preventing carnivore predation on livestock generally; at least two lethal methods (government culling or regulated public hunting) were followed by increases in predation on livestock; zero tests of non-lethal methods had counterproductive effects....We recommend suspending lethal predator control methods that do not currently have rigorous evidence

for functional effectiveness in preventing livestock loss until gold-standard tests are completed.”

6. Bradley J. Bergstrom, Lily C. Arias, Ana D. Davidson, AdamW. Ferguson, Lynda A. Randa , Steven R. Sheffield (2014) License to kill: reforming federal wildlife control to restore biodiversity and ecosystem function

Full article here:

https://www.researchgate.net/publication/249007704_License_to_Kill_Reforming_Federal_Wildlife_Control_to_Restore_Biodiversity_and_Ecosystem_Function

(genesis of our current management system and need for reform)
(excerpted)...Lethal predator control is not effective at reducing depredation in the long term... More than 70 million Americans spend \$55 billion and generate over \$100 billion in total economic activity on non-consumptive uses of wildlife in native habitats, especially on federal public lands (Leonard 2008; USFWS 2012a). At the same time, leading ecologists have concluded that many of the world's pandemics, irruptions of undesirable species and collapses of desirable ones, and destabilization of ecosystems, resulting in lost ecosystem services, have been caused by the loss of apex predators (Estes et al. 2011) and of important small native herbivores (Delibes-Mateos et al. 2011)... Lethal control and its unintended consequences continue... unmanaged populations of gray wolves in the Yellowstone ecosystem preferentially prey on old and diseased elk (Wright et al. 2006), so allowing wolves to establish and maintain natural pack structure could theoretically aid disease prevention in ungulate populations (Roy & Holt 2008). Reducing wolf populations increases coyote populations through “mesopredator release” and can have other unintended consequences on native ungulate populations (Berger et al. 2008; Prugh et al. 2009). For example, pronghorn fawn survival in areas with wolves was four times higher than in areas without wolves, because wolves suppressed coyotes and consequently fawn depredation (Berger et al. 2008). Predator control may, at least locally, decrease ecosystem resilience and lead to state shifts where invasive species become dominant (Wallach et al. 2010), which only increases the need for invasive species control while decreasing its likelihood of success... As long as private livestock producers can externalize the costs of predator losses via government-subsidized predator control, they will have little incentive for responsible animal husbandry techniques, i.e., reduce stocking levels, clear carcasses and afterbirths quickly, confine herds at night or during calving/lambing, install fencing and fladry, or adopt numerous other nonlethal preventive methods to avoid depredation (Shivik et al. 2003). Lethal wildlife control for livestock: ineffective and wasteful lethal control measures, short of eradication, appear no more effective in the long term than no lethal control at all. Three gray wolf removal studies in different decades in different areas of North America indicate that effects are short-lived, because remaining individuals and recolonizing packs just as often depredate as those removed (Treves & Naughton-Treves 2005). Coyote control usually has involved population reduction rather than selective killing (Mitchell et al. 2004); this can create temporary local extirpations, soon attracting immigrants that experience dramatically higher reproductive output, resulting in no long-term effect on depredation (Connolly 1978; Knowlton et al. 1999). Removing more than the territorial breeding pair of coyotes (which commit most depredations of sheep) from a wider zone around a depredation site may

even increase the overall problem by allowing more breeding pairs to immigrate (Sacks et al.1999). Despite considerable effort by WS at lethal coyote control in the western United States, evaluation of a 60-year data set indicated that the decline of the sheep industry in both eastern and western United States could be attributed to market trends and production costs, and that predator control (lacking in the East) did not have a significant impact on the decline (Berger 2006). Lethal control often proceeds without certain knowledge that targeted individuals are responsible or that a depredation has occurred (as in “preventive” culling of coyotes; GAO 1990; Knudson 2012c). But the compensatory aspect of depredation control described above suggests that even highly specific lethal control methods such as poison collars (Connolly et al.1978) would not be a long-term solution. Preventive, nonlethal methods, such as fencing, guard dogs, and taste aversion conditioning hold more promise for long-term reduction of depredation (Green et al. 1984; Gustavson & Nicholas 1987; Treves & Karanth 2003; Knudson 2012b). That the unmanaged wolf population of Yellowstone National Park has declined 40% since its peak density in 2006 and appears to have stabilized at ≤ 100 animals (Figure 3) suggests that simply ending lethal control elsewhere in the NRM could lead to, at worst, a stable rate of depredation ($<5\%$; Bergstrom et al. 2009; USDA 2011), which could be decreased by aggressive application of nonlethal methods... The Wildlife Society (TWS), in its recent technical review of carnivore management, states “Although the Public Trust Doctrine for Wildlife Management clearly articulates that federal and state agencies manage wildlife for the benefit of all citizens, often the opinions of non consumptive users are ignored. Unbalanced information that supports the perceptions of some stakeholders over others can increase conflicts (Peek et al. 2012).” This seems to us to be the case when state or federal agencies conduct predator control on wilderness areas (see WS 2012b) and/or implement predator control to promote certain game species over other native wildlife. The latter arguably benefits 11.6 million people in the United States who hunt big game to the detriment of 22.5 million active wildlife watchers, whose direct expenditures are three times that of big-game hunters (USFWS 2012a).... Even if enhancing wild ungulate populations were a justifiable goal, predator control is an unproven instrument for achieving it. A meta-analysis of predator removal experiments in 113 systems found prey populations subsequently declined in 54 of them (Sih et al. 1985).

II. THE FAILURES OF SINGLE PREDATOR-PREY SCIENCE

7. Kate Graham, Andrew P. Beckerman, Simon Thirgood, (2005) Human-Predator-Prey Conflicts: Ecological Correlates, Prey Losses, and Patterns of Management

Full article here:

https://www.researchgate.net/publication/222576635_Human-Predator-Prey_Conflicts_Ecological_Correlates_Pre_Losses_and_Patterns_of_Management

(excerpted)...Conflicts between humans and predators are the product of socio-economic and political landscapes and are particularly controversial because the resources concerned have economic value and the predators involved are high profile and often legally protected. Most animals live in species-rich communities, yet most human-predator conflicts are described in terms of direct effects arising from simple 1-predator-1-prey interactions. The perception has been that a single predator directly reduces the density of prey available to humans and this can be prevented by removing predators from the system (Yodzis, 2001). This simplistic and intrinsically symmetric view of the predator-prey system is a simplification of the trophic interactions in complex ecosystems.

2.1. Predator-livestock conflicts Livestock predation by mammalian carnivores is one of the most frequent sources of conflict between humans and wildlife throughout the world (Mech, 1981; Cozza et al., 1996; Kaczensky, 1996; Pedersen, 1999; Mazzoli, 2002). Perceived economic losses due to livestock depredation often lead to retaliatory responses by agro-pastoralists. These include carnivore persecution, opposition to wildlife sanctuaries close to farms, or resistance to the reintroduction of extirpated predators to protected areas. In many cases these responses hinder the conservation of threatened species, and increasingly, contravene the public and political aims of large carnivore management. Conflicts arise for several reasons. First, the large home ranges of carnivores draw them into recurrent resource-competition with humans, a problem exacerbated by habitat loss and fragmentation. Second, human exploitation of natural herbivores may reduce the availability of wild prey to predators and can increase the likelihood of attacks on livestock (Yalden, 1993 ; Mishra, 1997 ; Sillero-Zubiri and Laurenson, 2001)... Human negligence plays an important role in many predation incidents, where losses could be prevented by greater vigilance during grazing, preventing animals from straying, and returning herds to enclosures in daylight. In parts of Europe, changes in animal husbandry now mean that domestic livestock are rarely guarded and are thus more vulnerable to predation (Sillero-Zubiri and Laurenson, 2001)... Efforts to manage depredation invariably concentrate on attempts to control predator abundance, but our analysis showed that losses appear to be unrelated to predator density... Knowlton (1999) suggested coyote (*Canis latrans*) abundance is a poor predictor of sheep losses if livestock attacks involve only a few problem individuals. Conner et al. (1998) reported that kills of sheep by coyotes in California were not correlated with the number of coyotes, and Greentree et al. (2000) demonstrated that fox control had little effect on lamb production. Several studies (Bjorge and Gunson, 1985 ; Sagor et al., 1997 ; Landa et al., 1999 ; Stahl et al., 2001a,b ; Blejwas et al., 2002) have shown that the removal of predators results in only a short-term reduction in prey losses, because the same or other predator species rapidly re-establish

themselves. Most of the focal predators in our case studies are considered to be endangered, at least on a regional basis, so that reducing their numbers is likely to conflict with other management objectives... Predator conflicts are routinely described as a single pairwise predator-prey interaction, when in reality they are part of a complex ecological and economic community. The complex interactions arising from multispecies assemblages can have enormous practical implications for the effectiveness of different management systems (Yodzis, 2000). Consequently, there has recently been a shift in emphasis in ecology and conservation from single-species to multi-species and ecosystem management (Yodzis, 1994 ; Palomares et al., 1995 ; Sih et al., 1998 ; Kunkel and Pletscher, 1999 ; Yodzis, 2000 ; Murdoch et al., 2002).

8. Hart, David., (2016), Outdoor Life: Shoot a coyote, save a fawn

It's true: A dead coyote will never eat another fawn, and a dead raccoon can't scavenge another quail's nest. But that doesn't mean that plugging the occasional predator from your deer stand will actually do a great deal to help your local game population. It's much more complicated than that, says University of North Dakota wildlife professor Dr. Susan Felege, who led a three-year study examining the impact of predator removal on quail nesting success in Florida and Georgia. Her findings were startling. Although professional trappers removed as many as 737 mammalian predators in one year from individual 3,500-acre study sites—raccoons and possums accounted for most of the animals—overall nesting success did not change. “The predator community is very complex,” says Felege. “If raccoons aren't eating quail eggs, something else is.” What's more, the number of mammalian predators caught by trappers actually remained stable from one year to the next. “If there are studies that removed this many animals with no discernible impact on prey, it is pretty clear that randomly removing one or two would be unlikely to have much impact,” says Dr. Mike Conner, a research scientist at the Jones Ecological Research Center. **DOG DAYS** Coyote removal doesn't make much of a difference either. A three-year study in South Carolina found that coyote control efforts did boost whitetail fawn survival, but only slightly. Despite intense trapping pressure—coyotes were reduced by 78 percent each year, and at a rate of about four per square mile—their numbers rebounded to pre-trapping levels within just nine months. “About a third of the coyotes in our study areas are transient,” says University of Georgia professor Dr. Karl Miller. “If you shoot a resident coyote, a transient moves in and sets up his own territory pretty quickly.” That's not to say that shooting a coyote won't save a few fawns. Of more importance is to shoot them at the right time of the year—where legal. Miller was involved in various studies that showed higher fawn survival rates in some study areas when management efforts were conducted just prior to the fawning season. However, coyote trapping didn't help on other sites. Similar to the results of the South Carolina study, trapping efforts during his research period were intense and sustained. Most hunters likely don't have the time or resources to duplicate those efforts. So what helps? At one time, biologists believed fawn predation was lower in areas with high-quality fawning and bedding habitat, but new research disputes that—predation rates are similar in a variety of habitats. After years of research focused on coyotes and deer, biologists seem to be leaning toward a single management tool for boosting deer numbers where coyotes are present: Shoot fewer does

9. Petrie, Chuck, (Dec. 2003), Ducks Unlimited Magazine, Ducks, Habitat Conservation, and Predators

Full article here:

https://www.ducks.org/media/Conservation/Conservation_Documents/_documents/Ducks%20and%20Predators%20low%20res.pdf

ABSTRACT:

Habitat Conservation vs. Predator Control: Predator control cannot result in meaningful increases in duck numbers or birds in the bag and threatens to undermine the broad coalition of public support on which modern waterfowl conservation depends. Dollars diverted to killing predators are dollars lost to habitat conservation. In business terminology, this is known as opportunity cost. Doing one thing means not doing something else. Spending scarce habitat dollars on predator control will assure that more critical habitat will be lost. Nearly every dollar spent on habitat for waterfowl is matched by special funds such as the North American Wetlands Conservation Fund (NAWCF), which is set aside by Congress for habitat work. Many other partners also add to the pot, and it is not unusual to have dollars from DU and other sources matched three or four times to do even more habitat conservation in the highest priority areas. Dollars diverted to predator control are not matchable, and therefore not eligible to leverage NAWCF funds or other dollar-matching habitat funds because of the lack of partners who see the merit in such short-term practices. On a local scale, predator control can provide immediate benefits to a few waterfowl, but it does not contribute to the long-term security of waterfowl habitat and waterfowl abundance on a continental or even regional scale. Predator control provides no lasting impact on waterfowl numbers because as predators are removed, those individuals are quickly replaced or other predator populations increase. Predators must be removed every year, simply to temporarily suppress their numbers, and that is not a practical or sustainable option over large areas or over the long term. Habitat conservation results in incremental gains each and every year. The core challenge is to improve and sustain the productive capability of the "Duck Factory" over the long term. During drought years, the breeding effort in the prairie duck factory effectively shuts down and populations decline because ducks nest very sparingly across vast areas of dry landscape. If few ducks are nesting, even predator control cannot improve duck-breeding success enough to result in meaningful improvements in continental duck populations. Waterfowlers simply have to pull in their belts during those years as they have during all of the last century and beyond. What is critical is that the nesting habitat base remains secure so that ducks can flourish again when water returns to the breeding grounds.

III. COMPLEX RELATIONSHIPS BETWEEN HUMANS AND PREDATORS

10. Velasquez-Manoff, Moises (New York Times, Aug. 20, 2016), A Natural Cure for Lyme Disease

Full article here:

<http://www.nytimes.com/2016/08/21/opinion/sunday/a-natural-cure-for-lyme-disease.html>

(excerpted) What's behind the rise of Lyme? Many wildlife biologists suspect that it is partly driven by an out-of-whack ecosystem. Lyme disease is transmitted by bites from ticks that carry the Lyme-causing bacterium, *Borrelia burgdorferi*. Ticks get it from the animals they feed on, primarily mice and chipmunks. And rodents thrive in the fragmented, disturbed landscapes that, thanks to human activity, now characterize large sections of the Northeast. If humans have inadvertently increased the chances of contracting Lyme disease, the good news is that there's a potential fix: allow large predators, particularly wolves and cougars, to return.... As with much of ecology, these connections are hypothetical. And predators are not the only important factor; overall diversity matters, too. Consider the fastidious opossum, which, because it grooms obsessively and is expert at removing ticks, functions as a tick death trap. More opossums in the ecosystem might mean fewer ticks, reducing the chance of getting bitten by one that carries Lyme.

But there is evidence to support the predator theory. On California's Channel Islands, off the coast of Santa Barbara, scientists found that, once variation in rainfall and island size was accounted for, those islands with the greatest number of predator species had the lowest prevalence of hantavirus, a nasty rodent-borne disease that kills 36 percent of the people it infects. "Predators can really regulate infectious disease, and actually protect us," Dr. Buttke said. "I think the best chance to make Lyme disease go away would be re-colonization by cougars," Dr. Levi told me... How many days spent ill with Lyme disease might cougars prevent? How much suffering?

The relationship between the health of ecosystems and humans extends beyond Lyme. Over 60 percent of emerging infectious diseases, including Ebola, SARS, the Nipah virus and hantaviruses, originate in animals. The major killers of history — smallpox, measles and the plague — also came from animals. Yet the emergence of these zoonotic diseases seems to have accelerated...And degraded ecosystems may harbor more pathogens.

The first animals to go are usually the large predators. The last ones standing are often small rodents, bats and their ilk — the very animals that serve as reservoirs of disease. It's true that large predators can take livestock, eat pets and even occasionally attack people. But, by preventing disease, they may ultimately help far more of us than they harm.

**11. Darimont, Chris T., Carlson, Stephanie M., et al, (November 21, 2008)
Human predators outpace other agents of trait change in the wild**

Full article here:

<http://www.pnas.org/content/106/3/952.full>

ABSTRACT

The observable traits of wild populations are continually shaped and reshaped by the environment and numerous agents of natural selection, including predators. In stark contrast with most predators, humans now typically exploit high proportions of prey populations and target large, reproductive-aged adults. Consequently, organisms subject to consistent and strong 'harvest selection' by fishers, hunters, and plant harvesters may be expected to show particularly rapid and dramatic changes in phenotype. However, a comparison of the rate at which phenotypic changes in exploited taxa occurs relative to other systems has never been undertaken. Here, we show that average phenotypic changes in 40 human-harvested systems are much more rapid than changes reported in studies examining not only natural ($n = 20$ systems) but also other human-driven ($n = 25$ systems) perturbations in the wild, outpacing them by >300% and 50%, respectively. Accordingly, harvested organisms show some of the most abrupt trait changes ever observed in wild populations, providing a new appreciation for how fast phenotypes are capable of changing. These changes, which include average declines of almost 20% in size-related traits and shifts in life history traits of nearly 25%, are most rapid in commercially exploited systems and, thus, have profound conservation and economic implications. Specifically, the widespread potential for transitively rapid and large effects on size- or life history-mediated ecological dynamics might imperil populations, industries, and ecosystems.

IV. LANGUAGE EXAMPLES OF OTHER AGENCIES

12. United States Dept. of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services (September, 2016); Environmental Assessment Predator Damage and Conflict Management in Montana

Full assessment here:

<https://www.regulations.gov/document?D=APHIS-2016-0064-0002>

Ed. The language of this assessment recognizes the spectrum of stakeholder concerns by: extensively discussing non-lethal alternatives, differentiating Predator Damage Management (PDM) policies between private and public lands, acknowledging the unpopularity of PDM at taxpayer expense, and by including ethics, humaneness, and trophic cascades as an important part of wildlife conversations.

V. APRIL 10, 2017, ADDITIONAL STUDIES AND PUBLICATIONS

13. Oxford Academic, Journal of Mammalogy

Special feature: Lethal Control of Predators

Bergstrom, Bradley J.; Feb. 2, 2017, Carnivore Conservation: Shifting the Paradigm from Control to Coexistence

Full article here:

<https://academic.oup.com/jmammal/issue/98/1>

ABSTRACT

For 90 years, the American Society of Mammalogists (ASM) has made science-based challenges to widespread lethal control of native mammals, particularly by the United States federal government targeting carnivores in the western states. A consensus is emerging among ecologists that extirpated, depleted, and destabilized populations of large predators are negatively affecting the biodiversity and resilience of ecosystems. This Special Feature developed from a thematic session on predator control at ASM's 2013 annual meeting, and in it we present data and arguments from the perspectives of ecology, wildlife biology and management, social science, ethics, and law and policy showing that nonlethal methods of preventing depredation of livestock by large carnivores may be more effective, more defensible on ecological, legal, and wildlife-policy grounds, and more tolerated by society than lethal methods, and that total mortality rates for a large carnivore may be driven higher than previously assumed by human causes that are often underestimated.

Lethal control of carnivores may also be unnecessary and counterproductive to its ostensible goals (see Treves et al. 2016 for a recent review). We will explore these consequences in this Special Feature. We invited individual research scientists from the National Wildlife Research Center (the research arm of Wildlife Services) to contribute a science-based defense of lethal control of native carnivores to this Special Feature, but they each, as well as the center, collectively via their director, declined the offer (L. Clark, in litt., 13 November 2013).

There are 5 categories of reasons why mammalogists and conservation biologists should be interested in guiding governments—and society at large—toward replacing localized predator removal or population reduction (lethal control) with nonlethal means of wildlife conflict resolution: 1) potential disruption of top-down forcing and consequent loss of ecosystem resilience and biodiversity; 2) “bycatch” or unnecessary killing of nontarget species of mammals and other wildlife that occurs with nonselective methods of lethal control; 3) population reduction of certain species of native wildlife valued by many parts of society for the benefit of a few favored interest groups; 4) ineffectiveness of lethal control of predators at either reducing livestock depredation or, secondarily, enhancing game populations, over the long term; and 5) ethical considerations about both the intrinsic value of carnivores and humane methods of killing them. Some of these deserve brief attention in this overview, and others will be dealt with in more detail in the 5 other papers in this Special Feature, including new empirical evidence for the efficacy of nonlethal methods as alternatives to lethal predator control.

The Important Role of Both Apex Predators and Mesopredators in Maintaining Ecosystem Function

With this topic currently under considerable empirical and theoretical scrutiny, the evidence assembled as of 2011 led 23 prominent ecologists to conclude that loss of apex predators was a major driver of destabilization and collapse of their native ecosystems, leading to pandemics, irruptions of invasive species, and lost ecosystem services (Estes et al. 2011). Aldo Leopold was one of the 1st biologists to argue that mammalian predators played an indispensable role in controlling ungulate prey, thus preventing depletion of their resources, citing the irruption of the early 20th century herd of Kaibab deer (*Odocoileus hemionus*) after widespread predator removal (Leopold 1943). A recent review of several lines of evidence concluded that Leopold was right (Binkley et al. 2006). The poor condition of rangelands in much of the western United States can be attributed partly to native ungulates whose predators have been depleted (Beschta et al. 2013). Hebblewhite et al. (2005) documented that top-down forcing exerted by wolves on browsing prey had indirect positive effects on songbird communities in the Canadian Rockies. Restoration of a putative wolf-driven trophic cascade has restored certain riparian plant and animal communities in Yellowstone National Park (e.g., Ripple and Beschta 2012; though see Mech 2012). Top-down forcing (also known as a trophic cascade, i.e., the many indirect effects predation has on lower trophic levels and the ecosystem as a whole) by wolves may be enhanced by facilitative interactions with sympatric large carnivores (e.g., cougar—Atwood et al. 2007), or it may be dampened in more human-dominated landscapes (Muhly et al. 2013). A possible indirect effect of wolf predation is to reduce abundance of songbirds and rodents in a 4-species interaction chain, by releasing the lowest of the 3 trophic levels of carnivores (Levi and Wilmsers 2012). In some systems, an apex large carnivore causing mesocarnivore suppression and, indirectly, small-carnivore release may be the more natural state. Removal of the apex carnivore, conversely, causes mesocarnivore release and small-carnivore suppression, which allows an irruption of rodent populations. Such an altered trophic cascade is exemplified by the recent colonization of eastern North America by coyotes following extirpation of wolves and may explain the rapid increase in the incidence of Lyme disease (Levi et al. 2012). Lethal control of the Australian apex predator the dingo (*Canis dingo*) has caused similar state shifts, resulting in dominance of introduced mesopredators and herbivores, which then cause damage to native plant and animal communities (Wallach et al. 2010).

Ineffectiveness and Unintended Consequences of Predator Removal

The consistent annual efforts by Wildlife Services at lethal control of coyotes in the western United States, described above, did not succeed in ameliorating the long decline of the nation's sheep industry, which began in the post-war years (Berger 2006). And, local-scale removal of coyotes has been found to cause population irruptions and reduced diversity in rodent communities (Henke and Bryant 1999). Use of public harvest of cougars in Washington state to remediate livestock depredation was found to be ineffective (Peebles et al. 2013). Similarly, recreational hunting of Eurasian lynx (*Lynx lynx*) was found to have little effect on sheep depredation unless of a magnitude to cause lynx population decline (Herfindal et al. 2005). Lethal control of gray wolves in the western United States could have such unintended consequences as shifting depredation from cattle to sheep (by mesopredator release of coyotes) and increasing

mortality of pronghorn (*Antilocapra americana*) fawns (Berger et al. 2008; Bergstrom et al. 2014). Lethal control of gray wolves in the northern Rocky Mountains, causing total mortality of up to 25% of the estimated population, was found actually to increase depredation on livestock (Wielgus and Peebles 2014; but see Bradley et al. 2015). There are 3 reasons that predator removal is likely to have no long-term effect—or even adverse effects—on depredation of livestock: vacant territories are quickly recolonized (Knowlton et al. 1999; Treves and Naughton-Treves 2005); immigration rate of breeding pairs into the area experiencing lethal control can increase (Sacks et al. 1999); and immigrants are more likely to be subadults, which have a greater propensity for livestock depredation than older adults (Peebles et al. 2013). Simulation results suggest that even moderate nonselective predator control can potentially increase densities of the targeted carnivore species, because nontarget deaths of co-occurring carnivore species decrease competition for the targeted species (Casanovas et al. 2012). Use of nonselective, lethal predator-control methods (e.g., trapping and poison baits) by Wildlife Services has resulted unintentionally in the deaths of individuals of 150 species of vertebrates since 2000 (Knudson 2012) and at least 12 taxa of mammals protected (or candidates for protection) under the Endangered Species Act since 1990 (Bergstrom et al. 2014). Selective local removal of carnivores such as coyotes may eliminate the bycatch problem, but it can still trigger mesopredator release with unintended negative consequences (Mezquida et al. 2006).

The ASM has supported lethal control of large carnivores in cases where the preservation of critically endangered wildlife species demands it (such as cougar predation on isolated populations of peninsula bighorn sheep, *Ovis canadensis nelsoni*—ASM 2012; Stephenson et al. 2012), but culling apex predators to enhance common game species may be unnecessary at best and harmful at worst. To the latter point, it is well known that wolves preferentially prey on older and diseased individuals (Mech and Peterson 2003; Wright et al. 2006), so natural predation is an important selective agent for the prey. To the former point, recent studies have concluded that gray wolf populations are intrinsically density dependent. That is, rather than being prey-limited, wolf densities are regulated through social interactions, with increasing interpack aggression and mortality at higher densities (Cariappa et al. 2011; Cubaynes et al. 2014). Large mammalian carnivores have been found to limit prey populations, broadly and in specific predator–prey interactions (Binkley et al. 2006; Ripple and Van Valkenburg 2010; Christianson and Creel 2014), but the effect of reduction or removal of predators on densities and dynamics of prey populations in any specific case can be hard to predict. Experiments removing coyotes and cougars in Idaho showed winter weather to be much more important than predation in predicting population trends of mule deer (*O. hemionus*—Hurley et al. 2011). A 7-year effort to remove all mammalian nest predators of ground-nesting birds (coyotes being the largest) from study sites in the southeastern United States concluded that removal of mammalian predators had no net effect on nest predation, primarily because of compensatory increases in predation by snakes (Ellis-Felege et al. 2012). A meta-analysis of 113 predator removal experiments (which was a taxonomically broad sample of animal predators) found that the intended beneficiary prey populations declined in 54 of them (Sih et al. 1985). This illustrates the multiple indirect pathways of potential top-down forcing that may be altered by removal of an apex predator from a complex food web, producing many possible outcomes for prey dynamics. For a mammalian carnivore example, 1 such pathway is through “apparent competition” with an alternate ungulate prey species, mediated through a

different predator that increases compensatorily (Serrouya et al. 2015). Another pathway involves release of a mesopredator that preys preferentially on neonates of the same ungulate prey species (Prugh and Arthur 2015).

Effectiveness of Nonlethal Control of Depredation

Use of nonlethal methods (such as guardian animals and livestock protection collars) to prevent livestock depredation by leopards (*Panthera pardus*), caracals (*Caracal caracal*), and jackals (*Canis mesomelas*) in South Africa was found to be less expensive and more effective than lethal predator control (McManus et al. 2014). In this Special Feature, Stone et al. (this issue) document that, over a 7-year pilot project in prime wolf habitat in Idaho, the adaptive use of a suite of nonlethal deterrent strategies reduced sheep depredation by more than 3-fold compared to sheep allotments in Idaho that used lethal controls over the same time period. Presenting results from a large cattle station in Australia, where full implementation of such nonlethal strategies may be prohibitive, Wallach et al. (this issue) argue that simply ending lethal control of dingoes reduced depredation by allowing the social structure of the predator to stabilize, and additionally that cattle mortality can be reduced most effectively by improving husbandry practices. These 2 studies do not meet the “gold standard” of replicated, randomized experimental design (which few predator-control studies do—Treves et al. 2016), because the latter would have been impossible without intentional further killing of important apex predators of great conservation value (in the case of Idaho gray wolves still legally protected for most of the study). Nonetheless, their results are valuable in providing insights into workable alternatives to lethal control for solving wildlife–livestock conflicts. Both of these studies suggest that stable, naturally regulated populations of social carnivores not significantly exploited by humans are the preferred option for both reducing livestock depredation and restoring the functional role of apex predators to ecosystems. These findings for large canids mirror those for cougars, in which excessive harvest replaces adult males with immigrating adolescent males, which are more prone to depredate (Peebles et al. 2013).

Members of ASM Are Acutely Aware of Guidelines on Humane Treatment

...Ironically, ASM's guidelines were developed in large part in response to oversight by United States Department of Agriculture-monitored institutional Animal Care and Use committees at universities where many of us work, yet the agencies in the United States Department of Agriculture, including Wildlife Services, are not obligated to abide by the guidelines that their agency helped produce. Although they follow guidelines of the American Veterinary Medical Association on euthanasia, Wildlife Services claims their “management and operational programs are exempt from Animal Welfare Act (1966, 7 U.S.C. 2131, 9CFR) compliance” (Clay 2012:8).

In this Special Feature, Slagle et al. (this issue) show that, while the United States public accepts that predators may need to be controlled, there is low and declining acceptance of lethal predator-control methods, which are regarded as inhumane. Governments at the federal, state, and local levels are tasked with serving broad constituencies, and in the case of native wildlife, which are a public trust asset (Bruskotter et al. 2011; Treves et al. 2015), they should be responsive to these public attitudes. In practice, some

government resource agencies or the appointed government boards that rule them, or both, have traditionally favored narrower constituencies within the public. State wildlife or game agencies have elected to provide hunting opportunities for certain species, including large carnivores, even if citizens opposed to hunting a particular species of large carnivore greatly outnumber those wishing to hunt it. A case in point is the state of Michigan recently approving a wolf hunt following removal of federal protection by the Endangered Species Act, and in this Special Feature, Vucetich et al. (this issue) argue that the North American Model of wildlife management, to which the profession is supposedly bound, does not support the hunt. In a society in which lethal control of predators is viewed increasingly negatively and scientific consensus is emerging that social carnivores occupying apex-predator trophic levels function best and depredate least when not lethally exploited, killing native large carnivores is an issue that will become increasingly controversial and should receive increasing scientific scrutiny.

Finally, insofar as most states, probably for the foreseeable future, will continue to include large carnivore hunting among their wildlife management tools, it is important that decision-makers in wildlife agencies have valid data on mortality rates from all mortality sources and on the further effects of anthropogenic mortality on recruitment (which may be negative), so that harvest quotas may not push total mortality beyond a sustainable level (see Creel et al. 2015). To that end, Treves et al. (this issue) show that well over a third of mortality of wolves over the past 3 decades in Wisconsin was due to poaching and another 13% was due to vehicle collision, suggesting that total mortality of the population, which was subsequently exposed to harvest, is higher than the management agency assumes. Setting wildlife management goals at reducing carnivore mortality to at most sustainable levels, and eliminating human-caused mortality wherever possible, is in line with the best current ecological, social, and ethical scholarship, as papers in this Special Feature attest.

14. Stone, Suzanne A. et al, Feb. 2017, Adaptive use of Nonlethal Strategies for Minimizing Wolf-Sheep Conflict in Idaho

Full study here:

<https://academic.oup.com/jmammal/article-lookup/doi/10.1093/jmammal/gyw188>

ABSTRACT

(excerpted) To demonstrate that nonlethal techniques can be effective at large scales, we report a 7-year case study where we strategically applied nonlethal predator deterrents and animal husbandry techniques on an adaptive basis (i.e., based on terrain, proximity to den or rendezvous sites, avoiding overexposure to techniques such as certain lights or sound devices that could result in wolves losing their fear of that device, etc.) to protect sheep (*Ovis aries*) and wolves on public grazing lands in Idaho... Over the 7-year period, sheep depredation losses to wolves were 3.5 times higher in the Nonprotected Area (NPA) than in the Protected Area (PA). Furthermore, no wolves were lethally controlled within the PA and sheep depredation losses to wolves were just 0.02% of the total number of sheep present, the lowest loss rate among sheep-grazing areas in

wolf range statewide, whereas wolves were lethally controlled in the NPA. Our demonstration project provides evidence that proactive use of a variety of nonlethal techniques applied conditionally can help reduce depredation on large open-range operations.

15. Bryan, Heather M. et al, (2014), Heavily Hunted Wolves Have Higher Stress and Reproductive Steroids than Wolves with Lower Hunting Pressure

Full study here:

https://www.researchgate.net/publication/268283571_Heavily_hunted_wolves_have_higher_stress_and_reproductive_steroids_than_wolves_with_lower_hunting_pressure

ABSTRACT

Human-caused harassment and mortality (e.g. hunting) affects many aspects of wildlife population dynamics and social structure. Little is known, however, about the social and physiological effects of hunting, which might provide valuable insights into the mechanisms by which wildlife respond to human-caused mortality. To investigate physiological consequences of hunting, we measured stress and reproductive hormones in hair, which reflect endocrine activity during hair growth... The hair samples revealed that progesterone was higher in tundra-taiga wolves, possibly reflecting increased reproductive effort and social disruption in response to human-related mortality... Long-term implications of altered physiological responses should be considered in management and conservations strategies.

...Discussion

Physiological responses are adaptive mechanisms by which organisms respond to complex interactions among individual, social and environmental conditions. As predicted, wolves from heavily hunted populations had higher stress and reproductive hormone levels which probably reflect a number of environmental conditions including human-caused mortality. Although we were not able to confirm successful pregnancies in individual wolves, the higher progesterone we detected in female tundra-taiga wolves compared with forest wolves is consistent with increased reproductive activity because of social disruption as well as established numeric responses of wolves to high mortality rates (Fuller, Mech & Chochrane 2003; Adams et al. 2008). The hair samples most likely reflect progesterone levels in the spring before collection when the hair was grown. This period corresponds with the latter stages of pregnancy or pseudopregnancy, both of which might occur more frequently among female wolves from packs where social structure is disrupted. Reproduction in wolves is regulated through well-established relationships among pack members (Packard & Mech 1980, 1983; Packard, Mech & Seal 1983). In most stable social groups, wolves have only one litter per year (Harrington et al. 1982; Paquet, Bragdon & McCusker 1982; Packard, Mech & Seal 1983), even though non-breeding individuals show normal reproductive cycles and are capable of reproducing (Packard et al. 1985). When social structure is disrupted, multiple litters per social group become more common, in part because dominant individuals can no longer prevent subordinates from breeding (Packard et al. 1985; Haber 1996). Notably, large litters with multiple lactating females have been observed in the tundra-taiga wolf population that we studied (Cluff et al. 2003; Frame et al. 2004).

In males, higher testosterone among tundra–taiga wolves is unlikely to reflect higher reproductive activity since hair does not grow –and therefore is unlikely to incorporate steroid hormones –during the breeding season, which occurs in winter. Instead, we propose that higher cortisol and testosterone levels in tundra–taiga wolves are consistent with social instability caused by an increased frequency of interindividual interactions that have unpredictable outcomes (Goymann et al. 2001; DeVries, Glasper & Detillion 2003; Creel et al. 2013). Notably, culling has been previously shown to disrupt social structure, resulting in increased dispersal and disease transmission (McDonald et al. 2008). Hunting can also decrease pack size, which results in altered predation patterns, increased time spent defending kill sites from scavengers and may lead to increased conflict with humans and livestock (Hayes et al. 2000; Wydeven et al. 2004; Zimmermann 2014). Physiological changes in response to disrupted social structure, predation patterns and/or pack size would likely be adaptive. In particular, cortisol prepares individuals to cope with social conflict in a number of ways, including by mobilizing energy stores and increasing muscle tone (Sapolsky 1993). Similarly, elevated testosterone may help individuals cope with social challenges by affecting behaviour, muscle mass and other traits related with social interactions in fitness-enhancing situations (Wingfield, Lynn & Soma 2001; Oliveira 2004). In conclusion, the combination of elevated cortisol and sex steroids we observed in tundra–taiga wolves are probably explained by interacting effects of hunting pressure, habitat and/or sampling. Though we were not able to partition the relative importance of these factors, elevated cortisol in the heavily hunted boreal out-group suggests that hunting pressure at least contributes to the differences we observed. The potential physiological effects of substantial, human-caused mortality suggest that hunting could be causing changes in reproductive structure and breeding strategy, as well as imposing chronic stress. Though increased reproduction might be viewed as a positive response of wolves to population reductions, the implications on lifetime reproductive output and generational survival of offspring as compared with undisturbed populations are unknown. However, a predicted outcome of such population disturbances is the loss of genetic diversity that can lead to a decrease in individual fitness and evolutionary potential, as well as an increased risk of population extinction (Frankham, D. & A. 2002; Leonard, a & Wayne 2005). Indeed, elevated stress and reproductive hormones in hair or feathers have been associated negatively with fitness (Koren et al. 2011) and proxies of fitness (Macbeth et al. 2012; Bryan et al. 2013b). Moreover, chronic stress may have evolutionary consequences for wolf populations via epigenetic, intergenerational changes (McGowan & Szyf 2010; Cao-Lei et al. 2014). Ultimately, our findings highlight the importance of considering factors other than population numbers when setting management objectives (Haber 1996; Paquet & Darimont 2010; Borg et al. 2014). Furthermore, we add to a growing body of literature that hormonal measures in hair are a valuable tool for monitoring and informing conservation strategies.

16. Mueller, Ranger Steve; (Mar. 2017), Coyotes, Ducks, and People

Full article here:

<http://cedarspringspost.com/2017/03/23/coyotes-ducks-and-people/>

One would expect coyotes to prey on ducks and their eggs. They do, but foxes are better duck hunters than coyotes. When coyotes are present, they keep fox numbers down. Studies by National Biological Survey research scientists found predator control programs that reduce coyote populations increase fox populations. The increase in foxes causes a greater reduction in duck production.

Many people support coyote control programs because they think it will reduce duck predation. Instead the increased fox population preys more heavily on ducks. At the same time, people support draining wetlands. Many wetland areas are drained or filled for farming or human habitation development. Wetlands are also filled to eliminate species we do not like such as mosquitoes. That reduces duck reproduction. Ducks Unlimited and other organizations work to establish conservation easements that restore drained wetlands and support programs that pay farmers to keep natural wetlands on their land. The Wetland east of Cedar Springs on 17 Mile Road is restored wetland that was drained for farming and has restored to the liking of waterfowl.

Loss of wetlands reduces spawning beds for fish like the northern pike. When pike decline, society spends money on hatcheries for restocking of pike. Poor land use decisions cost society more to maintain clean water, reduce flooding and to restore wildlife. The current proposed elimination of the Clean Water Rule by President Trump will have negative impacts on wildlife as well as community water of human use.

In Michigan's past, predator control programs supported killing wolves. In locations where wolves and coyotes live in the same area, wolves kept coyote numbers low. Historically, coyotes were rare in Michigan.

Nature niches are finely tuned systems that function quite well until people decide to reshape them. When large predators live close to humans, there are occasions when they take the opportunity to kill domestic animals. It is more effective to control a specific wolf or coyote problem than to try to eliminate a population. When coyotes are removed through predator control, ecologic/economic studies have found coyote's social structure is damaged and rapid reproduction occurs. Rapidly increasing populations spread into new areas. Additional money is then needed for more extensive predator control. A cost/benefit analysis shows it is generally poor and ineffective to try to control coyote populations instead of handling a specific problem.

It does not seem to make common sense that coyotes help duck populations increase but they do by controlling fox population predation. It does not seem to make common sense that wolves strengthen deer herd health but they do by keeping the deer population from over browsing habitats and causing long-term habitat damage. Human population expansion also reduces duck populations by destroying critical habitat. Many attributed reduced duck populations to predators, when it is often caused by human population increase. Human altered habitats and draining wetlands is more harmful to the ducks than predators. We do notice a growing human population reduces other life on Earth.

Coyotes live in our area but usually are not excessively abundant. Foxes live in our area but are not abundant. Life is very hard for all wildlife. Most coyote pups never live a year.

Predator nature niches are complex systems. It is necessary to control particular individuals that interfere with our livelihoods but large scale predator programs are usually unproductive, wasteful of life and money.

As a society, we have not recognized the positive role of predatory mammals like coyotes and wolves. Public understanding has gradually increased its understanding for how nature niches function. Public policy has not kept pace to reflect healthy land management but positive changes are gradually being implemented. Emotions usually trump research-based evidence and practices.

17. Arian D. Wallach; Daniel Ramp; Adam J. O'Neill, Feb. 2017: Cattle Mortality on a Predator-friendly Station in Central Australia

Full study here:

<https://academic.oup.com/jmammal/article-lookup/doi/10.1093/jmammal/gyw156>

ABSTRACT

Large predators are declining worldwide primarily due to hunting and persecution by humans, driven in large part by the livestock industry. Some ranchers are transitioning to “predator-friendly” farming by adopting nonlethal predator deterrents. On very large rangeland properties, such as the vast stations of the Australian arid zone, ending lethal control may in itself reduce livestock losses by enabling the predator’s social structure to stabilize. The dingo (*Canis dingo*), Australia’s apex predator, is commonly subjected to eradication campaigns to protect livestock. We analyzed causes of cattle (*Bos taurus*) deaths on Evelyn Downs, a 2,300-km² predator-friendly station in central Australia, for 2 years after dingo protection was established. Husbandry-related challenges, associated with deteriorating environmental conditions, were the leading causes of deaths of cattle. Predation by dingoes was minor and declined as the indices of dingo abundance stabilized and social stability increased. Shifting from killing predators to improving husbandry standards is likely to improve livestock survival and welfare.

(excerpted) In Australia, dingoes...are subjected to intensive culling operations that aim as diverse vegetation communities, and they also suppress mesopredator populations such as red foxes (*Vulpes vulpes*) and cats (*Felis catus*), thereby reducing predation pressure on smaller prey animals (Wallach et al. 2010; Letnic et al. 2012; Colman et al. 2014). The persecution of dingoes, driven largely by the pastoral industry, is a major cause of Australia’s wave of mammalian extinctions (Johnson et al. 2007). The persistence of many of Australia’s fauna and flora species depends on the function of dingo populations (Letnic et al. 2009).

One of the most significant welfare and ecological impacts of killing socially complex species, such as dingoes, is the disruption of their social groups (Haber 1996; Bryan et al. 2015). Dingoes live in extended families led by a single breeding pair. Packs act cooperatively to hold large territories, hunt, and rear offspring. The impact of lethal control extends beyond the individuals directly killed, harming surviving family members, and changing population structure and ecological function (Wallach et al. 2015). Importantly, killing of dingoes is often an ineffective and counterproductive approach to reducing livestock predation (Allen 2014). The breakdown of dingo social groups acts

primarily to increase reproductive rates and immigration, due to the loss of reproductive suppression and territorial boundaries (Wallach et al. 2009). Under these conditions, all females can reproduce, primiparity tends to occur earlier, and dingoes can more easily immigrate into vacant territories (Wallach et al. 2015). Lethal control can therefore cause increases in both dingo population density (Wallach et al. 2009) and predation rates on livestock (Allen 2014).

Some Australian pastoralists are transitioning to predator-friendly management by adopting nonlethal deterrents, such as guardian dogs (van Bommel and Johnson 2012). These methods are highly successful in small- to medium-sized properties but are less suitable for very large properties... Thus, the simple act of ending lethal control can, at this (large) scale, reduce depredation by enabling the establishment of a socially stable population.

Here, we report on the causes of cattle (*Bos taurus*) deaths during the 2 years we (AJO and ADW) managed a large predator-friendly cattle station in central Australia. We hypothesized that protecting dingoes would increase their social stability and would not cause an increase in depredation of cattle... The recovery of dingoes commenced in earnest in October 2012 when we (AJO and ADW) assumed management... we maintained water sources (bores), which were operational even if cattle were not using them, to enable dingoes uninterrupted access to water. During our tenure, we found no evidence to suggest that dingoes were killed or harassed by humans... Most (cattle) deaths occurred during dry months, except for dingo predation, which was concentrated at the beginning of the study. Six of the 8 dingo-caused deaths occurred during the first 6 months of the 2-year predator-friendly regime, and all were deaths of calves... The index of dingo abundance was stable and the index of social stability increased under predator-friendly management. The decline in dingo predation was best explained by the increasing scent-marking rates (index of dingo social stability).

Discussion

The cessation of dingo persecution on Evelyn Downs did not result in high or increasing predation rates, which is in line with our prediction. Instead, most recorded predation events (6 of 8 calves killed) occurred during the early stages of the dingo's recovery, and subsided after 6 months, as the index of dingo social stability increased... Our results are in line with other studies around the world that show that killing predators for livestock protection is generally unnecessary and counterproductive. For example, McManus et al. (2014) found a 70% decline in predation rates and operating costs per sheep during 2 years of predator-friendly farming in South Africa, regardless of the nonlethal method adopted. In North America, wolf depredation on cattle and sheep increased by 4–6% the year following predator control operations according to one study (Wielgus and Peebles 2014), and in another study, application of nonlethal deterrents was significantly more effective than predator control at reducing wolf depredation on sheep (Stone et al., this issue). While we cannot compare predation rates with and without predator control, our case study suggests that husbandry practices, not dingoes, are often the primary cause of preventable deaths for cattle. Similarly, in North America, the growth rate of calves is related mainly to husbandry practices and climatic conditions, rather than to wolf activity (Ramler et al. 2014).

Transitioning from killing dingoes to improving husbandry practices is likely to increase survival and welfare of cattle significantly, as well as improve economic outcomes on large stations. Maintaining dams and bores in good condition, handling cattle humanely during muster, designing yards to reduce stress for cattle, ensuring sustainable stocking rates, and choosing breeds suited to the environment they will be bred in, are likely to result in significantly fewer deaths and lower costs. Government assistance and subsidies to farmers during times of drought and financial difficulty would best focus on improving station infrastructure. For example, subsidies for dam maintenance, transitioning from manual generators to solar-operated bore pumps, and installation of remote satellite monitoring cameras at critical and remote water sources could significantly improve production and reduce stress for farmers, particularly during dry times.

There is a significant need for transition to evidence-based and ethically defensible management in livestock production that could be delivered through increasing collaboration between farmers, academics, and policy makers (Johnson and Wallach, in press). Our study provides an inside view of the workings of a single cattle station during a 2-year period, using an observation method that could be readily adopted by farmers...Transitioning to predator-friendly farming is also necessitated by a growing social demand for improved transparency and ethical conduct in farming practices (Johnson and Wallach, in press; Slagle et al., (this issue) argues that policies that enable the killing of predators are inconsistent with expectations that wildlife management practices will be guided by science, democracy, and legitimacy. As human population continues to grow and expand, the need for enabling peaceful coexistence and tolerance of wildlife outside of protected areas is becoming ever more apparent. Developing "coexistence skills" will be demanded of farmers in particular, as they sit on the frontline of the human–wildlife interface.

18. O'Neill, Adam J. et al, Dec. 2016, Managing Dingoes on Fraser Island: Culling, Conflict, and an Alternative (ed. note: while California does not have dingoes, the data implies relationships between social disruption resulting from predator removals and subsequent conflict. The study area was an island, and this is useful in foreshadowing systems that may be increasingly prevalent as California's landscape blocks become more threatened by growth)

Full article here:

https://www.researchgate.net/publication/311578818_Managing_dingoes_on_Fraser_Island_and_culling_conflict_and_an_alternative

ABSTRACT

Globally, the role of large predators is increasingly understood as essential for the restoration and maintenance of ecosystems. Consequently, predator conservation

represents a paradigm shift in ecological thinking, yet the management of predators sets conflicting goals because of ongoing conflict with humans. This is exemplified on Fraser Island where dingoes come into conflict with tourists, and dingoes perceived to be dangerous are regularly culled. It is argued here that this new conservation paradigm premised on protecting predators in conjunction with conventional wildlife management can result in predator populations being held in a perpetual state of social disorder, exacerbating rather than alleviating conflict. We consider the intensity and frequency of lethal control and how this may impact upon predator social structures, healthy ecological function, stable breeding patterns and stable territoriality. The direct effects of management-induced psychological stress for the survivors of episodic culls are discussed, as well as the indirect flow-on effects of social dysfunction. A final consideration is the cyclical nature of lethal control, whereby conflict with humans results in culling which, in turn, gives rise to further social disruption and conflict. In part, our assessment is derived from official data collected in the course of the management of dingoes on Fraser Island. On this basis, and on the basis of the international literature available, we offer new insights, which may inform predator management more broadly.

Introduction

Ecosystems are significantly influenced by the presence of large predators. At the apex of ecological communities, they play pivotal roles in the maintenance of healthy, productive and diverse systems (Crooks and Soule 1999; Johnson et al. 2007; Glen et al. 2007; Letnic et al. 2009; Ripple et al. 2013) with striking examples found globally (Estes et al. 2011). Yet predator persecution often continues under the rationales of 'sustainable use', 'conflict mitigation' and 'population control' (Treves and Karanth 2003; Packer et al. 2009; Hervieux et al. 2014; Allen et al. 2015). The dingo, *Canis dingo*, is a wild canid extant across much of the Australian continent and is no exception to this rule (Crowther et al. 2014). Since European occupation, dingoes have been severely persecuted throughout most of their range (O'Neill 2002). Indeed, lethal control remains the dominant feature of their management and, in spite of intensive efforts to resolve conflict, livestock depredations have not declined (Smith 2015). A seemingly entrenched and failing management paradigm continues to impede progress to protect dingoes and a restoration of their important ecological role (Johnson and Wallach 2016)...

Despite their protected status, culling was established relatively early by the Queensland Parks and Wildlife Service (QPWS) following the transfer from forestry management in 1991 (Williams 2002).... (Allen et al. 20015) concluded that the current level of culling is sustainable and within the parameters of an acceptable numerical response. Hence, the QPWS management persists with a focus on population numbers as a primary measure of sustainability, and the belief that habituation leads to aggression and the need for culling to mitigate human risk (EPA 2013). Allen et al. (2015) aimed 'to establish whether these destructions might adversely affect dingo population growth or breeding success into the future'. Primarily focused on the numerical outcomes of lethal control, the authors' modelling foreclosed any serious consideration of pack destabilisation, dispersal and conflict as a broader consequence of culling. The authors argued that major culls were atypical and that other mercy killings (euthanasia) or deaths due to sickness, injury, vehicle strikes and injuries resulting from other dingoes, occurred independently of the active management of human-dingo conflict. Data relating to such deaths were therefore considered beyond the scope of their study.

A challenge to the current management perspective: potential implications of lethal control

The current QPWS framework for understanding the cause of conflict can be succinctly described as (feeding -habituation - interaction -aggression) in response, their management model can be described as (kill problem individuals -human safety). This model has been supported in one study (Allen et al. 2015) as 'sustainable'. These views strongly drive and inform the management of dingoes on Fraser Island, and are problematic for several reasons.

First, the view that habituated dingoes are more likely to harm humans is contested. Second, little consideration has been given to the potential effects of killing individual dingoes on the population's social structure. Third, the ecological consequences of social disruption can potentially promote conflict. Fourth, that cull-induced stress is a potential cause of aggression. We also contend that management-induced aggression might entrain a cycle of culls and conflict and lead to mortality rates that threaten the population's sustainability. We propose instead that: (cull -social disruption-elevated breeding rates and dispersal -conspecific conflict and ecological decline -stress and aggression -human conflict –further culls). Here we provide an overview of research on the biology and ecology of dingoes and other large predators that suggests that ending lethal control will help promote the social stability and well being of dingoes, reduce conflict with humans, and ensure the sustainability of this unique population...

...Research on grey wolves, *Canis lupus*, has shown lethal control to have additive, even super-additive effects on total mortality, with social disruption compounding the direct mortality of culls. Reduced survival rates in pups, increased non-cull mortality and sustained population declines were recorded in 10 separate studies of grey wolves (Creel and Rotella 2010). When socially compromised, natural reproductive suppression (infanticide and territorial behaviour) also becomes compromised in grey wolves (Wallach et al. 2015). However, an increase in the number of pups produced does not necessarily reflect increased recruitment into a population, because social disruption promotes emigration and transient unaffiliated wolves are less likely to survive (Creel and Rotella 2010). Hence, social stability is a crucial variable when modelling wolf population sustainability. Given the similarities between wolf and dingo biology, this consequence of culling should have been considered. Factoring in the potentially additive effect of cull and non-cull deaths is all the more important given that there are no reliable data to confirm dingo demographic trends on Fraser Island.

...Typically, social disruption as a driver of stress-induced aggression is not considered by US authorities. Rather, state departments have adopted a protocol of lethal control once certain coyote behaviours are observed, primarily in an attempt to curtail potential aggression towards humans (Schmidt and Timm 2007; White and Gehrt 2009). That lethal control is undertaken before observed aggression begs the question of whether lethal control may be the trigger that actually stimulates coyote aggression.

Stress-induced aggression

...Animals have been shown to experience trauma and this can be triggered by loss of family or companions, by abuse and resulting stress (Ferdowsian et al. 2011). One of the mechanisms of coping with trauma is aggression, born sometimes of fearfulness or confusion and denoting, in its true meaning, a dysfunctional behaviour that carries little

to no benefit for the individual displaying it (Rogers and Kaplan 2003)....Given that behaviour is largely determined by 'psychological state' in socially complex species, and psychological state is influenced by the stability of social structures (Bradshaw et al. 2005), it is imperative that we consider predator psychology associated with conflict. The ecological consequences of lethal control can potentially drive conflict.

...By contrast, we propose that the limiting factor is self-regulation, a socially mediated process, which breaks down in the advent of lethal control.

...Dingoes and wolves share a common ancestry and both display similar social behaviours. Characterised as 'eusocial', they are part of a small group of predators that are highly sentient and represent the most advanced level of vertebrate social development (Haber 1996). Offspring are nurtured by in-pack non-breeders and are dependent on parental support for extended periods, and, under stable conditions, packs maintain distinct family lineages for decades (Haber 1996). In stable populations, wild canids such as dingoes, wolves and coyotes maintain distinct territories with little or no overlap with neighbouring packs (Thomson 1992; Knowlton et al. 1999), and self-regulate via hierarchical dominance and territorial defence. Self-regulation is achieved through several mechanisms and all are socially mediated. These mechanisms include reproductive strategies that invest more energy into fewer offspring, limit the number of offspring below the species' potential, and maintain territories to limit population densities; finally, family groups engage cooperatively to defend large territories and resources (Wallach et al. 2015)...Arguably, socially complex top predators may generally not be expected to, and thus not be adapted to, cope with episodes of high kin-based mortality (Promislow and Harvey 1990). As a result of lethal control, wild canids typically have younger age structures, larger litter size, smaller pack size, higher emigration and higher non-cull mortality (Brainerd et al. 2008; Wallach et al. 2015). Following lethal control, profound changes to social dynamics have also been observed in other top predator groups (wolves: Haber 1996; Brainerd et al. 2008; bears: Wielgus et al. 2001; large cats: Cooley et al. 2009) and these changes influence predator-prey dynamics (Wallach et al. 2015). Social integrity, therefore, is a key consideration when evaluating the ecological influence of top predators, such as dingoes (Wallach et al. 2015). The importance of top predators maintaining the structure and function in diverse ecosystems is unquestioned (Estes et al. 2011), but their presence alone may be insufficient to facilitate their functional ecological roles (Ordiz et al. 2013). Research suggests that social stability and ecological function are intrinsically linked and when predator social systems are compromised ecosystems can potentially collapse (Wallach et al. 2010; Ordiz et al. 2013).

We are only beginning to understand the profound effects that top predators exert on ecosystems, and more recently the significance of social integrity. For example, grey wolf populations were traditionally considered to be limited by prey biomass, but when revisiting old datasets and considering social stability, wolf populations were found to be self-regulating (Cariappa et al. 2011). It has also been assumed that culling or 'hunter take' has little effect on population growth in grey wolves, that the effects of culling are compensatory, and that harvests of 28–50% are sustainable. However, when reevaluating datasets by testing the relationship between culled and non-culled mortality, researchers found social factors contributing to super additive effects, suggesting that conventional management is insufficient to sustain wolf populations in the long term, even with low-intensity culls (Creel and Rotella 2010). It has also been assumed that lethal control on park boundaries has little effect on wolf populations within protected areas. However,

Rutledge et al. (2010) found the effects of control (social disruption) to carry over very large spatial scales: 7000 km² of protected area proved insufficient to sustain the social and genetic integrity in grey wolves.

...Compromising the ecological functions of top predators may also be associated with conflict because resource depletion through the loss of top-down effects could potentially drive predators into domestic environments. A pair of socially unaffiliated wolves will kill the same number of moose as a socially stable large pack, causing an increase in predation rates. These effects are exacerbated by the loss of territorial boundaries: several socially dislocated pairs of wolves can occupy the same area as a single stable pack (Haber 1996). Surplus killing (Hayes et al. 1991) and mesopredator release (Johnson et al. 2007) are other potential drivers of resource depletion... Such ecological declines are widely documented (Johnson et al. 2007;Estes et al. 2011;Ripple et al. 2014) and not only culminate as a result of predator extirpation (prey release), but may be expedited through the effects of social disruption (overexploitation of prey) (Hayes et al. 1991;Haber 1996;Wallach et al. 2010;Ordiz et al. 2013). In summary, top predators operate within intricate and complex social systems (Haber 1996) that are critical for population self-regulation (Wallach et al. 2015), territorial behavior (Cooley et al. 2009) and for maintaining the integrity of ecosystems (Wallach et al. 2010). Essentially then, top predators provide a service that balances the ledgers in ecological economies, and, to use a familiar human comparison, when governing/regulatory systems are compromised and economies collapse, depression and crime can predominate. To reiterate, social disruption and the loss of top-down regulation can impoverish local ecologies (Estes et al. 2011), stimulate the dispersal of predators (Haber 1996;Knowlton et al. 1999;Wielgus et al. 2001), increase conspecific conflict (Wielgus et al. 2001;Cooley et al. 2009), and induce trauma and raise stress levels in predators (Van Meter et al. 2009;Bryan et al. 2015)...Increases in conflict following episodic predator culls/harvesting are not always observed, but have been recorded in dingoes (Wallach et al. 2009;Allen 2014,2015), wolves (Fernández-Gil et al. 2016), cougars, *Puma concolor* (Gross 2008;Peebles et al. 2013), coyotes (Conner et al. 1998), jackals, *Canis mesomelas* (McManus et al. 2015) and black bears, *Ursus americanus* (Treves et al. 2010).

...As discussed below, following a major dingo cull on Fraser Island in 2001, human–dingo conflict rose markedly, with the number of incidents eventually reaching an asymptote in 2004 (Fig. 2). On the basis of available data from Fraser Island and literature concerning dingoes and other socially complex top predators, we believe that the destruction of alleged ‘problem’ dingoes on the island may also have had a substantial destabilising effect on dingo social structures, potentially facilitating negative consequences for dingo physio-biological, behavioural and ecological functions and may be exacerbating, rather than alleviating, conflict.

Social disruption and cull characteristics on Fraser Island

...What may ostensibly appear to be relatively low official cull counts, together with non-cull deaths, may have a disproportionate impact on the dingo packs in and near particular locations. In such situations, localised control may facilitate higher dispersal and an increase in conspecific conflict with surrounding packs, inducing stress and trauma across pack territories. This possibility is supported by Rutledge et al. (2010), who demonstrated the propensity of ‘social collapse’ symptoms in wolves to transmit over large spatial scales.

Consideration of the 'Eurong' dingo pack on Fraser Island is instructive. It is situated in a location that has been subject to the highest levels of destruction since 2001. In fact, all of the destructions for 'high risk behaviour' reported for 2014–16 were at the Eurong location (RTI data from QPWS). Between 1992 and 2012, 24 of 132 dingoes culled were killed at Eurong. Incidence levels are also reported to be high, with 41% of all incidents occurring at this location (Allen et al. 2012). ...This pack has produced multiple litters in some years of up to eight pups (Allen et al. 2015). Litter size may vary depending on seasonal resources, but multiple litters per pack are uncommon and are likely an indicator of social instability for dingoes, coyotes and wolves (Corbett 1988; Haber 1996; Knowlton et al. 1999; Corbett 2001; Wallach et al. 2015)...Instances of multiple litters per pack are largely reported in dingo packs under lethal control management (Jones and Stevens 1988; Catling et al. 1992; Purcell 2010)...an increase in offspring should not be interpreted as population 'stability'. An alternative explanation is that the recurring destruction of pack individuals may increase reproduction and thus lead to higher dispersal rates into neighbouring pack territories, resulting in intensified territorial conflict...

...(Corbett 1998). The increase in hostile encounters at this time is consistent with social disruption and conflict in the wake of a large cull in 1996, when 35 dingoes were killed (Fleming et al. 2001; Williams 2002). Evidence from related and behaviourally similar species is instructive in this respect. For example, Rutledge et al. (2010) found that interactions between grey wolves and coyotes increased when social integrity was compromised. However, wolf-coyote interactions decreased when control measures were relaxed and stable pack structures reformed. In essence, as hunting pressure increased, the wolf population was socially compromised, leaving unaffiliated survivors that sought intra-specific contact with coyotes, with which they bred to produce hybrid offspring...

Examination of the available data

...The possibility that lethal control is driving dingo-human encounters and conflict on Fraser Island is suggested in the data shown in Fig. 2. Incidents increase following high dingo mortality events. This is particularly evident in the period 2001–05, when the number of incidents spiked after the heavy cull of 2001 and again in 2002–04. The escalation of dingo-human incidents from 2001 onwards, which peaked around 2004–05, may have been the result of unnaturally high rates of dispersing individuals, resulting in unaffiliated, desperate dingoes seeking companionship and/or resources during an episode of severe social dislocation. In this regard, the timing of the 2001 cull and the age of the dingoes killed appears important. Although official records of the age of the dingoes killed in the large cull of 2001 are fragmentary, the available information suggests that the cull may have been biased towards adults. This cull was also concentrated in a very narrow timeframe during April–May, in the middle of the breeding season. These factors combined would likely have maximised social and territorial disruption. In summary: when conspecific conflicts increase and unaffiliated survivors seeking entry to stable packs are turned away, lacking the necessary skills to secure resources in the wild, they may then seek out human companionship and resources.... Dingo mortality and incident data for the period 2009–14 lend further support to the hypothesis that ongoing low-level lethal control is facilitating dingo-human conflict through social disruption and increases in reproduction and dispersal (Figs 2,4)... The apparent increase in the number of incidents between 2010 and 2012 does

appear to coincide with an increase in overall mortality counts, as one might expect in a context of pack destabilisation through lethal culling (Figs 2,4). Large culling events can be particularly disruptive because adult dingoes make up a larger proportion of mortality when compared with incremental culling. A hypothesis to explain the escalating rate of incidents following the major cull in 2001 is that many dingoes were deprived of pack solidarity, leadership of experienced adults and natural social constraints. Generally, hierarchal dominance ensures that a pack will successfully raise only one litter per year. In the absence of such constraints, adolescent females may conceive and raise large litters, with hierarchal infanticide unlikely. Without pack support, however, young dingo mothers would be less capable of providing for offspring, so may disperse early the following year. Non-socialised, unaffiliated and transient offspring are more likely to breed at first oestrous, adding to a spike in population and to further potential for both dingo and human conflict. Thus, incidents may peak in the second or third year after a cull. It is likely that a larger proportion of this 'surplus' would perish or be killed by remaining stable dingoes or appear in the statistics in the next round of culls. Within this cycle, culling temporarily reduces incidents, but also provides the basis for a new round of non-socialised breeding and conflict...

Genetic consequences

Anthropogenic pressures on predator populations that are selective in removing animals displaying unique behavioural and physical characteristics override 'natural selection' and facilitate rapid and dramatic changes in phenotype (Darimont et al. 2009). In eastern wolverines the implementation of harvest bans beyond the boundaries of protected areas greatly improved the genetic integrity of kin-based groups within park boundaries (Rutledge et al. 2010). Thus, lethal control has far-reaching spatial and severe genetic consequences when social structures are disturbed... Removing potentially reproductive animals, male or female, may exacerbate genetic instability of the population. Episodic severe culls, combined with ongoing incremental culling and high pup mortality rates, may have created additional genetic bottlenecks in an already genetically isolated island population.... Additionally, studies have identified genetic or epigenetic mutations in both humans and animals in response to both social and physical environmental conditions (Popova 2006; Brendgen et al. 2008; Jablonka and Raz 2009; Pavlov et al. 2012; Dasgupta 2015). Stressful events can cause epigenetic mutations that may alter an individual's response to future stressors (Franklin et al. 2010). These epigenetic modifications can be heritable (Jablonka and Raz 2009; Franklin et al. 2010). Potentially, genetic selection and epigenetic mutation as a consequence of lethal control may be facilitating negative changes in dingo behaviour on Fraser Island.

Conclusion

...The available data relating to dingo mortality and human-dingo 'incidents' on Fraser Island are consistent with the hypothesis that the current management approach is contributing to social instability and diminished territorial integrity in the dingo population, resulting in both increased human-dingo and conspecific conflict, heightened stress, elevated breeding rates and fatal dispersal of poorly socialised juveniles into neighbouring pack territories. As it stands, the long-established management perspective on Fraser Island might entail a cycle of cull and conflict, and consequently fail to account for the possibility that current policy may be contributing to, rather than alleviating conflict. Paradoxically, while being obliged to restrict lethal control of the dingo population to a minimum, the Fraser Island dingo management regime may be applying

lethal control at a level that maximises social disruption and conflict. It is also of concern that little consideration is given to the well researched link between social stability and ecological function...Single-cause theories rarely hold water in a complex context. The context and consequences of specific points of interception should be revisited by joint efforts of experts in the fields of genetics, animal behaviour, biology and ecology with a view to developing an alternative management perspective and strategy focused on entire ecosystem outcomes, which are not reliant upon lethal control.

From: [DANIEL B EPPERSON](#)
To: [FGC](#)
Subject: Predator Policy Hearings
Date: Thursday, March 02, 2017 9:27:58 AM

Dear Commissioners,
California is entering into a predator death spiral. Lions and now wolves are destroying the last historic herds of deer, elk are next.

Never mind the over abundance of the primary fawn and calf killers, bears and coyotes.

Protecting foxes and badgers will only increase the pressure on food sources and further reduce hunter participation. Further stress the herd and increase human predator confrontations.

Sincerely,
Rev. Dan Epperson

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-publication of Notice Statement)

Amend Sections 300
Title 14, California Code of Regulations
Re: Upland Game Birds

I. Date of Initial Statement of Reasons: December 13, 2016

II. Dates and Locations of Scheduled Hearings:

(a) Notice Hearing: Date: February 8, 2017
Location: Rohnert Park, CA

(b) Discussion Hearing: Date: April 26, 2017
Location: Van Nuys, CA

(c) Adoption Hearing: Date: June 21, 2017
Location: Smith River, CA

III. Description of Regulatory Action:

(a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

The Fish and Game Commission (Commission) annually considers the recommendations of the Department of Fish and Wildlife (Department) in establishing upland game bird regulations. Section 300 provides definitions, hunting zone descriptions, season opening and closing dates, and daily bag and possession limits for resident and migratory upland game birds.

A limited number of permits are issued for sage grouse, and that number is based on annual population surveys. Concerns about the potential effects of hunting to sage grouse through additive mortality have been expressed in the scientific literature, including studies from California. The Department has responded to these concerns by recommending highly conservative permit numbers for the last 10 years. The permit system used in California is considered one of the best-controlled hunts in sage grouse range.

In 2010, the United States Fish and Wildlife Service (USFWS) determined that Greater sage grouse were “warranted, but precluded” for protection under the Endangered Species Act (ESA) both statewide and as a Distinct Population Segment (DPS) in Mono County. In 2015, the USFWS further determined that sage grouse did not need to be listed under ESA largely

because of conservation plans and federal land use amendments that reduced the threats to the species.

In 2012, the Commission took emergency action because of the Rush Fire, which encompassed more than 272,000 acres almost entirely within the East Lassen Hunt Zone, by reducing the number of sage grouse permits for both Lassen hunt zones to zero. Because of substantial breeding population declines in spring 2013 following the fire, the Department did not recommend issuing any hunting permits in 2013.

The Commission, acting on the recommendation of the Department, has adopted the same permit numbers for the past three sage grouse seasons:

- a. East Lassen: 0 (2-bird) permits
- b. Central Lassen: 0 (2-bird) permits
- c. North Mono: 30 (1-bird) permits
- d. South Mono: 0 (1-bird) permits

For the 2017-2018 season, the Department will present the Commission a recommendation for permits based on the spring 2017 lek counts. A lek is a communal area in which two or more male sage grouse perform courtship displays to mate with females. Male sage grouse reliably attend these leks throughout the breeding season. The Department performs multiple counts of all known leks in California, including leks both within hunt zones and in non-hunted areas. These lek counts are used to estimate population size and a population model expands the count of males to predict the size of the fall population.

METHODS FOR POPULATION ESTIMATION:

The Department will use the following parameters and assumptions to estimate population size in the spring and project it at the time of the hunting season (the second Saturday in September extending for 2 days):

- a) Male population size counted in the spring is $1.1 \times$ peak lek attendance (the most males counted) from at least three surveys of each lek statewide. In other words, the Department assumes that 90% of the males are visibly counted on each lek.
- b) The sex ratio for the population is 1:1, assuming there are an equal number of females as males counted.
- c) The recruited population (adult birds) experiences 15% mortality between spring and fall.
- d) The high model assumes the population produces 1.2 chicks per female (this model is used to provide a range of population size, but is not used to derive permit numbers).

- e) The low population model assumes the population produces 0 chicks per female (this model is used to derive permit numbers).

Both the low and high fall population projections are considered conservative by the Department, particularly with regard to the female population size and chick production. Sex ratios of 1:1 are used as a conservative approach, but sage grouse often have skewed sex ratios with more females than males. The low population projection, assuming no reproduction, is not a likely scenario except for the most extreme possible conditions, and the Department is using this model to avoid any potential errors in assumption of chick production.

The number of permits proposed will not exceed 5% of the projected fall population size, which is among the most conservative scientific recommendations for allowable harvest. In addition to population size, the Department will consider population trajectory in its recommendation, and will not recommend any permits for populations that are in decline and below the long-term average for that hunt zone. The Department has not recommended any permits in either of the Lassen hunt zones since 2012 or the South Mono Zone since 2013 because of concerns about downward population trajectories and to allow these populations time to recover from the effects of wildfire and drought. The Department's conservative approach to estimating spring populations and projecting fall populations is designed to underestimate populations and there are likely more grouse on the landscape.

The numbers of permits ultimately recommended for each hunt zone will be based on the following criteria:

- a) Size and trend of the spring breeding population in each hunt zone based on lek counts conducted in March and April.
- b) The allowable harvest level will not exceed 5% of the predicted fall population.
- c) If the allowable harvest in any zone provides for a minimum number of permits to be recommended in any zone of 5 permits or less, no permits will be recommended for that zone.

PROPOSED REGULATIONS:

Amend subsection 300(a)(1)(D)4.: Adjust the annual number of General Season sage grouse hunting permits by zone for the 2017-18 season.

The regulation as set forth in this ISOR proposes a range from which the final numbers of sage grouse permits will be determined. A range, instead of a specific number, is necessary at this time because the final number of permits cannot be determined until the Department conducts spring lek

counts in March and April as previously described. Based on recent population size in each of the hunt zones, the proposed ranges are as follows:

- a. East Lassen Zone: [0 - 25] (2-bird) permits
- b. Central Lassen Zone: [0 - 15] (2-bird) permits
- c. North Mono Zone: [0 - 45] (1-bird) permits
- d. South Mono Zone: [0 - 20] (1-bird) permits

- (b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority cited: Sections 200, 203, 265 and 355, Fish and Game Code.
Reference: Sections 200, 203, 203.1, 215, 220, 265, 355 and 356, Fish and Game Code.

- (c) Specific Technology or Equipment Required by Regulatory Change: None.
- (d) Identification of Reports or Documents Supporting Regulation Change: None.
- (e) Public Discussions of Proposed Regulations Prior to Notice publication: None.

IV. Description of Reasonable Alternatives to Regulatory Action:

- (a) Alternatives to Regulation Change:

No Alternatives were identified.

- (b) No Change Alternative:

Without a regulation change to subsection 300(a)(1)(D)4:

Sage grouse permit numbers would not change from 2016 and permits for 2017 would not be calculated based on current year data.

- (c) Alternatives considered but rejected:

No Alternatives were identified

- (d) Consideration of Alternatives: In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made:

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states, because the regulations propose only minor changes not affecting business.

(b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment.

The Commission does not anticipate any impacts on the creation or elimination of jobs or businesses in California or on the expansion of businesses in California; and, does not anticipate benefits to worker safety, because the regulations propose only minor changes not affecting jobs.

The Commission anticipates benefits to the health and welfare of California residents. The proposed regulations are intended to provide continued recreational opportunity to the public. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources.

The Commission anticipates benefits to the environment by the sustainable management of California's upland game resources. The fees that hunters pay for licenses and stamps are used for conservation.

(c) Cost Impacts on a Representative Private Person or Business:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

(d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None.

- (e) Nondiscretionary Costs/Savings to Local Agencies: None.
- (f) Programs Mandated on Local Agencies or School Districts: None.
- (g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed Under Part 7 (commencing with Section 17500) of Division 4, Government Code: None.
- (h) Effect on Housing Costs: None.

VII. Economic Impact Assessment:

The following amendments to the regulations are proposed:

Amend subsection 300(a)(1)(D)4.: Adjust the annual number of General Season sage grouse hunting permits by zone for the 2017-18 season.

- (a) Effects of the regulations on the creation or elimination of jobs within the state:

The proposed regulations will not affect the creation or elimination of jobs because there are no changes in fees, addition of fees, or addition of costs to businesses or individuals. Generally, positive impacts to jobs and/or businesses that provide services to hunters are anticipated with the adoption of the proposed hunting regulations for the 2017-18 season. The U.S. Fish and Wildlife National Survey of Fishing, Hunting, and Wildlife-Associated Recreation for California (revised Feb. 2014) estimates that small game hunters contributed about \$143 million to businesses in California during the 2011 small game hunting season. The long-term intent of the proposed regulations is to sustainably manage upland game bird populations, which will additionally support the long-term viability of the primarily small businesses that serve hunting activities. The 2014 report is posted on the US Dept. of Commerce website at http://www.census.gov/prod/013pubs/fhw11_ca.pdf.

- (b) Effects of the regulations on the creation of new businesses or the elimination of existing businesses within the state:

The effect of the regulations on the creation of new businesses or the elimination of existing businesses within the state will be neutral. Minor variations in the number of sage grouse hunting permits as proposed in the regulations are, by themselves, unlikely to stimulate the creation of new businesses or cause the elimination of existing businesses. The number of hunting trips and the economic contributions from them are expected to remain more or less the same.

- (c) Effects of the regulations on the expansion of businesses currently doing business within the state:

The effect of the regulations on the expansion of businesses currently doing business within the state will be neutral. The long-term intent of the proposed regulations is to sustainably manage upland game bird populations, and consequently, the long-term viability of small businesses that serve recreational upland game bird hunters.

(d) Benefits of the regulations to the health and welfare of California residents:

Hunting is an outdoor activity that can provide several benefits for those who partake in it and for the environment as well. The fees that hunters pay for licenses and stamps are used for conservation. In addition, the efforts of hunters can help to reduce wildlife depredation on private lands. Hunters and their families benefit from fresh game to eat, and from the benefits of outdoor recreation. People who hunt have a special connection with the outdoors and an awareness of the relationships between wildlife, habitat, and humans. With that awareness comes an understanding of the role humans play in being caretakers of the environment. Hunting is a tradition that is often passed on from one generation to the next creating a special bond between family members and friends.

(e) Benefits of the regulations to worker safety.

The regulations will not affect worker safety because they do not address working conditions.

(f) Benefits of the regulations to the state's environment:

It is the policy of this state to encourage the conservation, maintenance, and utilization of upland game bird resources for the benefit of all the citizens of the state. The objectives of this policy include, but are not limited to, the maintenance of sufficient populations of upland game birds to ensure their continued existence and the maintenance of a sufficient resource to support recreational opportunity. Adoption of scientifically-based upland game bird seasons, bag and possession limits provides for the maintenance of sufficient populations of game birds to ensure those objectives are met.

(g) Other Benefits of the Regulations:

None

Informative Digest/Policy Statement Overview

The regulations in Section 300, Title 14, California Code of Regulations (CCR), provide general hunting seasons for taking resident and migratory upland game birds. The Department is recommending the following regulation changes:

Amend subsection 300(a)(1)(D)4.: Adjust the annual number of General Season sage grouse hunting permits by zone for the 2017-18 season.

Additionally, non-substantive changes to the authority and reference sections, are the result of changes to the Fish and Game Code by SB 1473 which took effect on January 1, 2017.

Benefits of the Proposed Regulations

Adoption of sustainable upland game seasons, bag and possession limits, and authorized methods of take provides for the maintenance of sufficient populations of upland game birds to ensure their continued existence.

Non-monetary Benefits to the Public

The Commission anticipates benefits to the health and welfare of California residents through the sustainable management of sage grouse populations. The Commission does not anticipate non-monetary benefits to worker safety, the prevention of discrimination, the promotion of fairness or social equity and the increase in openness and transparency in business and government.

Consistency and Compatibility with Existing Regulations

The Commission has reviewed its regulations in Title 14, CCR, and conducted a search of other regulations on this topic and has concluded that the proposed amendments to Section 300 are neither inconsistent nor incompatible with existing State regulations. No other State agency has the authority to promulgate hunting regulations.

REGULATORY LANGUAGE

Section 300, Title 14, CCR, is amended to read as follows:

§ 300. Upland Game Birds.

(a) Resident Upland Game Birds

(1) General Seasons: Shotgun; Crossbow; and Pistol/Revolver for Sooty/Ruffed Grouse Only; Bag and Possession Limits and Open Areas
(see Authorized Methods of Take, Section 311)

...[No Changes subsections 300(a)(1)(A) through (a)(1)(D)3.]

4. Number of Permits:

- a. East Lassen Zone: 0 [0 - 25] (2-bird) permits
- b. Central Lassen Zone: 0 [0 - 15] (2-bird) permits
- c. North Mono Zone: 30 [0 - 45] (1-bird) permits
- d. South Mono Zone: 0 [0 - 20] (1-bird) permits

...[No Changes subsections 300(a)(1)(D)5. through (b)]

Note: Authority cited: Sections 200, 203, 265 and 355, Fish and Game Code.

Reference: Sections 200, 203, 203.1, 215, 220, 265, 355 and 356, Fish and Game Code.

State of California
Department of Fish and Wildlife

Memorandum

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION

2017 JAN 12 AM 11:01

Date: January 9, 2017

To: Valerie Termini
Executive Director
Fish and Wildlife Commission

From: Charlton H. Bonham
Director



Subject: **Agenda Item for the February 8-9, 2017, Fish and Game Commission Meeting**
Re: Request to Publish Notice of the Commission's Intent to Amend Section 300, Title 14, California Code of Regulations (CCR), Upland Game Birds

The Department of Fish and Wildlife (Department) requests that the Fish and Game Commission (Commission) authorize publishing notice of its intent to amend Section 300, Title 14, CCR. The Department is proposing to amend subsection 300(a)(1)(D)4, adjusting the annual number of General Season sage grouse hunting permits by zone for the 2017-18 season. No other changes are proposed.

If you have any questions regarding this item, please contact T.O. Smith, Wildlife Branch Chief, at (916) 445-3555. The public notice should identify Scott Gardner, Senior Environmental Scientist, as the point of contact at (916) 801-6257 or Scott.Gardner@wildlife.ca.gov.

Attachments

ec: Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

T.O., Branch Chief
Wildlife Branch
Timothy.Smith@wildlife.ca.gov

Craig Stowers, Game Program Manager
Wildlife Branch
Wildlife and Fisheries Division
Craig.Stowers@wildlife.ca.gov

Scott Gardner, Sr. Env. Sci. (Supervisor)
Wildlife Branch
Wildlife and Fisheries Division
Scott.Gardner@wildlife.ca.gov

Valerie Termini, Executive Director
January 9, 2017
Page 2

David Bess, Chief
Law Enforcement Division
David.Bess@wildlife.ca.gov

Patrick Foy, Captain
Law Enforcement Division
Patrick.Foy@wildlife.ca.gov

Wendy Bogdan, Chief Counsel
Office of the General Counsel
Wendy.Bogdan@wildlife.ca.gov

David Kiene, Senior Staff Counsel
Office of the General Counsel
David.Kiene@wildlife.ca.gov

Craig Martz, Program Manager
Regulations Unit
Wildlife and Fisheries Division
Craig.Martz@wildlife.ca.gov

Mike Randall, Analyst
Regulations Unit
Wildlife and Fisheries Division
Mike.Randall@wildlife.ca.gov



February 7, 2017

California Fish and Game Commission
1416 9th Street, Room 1320
Sacramento, CA 95814

Dear Fish and Game Commission President Eric Sklar:

It is our understanding that the California Department of Fish and Wildlife (hereafter as the Department) has been challenged on the management of sage grouse and sage grouse hunting in California. Please accept this letter as a statement of support of the Department's ability to manage wildlife species, including sage grouse, within the state.

The National Wild Turkey Federation (hereafter as NWTF) is one of the largest conservation organizations in the United States with more than 217,000 members nationwide, and more than 3,000 members in the state of California. The mission of the NWTF is *"Dedicated to the Conservation of the Wild Turkey and the Preservation of our Hunting Heritage."* As such, the NWTF is a strong supporter of the North American Model of Wildlife Conservation (hereafter as the North American Model). Two key principles of the North American Model are (1) the best science available will be used as a base for informed decision making in wildlife management, and (2) wildlife will be managed in trust by government agencies.

Hunter harvest provides a valuable tool to state wildlife managers. Harvest data conveys important population abundance, distribution and population sex/age data that would not be attainable otherwise. Also, the Department's population estimates are extremely conservative. Based upon those conservative estimates, the allowable harvest level will not exceed 5% of the predicted fall population. All birds recruited in 2017 are strictly additive to the population, and are not accounted for in the harvest quota.

NWTF firmly supports California's statutory mandates and the precedence afforded in the North American Model regarding the state's right to manage the public's wildlife held in trust. NWTF maintains this as a core conservation value of our organization. Further, NWTF believes that the Department possesses the expertise to manage sage grouse populations using the best available science. NWTF views any restrictions put on the Department to manage these animals to be a direct threat to the continuing successful recovery of sage grouse and other wildlife in California as well as a threat to regulated, science-based hunting in the state.

On behalf of the National Wild Turkey Federation, thank you for the opportunity to comment on this important issue.

Sincerely,

Joe Pecs

California State Chapter President
National Wild Turkey Federation

Cc: Charlton H. Bonham, Director, California Department of Fish and Wildlife

National Wild Turkey Federation

P.O. Box 530 • 770 Augusta Road • Edgefield, South Carolina 29824 • Phone: (803) 637-3106 • Fax: (803) 637-0034

www.nwtf.org



VIA ELECTRONIC MAIL

Fish and Game Commission
1416 Ninth Street, Room 1320
Sacramento, CA 95814
fgc@fgc.ca.gov

April 13, 2017

Re: Item #8, April 26, 2017 Agenda; Discuss proposed changes to upland game bird hunting regulations (Section 300, Title 14, CCR)

Dear Commissioners,

I am writing on behalf of the Center for Biological Diversity (“Center”) regarding Item #8 on the April 26, 2017 agenda listed as “Discuss proposed changes to upland game bird hunting regulations (Section 300, Title 14, CCR),” which includes hunting permits for sage grouse. According to the Initial Statement of Reasons submitted by the Department this item will be discussed both at the April and June meetings and will not be voted on until the June 21, 2017 meeting. The Center intends to submit additional comments on the proposed regulations for sage grouse hunting permits to the Commission for consideration at the June meeting after more information is made available by the Department regarding the 2017 lek counts, the number of permits issued in the 2016-2017 season, and the number of birds killed under those permits and the demographics of those birds killed. The Center provides the following comments to help inform the discussion at the April 26, 2017 meeting.¹

The Initial Statement of Reasons for Regulatory Action (“ISOR”) recommends adopting a range for permits in each zone and states: “For the 2017-2018 season, the Department will present the Commission a recommendation for permits based on the spring 2017 lek counts.” (ISOR at 2.) Those lek counts are not yet available and therefore cannot inform the discussion at the April meeting. Moreover, the Department has not provided the Commission or the public with any information on the number of permits actually issued in 2016-2017 nor information on the number of birds killed and their demographics; this information is also needed to inform public comment and discussion.

¹ The Center has previously submitted detailed letters to the Commission on July 23, 2015 and August 3, 2016 addressing the impacts of hunting on sage grouse and urging the Commission to end hunting of this bird in California to protect the remaining populations (available at http://fgc.ca.gov/meetings/2016/Aug/Exhibits/SS_0825_Item_36_UplandGame.pdf at pdf pages 35-175). Over 2,000 concerned citizens also sent letters to the Commission in 2016 urging the Commission to end hunting of sage grouse in California.

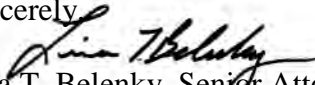
While the Center recognizes that the Department's 2017-2018 proposal reduces the high-end range for the number of permits that could be issued in each of the 4 zones from last year's proposal, we continue to object to these high-end range and urge the Commission to adopt zero permits in all zones. Specifically, the Center has serious concerns about the Department's proposal for the upland bird hunting regulations to provide for a range of permits for sage grouse in the 2017-2018 season for all zones with high-end limits of: 25 two-bird permits for the East Lassen zone; 15 two-bird permits for the Central Lassen Zone; 45 one-bird permits for the North Mono zone; and 20 one-bird permits for the South Mono zone.² While the ISOR claims that these are conservative numbers, nothing in the ISOR discussion shows that the Department has considered the impact of hunting at the high-end range in each of these zones on the sage grouse populations in each zone or the cumulative impact to the Bi-State sage grouse population, or sage grouse populations within California overall. Given the precarious status of this rare bird, the Center urges the Commission to reject the proposed range of permits and instead set the number of permits at zero for all zones in order to support sage grouse conservation.

Although hunting has not been identified as the *primary* reason for the decline of the sage grouse in California, it remains a factor that undermines conservation of this species. As the Department itself admits: "Concerns about the potential effects of hunting to sage grouse through additive mortality have been expressed in the scientific literature, including studies from California." (ISOR at 1.) Because the remaining populations of the sage grouse in California are generally small and isolated, any additive mortality from hunting can put them at risk of further decline and extinction from stochastic events along with other threats such as increased development within sensitive habitat.

The precautionary principle should inform the Commission's decisions on this matter and a zero permit limit for all sage grouse populations in California should be adopted for the 2017-2018 season.

The Center urges the Commission to reject the Department's proposal to amend the upland game regulations as to the sage grouse, and instead we urge the Commission to reduce all permit limits to zero. The Commission should act to conserve this species by eliminating hunting in all zones to protect the remaining California sage grouse populations which are facing multiple threats.

Sincerely,


Lisa T. Belenky, Senior Attorney
Center for Biological Diversity
1212 Broadway, Suite 800
Oakland, CA 94612
(510) 844-7107
lbelenky@biologicaldiversity.org

² Regulatory Language provided for the proposed changes to 14 CCR §300(a)(1)(D):

4. Number of Permits: a. East Lassen Zone: ~~0~~ [0 - 25] (2-bird) permits b. Central Lassen Zone: ~~0~~ [0 - 15] (2-bird) permits c. North Mono Zone: ~~30~~ [0 - 45] (1-bird) permits d. South Mono Zone: ~~0~~ [0 - 20] (1-bird) permits

Memorandum

2016 NOV -2 AM 11:21

Date: ^{Nov 1}
~~October 10~~, 2016

To: Valerie Termini
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director



**Subject: Agenda Item for the December 8-9, 2016 Fish and Game Commission Meeting
Re: Request for Notice Authorization to Amend Subsections (b)(5), (b)(68), and
(b)(156.5) of Section 7.50, Title 14, California Code of Regulations, Central Valley
Chinook Salmon Sport Fishing Regulations**

Please find attached the Initial Statement of Reasons (ISOR) to amend subsections (b)(5), (b)(68), and (b)(156.5) of Section 7.50, Title 14, California Code of Regulations, for Central Valley Chinook Salmon sport fishing regulations.

The California Department of Fish and Wildlife (Department) is proposing a range of bag and possession limits in the American, Feather, and Sacramento rivers to encompass possible Pacific Fishery Management Council (PFMC) 2017 recommendations for Central Valley salmon stocks expected in mid-April. The scope of this proposal is intentionally broad to increase flexibility for development of the final Central Valley Chinook Salmon seasons. Specific bag and possession limits for Central Valley adult fall-run Chinook Salmon will be presented to the Fish and Game Commission after the final PFMC recommendations are adopted by the National Marine Fisheries Service at its April 2017 meeting.

If you have any questions or need additional information, please contact Acting Fisheries Branch Chief, Kevin Shaffer by telephone at (916) 327-8841 or by e-mail at Kevin.Shaffer@wildlife.ca.gov. The public notice should identify Environmental Program Manager, Roger Bloom as the Department's point of contact for this rulemaking. Mr. Bloom can be reached at (916) 445-3777 or by e-mail at Roger.Bloom@wildlife.ca.gov.

Attachment

ec: Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

Valerie Termini, Executive Director
Fish and Game Commission
October 10, 2016
Page 2

Kevin Shaffer, Acting Chief
Fisheries Branch
Wildlife and Fisheries Division
Kevin.Shaffer@wildlife.ca.gov

Roger Bloom
Environmental Program Manager
Fisheries Branch
Wildlife and Fisheries Division
Roger.Bloom@wildlife.ca.gov

Tina Bartlett, Regional Manager
North Central Region (Region 2)
Tina.Bartlett@wildlife.ca.gov

Kevin Thomas
Environmental Program Manager
North Central Region (Region 2)
Kevin.Thomas@wildlife.ca.gov

Karen Mitchell
Senior Environmental Scientist (Specialist)
Fisheries Branch
Wildlife and Fisheries Division
Karen.Mitchell@wildlife.ca.gov

Craig Martz, Program Manager
Regulations Unit
Wildlife and Fisheries Division
Craig.Martz@wildlife.ca.gov

Scott Barrow, Regulations Unit
Senior Environmental Scientist (Specialist)
Wildlife and Fisheries Branch
Scott.Barrow@wildlife.ca.gov

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION

Amend Subsections (b)(5), (b)(68), and (b)(156.5) of Section 7.50,
Title 14, California Code of Regulations
Re: Alphabetical List of Waters with Special Fishing Regulations:
Central Valley Chinook Salmon Sport Fishing

I. Date of Initial Statement of Reasons: September 16, 2016

II. Dates and Locations of Scheduled Hearings:

(a) Notice Hearing:	Date:	December 8, 2016
	Location:	San Diego
(b) Discussion Hearing:	Date:	February 8, 2017
	Location:	Rohnert Park
(c) Adoption Hearing:	Date:	April 13, 2017
	Location:	Teleconference

III. Description of Regulatory Action:

(a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

The current, 2016, sport fishing regulations, California Code of Regulations, Title 14, Section 7.50, allow for Chinook Salmon fishing in the American, Feather and Sacramento rivers. Each year the Department of Fish and Wildlife (Department) recommends new Chinook Salmon bag and possession limits for consideration by the Fish and Game Commission (Commission). The regulation change is necessary to align the 2017 fishing limits with up-to-date management goals as set forth below.

The Pacific Fishery Management Council (PFMC) is responsible for adopting recommendations for the management of recreational and commercial ocean salmon fisheries in the Exclusive Economic Zone (three to 200 miles offshore) off the coasts of Washington, Oregon, and California. When approved by the Secretary of Commerce, these recommendations are implemented as ocean salmon fishing regulations by the National Marine Fisheries Service (NMFS).

The PFMC will develop the annual Pacific coast ocean salmon fisheries regulatory options for public review at its March 2017 meeting and develop the final PFMC regulatory recommendations for adoption by NMFS at its April 2017 meeting. Based on the regulations adopted by NMFS, the Department will recommend specific bag and possession limits to the Commission during a scheduled teleconference meeting on April 13, 2017.

The regulations for the American, Feather, and Sacramento rivers may:

- (1) allow for additional harvest of Chinook Salmon to reduce impacts to spawning habitat if low instream flow conditions persist due to the existing drought;
- (2) increase or decrease the current Chinook Salmon bag and possession limits based on the PFMC salmon abundance estimates and recommendations for ocean harvest for the coming season; and
- (3) establish special closure area for winter-run Chinook Salmon protection on the Sacramento River between Keswick Dam and Highway 44 bridge from April 1 to July 31.

The Commission will then consider the Department's recommendations and consider and adopt final regulations. This is anticipated to occur at the Commission's April 13, 2017 teleconference meeting.

Proposed Regulations

Because the PFMC/NMFS recommendations are not known at this time, a range (shown in brackets in the text below) of bag and possession limits is indicated where it is desirable to continue Chinook Salmon fishing in the American, Feather and Sacramento rivers. The open seasons and proposed range of bag and possession limits for Central Valley fall-run Chinook Salmon stocks are as follows:

American River, subsection 7.50(b)(5)

- (A) From Nimbus Dam to the Hazel Avenue bridge.

July 16 through December 31 with a bag limit of [0-4] Chinook Salmon and a possession limit of [0-8] Chinook Salmon.

- (B) From Hazel Avenue bridge to the USGS gauging station cable crossing near Nimbus Hatchery.

July 16 through August 15 with a bag limit of [0-4] Chinook Salmon and a possession limit of [0-8] Chinook Salmon.

- (C) From the USGS gauging station cable crossing near Nimbus Hatchery to the SMUD power line crossing the southwest boundary of Ancil Hoffman Park.

July 16 through December 31 with a bag limit of [0-4] Chinook Salmon and a possession limit of [0-8] Chinook Salmon.

- (D) From the SMUD power line crossing at the southwest boundary of Ancil Hoffman Park to the Jibboom Street bridge.

July 16 through October 31 with a bag limit of [0-4] Chinook Salmon and a possession limit of [0-8] Chinook Salmon.

(E) From the Jibboom Street bridge to the mouth.

July 16 through December 16 with a bag limit of [0-4] Chinook Salmon and a possession limit of [0-8] Chinook Salmon.

Feather River, subsection 7.50(b)(68)

(D) From the unimproved boat ramp above the Thermalito Afterbay Outfall to the Live Oak boat ramp.

July 16 through October 15 with a bag limit of [0-4] Chinook Salmon and a possession limit of [0-8] Chinook Salmon.

(E) From the Live Oak boat ramp to the mouth.

July 16 through December 16 with a bag limit of [0-4] Chinook Salmon and a possession limit of [0-8] Chinook Salmon.

Sacramento River below Keswick Dam, subsection 7.50(b)(156.5)

(C) From Deschutes Road bridge to the Red Bluff Diversion Dam.

August 1 through December 16 with a bag limit of [0-4] Chinook Salmon and a possession limit of [0-8] Chinook Salmon.

(D) From the Red Bluff Diversion Dam to the Highway 113 bridge.

July 16 through December 16 with a bag limit of [0-4] Chinook Salmon and a possession limit of [0-8] Chinook Salmon.

(E) From the Highway 113 bridge to the Carquinez Bridge.

July 16 through December 16 with a bag limit of [0-4] Chinook Salmon and a possession limit of [0-8] Chinook Salmon.

Special Winter-Run Closure

Sacramento River winter-run Chinook Salmon suffered losses to juvenile natural production of 95% and greater for the years 2014 and 2015 brood years due to low reservoir storage and elevated water temperatures caused by the ongoing drought. Chinook Salmon return to their natal rivers and streams every three years to spawn. In 2017 the drought depleted natural juveniles from the 2014 brood year will return as adults to spawn. Therefore, it is vital to protect this year's predicted small cohort to prevent extinction of winter-run Chinook Salmon. State and federal agencies are working together to help ensure there is sufficient cold water to allow for successful spawning survival. This could be accomplished via the State Water Resources Control Board process or a change in the appropriate reasonable and prudent alternative actions outlined in the 2009 Biological Opinion on the Long-Term Operations of the Central Valley Project and State Water Project.

The Drought Operations Plans have outlined measures to try and prevent extinction of winter-run Chinook Salmon which include: increased hatchery production, enhanced monitoring, and increased rescue efforts. Maximizing adult spawning numbers is critical to the population. Department staff has evaluated the recent winter-run Chinook Salmon spawning locations and have concluded that the majority of winter-run spawning occurs above the Highway 44 bridge.

Although fishing for winter-run Chinook salmon in this reach of the Sacramento River is not allowed under current regulations, incidental by-catch by anglers has been documented to occur, especially during low flow periods. Even if returned to the water, incidental by-catch adds unnecessary stress on winter-run Chinook Salmon resulting in the potential loss of adults before spawning. A fishing closure in the holding and spawning areas of winter-run will add to protections for a Federal and State Endangered fish facing a high risk of extinction.

The Sacramento River from Keswick Dam downstream to the Red Bluff Diversion Dam (RBDD) is a Commission designated Wild Trout Water and provides some of the best rainbow trout fishing in California. The proposed closure from Keswick Dam to the Highway 44 bridge is a 5.5 mile (about nine percent) reduction in areas open to fishing upstream of the RBDD.

Although this represents a small portion of the fishery, it is one of the most popular reaches for both shore based and boat anglers. The Department acknowledges the importance of this sport fishery and understands any closure to angling will likely have a substantial effect to both local anglers and anglers travelling from other parts of the State.

However, given the gravity and magnitude of the current situation facing winter-run Chinook Salmon, the Department is proposing a permanent closure of fishing (April 1 through July 31) in this area and will annually assess the success of all efforts to protect the winter-run Chinook Salmon population.

Sacramento River below Keswick Dam, subsection 7.50(b)(156.5)

(B) From 650 feet below Keswick Dam to Deschutes Road bridge.

1. From 650 feet below Keswick Dam to the Highway 44 bridge.

January 1 through March 31 with a bag limit of 2 hatchery trout or hatchery steelhead and 4 hatchery trout or hatchery steelhead in possession.

Closed to all fishing from April 1 to July 31.

Open from August 1 through December 16 with a bag limit of 2 hatchery trout or hatchery steelhead and 4 hatchery trout or hatchery steelhead in possession.

2. From the Highway 44 bridge to the Deschutes Road bridge.

All year with a bag limit of 2 hatchery trout or hatchery steelhead and 4 hatchery trout or hatchery steelhead in possession.

Other changes are proposed for clarity and consistency. The capitalization of common species names is being done for consistency with American Fisheries Society standards.

As set forth in Fish and Game Code section 1700, it is “the policy of the state to encourage the conservation, maintenance, and utilization of the living resources of the ocean and other waters under the jurisdiction and influence of the state for the benefit of all the citizens of the state and to promote the development of local fisheries and distant-water fisheries based in California in harmony with international law respecting fishing and the conservation of the living resources of the oceans and other waters under the jurisdiction and influence of the state.

This policy shall include [as applicable to inland fisheries] all of the following objectives:

- (a) The maintenance of sufficient populations of all species of aquatic organisms to insure their continued existence.
- (c) The maintenance of a sufficient resource to support a reasonable sport use, where a species is the object of sport fishing, taking into consideration the necessity of regulating individual sport fishery bag limits to the quantity that is sufficient to provide a satisfying sport.
- (e) The management, on a basis of adequate scientific information promptly promulgated for public scrutiny, of the fisheries under the state’s jurisdiction, and the participation in the management of other fisheries in which California fishermen are engaged, with the objective of maximizing the sustained harvest.”

Adoption of scientifically-based Central Valley Chinook Salmon bag and possession limits provides for the maintenance of sufficient populations of Chinook Salmon to ensure their continued existence. The benefits of the proposed regulations are in concurrence with federal law, sustainable management of Central Valley Chinook Salmon resources, and promotion of businesses that rely on Central Valley Chinook Salmon sport fishing.

(b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Sections 200, 202, 205, 215, 220, 240, 315 and 316.5, Fish and Game Code.

Reference: Sections 200, 202, 205, 206, 215 and 316.5, Fish and Game Code.

(c) Specific Technology or Equipment Required by Regulatory Change: None.

(d) Identification of Reports or Documents Supporting Regulation Change: None.

(e) Public Discussions of Proposed Regulations Prior to Notice Publication:

No public meetings are being held prior to the notice publication. The 45-day comment period provides adequate time for review of the proposed amendments.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

No alternatives were identified.

(b) No Change Alternative:

The no change alternative would leave existing regulations in place. The no-change alternative would not be consistent with state policy to maintain harmony with federal and international law related to fisheries management, and the proposed regulations will allow the state to harmonize its bag and possession limits with NMFS' regulations.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made:

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed changes are necessary

for the continued preservation of the resource and therefore the prevention of adverse economic impacts.

- (b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The Commission does not anticipate any impacts on the creation or elimination of jobs, the creation of new business, the elimination of existing businesses or the expansion of businesses in California. The minor variations in the bag and possession limits as may be established in the regulations are, by themselves, unlikely to impact business or jobs.

The Commission anticipates benefits to the health and welfare of California residents. Providing opportunities for a Chinook Salmon sport fishery encourages consumption of a nutritious food. The Commission anticipates benefits to the environment by the sustainable management of California's Chinook Salmon resources.

Adoption of scientifically-based Central Valley Chinook Salmon bag and possession limits provides for the maintenance of sufficient populations of Chinook Salmon to ensure their continued existence. The benefits of the proposed regulations are in concurrence with federal law, sustainable management of Central Valley Chinook Salmon resources, and promotion of businesses that rely on Central Valley Chinook Salmon sport fishing.

The Commission does not anticipate any non-monetary benefits to worker safety.

- (c) Cost Impacts on a Representative Private Person or Business:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

- (d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None.

- (e) Nondiscretionary Costs/Savings to Local Agencies: None.

- (f) Programs Mandated on Local Agencies or School Districts: None.

- (g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed Under Part 7 (commencing with Section 17500) of Division 4, Government Code: None.

- (h) Effect on Housing Costs: None.

VII. Economic Impact Assessment

(a) Creation or Elimination of Jobs, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California

The Commission does not anticipate any substantial impacts on the creation or elimination of jobs, the creation of new business, the elimination of existing businesses, or the expansion of businesses in California, that provide services to inland sport fishermen from the proposed regulations. The proposed changes in subsections 7.50(b)(5), (b)(68), and (b)(156.5) affect the bag and possession limits for Chinook Salmon in the American, Feather, and Sacramento rivers. These minor variations in the bag and possession limits as may be established in the regulations are, by themselves, unlikely to stimulate the creation of new businesses or cause the elimination of existing businesses. The number of fishing trips and the economic contributions from them are expected to remain more or less the same.

(b) Benefits of the Regulation to the Environment

As set forth in Fish and Game Code section 1700, it is “the policy of the state to encourage the conservation, maintenance, and utilization of the living resources of the ocean and other waters under the jurisdiction and influence of the state for the benefit of all the citizens of the state and to promote the development of local fisheries and distant-water fisheries based in California in harmony with international law respecting fishing and the conservation of the living resources of the oceans and other waters under the jurisdiction and influence of the state.”

In accordance with this policy, adoption of scientifically-based inland Chinook Salmon seasons and bag and possession limits provides for the maintenance of sufficient populations of trout and salmon to ensure their continued existence.

(c) Health and Welfare of California Residents

The Commission anticipates benefits to the health and welfare of California residents. Chinook Salmon is a nutritious food source and providing inland sport fishery opportunities encourages consumption of this nutritious food. Sport fishing also contributes to increased mental health of its practitioners as fishing is a hobby and form of relaxation for many. Sport fishing also provides opportunities for multi-generational family activities and promotes respect for California’s environment by younger generations, the future stewards of California’s natural resources.

(d) Benefits to Worker Safety

The Commission does not anticipate any benefits to worker safety from the proposed regulations because inland sport fishing does not impact working conditions.

Informative Digest/Policy Statement Overview

The current, 2016, sport fishing regulations allow for Chinook Salmon fishing in the American, Feather and Sacramento rivers. The Department of Fish and Wildlife (Department) is recommending new Chinook Salmon bag and possession limits in the American, Feather, and Sacramento rivers for the 2017 season.

The Pacific Fishery Management Council (PFMC) is responsible for adopting recommendations for the management of recreational and commercial ocean salmon fisheries in the Exclusive Economic Zone (three to 200 miles offshore) off the coasts of Washington, Oregon, and California. When approved by the Secretary of Commerce, these recommendations are implemented as ocean salmon fishing regulations by the National Marine Fisheries Service (NMFS).

The PFMC will develop the annual Pacific coast ocean salmon fisheries regulatory options for public review at its March 2017 meeting and develop the final PFMC regulatory recommendations for adoption by NMFS at its April 2017 meeting.

Based on the action taken by NMFS and the recommendation of the Department, the Commission will adopt bag and possession limits for the American, Feather, and Sacramento rivers which may:

- (1) allow for additional harvest of Chinook Salmon if low instream flow conditions persist due to the existing drought to reduce impacts to spawning habitat;
- (2) increase or decrease the current Chinook Salmon bag and possession limits based on the PFMC salmon abundance estimates and recommendations for ocean harvest for the coming season; and
- (3) establish special closure area for winter-run Chinook Salmon protection on the Sacramento River between Keswick Dam and Highway 44 bridge from April 1 to July 31.

Benefits of the regulations

As set forth in Fish and Game Code section 1700 it is “the policy of the state to encourage the conservation, maintenance, and utilization of the living resources of the ocean and other waters under the jurisdiction and influence of the state for the benefit of all the citizens of the state and to promote the development of local fisheries and distant-water fisheries based in California in harmony with international law respecting fishing and the conservation of the living resources of the oceans and other waters under the jurisdiction and influence of the state.

Adoption of scientifically-based Central Valley Chinook Salmon bag and possession limits provides for the maintenance of sufficient populations of Chinook Salmon to ensure their continued existence. The benefits of the proposed regulations are in concurrence with Federal law, sustainable management of the Central Valley Chinook Salmon resources, and promotion of businesses that rely on Central Valley Chinook Salmon sport fishing.

Consistency with State and Federal Regulations

Article IV, section 20 of the State Constitution specifies that the Legislature may delegate to the Fish and Game Commission such powers relating to the protection and propagation of fish and game as the Legislature sees fit. The Legislature has delegated to the Commission the power to regulate recreational fishing in waters of the state (Fish & Game Code, §§ 200, 202, 205). The Commission has reviewed its own regulations and finds that the proposed regulations are neither inconsistent nor incompatible with existing state regulations. The Commission has searched the California Code of Regulations and finds no other state agency regulations pertaining to recreational fishing seasons, bag and possession limits. Further, the Commission has determined that the proposed regulations are neither incompatible nor inconsistent with existing federal regulations.

Regulatory Language

Section 7.50, Title 14, CCR is amended to read as follows:

§ 7.50. Alphabetical List of Waters with Special Fishing Regulations.

... [No changes to subsections (a) through (b)(4)]

<i>Body of Water</i>	<i>Open Season and Special Regulations</i>	<i>Daily Bag and Possession Limit</i>
(5) American River (Sacramento Co.)		
(A) From Nimbus Dam to the Hazel Avenue bridge piers.	Jan. 1 through July 15.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
	July 16 through Dec. 31.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession 2[0-4] Chinook Salmon 4[0-8] Chinook salmon Salmon in possession
(B) From Hazel Avenue bridge piers to the U.S. Geological Survey gauging station cable crossing about 300 yards	Jan. 1 through July 15. Only barbless hooks may be used.	2 hatchery trout or hatchery steelhead**

downstream from the Nimbus Hatchery fish rack site.		4 hatchery trout or hatchery steelhead** in possession
	July 16 through Aug. 15. Only barbless hooks may be used.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession 2 <u>[0-4]</u> Chinook salmon <u>Salmon</u> 4 <u>[0-8]</u> Chinook salmon <u>Salmon</u> in possession
(C) From the U.S. Geological Survey gauging station cable crossing about 300 yards downstream from the Nimbus Hatchery fish rack site to the SMUD power line crossing at the southwest boundary of Ancil Hoffman Park.	Jan. 1 through July 15. Only barbless hooks may be used.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
	July 16 through Oct. 31. Only barbless hooks may be used.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession 2 <u>[0-4]</u> Chinook salmon <u>Salmon</u> 4 <u>[0-8]</u> Chinook

		salmon <u>Salmon</u> in possession
(D) From the SMUD power line crossing at the southwest boundary of Ancil Hoffman Park downstream to the Jibboom Street bridge.	Jan. 1 through July 15.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
	July 16 through Dec. 31.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession 2[0-4] Chinook salmon <u>Salmon</u> 4[0-8] Chinook salmon <u>Salmon</u> in possession
(E) From the Jibboom Street bridge to the mouth.	Jan. 1 through July 15.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
	July 16 through Dec. 16.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or

		hatchery steelhead** in possession 2 [0-4] Chinook salmon <u>Salmon</u> 4 [0-8] Chinook salmon <u>Salmon</u> in possession
	Dec. 17 through Dec. 31.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession

... [No changes to subsections (b)(6) through (b)(67)]

<i>Body of Water</i>	<i>Open Season and Special Regulations</i>	<i>Daily Bag and Possession Limit</i>
(68) Feather River below Fish Barrier Dam (Butte, Sutter and Yuba cos.).		
(A) From Fish Barrier Dam to Table Mountain bicycle bridge in Oroville.	Closed to all fishing all year.	

(B) From Table Mountain bicycle bridge to Highway 70 bridge.	Jan. 1 through July 15. Only barbless hooks may be used.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
(C) From Highway 70 bridge to the unimproved boat ramp above the Thermalito Afterbay Outfall.	All year.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
(D) From the unimproved boat ramp above the Thermalito Afterbay Outfall to 200 yards above the Live Oak boat ramp.	Jan. 1 through July 15.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
	July 16 through Oct. 15.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession 2[0-4] Chinook salmon 4[0-8] Chinook salmon in possession

	Oct. 16 through Dec. 31.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
(E) From 200 yards above Live Oak boat ramp to the mouth. For purposes of this regulation, the lower boundary is defined as a straight line drawn from the peninsula point on the west bank to the Verona Marine boat ramp.	Jan. 1 through July 15.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
	July 16 through Dec. 16.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession 2[0-4] Chinook salmon Salmon 4[0-8] Chinook salmon Salmon in possession
	Dec. 17 to Dec. 31.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession

. . . [No changes to subsections (b)(68.1) through (b)(156)]

<i>Body of Water</i>	<i>Open Season and Special Regulations</i>	<i>Daily Bag and Possession Limit</i>
(156.5) Sacramento River and tributaries below Keswick Dam (Butte, Colusa, Contra Costa, Glenn, Sacramento, <u>Shasta</u> , Solano, Sutter, Tehama and Yolo cos.).	Also see Sierra District General Regulations (See Section 7.00(b)).	
(A) Sacramento River from Keswick Dam to 650 feet below Keswick Dam.	Closed to all fishing all year.	
(B) Sacramento River from 650 feet below Keswick Dam to the Deschutes Road bridge.	All year. Only barbless hooks may be used.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
<u>1. Sacramento River from 650 feet below Keswick Dam to the Highway 44 bridge.</u>	<u>Jan. 1 to Mar. 31. Only barbless hooks may be used.</u>	<u>2 hatchery trout or hatchery steelhead**</u> <u>4 hatchery trout or hatchery steelhead** in possession</u>
	<u>Closed to all fishing from Apr. 1 through July 31.</u>	
	<u>Aug. 1 through Dec. 31. Only barbless hooks may be used.</u>	<u>2 hatchery trout or hatchery steelhead**</u> <u>4 hatchery trout or hatchery steelhead** in possession</u>
<u>2. Sacramento River from the Highway 44 bridge to the Deschutes Road bridge.</u>	<u>All year. Only barbless hooks may be used.</u>	<u>2 hatchery trout or hatchery steelhead**</u> <u>4 hatchery trout or hatchery steelhead** in possession</u>
(C) Sacramento River from the Deschutes Road bridge to the Red Bluff Diversion Dam.	Jan. 1 through July 31.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in

		possession
	Aug. 1 through Dec. 16.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession 2 <u>[0-4]</u> Chinook salmon <u>Salmon</u> 4 <u>[0-8]</u> Chinook salmon <u>Salmon</u> in possession
	Dec. 17 through Dec. 31.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
(D) Sacramento River from Red Bluff Diversion Dam to the Hwy 113 bridge near Knights Landing. Note: It is unlawful to take fish 0-250 feet downstream from the overflow side of the Moulton, Colusa and Tisdale Weirs.	Jan. 1 through July 15.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
	July 16 through Dec. 16.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession 2 <u>[0-4]</u> Chinook salmon <u>Salmon</u> 4 <u>[0-8]</u> Chinook salmon <u>Salmon</u> in possession
	Dec. 17 through Dec. 31.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession
(E) Sacramento River from the Hwy 113 bridge near Knights Landing to the	Jan. 1 through July 15.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or

Carquinez Bridge (includes Suisun Bay, Grizzly Bay and all tributary sloughs west of Highway 160). Note: It is unlawful to take fish 0-250 feet downstream from the overflow side of the Fremont and Sacramento Weirs.		hatchery steelhead** in possession
	July 16 through Dec. 16.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession 2[0-4] Chinook salmon Salmon 4[0-8] Chinook salmon Salmon in possession
	Dec. 17 through Dec. 31.	2 hatchery trout or hatchery steelhead** 4 hatchery trout or hatchery steelhead** in possession

. . . [No changes subsections 7.50(b)(157) through (b)(212)]

* Wild Chinook ~~salmon~~Salmon are those not showing a healed adipose fin clip and not showing a healed left ventral fin clip.

**Hatchery trout or steelhead in anadromous waters are those showing a healed adipose fin clip (adipose fin is absent). Unless otherwise provided, all other trout and steelhead must be immediately released. Wild trout or steelhead are those not showing a healed adipose fin clip (adipose fin is present).

Note: Authority cited: Sections 200, 202, 205, 215, 220, 240, 315 and 316.5, Fish and Game Code. Reference: Sections 200, 202, 205, 215 and 316.5, Fish and Game Code.

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION

2017 JAN 18 AM 9:11

Memorandum

Date: January 10, 2017

To: Valerie Termini
Executive Director
Fish and Game Commission

From: Stafford Lehr
Deputy Director



Subject: **Initial Study/Negative Declaration for Proposed Amendments to Central Valley Salmon Sport Fishing Regulations, Title 14, California Code of Regulations**

In compliance with the California Environmental Quality Act, the Department of Fish and Wildlife has prepared the enclosed *Initial Study/Negative Declaration for Proposed Amendments to Central Valley Salmon Sport Fishing Regulations, Title 14, California Code of Regulations* for the Fish and Game Commission 2017 Sport Fishing Regulation Cycle.

If you have any questions regarding the enclosed documents, please contact Karen Mitchell, Senior Environmental Scientist, at (916) 445-0826 or at Karen.Mitchell@wildlife.ca.gov.

Attachment

cc: Kevin Shaffer, Chief
Fisheries Branch
Kevin.Shaffer@Wildlife.ca.gov

Roger Bloom
Program Manager
Roger.Bloom@Wildlife.ca.gov

STATE OF CALIFORNIA
NATURAL RESOURCES AGENCY
FISH AND GAME COMMISSION
NEGATIVE DECLARATION
FOR
PROPOSED AMENDMENTS
TO
CENTAL VALLEY SALMON SPORT FISHING REGULATIONS
TITLE 14, CALIFORNIA CODE OF REGULATIONS

Prepared by:

California Department of Fish and Wildlife
Fisheries Branch

This Report Has Been Prepared Pursuant to the
California Environmental Quality Act of 1970
State of California
Natural Resources Agency
Fish and Game Commission

State Clearinghouse #

**INITIAL STUDY AND NEGATIVE DECLARATION
FOR
PROPOSED AMENDMENTS
TO
CENTRAL VALLEY SALMON SPORT FISHING REGULATIONS
TITLE 14, CALIFORNIA CODE OF REGULATIONS**

The Project

The Fish and Game Commission (Commission) proposes to amend the Central Valley salmon sport fishing regulations as set forth in Title 14 of the California Code of Regulations. The current 2016 sport fishing regulations, California Code of Regulations, Title 14, Section 7.50, allow for salmon fishing in the American, Feather and Sacramento rivers. Each year the Department of Fish and Wildlife (Department) evaluates the potential need to amend the existing Chinook salmon bag and possession limits, and open seasons, to align with up to date management goals. Any proposed changes to the salmon fishing regulations are presented to the Commission for consideration.

The Findings

The initial study and the Commission's review of the project showed that the project will not have any significant or potentially significant effects on the environment and therefore no alternatives or mitigation measures are proposed to avoid or reduce any significant effects on the environment. The project will not have a significant effect on aesthetics, agriculture and forest resources, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, and utilities and service systems.

Basis of the Findings

Based on the initial study, implementing the proposed project will not have any significant or potentially significant effects on the environment. Therefore, a negative declaration is filed pursuant to the California Environmental Quality Act, Public Resource Code Section 21080, subdivision (c).

This proposed negative declaration consists of the following:

- Introduction – Project Description and Background Information on the Proposed Amendments to Central Valley Salmon Sport Fishing Regulations
- Initial Study Environmental Checklist Form
- Explanation of the Response to the Initial Study Environmental Checklist Form

**PROJECT DESCRIPTION AND BACKGROUND INFORMATION
FOR
PROPOSED AMENDMENTS
TO
CENTRAL VALLEY SALMON SPORT FISHING REGULATIONS
TITLE 14, CALIFORNIA CODE OF REGULATIONS**

Introduction

Annually, the Department of Fish and Wildlife (Department) recommends Central Valley salmon sport fishing regulations to the Fish and Game Commission (Commission). The Commission then makes the final determination on what amendments to the regulations should be implemented, and is the lead agency for the purposes of CEQA. Under Fish and Game Code Section 200, the Commission has the authority to regulate the taking or possession of fish in the sport fishing context.

Project goals and objectives

The goal of this project is to amend the Central Valley salmon sport fishing regulations in furtherance of the state's policy on conservation, maintenance, and utilization of California's aquatic resources. Fish and Game Code Section 1700 declares the state's policy is to encourage the conservation, maintenance and utilization of California's aquatic resources. This section includes the following objectives:

1. Maintain sufficient populations of all aquatic species to ensure their continued existence.
2. Maintain sufficient resources to support a reasonable sport use.
3. Manage using best available science and public input.

Background

The Pacific Fishery Management Council (PFMC) is responsible for adopting recommendations for the management of recreational and commercial ocean salmon fisheries in the Exclusive Economic Zone (three to 200 miles offshore) off the coasts of Washington, Oregon, and California. When approved by the Secretary of Commerce, these recommendations are implemented as ocean salmon fishing regulations by the National Marine Fisheries Service (NMFS).

The PFMC will develop the annual Pacific coast ocean salmon fisheries regulatory options for public review at its March 2017 meeting and develop the final PFMC regulatory recommendations for adoption by NMFS at its April 2017 meeting. Based on the regulations adopted by NMFS, the Department will recommend specific bag and possession limits to the Commission during a scheduled teleconference call on April 13, 2017.

The new regulations for the American, Feather, and Sacramento rivers may:

- (1) allow for additional harvest of salmon if low instream flow conditions persist due to the existing drought to reduce impacts to spawning habitat; and
- (2) increase or decrease the current salmon bag and possession limits based on the PFMC salmon abundance estimates and recommendations for ocean harvest for the coming season.
- (3) establish special closure area for winter-run Chinook Salmon protection on the Sacramento River between Keswick Dam and Highway 44 bridge from April 1 to July 31.

Project Location

Central Valley salmon sport fishing addressed by this environmental document occurs in the waters of the American, Feather, and Sacramento rivers in northern California, in the counties of Siskiyou, Shasta, Tehama, Colusa, Butte, Yuba, Sutter, Placer, El Dorado, Sacramento, Yolo, Solano, and Contra Costa.

Schedule

If adopted by the Commission and approved by the Office of Administrative Law, the proposed regulatory amendments described below will go into effect June 1, 2017.

Project Description

Because the PFMC/NMFS recommendations are not known at this time, a range (shown in brackets in the text below) of bag and possession limits is indicated where it is desirable to continue Chinook Salmon fishing in the American, Feather and Sacramento rivers. The open seasons and proposed range of bag and possession limits for Central Valley fall-run Chinook Salmon stocks are as follows:

American River, subsection 7.50(b)(5)

- (A) From Nimbus Dam to the Hazel Avenue bridge.

July 16 through December 31 with a bag limit of [0-4] Chinook salmon and a possession limit of [0-8] Chinook salmon.

- (B) From Hazel Avenue bridge to the USGS gauging station cable crossing near Nimbus Hatchery.

July 16 through August 15 with a bag limit of [0-4] Chinook salmon and a possession limit of [0-8] Chinook salmon.

- (C) From the USGS gauging station cable crossing near Nimbus Hatchery to the SMUD power line crossing the southwest boundary of Ancil Hoffman Park.

July 16 through December 31 with a bag limit of [0-4] Chinook salmon and a possession limit of [0-8] Chinook salmon.

- (D) From the SMUD power line crossing at the southwest boundary of Ancil

Hoffman Park to the Jibboom Street bridge.

July 16 through October 31 with a bag limit of [0-4] Chinook salmon and a possession limit of [0-8] Chinook salmon.

(E) From the Jibboom Street bridge to the mouth.

July 16 through December 16 with a bag limit of [0-4] Chinook salmon and a possession limit of [0-8] Chinook salmon.

Feather River, subsection 7.50(b)(68)

(D) From the unimproved boat ramp above the Thermalito Afterbay Outfall to the Live Oak boat ramp.

July 16 through October 15 with a bag limit of [0-4] Chinook salmon and a possession limit of [0-8] Chinook salmon.

(E) From the Live Oak boat ramp to the mouth.

July 16 through December 16 with a bag limit of [0-4] Chinook salmon and a possession limit of [0-8] Chinook salmon.

Sacramento River below Keswick Dam, subsection 7.50(b)(156.5)

(C) From Deschutes Road bridge to the Red Bluff Diversion Dam.

August 1 through December 16 with a bag limit of [0-4] Chinook salmon and a possession limit of [0-8] Chinook salmon.

(D) From the Red Bluff Diversion Dam to the Highway 113 bridge.

July 16 through December 16 with a bag limit of [0-4] Chinook salmon and a possession limit of [0-8] Chinook salmon.

(E) From the Highway 113 bridge to the Carquinez Bridge.

July 16 through December 16 with a bag limit of [0-4] Chinook salmon and a possession limit of [0-8] Chinook salmon.

Special Winter-Run Closure

Sacramento River winter-run Chinook Salmon suffered losses to juvenile natural production of 95% and greater for the years 2014 and 2015 brood years due to low reservoir storage and elevated water temperatures caused by the ongoing drought. Chinook Salmon return to their natal rivers and streams every three years to spawn. In 2017 the drought depleted natural juveniles from the 2014 brood year will return as adults to spawn. Therefore, it is vital to protect this year's predicted small cohort to

prevent extinction of winter-run Chinook Salmon. State and federal agencies are working together to help ensure there is sufficient cold water to allow for successful spawning survival. This could be accomplished via the State Water Resources Control Board process or a change in the appropriate reasonable and prudent alternative actions outlined in the 2009 Biological Opinion on the Long-Term Operations of the Central Valley Project and State Water Project.

The Drought Operations Plans have outlined measures to try and prevent extinction of winter-run Chinook Salmon which include: increased hatchery production, enhanced monitoring, and increased rescue efforts. Maximizing adult spawning numbers is critical to the population. Department staff have evaluated the recent winter-run Chinook Salmon spawning locations and have concluded that the majority of winter-run spawning occurs above the Highway 44 bridge.

Although fishing for winter-run Chinook salmon in this reach of the Sacramento River is not allowed under current regulations, incidental by-catch by anglers has been documented to occur, especially during low flow periods. Even if returned to the water, incidental by-catch adds unnecessary stress on winter-run Chinook Salmon resulting in the potential loss of adults before spawning. A fishing closure in the holding and spawning areas of winter-run will add to protections for a Federal and State Endangered fish facing a high risk of extinction.

The Sacramento River from Keswick Dam downstream to the Red Bluff Diversion Dam (RBDD) is a Commission designated Wild Trout Water and provides some of the best rainbow trout fishing in California. The proposed closure from Keswick Dam to the Highway 44 bridge is a 5.5 mile (about nine percent) reduction in areas open to fishing upstream of the RBDD.

Although this represents a small portion of the fishery, it is one of the most popular reaches for both shore based and boat anglers. The Department acknowledges the importance of this sport fishery and understands any closure to angling will likely have a substantial effect to both local anglers and anglers travelling from other parts of the State.

However, given the gravity and magnitude of the current situation facing winter-run Chinook Salmon, the Department is proposing a permanent closure of fishing (April 1 through July 31) in this area and will annually assess the success of all efforts to protect the winter-run Chinook Salmon population.

Sacramento River below Keswick Dam, subsection 7.50(b)(156.5)

(B) From 650 feet below Keswick Dam to Deschutes Road bridge.

1. From 650 feet below Keswick Dam to the Highway 44 bridge.

January 1 through March 31 with a bag limit of 2 hatchery trout or hatchery steelhead and 4 hatchery trout or hatchery steelhead in possession.

Closed to all fishing from April 1 to July 31.

Open from August 1 through December 16 with a bag limit of 2 hatchery trout or hatchery steelhead and 4 hatchery trout or hatchery steelhead in possession.

2. From the Highway 44 bridge to the Deschutes Road bridge.

All year with a bag limit of 2 hatchery trout or hatchery steelhead and 4 hatchery trout or hatchery steelhead in possession.

ENVIRONMENTAL CHECKLIST FORM

1. Project Title:
Proposed Amendments to Central Valley Salmon Sport Fishing Regulations, Title 14, California Code of Regulations
2. Lead Agency Name and Address:
California Fish and Game Commission
1416 Ninth Street
Sacramento, CA 95814
3. Contact Person and Phone Number:
Valerie Termini, (916) 653-4899
4. Project Location:
The Sacramento, Feather, and American rivers.
5. Project Sponsor's Name and Address:
California Department of Fish and Wildlife
Fisheries Branch
830 S Street
Sacramento, CA 95811
6. General Plan designation:
N/A (statewide)
7. Zoning:
N/A (statewide)
8. Description of Project:
Potentially amend the daily bag and possession limits for the Central Valley salmon sport fishery to maintain consistency with the Department's mission to manage California's diverse fisheries resources for their ecological value, their use and for the public's enjoyment.
9. Surrounding land uses and setting:
N/A
10. Other Public Agencies Whose Approval Is Required:
None

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry	<input type="checkbox"/>	Air Quality
<input type="checkbox"/>	Biological Resources	<input type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards and Hazardous Materials	<input type="checkbox"/>	Hydrology/Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Tribal Cultural Resources	<input type="checkbox"/>	Utilities/Service Systems
<input type="checkbox"/>	Mandatory Findings of Significance				

This project will not have a "Potential Significant Impact" on any of the environmental factors listed above; therefore, no boxes are checked.

DETERMINATION:

On the basis of this initial evaluation:

<input checked="" type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to

	applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.
--	--

Valerie Termini, Executive Director

Date

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
area structures which would impede or redirect flood flows?				
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XI. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
excessive groundborne vibration or groundborne noise levels?				
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XIII. POPULATION AND HOUSING:				
Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XIV. PUBLIC SERVICES:				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVI. TRANSPORTATION/TRAFFIC:				
Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geologically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.				
XVIII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

EXPLANATION OF RESPONSES TO INITIAL STUDY ENVIRONMENTAL CHECKLIST

I. AESTHETICS

- a) The project will not have an adverse effect on a scenic vista. Such an impact will not occur because the project will not involve any construction, land alternation, or modification of any buildings or structures.
- b) The project will not damage scenic resources such as trees, rock outcroppings, and historic buildings. Such an impact will not occur because the project will not involve any construction, land alteration, or modification of any buildings or structures.
- c) The project will not substantially degrade the existing visual character or quality of the work sites and their surroundings. Such an impact will not occur because the project will not involve any construction, land alternation, or modification of any buildings or structures.
- d) The project will not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

II. AGRICULTURE RESOURCES

- a) The project will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to non-agricultural use. Such an impact will not occur because the project will not involve any construction, land alternation, or land use changes.
- b) The project will not conflict with existing zoning for agricultural use or a Williamson Act contract. Such an impact will not occur because the project will not involve any construction, land alternation, or land use changes.
- c) The project will not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timber zoned Timberland Production. Such an impact will not occur because the project will not involve any construction, land alternation, or land use changes.
- d) There will be no loss of forest land and the project will not result in the conversion of forest land to non-forest use. Such an impact will not occur because the project will not involve any construction, land alternation, or land use changes.
- e) The project will not involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use. Such an impact will not occur because the project will not involve any construction, land alternation, or land use changes.

III. AIR QUALITY

- a) The project will not conflict with or obstruct implementation of the applicable air quality plan. Such an impact will not occur because the project will not involve any construction, land alternation, or land use changes.
- b) The project will not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Such an impact will not occur because the project will not involve any construction, land alternation, or land use changes.
- c) The project will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). Such an impact will not occur because the project involves no ongoing sources of air pollution.
- d) The project will not expose sensitive receptors to substantial pollutant concentrations. Such an impact will not occur because the project will not increase pollutant concentrations.
- e) The project will not create objectionable odors affecting a substantial number of people.

IV. BIOLOGICAL RESOURCES

- a) The project will not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the CDFW, National Marine Fisheries Service (NMFS) or U. S. Fish and Wildlife Service (USFWS).

An increase in the daily bag and possession limit for Central Valley fall-run Chinook salmon would not directly or indirectly affect candidate, sensitive, or special-status species. Although listed fish species including Central Valley steelhead, Central Valley spring-run Chinook salmon, and winter-run Chinook salmon could be present in the lower American, Sacramento, or Feather rivers during the Central Valley fall-run Chinook salmon sport fishing season, existing sport fishing regulations prohibit take of these species.

The intent of the proposed seasonal fishing closure on the Sacrament River from April 1 through July 31 is to protect federally endangered winter-run Chinook Salmon and would not have an adverse effect on candidate, sensitive, or special-status species in the project area.

- b) The project will not have an adverse effect on any riparian habitat or other sensitive natural communities identified in local or regional plans, policies and regulations, or

by the CDFW or the USFWS. Such an impact will not occur because the project will not involve any construction, land alternation, or land use changes.

- c) The project will not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Such an impact will not occur because the project will not involve any construction, land alteration, or land use changes.
- d) The project will not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Such an impact will not occur because the project will not involve any construction, land alteration, or land use changes.
- e) The project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Such an impact will not occur because the project will not result in any construction, land alteration, or land use changes.
- f) The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. Such an impact will not occur because the project will not involve any construction, land alteration, or land use changes.

V. CULTURAL RESOURCES

- a) The project will not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5. There is no ground disturbing work and thus no potential to affect historical resources.
- b) The project will not cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. There is no ground disturbing work and thus no potential to affect archaeological resources.
- c) The project will not directly or indirectly destroy any unique paleontological resources or sites, or unique geologic features. There is no ground disturbing work and thus no potential to affect paleontological resources.
- c) The project will not disturb any human remains, including those interred outside of formal cemeteries. There is no ground disturbing work and thus no potential to affect human remains.

VI. GEOLOGY AND SOILS

- a i) The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area, or based on other substantial evidence of a known fault. Such an impact will not occur because the project will not involve ground disturbing work.
- a ii) The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Such an impact will not occur because the project will not involve ground disturbing work.
- a iii) The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. Such an impact will not occur because the project will not involve ground disturbing work.
- a iv) The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. Such an impact will not occur because the project will not involve ground disturbing work.
- b) The project will not result in substantial soil erosion or the loss of topsoil. Such an impact will not occur because the project will not involve ground disturbing work.
- c) The project will not be located on a geologic unit or soil that unstable, or that would become unstable and potentially result in on- or off- site landslides, lateral spreading, subsidence, liquefaction, or collapse. Such an impact will not occur because the project will not involve ground disturbing work.
- d) The project will not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property. Such an impact will not occur because the project will not involve ground disturbing work.
- d) The project will not create any sources of waste water requiring a septic system

VII. GREENHOUSE GAS EMISSIONS

- a. The project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. The project will not involve any construction, land alternation, or land use changes.
- b. The project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG. The impacts of GHG produced by the use of vehicles to and from the Sacramento River during the angling season will

be negligible.

VIII. HAZARDS AND HAZARDOUS MATERIALS

- a) The project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The project will not involve the transport, use, or disposal of hazardous materials.
- b) The project will not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The project will not involve the transport, use, or disposal of hazardous materials.
- c) The project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The project will not involve the transport, use, or disposal of hazardous materials.
- d) The project will not be located on any site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.
- e) The project will not be located within an airport land use plan area.
- f) The project will not be located within the vicinity of a private airstrip.
- g) The project will not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. The project will not involve any construction, land alteration, or land use changes.
- h) The project will not expose people or structures to a significant risk of loss, injury, or death involving wild land fires. The project will not involve any construction, land alteration, or land use changes.

IX. HYDROLOGY AND WATER QUALITY

- a) The project will not violate any water quality standards or waste discharge requirements. The project will not involve any construction, land alteration, water use, or water discharge.
- b) The project will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. The project will not involve any construction, land alteration, or groundwater use.
- c) The project will not substantially alter the existing drainage pattern of the work sites in a manner that would result in substantial erosion or siltation on- or off-site because the project will not involve any construction or land alteration.

- d) The project will not substantially alter the existing drainage pattern of the work sites, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site because the project will not involve any construction or land alteration.
- e) The project will not create or contribute runoff water that would exceed the capacity of existing or planned storm-water drainage systems, or provide substantial additional sources of polluted runoff because the project will not involve any construction or land alteration.
- f) The project will not substantially degrade water quality. The project will not involve any construction or land alteration, and thus will not have any adverse impacts on water quality.
- g) The project will not place housing within a 100-year flood hazard area as mapped on any flood hazard delineation map. No housing will be created as part of this project.
- h) The project will not place within a 100-year flood hazard area structures which would significantly impede or redirect flood flows. No new structures will be associated with this project.
- i) The project will not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. The project will not involve any construction, land alteration, or land use changes.
- j) The project will not expose people or structures to a significant risk of inundation by seiche, tsunami, or mudflow. The project will not involve any construction, land alteration, or land use changes.

X. LAND USE AND PLANNING

- a) The project will not physically divide an established community. The project will not involve any construction, land alteration, or land use changes.
- b) The project does not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. The project will not involve any construction, land alteration, or land use changes.
- e) The project will not conflict with any Habitat Conservation or Natural Community Conservation plan. The project will not involve any construction, land alteration, or land use changes.

XI. MINERAL RESOURCES

- a) The project will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Such an impact will not occur because the project will not involve any construction, land alteration, or land use changes.
- b) The project will not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Such an impact will not occur because the project will not involve any construction, land alteration, or land use changes.

XII. NOISE

- a) The project will not result in exposure of persons to, or generation of noise levels in excess of, standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The project will not involve construction or physical alteration of land, and its implementation will not generate noise levels in excess of agency standards.
- b) The project will not result in exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels. The project will not involve construction or physical alteration of land.
- c) The project will not result in a substantial permanent increase in ambient noise levels in the project vicinity. The project will not involve construction or physical alteration of land, or the creation of any permanent noise sources.
- f) The project will not result in a substantial temporary, or periodic, increase in ambient noise levels in the project vicinity above levels existing without the project. The project will not involve construction or physical alteration of land.
- e) The project will not be located within an airport use plan or within two miles of a public airport or public use airport.
- g) The project will not be located within the vicinity of a private airstrip.

XIII. POPULATION AND HOUSING

- a) The project will not induce substantial population growth in an area, either directly or indirectly. Such an impact will not occur because the project will not construct any new homes, businesses, roads, or other human infrastructure.
- b) The project will not displace any existing housing and will not necessitate the construction of replacement housing elsewhere.

- c) The project will not displace any people and will not necessitate the construction of replacement housing elsewhere.

XIV. PUBLIC SERVICES

- a) The project will not have any significant environmental impacts associated with new or physically altered governmental facilities. The project will not involve any construction, land alteration, or land use changes.

XV. RECREATION

- a) The project will not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- b) The project will not involve any construction, land alternation, or land use changes. There will be no construction or expansion of recreational facilities.

XVI. TRANSPORTATION/TRAFFIC

- a) The project will not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- b) The project will not conflict, either individually or cumulatively, with any applicable congestion program established by the county congestion management agency for designated roads or highways.
- c) The project will not result in any change in air traffic patterns.
- d) The project will not alter terrestrial features or is incompatible with uses of equipment.
- e) The project will not result in inadequate emergency access. The project does not involve construction.
- g) The project will not significantly affect parking capacity or demand for parking.

XVII. TRIBAL CULTURAL RESOURCES

- a) The Project will not cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public

Resources Code section 5020.1(k). There is no ground disturbing work and thus no potential to affect tribal cultural resources.

- b) The Project will not cause a substantial adverse change in the significance of a tribal cultural resource that is determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. There is no ground disturbing work and thus no potential to affect tribal cultural resources.

XVIII. UTILITIES AND SERVICE SYSTEMS

- a) The project will not produce wastewater.
- b) The project will not require, or result in the construction of, new water or wastewater treatment facilities or expansion of existing facilities. Such an impact will not occur because the project will not produce wastewater.
- c) The project will not require or result in the construction of new storm water drainage facilities or expansion of existing facilities.
- d) The project will have sufficient water supplies available to serve the project from existing entitlements and resources.
- e) The project will not produce wastewater.
- f) The project will not generate solid waste requiring disposal in a landfill.
- g) The project will not create solid waste. Thus, the project will be in compliance with federal, state, and local statutes related to solid waste.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

- a) The project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. The project is consistent with the Department's mission to manage California's diverse fisheries resources for their ecological value, their use and for the public's enjoyment.
- b) The project does not have adverse impacts that are individually limited, but cumulatively considerable. Cumulative adverse impacts will not occur because there are no potential adverse impacts due to project implementation.

- c) The project does not have environmental effects that will cause substantial adverse effects on humans, either directly or indirectly. The project will not involve any construction, land alteration, or the creation of new infrastructure.

Commissioners
Eric Sklar, President
Saint Helena

Jacque Hostler-Carmesin, Vice President
McKinleyville
Anthony C. Williams, Member
Huntington Beach
Russell Burns, Member
Napa
Peter Silva, Member
El Cajon

STATE OF CALIFORNIA
Edmund G. Brown Jr., Governor

Valerie Termini, Executive Director
1416 Ninth Street, Room 1320
Sacramento, CA 95814
(916) 653-4899
www.fgc.ca.gov

Fish and Game Commission



Wildlife Heritage and Conservation
Since 1870

March 30, 2017

TO ALL AFFECTED AND INTERESTED PARTIES:

Re: Central Valley Chinook Salmon Sport Fishing, Subsections (b)(5), (b)(68), and (b)(156.5) of Section 7.50, Title 14, California Code of Regulations; published in California Notice Register, January 20, 2017, Notice File No. Z2017-0109-02, Register 2017, No. 3-Z.

NOTICE WAS GIVEN that any person interested may present statements, orally or in writing, relevant to this action at a proposed adoption hearing to be held via teleconference originating in the Fish and Game Commission conference room, 1416 Ninth Street, Suite 1320, Sacramento, California, on Thursday, April 13, 2017, at 8:30 a.m., or as soon thereafter as the matter may be heard. It was requested all comments must be received no later than April 13, 2017, at the teleconference hearing.

NOTICE IS NOW GIVEN that any person interested may present statements, orally or in writing, relevant to this action at a discussion hearing to be held via teleconference, originating in the Fish and Game Commission conference room, 1416 Ninth Street, Suite 1320, Sacramento, California, on Thursday, April 13, 2017, at 8:30 a.m., or as soon thereafter as the matter may be heard.

IT IS NOW FURTHER GIVEN that any person interested may present statements, orally or in writing, relevant to this action at a new proposed adoption hearing to be held in Airtel Plaza Hotel, 7277 Valjean Ave., Van Nuys, California, on Wednesday, April 26, 2017, at 8:00 a.m., or as soon thereafter as the matter may be heard. It is requested, but not required, that written comments be submitted on or before 5:00 p.m. on April 12, 2017 at the address given below, or by email to FGC@fgc.ca.gov. Written comments mailed, or emailed to the Commission office, must be received before 12:00 noon on April 21, 2017. All comments must be received no later than April 26, 2017, at the hearing in Van Nuys, California. If you would like copies of any modifications to this proposal, please include your name and mailing address.

Additional information and all associated documents may be found on the Fish and Game Commission website at <http://www.fgc.ca.gov/regulations/2017/index.aspx#cv>.

Sincerely,

Melissa Miller-Henson
Deputy Executive Director

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-publication of Notice Statement)

Amend Section 502
Title 14, California Code of Regulations
Re: Waterfowl, Migratory; American Coot; and
Common Moorhen (Common Gallinule)

I. Date of Initial Statement of Reasons: October 14, 2016

II. Dates and Locations of Scheduled Hearings:

(a) Notice Hearing: Date: December 8, 2016
Location: San Diego, CA

(b) Discussion Hearing: Date: February 8, 2017
Location: Rohnert Park, CA

(c) Adoption Hearing: Date: April 26, 2017
Location: Van Nuys
, CA

III. Description of Regulatory Action:

(a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

The U.S. Fish and Wildlife Service (Service) annually establishes federal regulation frameworks for migratory bird hunting (Frameworks). These Frameworks describe the earliest dates that waterfowl hunting seasons may open, the maximum number of days hunting can occur, the latest dates that hunting seasons must close, and the maximum daily bag limit. States must set waterfowl hunting regulations within the federal frameworks. The Service will establish frameworks in late October. The proposed hunting season frameworks for a given year are developed in the fall of the prior year. For example, the breeding populations (including the California Breeding Population Survey) and habitat conditions observed in 2016 and the regulatory alternatives selected for the 2016 hunting season will be used to develop the frameworks for the 2017-18 season.

States may make recommendations to change federal framework regulations. These recommendations are made to Flyway Councils during

August or September. The Councils may elect to forward recommendations to the Service. The Service may elect to incorporate proposed changes in the “framework” regulations. The Service establishes the hunting framework regulations at a public meeting held in late October.

Sections 202 and 355 of the Fish and Game Code authorize the Fish and Game Commission (Commission) to annually adopt regulations pertaining to the hunting of migratory birds that conform with, or further restrict, the regulations prescribed by the Service pursuant to its authority under the Migratory Bird Treaty Act. The Commission selects and establishes in State regulations the specific hunting season dates and daily bag limits within the federal frameworks.

Current regulations in Section 502, Title 14, California Code of Regulations (CCR), provide definitions, hunting zone descriptions, season opening and closing dates, and daily bag and possession limits. The proposed frameworks for the 2017-18 season have been approved by the Flyway Councils and will be considered for adoption at the Service’s Regulation’s Committee meeting October 25-26, 2016. The proposed frameworks allow for a liberal duck season which includes a 107 day season, 7 daily duck limit including 7 mallards but only 2 hen mallards, 1 pintail, 2 canvasback, 2 redheads, and 3 scaup (during an 86 day season). Duck daily bag limit ranges, duck season length ranges and goose season length ranges have been provided to allow the Commission flexibility. See tables in the Informative Digest for season and bag limits. Lastly, Federal regulations require that California’s hunting regulations conform to those of Arizona in the Colorado River Zone and those of Oregon in the North Coast Special Management Area.

The specific recommended regulation changes are:

- 1) Modify the boundary descriptions in subsections 502(b)3 and 4 for the Southern California and Colorado River zones.

The existing boundary descriptions were based on physical maps from several decades ago. Digital technology and software has improved, resulting in electronic maps that reflect more accurate features (e.g. road titles, river locations). The proposed modifications would more accurately describe zone boundaries.

- 2) Allow the white-fronted goose season to be split into three segments in subsection 502(d)(1)B for the Northeastern California Zone.

The existing regulation allows the season for white-fronted geese to be split into two parts: Regular Season and Late Season. The proposed change would allow the season to be split into three parts, coinciding with the white goose season in the Northeastern Zone. White-fronted geese migrate through this zone in October and again in the later winter and spring. The three segments would allow hunting when the largest proportions of white-fronted geese are present. Pacific white-fronted geese in the Pacific Flyway are estimated to be 685,500 birds, well above the population goal of 300,000 birds established in the Flyway Management Plan. Private landowners are concerned that white-fronted geese are reducing crops available for harvest and grazing and have provided a letter requesting the white-fronted goose season to coincide with that of the white goose season. The proposed change is intended to reduce depredation on private lands and disperse geese through hunting as well as establish the hunting season to coincide when the largest concentrations are present. Service approval is needed for this proposed change as well as an evaluation on the potential effects on tule white-fronted geese. Tule white-fronted geese utilize the Klamath Basin portion of the Northeastern Zone, along with Pacific white-fronted geese. The most recent Tule goose population estimate is 7,250 with a three-year average of 9,760.

- 3) Increase the daily bag limit for white geese in subsection 502(d)(4)(C) for the Colorado River Zone from 10 to 20 per day.

Both Ross' geese and lesser snow geese populations (defined as white geese in Section 502(a)(4)) in the Pacific Flyway are about 1,000,000 birds and are well above their population goals (100,000 and 200,000 respectively). All other waterfowl hunting zones in California have a white goose daily bag limit of 20 per day. This proposed change is needed to conform to Arizona's increase in the white goose daily bag limit in their adjacent zone. Federal regulations require that California's hunting regulations conform to those of Arizona in the Colorado River Zone.

Minor editorial changes are also proposed to clarify and simplify the regulations and to comply with existing federal frameworks.

- (b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Sections 202 and 355, Fish and Game Code.

Reference: Sections 202, 355, and 356, Fish and Game Code.

- (c) Specific Technology or Equipment Required by Regulatory Change: None
- (d) Identification of Reports or Documents Supporting Regulation Change:
2017 Draft Environmental Document Migratory Game Bird Hunting
- (e) Public Discussions of Proposed Regulations Prior to Notice Publication:
This proposal was discussed at the Wildlife Resources Committee meeting held on September 21, 2016 in Woodland, CA.

IV. Description of Reasonable Alternatives to Regulatory Action:

- (a) Alternatives to Regulation Change:
No other alternatives were identified.
- (b) No Change Alternative:
 - 1) The No Change Alternative would maintain the existing boundary descriptions for the Southern California and Colorado River zones. Maintaining the boundary descriptions may cause confusion as they don't accurately reflect the boundaries using current maps.
 - 2) The No Change Alternative would maintain the existing two-way split season for white-fronted geese in the Northeastern Zone.
 - 3) The No Change Alternative would maintain the existing daily bag limit for white geese in the Colorado River Zone. Federal regulations require that California's hunting regulations conform to those of Arizona in the Colorado River Zone.
- (c) Consideration of Alternatives
In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.
- (d) Description of Reasonable Alternatives That Would Lessen Adverse Impact on Small Business: None.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made:

- (a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed regulations would provide additional recreational opportunity to the public and could result in minor increases in hunting days and hunter spending on equipment, fuel, food and accommodations.

- (b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The Commission does not anticipate any impacts on the creation or elimination of jobs, the creation of new business, the elimination of existing businesses or the expansion of businesses in California. The proposed waterfowl regulations will set the 2017-18 waterfowl hunting season dates and bag limits within the federal frameworks. Little to minor positive impacts to jobs and/or businesses that provide services to waterfowl hunters may result from the proposed regulations for the waterfowl hunting season in 2017-18.

The most recent U.S. Fish and Wildlife national survey of fishing, hunting, and wildlife associated recreation for California (revised 2014), estimated that migratory bird hunters contributed about \$169,115,000 to businesses in California during the 2011 migratory bird hunting season. The impacted businesses are generally small businesses employing few individuals and, like all small businesses, are subject to failure for a variety of causes. Additionally, the long-term intent of the proposed regulations is to sustainably manage waterfowl populations, and consequently, the long-

term viability of these same small businesses.

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources. The Commission anticipates benefits to the State's environment by the sustainable management of California's waterfowl resources. The Commission does not anticipate any impacts to worker safety because the proposed amendments will not affect working conditions.

(c) Cost Impacts on a Representative Private Person or Business:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

(d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None.

(e) Nondiscretionary Costs/Savings to Local Agencies: None.

(f) Programs Mandated on Local Agencies or School Districts: None.

(g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed Under Part 7 (commencing with Section 17500) of Division 4, Government Code: None.

(h) Effect on Housing Costs: None.

VII. Economic Impact Assessment

The proposed waterfowl regulations will set the 2017-18 waterfowl hunting season dates and bag limits within the federal frameworks.

(a) Effects of the regulation on the creation or elimination of jobs within the state

Little to minor positive impacts on the creation of jobs within businesses that provide services to waterfowl hunters may result from the adoption of the proposed waterfowl hunting regulations for the 2017-18 season. The most recent U.S. Fish and Wildlife national survey of fishing, hunting, and wildlife associated recreation for California (revised 2014), estimated that waterfowl hunters contributed about \$169,115,000 to small businesses in California during the 2011 waterfowl hunting season. The impacted businesses are

generally small businesses employing few individuals and, like all small businesses, are subject to failure for a variety of causes. Additionally, the long-term intent of the proposed regulations is to sustainably manage waterfowl populations, and consequently, the long-term viability of these same small businesses. The 2011 report is posted on the US Dept. of Commerce website at <http://www.census.gov/prod/2013pubs/fhw11-ca.pdf>.

- (b) Effects of the regulation on the creation of new businesses or the elimination of existing businesses within the state

The proposed regulation is not anticipated to prompt the creation of new businesses or the elimination of existing businesses within the state. Minor variations in the bag limits as may be established in the regulations are, by themselves, unlikely to stimulate the creation of new businesses or cause the elimination of existing businesses. The number of hunting trips and the economic contributions from them are not expected to change substantially.

- (c) Effects of the regulation on the expansion of businesses currently doing business within the state

The proposed minor variations in waterfowl bag limits are, by themselves, unlikely to stimulate substantial expansion of businesses currently doing business in the state. The long-term intent of the proposed regulations is to sustainably manage waterfowl populations, and consequently, the long-term viability of various businesses that serve recreational waterfowl hunters.

- (d) Benefits of the regulation to the health and welfare of California residents

Hunting is an outdoor activity that can provide several health and welfare benefits to California residents. Hunters and their families benefit from fresh game to eat, and from the benefits of outdoor recreation including exercise. People who hunt have a special connection with the outdoors and an awareness of the relationships between wildlife, habitat, and humans. With that awareness comes an understanding of the role humans play in being caretakers of the environment. Hunting is a tradition that is often passed on from one generation to the next creating a special bond between family members and friends.

- (e) Benefits of the regulation to worker safety

The regulations will not affect worker safety because they do not address working conditions.

- (f) Benefits of the regulation to the state's environment

As set forth in Fish and Game Code section 1700, it is the policy of the state to encourage the conservation, maintenance, and utilization of waterfowl resources for the benefit of all the citizens of the state. The objectives of this policy include, but are not limited to, the maintenance of sufficient populations of waterfowl to ensure their continued existence and the maintenance of a sufficient resource to support recreational opportunity. Adoption of scientifically-based waterfowl seasons, bag and possession limits provides for the maintenance of sufficient populations of waterfowl to ensure those objectives are met. Additionally, the fees that hunters pay for licenses and stamps fund wildlife conservation.

Informative Digest/Policy Statement Overview

Current regulations in Section 502, Title 14, California Code of Regulations (CCR), provide definitions, hunting zone descriptions, season opening and closing dates, and establish daily bag and possession limits for waterfowl hunting.

The frameworks for the 2017-18 season have been approved by the Flyway Councils and will be considered for adoption at the Service Regulation's Committee meeting on October 25-26, 2016. The proposed frameworks allow for a liberal duck season which includes a 107 day season, 7 daily duck limit including 7 mallards but only 2 hen mallards, 1 pintail, 2 canvasback, 2 redheads, and 3 scaup (during an 86 day season). Duck daily bag limit ranges, duck season length ranges and goose season length ranges have been provided to allow the Commission flexibility. Lastly, Federal regulations require that California's hunting regulations conform to those of Arizona in the Colorado River Zone and with those of Oregon in the North Coast Special Management Area. Based on the frameworks, the Department of Fish and Wildlife (Department) provides an annual recommendation to the Fish and Game Commission.

The Department recommendations are as follows:

1. Modify the boundary descriptions in subsections 502(b)3 and 4 for the Southern California and Colorado River zones.
2. Allow the white-fronted goose season to be split into three segments in subsection 502(d)(1)B for the Northeastern California Zone.
3. Increase the daily bag limit for white geese in subsection 502(d)(4)(C) for the Colorado River Zone from 10 to 20 per day.

Minor editorial changes are also proposed to clarify and simplify the regulations and to comply with existing federal frameworks.

Benefits of the regulations

The benefits of the proposed regulations are concurrence with federal law and the sustainable management of the State's waterfowl resources. Positive impacts to jobs and/or businesses that provide services to waterfowl hunters will be realized with the continued adoption of waterfowl hunting seasons in 2017-18.

Non-monetary benefits to the public

The Commission does not anticipate non-monetary benefits to the protection of public health and safety, worker safety, the prevention of discrimination, the promotion of

fairness or social equity and the increase in openness and transparency in business and government.

Evaluation of incompatibility with existing regulations

The Commission has reviewed its regulations in Title 14, CCR, and conducted a search of other regulations on this topic and has concluded that the proposed amendments to Section 502 are neither inconsistent nor incompatible with existing State regulations. No other State agency has the authority to promulgate waterfowl hunting regulations.

Summary of Proposed Waterfowl Hunting Regulations for 2017-18			
AREA	SPECIES	SEASONS	DAILY BAG & POSSESSION LIMITS
Statewide	Coots & Moorhens	Concurrent w/duck season	25/day. 75 in possession
Northeastern Zone <i>Season may be split for Ducks, Pintail, Canvasback, Scaup, Dark Geese and White Geese. White geese and dark geese may be split 3-ways.</i>	Ducks	Between 38 & 105 days	[4-7]/day, which may include: [3-7] mallards no more than [1-2] females, 1 pintail, 2 canvasback, 2 redheads, 3 scaup. Possession limit triple the daily bag.
	Scaup	86 days	
	Geese	No longer than 105 days	30/day, which may include: 20 white geese, 10 dark geese no more than 2 Large Canada geese. Possession limit triple the daily bag.
Southern San Joaquin Valley Zone <i>Season may be split for Ducks, Pintail, Canvasback and Scaup.</i>	Ducks	Between 38 & 105 days	[4-7]/day, which may include: [3-7] mallards no more than [1-2] females, 1 pintail, 2 canvasback, 2 redheads, 3 scaup. Possession limit triple the daily bag.
	Scaup	86 days	
	Geese	No longer than 100 days	30/day, which may include: 20 white geese, 10 dark geese. Possession limit triple the daily bag.
Southern California Zone <i>Season may be split for Ducks, Pintail, Canvasback and Scaup.</i>	Ducks	Between 38 & 100 days	[4-7]/day, which may include: [3-7] mallards no more than [1-2] females, 1 pintail, 2 canvasback, 2 redheads, 3 scaup. Possession limit triple the daily bag.
	Scaup	86 days	
	Geese	No longer than 100 days	23/day, which may include: 20 white geese, 3 dark geese. Possession limit triple the daily bag.
Colorado River Zone <i>Season may be split for Ducks, Pintail, Canvasback and Scaup.</i>	Ducks	101 days	7/day, which may include: 7 mallards no more than 2 females or Mexican-like ducks, 1 pintail, 2 canvasback, 2 redheads, 3 scaup. Possession limit triple the daily bag.
	Scaup	86 days	
	Geese	101 days	24/day, up to 20 white geese, up to 4 dark geese. Possession limit triple the daily bag.
Balance of State Zone <i>Season may be split for Ducks, Pintail, Canvasback, Scaup and Dark and White Geese.</i>	Ducks	Between 38 & 100 days	[4-7]/day, which may include: [3-7] mallards no more than [1-2] females, 1 pintail, 2 canvasback, 2 redheads, 3 scaup. Possession limit triple the daily bag.
	Scaup	86 days	
	Geese	Early Season: 5 days (CAGO only) Regular Season: no longer than 100 days Late Season: 5 days (whitefronts and white geese)	30/day, which may include: 20 white geese, 10 dark geese. Possession limit triple the daily bag.

Summary of Proposed Waterfowl Hunting Regulations, Continued			
SPECIAL MANAGEMENT AREAS	SPECIES	SEASON	DAILY BAG & POSSESSION LIMITS
North Coast <i>Season may be split</i>	All Canada Geese	105 days except for Large Canada geese which cannot exceed 100 days or extend beyond the last Sunday in January.	10/day, only 1 may be a Large Canada goose. Possession limit triple the daily bag. Large Canada geese are closed during the Late Season.
Humboldt Bay South Spit (West Side)	All species	Closed during brant season	
Sacramento Valley	White-fronted geese	Open concurrently with general goose season through Dec 21	3/day. Possession limit triple the daily bag.
Morro Bay	All species	Open in designated areas only	Waterfowl season opens concurrently with brant season.
Martis Creek Lake	All species	Closed until Nov 16	
Northern Brant	Black Brant	Open Nov 8 extending for 37 days	2/day. Possession limit triple the daily bag.
Balance of State Brant	Black Brant	Open Nov 9 extending for 37 days	2/day. Possession limit triple the daily bag.
Imperial County <i>Season may be split</i>	White Geese	Up to 102 days	20/day. Possession limit triple the daily bag.
YOUTH WATERFOWL HUNTING DAYS	(NOTE: To participate in these Youth Waterfowl Hunts, federal regulations require that hunters must be 17 years of age or younger and must be accompanied by a non-hunting adult 18 years of age or older.)		
	SPECIES	SEASON	DAILY BAG & POSSESSION LIMITS
Northeastern Zone	Same as regular season	The Saturday fourteen days before the opening of waterfowl season extending for 2 days.	Same as regular season
Southern San Joaquin Valley Zone		The Saturday following the closing of waterfowl season extending for 2 days.	
Southern California Zone		The Saturday following the closing of waterfowl season extending for 2 days.	
Colorado River Zone		The Saturday following the closing for waterfowl season extending for 2 days.	
Balance of State Zone		The Saturday following the closing of waterfowl season extending for 2 days.	
FALCONRY OF DUCKS	SPECIES	SEASON	DAILY BAG & POSSESSION LIMITS
Northeastern Zone	Same as regular season	Between 38 and 105 days	3/ day, possession limit 9
Balance of State Zone		Between 38 and 107 days	
Southern San Joaquin Valley Zone		Between 38 and 107 days	
Southern California Zone		Between 38 and 107 days	
Colorado River Zone	Ducks only	105 days	

REGULATORY TEXT

Section 502, Title 14, CCR, is amended as follows:

§502. Waterfowl, Migratory; American Coot and Common Moorhen (Common Gallinule).

. . . *[No changes to subsection (a)]*

(b) Waterfowl Hunting Zones.

(1) Northeastern California Zone: In that portion of California lying east and north of a line beginning at the intersection of Interstate 5 with the California-Oregon state line; south along Interstate 5 to its junction with Walters Lane south of the town of Yreka; west along Walters Lane to its junction with Easy Street; south along Easy Street to the junction with Old Highway 99; south along Old Highway 99 to the point of intersection with Interstate 5 north of the town of Weed; south along Interstate 5 to its junction with Highway 89; east and south along Highway 89 to Main Street in Greenville; north and east to its junction with North Valley Road; south to its junction of Diamond Mountain Road; north and east to its junction with North Arm Road; south and west to the junction of North Valley Road; south to the junction with Arlington Road (A22); west to the junction of Highway 89; south and west to the junction of Highway 70; east on Highway 70 to Highway 395; south and east on Highway 395 to the point of intersection with the California-Nevada state line; north along the California-Nevada state line to the junction of the California-Nevada-Oregon state lines west along the California-Oregon state line to the point of origin.

(2) Southern San Joaquin Valley Zone: All of Kings and Tulare counties and that portion of Kern County north of the Southern California Zone.

(3) Southern California Zone: In that portion of southern California (but excluding the Colorado River zone) lying south and east of a line beginning at the mouth of the Santa Maria River at the Pacific Ocean; east along the Santa Maria River to where it crosses Highway 101-166 near the City of Santa Maria; continue north on 101-166; east on Highway 166 to the junction with Highway 99; south on Highway 99 to the junction of Interstate 5; south on Interstate 5 to the crest of the Tehachapi Mountains at Tejon Pass; east and north along the crest of the Tehachapi Mountains to where it intersects Highway 178 at Walker Pass; east on Highway 178 to the junction of Highway 395 at the town of Inyokern; south on Highway 395 to the junction of Highway 58; east on Highway 58 to the junction of Interstate 15; east on Interstate 15 to the junction with Highway 127; north on Highway 127 to the point of intersection with the California-Nevada state line.

(4) Colorado River Zone: In those portions of San Bernardino, Riverside, and Imperial counties lying east of the following lines: Beginning at the intersection of Nevada State Highway 95 with the California-Nevada state line; south along Highway 95 through the junction with Highway 40; continue south on Highway 95 to Vidal Junction; south through the town of Rice to the San Bernardino-Riverside county line on a road known as "Aqueduct Road" also known as Highway 62 in San Bernardino County; southwest on Highway 62 to Desert Center Rice Road; south on Desert Center Rice Road/Highway 177 ~~south from the San Bernardino-Riverside county line on road known in Riverside County as the "Desert Center to Rice Road"~~ to the town of Desert Center; continue east 31 miles on Interstate 10 to its intersection with the Wiley Well Road; south on this road to Wiley Well; southeast along the ~~Army-Milpitas~~ Wash Road to the Blythe, Brawley, Davis Lake intersections; south on the

~~Blythe Ogilby Blythe Brawley paved road~~ Road also known as County Highway 34 to its intersection with the ~~Ogilby and Tumco Mine Road~~; south on this road to Highway ~~8 80~~; east seven miles on Highway ~~8 80~~ to its intersection with the Andrade-Algodones Road/Highway 186; south on this paved road to the intersection of the Mexican boundary line at Los Algodones, Mexico.

(5) Balance of State Zone: That portion of the state not included in Northeastern California, Southern California, Colorado River or the Southern San Joaquin Valley zones.

(6) Special Management Areas

(A) North Coast. All of Del Norte and Humboldt counties.

(B) Humboldt Bay South Spit (West Side). Beginning at the intersection of the north boundary of Table Bluff County Park and the South Jetty Road; north along the South Jetty Road to the South Jetty; west along the South Jetty to the mean low water line of the Pacific Ocean; south along the mean low water line to its intersection with the north boundary of the Table Bluff County Park; east along the north boundary of the Table Bluff County Park to the point of origin.

(C) Sacramento Valley. Beginning at the town of Willows; south on Interstate 5 to the junction with Hahn Road; east on Hahn Road and the Grimes-Arbuckle Road to the town of Grimes; north on Highway 45 to its junction with Highway 162; north on Highway 45-162 to the town of Glenn; west on Highway 162 to the point of beginning.

(D) Morro Bay. Beginning at a point where the high tide line intersects the State Park boundary west of Cuesta by the Sea; northeasterly to a point 200 yards offshore of the high tide line at the end of Mitchell Drive in Baywood Park; northeasterly to a point 200 yards offshore of the high tide line west of the Morro Bay State Park Boundary, adjacent to Baywood Park; north to a point 300 yards south of the high tide line at the end of White Point; north along a line 400 yards offshore of the south boundary of the Morro Bay City limit to a point adjacent to Fairbanks Point; northwesterly to the high tide line on the sand spit; southerly along the high tide line of the sand spit to the south end of Morro Bay; easterly along the Park boundary at the high tide line to the beginning point.

(E) Martis Creek Lake. The waters and shoreline of Martis Creek Lake, Placer and Nevada counties.

(F) Northern Brant. Del Norte, Humboldt and Mendocino counties.

(G) Balance of State Brant. That portion of the state not included in the Northern Brant Special Management Area.

(H) Imperial County. Beginning at Highway 86 and the Navy Test Base Road; south on Highway 86 to the town of Westmoreland; continue through the town of Westmoreland to Route S26; east on Route S26 to Highway 115; north on Highway 115 to Weist Rd.; north on Weist Rd. to Flowing Wells Rd.; northeast on Flowing Wells Rd. to the Coachella Canal; northwest on the Coachella Canal to Drop 18; a straight line from Drop 18 to Frink Rd.; south on Frink Rd. to Highway 111; north on Highway 111 to Niland Marina Rd.; southwest on Niland Marina Rd. to the old Imperial County boat ramp and the water line of the Salton Sea; from the water line of the Salton Sea, a straight line across the Salton Sea to the Salinity Control Research Facility and the Navy Test Base Road; southwest on the Navy Test Base Road to the point of beginning.

(c) Seasons and Bag and Possession Limits for American Coots, and Common Moorhens.		
(1) Statewide Provisions.		
(A) Species	(B) Season	(C) Daily Bag and Possession Limits
American Coot and Common Moorhen	Concurrent with duck season(s)	Daily bag limit: 25, either all of one species or a mixture of these species. Possession limit: triple the daily bag limit.
(d) Seasons and Bag and Possession Limits for Ducks and Geese by Zone.		
(1) Northeastern California Zone (NOTE: SEE SUBSECTION 502(d)(6) BELOW FOR SPECIAL SEASONS AND CLOSURES.)		
(A) Species	(B) Season	(C) Daily Bag and Possession Limits
Ducks (including Mergansers)	<p>From the second Saturday in October extending for 105 days.</p> <p>Scaup: from the second Saturday in October extending for a period of 58 days and from the fourth Saturday in December extending for a period of 28 days.</p> <p><u>[Opening no earlier than the Saturday closest to October 1 and closing no later than the last Sunday in January.</u></p> <p><u>Season may be split into two segments and will be between 38 and 105 days except for some species that may have a shorter season than the general duck season.]</u></p>	<p>Daily bag limit: 7<u>[4-7]</u></p> <p>Daily bag limit may include:</p> <ul style="list-style-type: none"> • 7<u>[3-7]</u> mallards, but not more than 2<u>[1-2]</u> females. • 2 <u>1</u> pintail (either sex). • 2 canvasback (either sex). • 2 redheads (either sex). • 3 scaup (either sex). <p>Possession limit: triple the daily bag limit.</p>
Geese	<p>Regular Season:</p> <p>Dark geese from the second Saturday in October extending for 100 days. <u>Large Canada Geese: [Opening no earlier than the Saturday closest to October 1 and closing no later than the last Sunday in January. Season will be no longer than 100 days.</u></p> <p>White-fronted geese and White geese from the first Saturday in October extending</p>	<p>Daily bag limit: 30</p> <p>Daily bag limit may include:</p> <ul style="list-style-type: none"> • 20 white geese. • 10 dark geese but not more than 2 Large Canada geese (see definitions: 502(a)). <p>Possession limit: triple the daily bag limit.</p>

	<p>for a period of 58 days and from the first Saturday in January extending for a period of 14 days. [opening no earlier than the Saturday closest to October 1 and closing no later than the last Sunday in January. Season may be split into two segments and will be between 72 and 100 days.]</p> <p>Late Season: White-fronted geese <u>and white geese from March 4 extending for 5 days.</u> <u>[Season will be no longer than 33 days and closing no later than March 10.]</u></p> <p>White geese from the first Monday in February extending for 33 days.</p> <p>During the Late Season, hunting is only permitted on Type C wildlife areas listed in Section 550-552, navigable waters, and private lands with the permission of the land owner under provisions of Section 2016, Fish and Game Code. Hunting is prohibited on Type A and Type B wildlife areas, the Klamath Basin National Wildlife Refuge Complex, the Modoc National Wildlife Refuge, and any waters which are on, encompassed by, bounded over, flow over, flow through, or are adjacent to any Type A and Type B wildlife areas, the Klamath Basin National Wildlife Refuge Complex, or the Modoc National Wildlife Refuge.</p>	
--	--	--

(2) Southern San Joaquin Valley Zone (NOTE: SEE SUBSECTION 502(d)(6) BELOW FOR SPECIAL SEASONS AND CLOSURES.)		
(A) Species	(B) Season	(C) Daily Bag and Possession Limits
Ducks (including Mergansers)	<p>From the fourth Saturday in October extending for 100 days. Scaup: from the first Saturday in November extending for 86 days. <u>[Opening no earlier than the Saturday closest to October 1 and closing no later than the last Sunday in January. Season may be split into two segments and will be between 38 and 105 days except for some species that may have a shorter season than the general duck season.]</u></p>	<p>Daily bag limit: 7<u>[4-7]</u> Daily bag limit may include: • 7<u>[3-7]</u> mallards, but not more than 2<u>[1-2]</u> females. • 2 <u>1</u> pintail (either sex). • 2 canvasback (either sex). • 2 redheads (either sex). • 3 scaup (either sex).</p> <p>Possession limit: triple the daily bag limit.</p>
Geese	From the fourth Saturday in October extending for 100 days.	<p>Daily bag limit: 30 Daily bag limit may include: • 20 white geese. • 10 dark geese (see definitions: 502(a)).</p> <p>Possession limit: triple the daily bag limit.</p>
(3) Southern California Zone (NOTE: SEE SUBSECTION 502(d)(6) BELOW FOR SPECIAL SEASONS AND CLOSURES.)		
(A) Species	(B) Season	(C) Daily Bag and Possession Limits
Ducks (including Mergansers)	<p>From the fourth Saturday in October extending for 100 days. Scaup: from the first Saturday in November extending for 86 days. <u>[Opening no earlier than the Saturday closest to October 1 and closing no later than the last Sunday in January. Season may be split into two segments and will be between 38 and 105 days except for some species that may have a shorter season than the general duck season.]</u></p>	<p>Daily bag limit: 7<u>[4-7]</u> Daily bag limit may include: • 7<u>[3-7]</u> mallards, but not more than 2<u>[1-2]</u> females. • 2 <u>1</u> pintail (either sex). • 2 canvasback (either sex). • 2 redheads (either sex). • 3 scaup (either sex).</p> <p>Possession limit: triple the daily bag limit.</p>

Geese	From the fourth Saturday in October extending for 100 days . <u>[Opening no earlier than the Saturday closest to October 1 and closing no later than the last Sunday in January. Season will be no longer than 100 days.]</u>	Daily bag limit: 23 Daily bag limit may include: • 20 white geese. • 3 dark geese (see definitions: 502(a)). Possession limit: triple the daily bag limit.
(4) Colorado River Zone (NOTE: SEE SUBSECTION 502(d)(6) BELOW FOR SPECIAL SEASONS AND CLOSURES.)		
(A) Species	(B) Season	(C) Daily Bag and Possession Limits
Ducks (including Mergansers).	From the third Friday in October extending for 101 days . Scaup: from the first Saturday in November extending for 86 days . <u>[Opening no earlier than the Saturday closest to October 1 and closing no later than the last Sunday in January. Season will be 101 days except for some species that may have a shorter season than the general duck season.]</u>	Daily bag limit: 7 Daily bag limit may include: • 7 mallards, but not more than 2 females or Mexican-like ducks. • 2 <u>1</u> pintail (either sex). • 2 canvasback (either sex). • 2 redheads (either sex). • 3 scaup (either sex). Possession limit: triple the daily bag limit.
Geese	From the third Friday in October extending for 101 days . <u>[Opening no earlier than the Saturday closest to October 1 and closing no later than the last Sunday in January. Season will be 101 days.]</u>	Daily bag limit: 14 <u>24</u> Daily bag limit may include: • 40 <u>20</u> white geese. • 4 dark geese (see definitions: 502(a)). Possession limit: triple the daily bag limit.
(5) Balance of State Zone (NOTE: SEE SUBSECTION 502(d)(6) BELOW FOR SPECIAL SEASONS AND CLOSURES.)		
(A) Species	(B) Season	(C) Daily Bag and Possession Limits
Ducks (including Mergansers).	From the fourth Saturday in October extending for 100 days . Scaup: from the first Saturday in November extending for 86 days . <u>[Opening no earlier than the Saturday closest to October 1 and closing no later than the</u>	Daily bag limit: 7 <u>[4-7]</u> Daily bag limit may include: • 7 <u>[3-7]</u> mallards, but not more than 2 <u>[1-2]</u> females. • 2 <u>1</u> pintail (either sex). • 2 canvasback (either sex). • 2 redheads (either sex). • 3 scaup (either sex).

	<p><u>last Sunday in January. Season may be split into two segments and will be between 38 and 100 days except for some species that may have a shorter season than the general duck season.]</u></p>	<p>Possession limit: triple the daily bag limit.</p>
Geese	<p>Early Season: Large Canada geese only from the Saturday closest to October 1 for a period of 5 days EXCEPT in the North Coast Special Management Area where Large Canada geese are closed during the early season.</p> <p>Regular Season: Dark and white geese from the fourth Saturday in October extending for 100 days <u>[Opening no earlier than the Saturday closest to October 1 and closing no later than the last Sunday in January. Season will be no longer than 100 days]</u> EXCEPT in the Sacramento Valley Special Management Area where the white-fronted goose season will close after December 21.</p> <p>Late Season: White-fronted geese and white geese from the second Saturday in February extending for a period of 5 days EXCEPT in the Sacramento Valley Special Management Area where the white-fronted goose season is closed. During the Late Season, hunting is not permitted on wildlife areas listed in Sections 550-552 EXCEPT on Type C wildlife areas in the North Central and Central regions.</p>	<p>Daily bag limit: 30 Daily bag limit may include:</p> <ul style="list-style-type: none"> • 20 white geese. • 10 dark geese <p>EXCEPT in the Sacramento Valley Special Management Area where only 3 may be white-fronted geese (see definitions: 502(a)).</p> <p>Possession limit: triple the daily bag limit.</p>

(6) Special Management Areas (see descriptions in 502(b)(6))				
	(A) Species	(B) Season	(C) Daily Bag and Possession Limits	
1. North Coast	All Canada Geese	From November 7 extending for a period of 84 <u>83</u> days (Regular Season) and from February 48 <u>17</u> extending for a period of 24 <u>22</u> days (Late Season). During the Late Season, hunting is only permitted on private lands with the permission of the land owner under provisions Section 2016, Fish and Game Code.	Daily bag limit: 10 Canada Geese of which only 1 may be a Large Canada goose (see definitions: 502(a)), EXCEPT during the Late Season the bag limit on Large Canada geese is zero. Possession limit: triple the daily bag limit.	
2. Humboldt Bay South Spit (West Side)	All Species	Closed during brant Season		
3. Sacramento Valley	White-Fronted Geese	Open concurrently with the goose season through December 21, and during Youth Waterfowl Hunting Days.	Daily bag limit: 3 white-fronted geese. Possession limit: triple the daily bag limit.	
4. Morro Bay	All species	Open in designated area only from the opening day of brant season through the remainder of waterfowl season.		
5. Martis Creek Lake	All species	Closed until November 16.		
6. Northern Brant	Black Brant	From November 8 extending for 37 days.	Daily bag limit: 2 Possession limit: triple the daily bag limit.	
7. Balance of State Brant	Black Brant	From November 9 extending for 37 days.	Daily bag limit: 2 Possession limit: triple the daily bag limit.	
8. Imperial County	White Geese	From the first Saturday in November extending for a period of 86 days (Regular Season) and from the first Saturday in February extending for a	Daily bag limit: 20 Possession limit: triple the daily bag limit.	

		period of 16 days (Late Season). During the Late Season, hunting is only permitted on private lands with the permission of the land owner under provisions of Section 2016, Fish and Game Code.	
--	--	---	--

(e) Youth Waterfowl Hunting Days Regulations (NOTE: To participate in these Youth Waterfowl Hunts, federal regulations require that hunters must be 17 years of age or younger and must be accompanied by a non-hunting adult 18 years of age or older.)

(1) Statewide Provisions.

(A) Species	(B) Season	(C) Daily Bag Limit
Ducks (including Mergansers), American Coot, Common Moorhen, Black Brant, Geese	<p>1. Northeastern California Zone: The Saturday fourteen days before the opening of waterfowl season extending for 2 days.</p> <p>2. Southern San Joaquin Valley Zone: The Saturday following the closing of waterfowl season extending for 2 days.</p> <p>3. Southern California Zone: The Saturday following the closing of waterfowl season extending for 2 days.</p> <p>4. Colorado River Zone: The Saturday following the closing of waterfowl season extending for 2 days.</p> <p>5. Balance of State Zone: The Saturday following the closing of waterfowl season extending for 2 days.</p>	Same as regular season.

(f) Falconry Take of Ducks (including Mergansers), Geese, American Coots, and Common Moorhens.

(1) Statewide Provisions

(A) Species	(B) Season	(C) Daily Bag and Possession Limits
Ducks (including Mergansers), Geese, American Coot and Common	<p>1. Northeastern California Zone. Open concurrently with duck season through January 15, 2017. <u>[No longer than 105 days.]</u></p>	<p>Daily bag limit: 3</p> <p>Daily bag limit makeup:</p> <ul style="list-style-type: none"> • Either all of 1 species or a mixture of species allowed for take.

Moorhen	<p>2. Balance of State Zone. Open concurrently with duck season and February 4-5, 2017. [No longer than 102 days] EXCEPT in the North Coast Special Management Area where the falconry season for geese runs concurrently with the season for Small Canada geese (see 502(d)(6))</p> <p>3. Southern San Joaquin Valley Zone. Open concurrently with duck season and January 30-February 1, 2017. [No longer than 107 days.] Goose hunting in this zone by means of falconry is not permitted.</p> <p>4. Southern California Zone. Open concurrently with duck season and January 30-February 3, 2017. [No longer than 107 days] EXCEPT in the Imperial County Special Management Area where the falconry season for geese runs concurrently with the season for white geese.</p> <p>5. Colorado River Zone. Open concurrently with duck season and January 30-February 1, 2017. [No longer than 105 days.] Goose hunting in this zone by means of falconry is not permitted. Federal regulations require that California's hunting regulations conform to those of Arizona, where goose hunting by means of falconry is not permitted.</p>	Possession limit: 9
---------	--	---------------------

Note: Authority cited: Sections 202 and 355, Fish and Game Code. Reference: Sections 202, 355 and 356, Fish and Game Code.

**FINAL
ENVIRONMENTAL DOCUMENT
Section 502, Title 14
California Code of Regulations**

**MIGRATORY GAME BIRD HUNTING
(WATERFOWL, COOTS, MOORHENS)**



April 26, 2017

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF FISH AND WILDLIFE



TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
LIST OF FIGURES	iii
LIST OF APPENDICES	iv
CHAPTER 1 - SUMMARY	5
PROPOSED PROJECT AND ALTERNATIVES.....	5
SUMMARY OF IMPACTS AND MITIGATION	6
State and Federal roles in establishing waterfowl hunting regulations	7
AREAS OF CONTROVERSY	9
ISSUES TO BE RESOLVED	10
FUNCTIONAL EQUIVALANCY.....	10
CHAPTER 2 - THE PROPOSED ACTION.....	12
Background	15
Existing Conditions	20
Proposed Changes and Analysis	26
POLICY CONSIDERATIONS	27
POTENTIAL FOR SIGNIFICANT EFFECTS	28
EFFECTS OF HABITAT DEGRADATION.....	28
EFFECTS OF DISEASES, PESTICIDES, AND OTHER	
CONTAMINANTS	29
EFFECTS OF ILLEGAL HARVEST	29
EFFECTS OF SUBSISTENCE HARVEST	30
EFFECTS OF HARVEST OUTSIDE UNITED STATES	30
EFFECTS OF MAJOR DEVELOPMENT PROJECTS.....	31
EFFECTS ON LISTED SPECIES.....	31
EFFECTS ON MIGRATORY BIRD HABITATS	31
EFFECTS ON RECREATIONAL OPPORTUNITIES.....	32
EFFECTS OF METHODS OF TAKE AND IMPACTS ON INDIVIDUAL	
ANIMALS	32
EFFECTS FROM DROUGHT	33
CUMMULATIVE IMPACTS	45
CHAPTER 3 – ALTERNATIVES	46
Alternative 1. No project – no change from the 2016-17 hunting regulations.....	46
Alternative 2. Reduced Season Lengths, Season Timing and Bag Limits	47
Alternative 3. Elimination of all mechanically- and artificially-powered spinning wing	
decoys as a method of take.....	48
CHAPTER 4. RESPONSE TO COMMENTS REGARDING THE PROPOSED	
PROJECT	50
LITERATURE CITED.....	52

LIST OF TABLES

Table 1. Summary of Alternatives and Their Impacts	6
Table 2. Proposed Season Dates and Bag Limits for 2017-18	13

LIST OF FIGURES

Figure 1. Waterfowl Zones in California	14
Figure 2. Administrative Waterfowl Flyways	16
Figure 3. CA Breeding Population Estimates	40
Figure 4. Northeastern California Canada Goose Pair Survey	41
Figure 5. Waterfowl Mortality From Botulism	42
Figure 6. Waterfowl Mortality From Avian Cholera.....	43
Figure 7. CA Breeding Population Estimates for Mallards vs. Harvest	44

LIST OF APPENDICES

Appendix A.	2016-17 Regulations Related to Migratory Waterfowl, Coot, Moorhen, and Snipe, Sections 502, 507, Title 14, California Code of Regulations	A-1
Appendix B.	Estimated Retrieved Harvest of Geese in California.....	B-1
Appendix C.	Pacific Flyway Fall and Winter Goose Surveys	C-1
Appendix D.	Possible Effects of Spinning Wing Decoys in California.	D-1
Appendix E.	Estimated Retrieved Harvest of Certain Ducks in California	E-1
Appendix F.	Possible Effect of Climate Change Impacts on Waterfowl	F-1

CHAPTER 1 - SUMMARY

PROPOSED PROJECT AND ALTERNATIVES

The project discussed in this document (the proposed project) involves modifications to the current waterfowl hunting regulations for the 2017-18 waterfowl hunting season. Specifically, the Department is proposing to:

- Modify the boundary descriptions in the Southern California and Colorado River zones.
- Allow the white-fronted goose season to be split into three segments for the Northeastern California Zone.
- Increase the daily bag limit for white geese in the Colorado River Zone from 10 to 20 per day.

The U.S. Fish and Wildlife Service (Service) established the frameworks in late October. The Federal frameworks specify the outside dates, total number of hunting days, bag limits, shooting hours, and methods of take authorized for migratory game birds. States must set waterfowl hunting regulations within the federal frameworks. The Department of Fish and Wildlife (Department) will recommend specific season dates and bag limits to the Fish and Game Commission (Commission) that are within the federal frameworks.

The Commission may not select more liberal season dates or bag limits than those set by the Federal frameworks. Therefore, the decisions of the Commission and the recommendations of the Department to the Commission center on the question of whether to adopt the proposed changes or to consider more restrictive State regulations.

The Department is providing the Commission with a range of alternatives to the proposed project. Table 1 summarizes the Department findings that there are no significant long-term adverse impacts associated with the proposed project or any of the project alternatives considered for the 2017-18 waterfowl hunting regulations.

SUMMARY OF IMPACTS AND MITIGATION

Table 1. Summary of Alternatives and Their Impacts			
Alternative	Description	Significant Impact	Mitigation
Proposed Project	<p>Modify the boundary descriptions in the Southern California and Colorado River zones.</p> <p>Allow the white-fronted goose season to be split into three segments in the Northeastern California Zone.</p> <p>Increase the daily bag limit for white geese in subsection the Colorado River Zone from 10 to 20 per day. As a result of increasing the white goose daily bag limit, the total daily bag limit for all geese will increase from 14 to 24 in the Colorado River Zone.</p>	No	N/A
Alternative 1. No Project	No change from the 2016-17 hunting regulations.	No	N/A
Alternative 2. Reduced Season Lengths, Timing and Bag Limits	Reduce season lengths, timing, and/or bag limits by up to 50 percent.	No	N/A
Alternative 3. Elimination of All Mechanical Decoys.	Eliminate mechanical decoys as a method of take.	No	N/A

The Department concludes that the regulated harvest of migratory game birds within the Federal guidelines does not result in a significant adverse impact to their

populations as analyzed in the 2006 Final Environmental Document for Migratory Game Bird Hunting of Waterfowl, Coots, and Moorhens (incorporated by reference, State Clearinghouse Number 2006042115, available at 1812 9th Street, Sacramento 95811). This is because the size of a wildlife population at any point in time is the result of the interaction between population (reproductive success and mortality rates) and its environment (habitat). Declines in habitat quality and quantity result in reduced carrying capacity, which results in corresponding declines in populations.

State and Federal roles in establishing waterfowl hunting regulations

Migratory birds are managed under the provisions of the Migratory Bird Treaty Act of July 3, 1918 (40. Stat. 755:16 U.S.C. 703 et seq.), Federal regulations [50 CFR 20 (K)(L)], as well as California statutes (Fish and Game Code sections 355 and 356) and regulations selected by the Commission.

The regulations governing the take of migratory game birds in California are selected by the Commission and forwarded to the Service each year. The regulations selected by the Commission must be within frameworks established by the Service through the following generalized three-step process:

1. The Service, with assistance from the states, assesses the status of migratory game bird populations.
2. The Service establishes regulatory frameworks;
3. The Commission makes and forwards season selections to the Service regarding regulations for California; and
4. The Service and the State publish the final regulations.

The Federal frameworks specify the outside dates, total number of hunting days, bag limits, shooting hours, and methods of take authorized for migratory game birds. Proposals selected by the Commission cannot be more liberal than the frameworks established by the Service (Fish and Game Code, Section 355).

In selecting hunting regulations, the Commission is governed by the State's Conservation of Wildlife Resources Policy (Fish and Game Code, Section 1801). This policy contains, among other things, objectives to maintain sufficient populations of wildlife resources in the State and to provide public hunting opportunities through regulated harvest where such harvest is consistent with maintaining healthy wildlife populations (Section 1801 California Fish and Game Code).

In August the Service provided notice to establish hunting regulations for the 2017-18 hunting season; see Federal Register 81 FR 38050. The notice also solicits public comments and establishes the annual schedule for meetings.

The Department is recommending 3 changes to the existing hunting regulations. The frameworks for the 2017-18 season have been approved by the Flyway Councils and adopted by the Service Regulation's Committee meeting October 25-26, 2016. The frameworks allow for a liberal duck season which includes a 107 day season, 7 daily duck limit including 7 mallards but only 2 hen mallards, 1 pintail, 2 canvasback, 2 redheads, and 3 scaup (during an 86 day season). The Department's proposals for the 2017-2018 hunting season for waterfowl, coots, and moorhens are based on these adopted Federal frameworks.

The 2017-18 Federal Frameworks Pertaining to California

Ducks, Mergansers, Coots, Common Moorhens, and Purple Gallinules

Hunting Seasons and Duck Limits: Concurrent 107 days. The daily bag limit is 7 ducks and mergansers, including no more than 2 female mallards, 1 pintail, 3 scaup (86-day season), 2 canvasback, and 2 redheads. The season on coots and common moorhens may be between the outside dates for the season on ducks, but not to exceed 107 days. ***Coot, Common Moorhen, and Purple Gallinule Limits:*** The daily bag limits of coots, common moorhens, and purple gallinules are 25, singly or in the aggregate. Possession limits for all species are triple the daily bag limit.

Outside Dates: Between the Saturday nearest September 24 (September 23) and the last Sunday in January (January 28).

Zoning and Split Seasons: Arizona, California, Idaho, Nevada, Oregon, Utah, Washington, and Wyoming may select hunting seasons by zones. Arizona, California, Idaho, Nevada, Oregon, Utah, Washington, and Wyoming may split their seasons into two segments. Colorado, Montana, and New Mexico may split their seasons into two segments.

Colorado River Zone, California: Seasons and limits shall be the same as seasons and limits selected in the adjacent portion of Arizona (South Zone).

Geese

Season Lengths, Outside Dates, and Limits

Canada geese and brant: Except as subsequently noted, 107-day seasons may be selected with outside dates between the Saturday nearest September 24 (September 24) and the last Sunday in January (January 29). In California, Oregon, and Washington, the daily bag limit is 4 Canada geese. For brant, Oregon and

Washington may select a 16-day season and California a 37-day season. Days must be consecutive. Washington and California may select hunting seasons for up to two zones. The daily bag limit is 2 brant and is in addition to other goose limits. In Oregon and California, the brant season must end no later than December 15.

White-fronted geese: Except as subsequently noted, 107-day seasons may be selected with outside dates between the Saturday nearest September 24 (September 23) and March 10. The daily bag limit is 10.

Light geese: Except as subsequently noted, 107-day seasons may be selected with outside dates between the Saturday nearest September 24 (September 23) and March 10. The daily bag limit is 20.

Split Seasons: Unless otherwise specified, seasons for geese may be split into up to 3 segments. Three-way split seasons for Canada geese and white-fronted geese require Pacific Flyway Council and U.S. Fish and Wildlife Service approval and a 3-year evaluation by each participating State.

California: The daily bag limit for Canada geese is 10.

Balance of State Zone (includes Southern San Joaquin Valley Zone): A Canada goose season may be selected with outside dates between the Saturday nearest September 24 (September 23) and March 10. In the Sacramento Valley Special Management Area, the season on white-fronted geese must end on or before December 28, and the daily bag limit is 3 white-fronted geese. In the North Coast Special Management Area, hunting days that occur after the last Sunday in January should be concurrent with Oregon's South Coast Zone.

Northeast Zone: White-fronted goose seasons may be split into 3 segments.

Shooting Hours – From One-half hour before sunrise to sunset.

AREAS OF CONTROVERSY

A public scoping session regarding the preparation of environmental documents for hunting waterfowl was held on October 27, 2016, at the Wildlife Branch office located at 1812 9th Street, Sacramento. No areas of controversy regarding migratory bird hunting were identified at the meeting. However, members of the public have expressed concern regarding the following: 1) mechanical spinning wing decoys in the use of taking waterfowl during past hunting seasons. Specifically, since 2002 about 100 letters and or public testimony has been received by the Fish and Game Commission to ban mechanically spinning wing decoys while only about 12 letters of support or public testimony in favor of mechanically spinning wing decoys during the

same time period (Department files); 2) the Commission has received numerous letters both supporting and opposing the continued hunting in Morro and Tomales bays; and 3) opposition to the continued restrictions on bag limit and season length for white-fronted geese in the Sacramento Valley Special Management Area.

Concerns about the effect of climate change since the 2006 Final Environmental Document for Migratory Game Bird Hunting of Waterfowl, Coots, and Moorhens (incorporated by reference, State Clearinghouse Number 2006042115, available at 1812 9th Street, Sacramento 95811) was published led to a discussion of this topic in Appendix F.

ISSUES TO BE RESOLVED

As provided by existing law, the Commission is the decision-making body (lead agency) considering the proposed project, while the Department has responsibility for conducting management activities such as resource assessments, preparing management plans, operating public hunting opportunities and enforcing laws and regulations. The primary issue for the Commission to resolve is whether to change waterfowl hunting regulations, within the federal framework, as an element of waterfowl management. If such changes are authorized, the Commission will specify the areas, season lengths, and bag and possession limits and other appropriate special conditions.

FUNCTIONAL EQUIVALANCY

The California Environmental Quality Act (CEQA) requires all public agencies in the State to evaluate the environmental impacts of projects they approve, including regulations, which may have a potential to significantly affect the environment. CEQA review of the proposed project will be conducted in accordance with the Commission's certified regulatory program (CRP) approved by the Secretary for the California Resources Agency pursuant to Public Resources Code section 21080.5 (See generally Cal. Code Regs., tit. 14, §§ 781.5, and 15251, subd. (b).). The Department has prepared this Environmental Document (ED) which is the functional equivalent of an Environmental Impact Report, on behalf of the Commission in compliance with this requirement. The ED provides the Commission, other agencies, and the general public with an objective assessment of the potential effects.

In addition, pursuant to Section 15087 of the CEQA Guidelines, this environmental document is available for public review for 45 days. During the review period, the public is encouraged to provide written comments regarding the environmental document to the Department of Fish and Wildlife, Wildlife Branch, 1812 9th Street,

Sacramento, California 95811. Comments must be received by the Department by 5:00 p.m. on December 28, 2016.

CHAPTER 2 - THE PROPOSED ACTION

The proposed project being considered consists of the following modifications to existing migratory game bird hunting regulations:

1. Modify the boundary descriptions in the Southern California and Colorado River zones.
2. Allow the white-fronted goose season to be split into three segments in the Northeastern California Zone.
3. Increase the white goose daily bag limit from 10 to 20 in the Colorado River Zone. As a result of increasing the white goose daily bag limit, the total daily bag limit for all geese will increase from 14 to 24 in the Colorado River Zone.

Table 2. Proposed Changes to Season Dates and Bag Limits for 2017-18.

Species by Zone	Daily Bag Limit	Possession limit	Season Length
COOTS AND MOORHENS			
Northeastern CA	no change	no change	no change
So. San Joaquin Valley	no change	no change	no change
So. California	no change	no change	no change
Colorado River	no change	no change	no change
Balance of State	no change	no change	no change
DUCKS			
Statewide	no change	no change	
EXCEPTIONS			
Mallard (max.)	no change	no change	no change
Mallard Hen (max.)	no change	no change	no change
Pintail (max.)	1	no change	no change
Redhead (max.)	no change	no change	no change
Scaup (max.)	no change	no change	no change
Canvasbacks (max.)	no change	no change	no change
Northeastern Calif.	no change	no change	no change
So. San Joaquin Valley	no change	no change	no change
Southern California	no change	no change	no change
Colorado River	no change	no change	no change
Balance of State	no change	no change	no change
GEESE			
Northeastern Calif.		no change	no change
EXCEPTIONS			
Large Canada Geese (max.)	no change	no change	
White-Front (max.)	no change	no change	no change
Small Canada Geese (max.)	no change	no change	
White Geese (max.)	20	no change	no change
So. San Joaquin Valley	no change	no change	no change
EXCEPTIONS			
Large Canada Geese (max.)	no change	no change	
White-Front (max.)	no change	no change	
Small Canada Geese (max)	no change	no change	
White Geese (max.)	20	no change	
Southern Calif.	no change	no change	no change
EXCEPTIONS			
Large Canada Goose (max.)	no change	no change	
White-Front Geese (max.)	no change	no change	
Small Canada Geese (max)	no change	no change	
White Geese (max.)	no change	no change	
Colorado River	24	no change	no change
EXCEPTIONS			
White Geese (max.)	20	no change	
Dark Geese (max.)	no change	no change	
Balance of State	no change	no change	no change
EXCEPTIONS			
Large Canada Geese (max.)	no change	no change	
White-Front (max.)	no change	no change	
Small Canada Geese (max)	no change	no change	
White Geese (max.)	20	no change	
Special Management Areas			
Special Management Areas	Species		Season
North Coast	no change		no change
Humboldt Bay South Spit	no change		no change
Sacramento Valley (West)	no change		no change
Morro Bay	no change		no change
Martis Lake	no change		no change
North Coast Brant	no change		no change
Balance of State Brant	no change		no change
Imperial County	no change		no change

[illegible]

BACKGROUND AND EXISTING CONDITIONS

Background

Waterfowl, coots and moorhens are migratory game birds that use varied habitat types in different geographical areas of North America. Many individuals of these species reproduce in other states and countries and migrate in the fall and winter to California, although there are substantial resident populations of some species.

There are 36 species of migratory game birds from two of the taxonomic families that occur in California, listed below. Migratory game birds are defined by convention and law as belonging to the following taxonomic families (USDI 1988a:1):

Anatidae (ducks, geese, brant, and swans);
Columbidae (doves and pigeons);
Gruidae (cranes);
Rallidae (rails, coots, and gallinules);
Scolopacidae (woodcock and snipe);
Corvidae (crows).

The two families discussed in this ED are *Anatidae* and *Rallidae*. These families are combined herein due to similarities in basic life-history characteristics. These characteristics include: (1) the use of California as a migration and wintering area (Palmer 1976, Bellrose 1980, Zeiner *et al.* 1990); (2) the use of seasonal wetlands as roosting and foraging habitats (Bellrose 1980, Heitmeyer and Raveling 1988, USDI 1988a:31-56); and (3) for most duck species, similarities in nesting areas, habitat types, age at reproduction, and clutch sizes (Palmer 1976, Bellrose 1980, USDI 1988). Some differences among the species in these families exist. Geese and some duck species breed at an older age than do most ducks (Palmer 1976, Bellrose 1980). Deepwater and estuarine habitats are more important to some species (Palmer 1976, Bellrose 1980), and the use of dry and wet agricultural fields are more important to other species (Bellrose 1980, Zeiner *et al.* 1990).

Individuals and populations of migratory birds spend parts of the year in different geographical areas. Due to this geographic distribution and migratory nature, management for these species is based on geographic units, or flyways, (USDI 1975, USDI 1988a:63) comprised of several states (Figure 2).

These units, or flyways, incorporate populations that are generally discrete from populations in other units. Therefore, an analysis of the environmental effects of

Figure 2. Administrative Waterfowl Flyways



the proposed project in California must consider the status of the affected species at a flyway level.

Adaptive Harvest Management

In March 1995 (60 FR 15642 -15648), the Service implemented a general harvest strategy for setting duck framework regulations and the process will be used again in 2017 (81 FR 53391-53393). The regulatory process for migratory birds has evolved since the early 1900s from one that included little or no monitoring of populations and the establishment of regulations based on traditions, to today's more data-driven process (Johnson *et al.* 1993). The current process, known as Adaptive Harvest Management (AHM)(USFWS 2016a) establishes explicit harvest objectives and a single regulatory package is selected from a limited array of options. This single package is evaluated based on mathematical models, with the goal of ensuring that duck populations are healthy over the long-term while providing hunting opportunity consistent with the long-term health while learning more about the effect of hunting mortality on population parameters (See Final Environmental Document for Migratory Game Bird Hunting August 2006, incorporated by reference, State Clearinghouse Number 2006042115, available at 1812 9th Street, Sacramento 95811)

AHM balances hunting opportunities with the desire to achieve the duck population goals identified in the North American Waterfowl Management Plan (NAWMP). Currently, a set of four regulatory options, each containing flyway-specific season lengths, bag limits, and dates are being used. The selection of a specific option is recommended each year from a decision matrix based on mid-continent mallard breeding populations and habitat conditions in the current year, although the State continues to have the option to establish more restrictive regulations.

For the Pacific Flyway, the proposed regulatory packages vary primarily in season length (closed, 60, 86, or 107 days) and total duck bag limit (either four or seven ducks per day). Species- (e.g. mallard) and sex- (e.g. mallard) specific limits are contained within the AHM packages. Additionally, prescriptive regulation processes for pintail, canvasback and scaup have been adopted by the Service that determine daily bag limits depending on breeding population size, habitat conditions, and the season length established through the AHM process (see below).

In March 2008, the Pacific Flyway Council recommended that the Service set duck season frameworks in the Pacific Flyway based on a separate modeling approach that uses data from western mallards rather than mallards from the mid-continent region. This is because most of the mallards harvested in the Pacific Flyway originate from within the Flyway. The Service adopted the separate mallard model in August 2008 and plans to continue the use of that approach in 2017 (81 FR 53391-53393).

The western mallard approach uses the same regulatory packages as currently in use under continental AHM. Instead of a harvest objective constrained by the population goal in the NAWMP plan, the harvest objective for western mallards is based on a “shoulder approach”, or a proportion of maximum sustained yield. Current modeling suggests that western mallards have been harvested at about 80% of their maximum potential, compared to about 90% for mid-continent mallards under the continental AHM approach.

As in mid-continent AHM, daily bag limits and season length will be set based on the status of the mallard breeding population. Bag limits for other species, including those for which individual harvest strategies have been adopted (pintail, canvasbacks, scaup) are based on mid-continent AHM and will be used in the Pacific Flyway. The State continues to have the option to establish more restrictive regulations.

Pintail Harvest Strategy

In 1997 a prescribed harvest strategy was developed (62 FR 39721 and 50662) with several modifications since inception. The harvest strategy was revised in 2002 when Flyway-specific harvest models were updated (67 FR 40131). In 2002 and 2003, the Service set pintail regulations that deviated from the strict prescriptions of the harvest strategy (i.e., partial season), but remained true to the intent of the strategy (67 FR 53694 and 59111; 68 FR 50019 and 55786). In 2004, the harvest strategy was modified to include a partial season option (69 FR 43696 and 52971). In adopting those changes, the USFWS and others called for review of the pintail strategy (69 FR 57142) and consideration of technical modifications that could be made to improve it. As a result of this review, the strategy was revised in 2006 to include updated flyway-specific harvest models, an updated recruitment model, and the addition of a procedure for removing bias in the breeding population size estimate based on its mean latitude (71 FR 50227 and 55656). Pursuant to requests from flyways and other stakeholders, a compensatory model was added to the strategy in 2007 (72 FR 18334, 31791, and 40198) as an alternative to the existing additive harvest model, and this update made the harvest strategy adaptive on an annual basis. The current strategy was developed in 2010 (75 FR 32873) and designed to maximize long-term cumulative harvest, which inherently requires perpetuation of a viable population. Hunting will be allowed when the observed breeding population is above 1.75 million birds (based on the lowest observed breeding population size since 1985 of 1.79 million birds in 2002).

The adaptive management protocol considers a range of regulatory alternatives for pintail harvest management that includes a closed season, 1-bird daily bag limit, or 2-bird daily bag limit. The maximum pintail season length depends on the general duck season framework (characterized as liberal, moderate, or restrictive and varying by Flyway) specified by mallard AHM.

An optimal pintail regulation is calculated under the assumption of a liberal mallard season length in all Flyways. However, if the season length of the general duck

season determined by mallard AHM is less than liberal in any of the Flyways, then an appropriate pintail daily bag limit would be substituted for that Flyway. Thus, a shorter season length dictated by mallard AHM would result in an equivalent season length for pintails, but with increased bag limit if the expected harvest remained within allowable limits.

Canvasback Harvest Strategy

Since 1994 the Service has followed a harvest strategy that if canvasback population status and production are sufficient to permit a harvest of 1-bird daily bag limit nationwide for the entire length of the regular duck season, while still attaining a projected spring population objective of 500,000 birds. In 2008 (73 FR 43290), the strategy was modified to incorporate the option for a 2-bird daily bag limit for canvasbacks when the predicted breeding population the subsequent year exceeds 725,000 birds. A partial season would be permitted if the estimated allowable harvest was within the projected harvest for a shortened season. If neither of these conditions can be met, the harvest strategy calls for a closed season.

Scaup Harvest Strategy

The scaup population has experienced a significant long-term decline. The 2007 population estimate was the third lowest on record. Recent population estimates have been more than 30 percent below the 55 year average with the biggest decline occurring over the last 25 years. There is evidence that the long-term scaup decline may be related to changes in scaup habitat. Several different ideas have been proposed to explain the decline, including a change in migration habitat conditions and food availability, effects of contaminants on scaup survival and reproduction and changing conditions on the breeding grounds possibly related to warming trends in portions of northern North America. Hunting has not been implicated as a cause of the past scaup decline, but the Service is committed to ensuring that harvest levels remain commensurate with the ability of the declining population to sustain harvest. In 2008 the Service implemented a new scaup harvest strategy (73 FR 43290) that used restrictive, moderate, and liberal regulatory alternatives. The scaup harvest strategy prescribes optimal harvest levels given an observed breeding population size and an explicit harvest management objective; maximize 95% of long-term cumulative harvest.

Service Changes in the Timing of Annual Migratory Bird Hunting Adoption

Historically, the Service published preliminary federal frameworks in mid-August and states adopted hunting regulations in early August based on the decisions of the Service Regulation Committee (SRC) in late July. The Service then published final frameworks, which contained the state-selected seasons in September. Beginning with the 2016 hunting seasons (79 FR 56864) a new schedule is now used for setting annual migratory bird hunting regulations. The new schedule will establish migratory

bird hunting seasons much earlier than the historic system. Under the new process, proposed hunting season frameworks for a given year will be developed in early fall of the prior year. Those frameworks will be finalized in October, thereby enabling the state agencies to select their seasons by late April and the Service will publish final frameworks in early summer.

Biological data (spring and summer surveys) for the following year will not be available in the fall, when the Flyway Councils and the Service will be developing hunting regulations for the next year. Thus, regulation development will be based on predictions derived from long-term biological information and established harvest strategies (as described above). This process will continue to use the best science available and will balance hunting opportunities with long-term migratory game bird conservation, while fulfilling all administrative requirements. Existing individual harvest strategies have been modified using either data from the previous year(s) or model predictions to fit this new schedule. Many existing regulatory prescriptions used for Canada Goose, Sandhill Cranes, Mourning Doves, and American Woodcock currently work on this basis. Uncertainty associated with these population status predictions has been accounted for and incorporated into the decision-making process. The Service concluded (Boomer, *et al.* 2015) that this uncertainty should not result in a disproportionately higher harvest rate for any stock, nor substantially diminish harvest opportunities, either annually or on a cumulative basis.

Existing Conditions

Northeastern Zone: In that portion of California lying east and north of a line beginning at the intersection of Interstate 5 with the California-Oregon line; south along Interstate 5 to its junction with Walters Lane south of the town of Yreka; west along Walters Lane to its junction with Easy Street; south along Easy Street to the junction with Old Highway 99; south along Old Highway 99 to the point of intersection with Interstate 5 north of the town of Weed; south along Interstate 5 to its junction with Highway 89; east and south along Highway 89 to Main Street in Greenville; north and east to its junction with North Valley Road; south to its junction of Diamond Mountain Road; north and east to its junction with North Arm Road; south and west to the junction of North Valley Road; south to the junction with Arlington Road (A22); west to the junction of Highway 89; south and west to the junction of Highway 70; east on Highway 70 to Highway 395; south and east on Highway 395 to the point of intersection with the California-Nevada state line; north along the California-Nevada state line to the junction of the California-Nevada-Oregon state lines west along the California-Oregon state line to the point of origin.

Ducks: From the second Saturday in October extending for 105 days, 7/day which may include 7 mallards, 2 hen mallard, 2 pintail, 2 canvasback, 2

redheads, 3 scaup during the 86-day season. Possession limit triple the daily bag.

Geese: From the second Saturday in October extending for 100 days, 30/day, up to 20 white geese and up to 10 dark geese, but not more than 2 Large Canada geese. Possession limit triple the daily bag.

Coots and Moorhens: Concurrent with Duck Season. 25/day. Possession limit triple the daily bag.

Youth Hunting Days: The Saturday fourteen days before the opening of waterfowl season extending for 2 days. To participate in these youth hunts hunters must be 17 years of age or younger and must be accompanied by a non-hunting adult 18 years of age or older.

Falconry Take of Ducks: Open concurrently with duck season extending for 105 days. 3/day. Possession limit triple the daily bag.

Southern San Joaquin Valley Zone: All of Kings and Tulare counties and that portion of Kern County north of the Southern California Zone.

Ducks: From the fourth Saturday in October extending for 100 days, 7/day which may include, 7 mallards, 2 hen mallards, 2 pintail, 2 canvasback, 2 redheads, 3 scaup during the 86-day season. Possession limit triple the daily bag.

Geese: From the fourth Saturday in October extending for 100 days, 30/day, up to 20 white geese and up to 10 dark geese. Possession limit triple the daily bag.

Coots and Moorhens: Concurrent with Duck Season, 25/day. Possession limit triple the daily bag.

Youth Hunting Days: The Saturday following the closing of waterfowl season extending for 2 days. To participate in these youth hunts hunters must be 17 years of age or younger and must be accompanied by a non-hunting adult 18 years of age or older.

Falconry Take of Ducks: Ducks only, concurrent with duck season and February 1-3, 2016. 3/day. Possession limit triple the daily bag.

Southern California Zone: In that portion of southern California (but excluding the Colorado River zone) lying south and east of a line beginning at the mouth of the Santa Maria River at the Pacific Ocean; east along the Santa Maria River to where

it crosses Highway 166 near the City of Santa Maria; east on Highway 166 to the junction with Highway 99; south on Highway 99 to the crest of the Tehachapi Mountains at Tejon Pass; east and north along the crest of the Tehachapi Mountains to where it intersects Highway 178 at Walker Pass; east on Highway 178 to the junction of Highway 395 at the town of Inyokern; south on Highway 395 to the junction of Highway 58; east on Highway 58 to the junction of Interstate 15; east on Interstate 15 to the junction with Highway 127; north on Highway 127 to the point of intersection with the California-Nevada state line.

Ducks: From the fourth Saturday in October extending for 100 days, 7/day which may include, 7 mallards, 2 hen mallards, 2 pintail, 2 canvasback, 2 redheads, 3 scaup during the 86-day season. Possession limit triple the daily bag.

Geese: From the fourth Saturday in October extending for 100 days, 23/day, up to 20 white geese, up to 3 dark geese. Possession limit triple the daily bag.

Coots and Moorhens: Concurrent with duck season, 25/day. Possession limit triple the daily bag.

Youth Hunting Days: The Saturday following the closing of waterfowl season extending for 2 days. To participate in these youth hunts hunters must be 17 years of age or younger and must be accompanied by a non-hunting adult 18 years of age or older.

Falconry Take of Ducks: Concurrent with duck season and January 30 – February 3, 2017. 3/day. Possession limit triple the daily bag.

Colorado River Zone: In those portions of San Bernardino, Riverside, and Imperial counties lying east of the following lines: Beginning at the intersection of Highway 95 with the California-Nevada state line; south along Highway 95 to Vidal Junction; south through the town of Rice to the San Bernardino-Riverside county line on a road known as “Aqueduct Road” in San Bernardino County; south from the San Bernardino-Riverside county line on road known in Riverside County as the “Desert Center to Rice Road” to the town of Desert Center; east 31 miles on Interstate 10 to its intersection with the Wiley Well Road; south on this road to Wiley Well; southeast along the Army-Milpitas Road to the Blythe, Brawley, Davis Lake intersections; south on the Blythe-Brawley paved road to its intersection with the Ogilby and Tumco Mine Road; south on this road to Highway 80; east seven miles on Highway 80 to its intersection with the Andrade-Algodones Road; south on this paved road to the intersection of the Mexican boundary line at Algodones, Mexico.

Ducks: From the third Friday in October extending for 101 days, 7/day which may include 7 mallards, 2 hen mallards or Mexican-like ducks, 2 pintail, 2 canvasback, 2 redheads, 3 scaup during the 86-day season. Possession limit triple the daily bag.

Geese: From the third Friday in October extending for 101 days, 10/day, up to 10 white geese, up to 4 dark geese. Possession limit triple the daily bag.

Coots and Moorhens: Concurrent with Duck Season, 25/day, 25 in possession.

Youth Hunting Days: The Saturday following the closing for waterfowl season. To participate in these youth hunts hunters must be 17 years of age or younger and must be accompanied by a non-hunting adult 18 years of age or older.

Falconry Take of Ducks: Ducks only. Concurrent with duck season and from January 30 – February 1, 2017. 3/day. Possession limit triple the daily bag.

Balance of State Zone: That portion of the state not included in Northeastern California, Southern California, Colorado River or the Southern San Joaquin Valley zones.

Ducks: From the fourth Saturday in October extending for 100 days, 7/day which may include 7 mallards, 2 hen mallards, 2 pintail, 2 canvasback, 2 redheads, 3 scaup during the 86-day season. Possession limit triple the daily bag.

Geese: Early Season: Large Canada only from the Saturday closest to October 1 for a period of 5 days EXCEPT in the North Coast Management Area where Large Canada geese are closed during the early season. Regular Season: Dark and white geese from the fourth Saturday in October extending for 100 days EXCEPT in the Sacramento Valley Special Management Area where the white-fronted goose season will close after December 21. Late Season: White-fronted geese and white geese from the second Saturday in February extending for a period of 5 days EXCEPT in the Sacramento Valley Special Management Area where the white-fronted geese is closed. During the Late Season, hunting is not permitted on wildlife areas listed in Sections 550 – 552 EXCEPT on Type C wildlife areas in the North Central Region. 30/day, up to 20 white geese and up to 10 dark geese, but not more than 3 white-fronted geese in the Sacramento Valley Special Management Area. Possession limit triple the daily bag. Possession limit triple the daily bag.

Coots and Moorhens: Concurrent with Duck Season, 25/day. Possession limit triple the daily bag.

Youth Hunting Days: The Saturday following the closing of waterfowl season extending for 2 days. To participate in these youth hunts hunters must be 15 years of age or younger and must be accompanied by a non-hunting adult 18 years of age or older.

Falconry Take of Ducks: Open concurrently with duck season and February 4–5, 2017. 3/day. Possession limit triple the daily bag.

North Coast Special Management Area: All of Del Norte and Humboldt counties.

All Canada Geese: From the second Sunday in November extending for a period of 85 days (Regular Season) and from the third Saturday in February extending for a period of 20 days (Late Season). During the Late Season, hunting is only permitted on private lands with the permission of the land owner under provisions of Section 2016. Up to 10/day Canada geese of which only 1 may be a Large Canada goose, EXCEPT during the Late Season the bag limit on Large Canada geese is 0/day. Possession limit triple the daily bag.

Falconry Take of Ducks: Geese only. Concurrent with Small Canada goose season. 3/day. Possession limit triple the daily bag.

Humboldt Bay South Spit (West Side) Special Management Area: Beginning at the intersection of the north boundary of Table Bluff County Park and the South Jetty Road; north along the South Jetty Road to the South Jetty; west along the South Jetty to the mean low water line of the Pacific Ocean; south along the mean low water line to its intersection with the north boundary of the Table Bluff County Park; east along the north boundary of the Table Bluff County Park to the point of origin.

All species: Closed during brant season

Sacramento Valley (West) Special Management Area: Beginning at the town of Willows; south on Interstate 5 to the junction with Hahn Road; east on Hahn Road and the Grimes-Arbuckle Road to the town of Grimes; north on Highway 45 to its junction with Highway 162; north on Highway 45-162 to the town of Glenn; west on Highway 162 to the point of beginning.

White-fronted geese: Closed after Dec 21, 3/day. Possession limit triple the daily bag.

Morro Bay Special Management Area: Beginning at a point where the high tide line intersects the State Park boundary west of Cuesta by the Sea; northeasterly to a point 200 yards offshore of the high tide line at the end of Mitchell Drive in Baywood Park; northeasterly to a point 200 yards offshore of the high tide line west of the Morro Bay State Park Boundary, adjacent to Baywood Park; north to a point 300

yards south of the high tide line at the end of White Point; north along a line 400 yards offshore of the south boundary of the Morro Bay City limit to a point adjacent to Fairbanks Point; northwesterly to the high tide line on the sand spit; southerly along the high tide line of the sand spit to the south end of Morro Bay; easterly along the Park boundary at the high tide line to the beginning point.

All species: Open in designated areas only

Martis Creek Lake Special Management Area: The waters and shoreline of Martis Creek Lake, Placer and Nevada counties.

All species: Closed until Nov 16

Northern Brant Special Management Area: Del Norte, Humboldt and Mendocino Counties.

Black Brant: From November 8 extending for 37 days. Possession limit triple the daily bag.

Balance of State Brant Special Management Area: That portion of the state not included in the Northern Brant Special Management Area.

Black Brant: From November 9 extending for 37 days. Possession limit triple the daily bag.

Imperial County Special Management Area: Beginning at Highway 86 and the Navy Text Base Road; south on Highway 86 to the town of Westmoreland; continue through the town of Westmoreland to Route S26; east on Route S26 to Highway 115; north on Highway 115 to Weist Rd.; north on Weist Rd. to Flowing Wells Rd.; northeast on Flowing Wells Rd. to the Coachella Canal; northwest on the Coachella Canal to Drop 18; a straight line from Drop 18 to Frink Rd.; south on Frink Rd. to Highway 111; north on Highway 111 to Niland Marina Rd.; southwest on Niland Marina Rd. to the old Imperial County boat ramp and the water line of the Salton Sea; from the water line of the Salton Sea, a straight line across the Salton Sea to the Salinity Control Research Facility and the Navy Test Base Road; southwest on the Navy Test Base Road to the point of beginning.

White geese: From the first Saturday in November extending for a period of 86 days (Regular Season) and from the first Saturday in February extending for 16 days (Late Season). During the Late Season, hunting is only permitted on

private lands with the permission of the land owner under provisions of Section 2016. Up to 15 geese. Possession limit triple the daily bag.

Proposed Changes and Analysis

- Modify the boundary descriptions in the Southern California and Colorado River zones.

The existing boundary descriptions were based on physical maps from several decades ago. Digital technology and software has improved resulting in electronic maps that reflect more accurate features (e.g. road titles, river locations). These modifications would more accurately describe zone boundaries. These modifications are administrative in nature.

- Allow the white-fronted goose season to be split into three segments in the Northeastern California Zone.

The existing regulation allows the season for white-fronted geese to be split into two parts: Regular Season and Late Season. The proposed change would allow the season to be split into three parts, coinciding with the white goose season in the Northeastern Zone. White-fronted geese migrate through this zone in October and again in the later winter and spring. The three segments would allow hunting when the largest proportions of white-fronted geese are present. Pacific white-fronted geese in the Pacific Flyway are estimated to be 685,500, well above the population goal of 300,000 birds established in the Flyway Management Plan. Private landowners are concerned that white-fronted geese are reducing crops available for harvest and grazing and have provided a letter requesting the white-fronted goose season to coincide with that of the white goose season. The proposed change is intended to reduce depredation on private lands and disperse through hunting as well as establish the hunting season to coincide when the largest concentrations are present. Service approval is needed for this proposed change as well as an evaluation on the potential effects on tule white-fronted geese. Tule white-fronted geese utilize the Klamath Basin portion of the Northeastern Zone, along with Pacific white-fronted geese. The most recent Tule goose population estimate is 7,250 with a three-year average of 9,760. Tule white-fronted goose harvest will be monitored in this zone. If it is determined that harvest increases dramatically and or a reduction in the population than the late season hunt segment for white-fronted geese will either be reduced or eliminated.

- Increase the daily bag limit for white geese in the Colorado River Zone from 10 to 20 per day. As a result of increasing the white goose daily bag limit, the total daily bag limit for all geese will increase from 14 to 24 in the Colorado River

Zone.

The bag limit increase for white geese: Both Ross' geese and lesser snow geese populations in the Pacific Flyway are about 1,000,000 birds and are above their population goals (100,000 and 200,000 respectively). The Canadian Wildlife Service has proposed to designate both populations as overabundant because of the rapid population growth since 2003 and concern for the potential impacts to the breeding grounds in the Western Canadian Arctic. The Service and Pacific Flyway recognized that reducing the population is needed and in 2013 increased the daily bag limit to 20 in the federal frameworks. CA increased the daily bag limit to 15 in 2015 and 20 in 2016. Arizona would like to increase the bag limit to 20 in the zone adjacent to the Colorado River Zone as allowed in federal frameworks. Federal regulations require that California's hunting regulations conform to those of Arizona in the Colorado River Zone. Achieving a population reduction through hunting alone is not likely given the low number of hunters.

POLICY CONSIDERATIONS

The legislature formulates laws and policies regulating the management of fish and wildlife in California. The general wildlife conservation policy of the State is to encourage the conservation and maintenance of wildlife resources under the jurisdiction and influence of the State (Section 1801, Fish and Game Code). The policy includes several objectives, as follows:

1. To provide for the beneficial use and enjoyment of wildlife by all citizens of the State;
2. To perpetuate all species of wildlife for their intrinsic and ecological values, as well as for their direct benefits to man;
3. To provide for aesthetic, educational, and non-appropriative uses of the various wildlife species;
4. To maintain diversified recreational uses of wildlife, including hunting, as proper uses of certain designated species of wildlife, subject to regulations consistent with public safety, and a quality outdoor experience;
5. To provide for economic contributions to the citizens of the State through the recognition that wildlife is a renewable resource of the land by which economic return can accrue to the citizens of the State, individually and collectively, through regulated management. Such management shall be consistent with the maintenance of healthy and thriving wildlife resources and the public ownership status of the wildlife resource;

6. To alleviate economic losses or public health and safety problems caused by wildlife; and
7. To maintain sufficient populations of all species of wildlife and the habitat necessary to achieve the above-state objectives.

With respect to migratory game birds, Sections 355 and 356 of the Fish and Game Code provides that the Commission may adopt migratory game bird hunting regulations as long as they are within the federal frameworks.

The Department has concluded that the proposed project will not have a significant adverse effect on the environment. No mitigation measures or alternatives to the proposed project are needed.

POTENTIAL FOR SIGNIFICANT EFFECTS

Previous reviews of other potential environmental effects were analyzed extensively in previous environmental documents. The analysis of these fifteen factors regarding migratory game bird hunting were examined in the prior year environmental document (incorporated by reference, August 2006, State Clearinghouse Number 2006042115, available at 1812 9th Street, Sacramento 95811) and certified by the Fish and Game Commission. The modifications proposed are to increase hunter opportunity and reduce depredation of some goose populations that winter in California. The Department concludes that the proposed project and existing hunting regulations will not cause significant adverse effects on the factors analyzed in the 2006 FED and summarized below.

EFFECTS OF HABITAT DEGRADATION

Breeding Areas

The 2006 analysis was presented on page 100 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). The primary impacts on breeding waterfowl from agriculture are the cultivation or tillage of nesting cover (Higgins 1977, Kirsch 1969, Milonski 1958). A secondary effect of the agricultural process is the tillage of lands right up to the edges of ponds or other water sources, which effectively eliminates brood rearing habitat. These activities in the prairies are especially prevalent in years of drought where farmers are able to intensively farm all of a wetland basin.

In the primary duck production areas of Canada, there is greater opportunity during drought periods for intensive farming and greater demand for available forage for

cattle. Unfortunately, waterfowl must compete for the same resources. Agriculture does not generally impact breeding habitats for the majority of goose populations, because most goose nesting occurs in undeveloped areas of the arctic.

Wintering Areas

The 2006 analysis was presented on page 101 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). Wetland habitats in California have been reduced from an estimated five million acres to less than 450,000 acres at present. Most of these wetlands have been converted to agricultural uses, but urban developments have also reduced the wetland acreage in California. In the critically important Central Valley, about 70 percent of the remaining acreage is in private ownership and managed primarily as duck hunting clubs.

Some of the agricultural areas continue to provide habitat of value to waterfowl through the availability of waste grains and the provision of nesting cover. However, certain agricultural activities, such as fall plowing, can reduce food availability for waterfowl.

Habitat conversions by humans have reduced the habitat available for waterfowl. These conversions take place over a period of time, such that substantial habitat losses during the period of the proposed project are not likely to occur and act in a cumulative manner with the hunting of waterfowl, coots and moorhens in California that would result in significant adverse effects to the environment.

EFFECTS OF DISEASES, PESTICIDES, AND OTHER CONTAMINANTS

The 2006 analysis was presented on page 101 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). Diseases, pesticides and other contaminants will likely cause the death of waterfowl, coots, moorhens, and common snipe in California. Even though some losses to disease can be in the tens of thousands of individual birds, these losses are small relative to the populations present in the State. Accordingly, the Department concludes that the combination of the proposed project and existing regulations and potential losses to diseases and other contaminants will not result in a significant adverse impact to waterfowl, coot and moorhen populations in California in 2017-18.

EFFECTS OF ILLEGAL HARVEST

The 2006 analysis was presented on pages 110 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street,

Sacramento 95811). The Department currently has a staff of about 430 game wardens stationed throughout the State. The Department analyzed waterfowl-related citations to estimate the extent of waterfowl mortality occurring as a result of illegal take of waterfowl in California. The level of illegal harvest is difficult to determine (USDI 1988a:29-30). In an attempt to model the possible extent of illegal harvest, the Service compared known survival rates of mallards against known hunting mortality (USDI 1988a). Estimated average annual survival rates are 66 percent and estimated hunting mortality is 18 percent (based on recoveries of banded birds), all other forms of mortality would thus equal 16 percent of the population. Since other mortality factors are known to exist (disease, predation, starvation, weather), it would seem that illegal harvest is considerably less than 16 percent and is probably not a significant portion of the annual mortality of mallards (USDI 1988a).

EFFECTS OF SUBSISTENCE HARVEST

The 2006 analysis was presented on page 112 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). Native and nonnative peoples living in remote areas of Alaska and Canada are dependent on migratory birds and other wildlife for subsistence. They take birds and eggs during spring and summer for food (USDI 1988a:26). These levels of harvest do not appear to be acting as a cumulative effect in conjunction with current hunting, because in general, the populations of migratory birds that are being monitored continue to increase. In particular, goose populations affected by this project are growing and some are at or near record levels.

EFFECTS OF HARVEST OUTSIDE UNITED STATES

The 2006 analysis was presented on page 113 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). The harvest of waterfowl in areas outside of California is easier to quantify than to determine what specific effects it has on California's migratory and resident populations because of mixing of different populations on the winter grounds. Harvest in two areas, Canada, where the majority of California's waterfowl originate, and Mexico, where segments of some populations winter, could act in addition to the harvest in California.

This information identifies the need for migratory game bird management to be conducted on a flyway, multi-flyway, or population basis. The total harvest of waterfowl throughout North America results in a decrease in the number of waterfowl in that year. Issues, such as subsistence harvest in Alaska and Canada and the harvest of birds outside the United States, clearly identify the need for a comprehensive perspective. The establishment of framework regulations by the Service addresses this issue by

modifying hunting regulations in response to long-term population fluctuations. The Department concludes that the combination of the increased California harvest from this proposed project and harvest outside the State will not result in significant adverse impacts to migratory bird populations.

EFFECTS OF MAJOR DEVELOPMENT PROJECTS

The 2006 analysis was presented on page 115 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). Migratory game bird habitat will continue to be altered in California as the human population increases. However, strong enforcement of State and Federal laws, such as the Clean Water Act, as well as Commission policy of no net loss of wetlands, will help to minimize any adverse effect. Changes in agricultural policies at the national level may also affect the quantities of waste grain available to some species of migratory game birds. Competitive urban needs for water, especially as it relates to rice production, may affect waterfowl food supplies in the future. This will be especially prevalent when drought conditions return.

EFFECTS ON LISTED SPECIES

The 2006 analysis was presented on page 91 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). The Department is charged with the responsibility to determine if any hunting regulations will impact threatened and endangered species. It complies with this mandate by consulting internally and with the Commission when establishing migratory game bird regulations to ensure that the implementation of the proposed project and existing hunting regulations do not affect these species. The Department has concluded that, based on conditions of the proposed project and existing hunting regulations, differences in size, coloration, distribution, and habitat use between the listed species and legally harvested migratory game birds, the proposed project will not jeopardize these species.

EFFECTS ON MIGRATORY BIRD HABITATS

Habitat Protection Effects

The 2006 analysis was presented on page 93 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). Waterfowl, coot and moorhen hunting in California provide a positive incentive for private individuals to acquire, develop, and maintain habitat that might otherwise be converted to other uses. Habitat provided by hunters is entirely

available at night as a roosting site and is partially available during the day during hunting season (during days when private wetlands are not hunted or on portions of private wetlands that are not hunted). Long-term vegetative changes may occur in areas that are managed specifically for wintering waterfowl foods. This may affect species more dependent upon climax vegetation than waterfowl, coots and moorhens, which favor early successional stages of vegetation.

Short-term Effects on Habitat

The 2006 analysis was presented on pages 93 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). Some short-term impacts of the proposed project, and existing hunting regulations such as vegetative trampling and litter in the form of spent shell casings, occur. These impacts are considered minor, and the effects on vegetation are generally reversed in the next growing season (USDI 1975:205).

EFFECTS ON RECREATIONAL OPPORTUNITIES

The 2006 analysis was presented on page 96 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). The implementation of the proposed project and existing regulations will result in the presence of hunters, their vehicles, and their dogs in migratory bird habitats throughout the State. The enjoyment of observing waterfowl by those opposed to hunting may be reduced by some degree by the knowledge or observation of hunters in the field. Because the proposed project and existing regulations occurs for no more than 107 days in largely unpopulated areas of the State, this will not result in significant adverse environmental impacts.

EFFECTS OF METHODS OF TAKE AND IMPACTS ON INDIVIDUAL ANIMALS

The 2006 analysis was presented on page 88 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). Section 20.21, subpart C, of Part 20, Title 50, CFR, and Section 507, Title 14, CCR, stipulate the methods of hunting that are allowed by the Service for migratory game birds. The Commission, in concert with Federal law, has authorized the use of shotguns 10-gauge or smaller, muzzle-loading shotguns, falconry, bow and arrow and crossbows, and dogs for retrieval or take. Historically, these methods of take have been used on a variety of migratory game birds throughout North America. In previous regulation-setting processes, both the Service and the Commission have stipulated restrictions on equipment and

methods of take which attempt to provide for reasonably efficient and effective taking of waterfowl, coots and moorhens.

EFFECTS FROM DROUGHT

Drought cycles are part of the ecological system in California and waterfowl are well adapted to dealing with low water years e.g., delaying nest initiation, re-nesting capability, and reduced clutch size. Still, multi-year droughts can reduce waterfowl populations on a local scale and a much broader continental scale. Drought conditions impact waterfowl in a variety of ways including: degraded habitat quality which creates poor breeding habitat conditions (McLandress *et al.* 1996), lower food production (both natural and agricultural) which can limit the ability of birds to migrate and breed successfully (McWilliams *et al.* 2004), as well as expose large portions of waterfowl populations to disease. This section summarize potential impacts that drought may have on waterfowl throughout the annual cycle in California.

California is an area of continental importance for waterfowl during various annual life history events (CVJV 2009). Winter is more significant than breeding due to the abundance of waterfowl that migrate here from northern breeding areas (Bellrose 1980). Stresses encountered on wintering areas can have carry over effects during spring migration or the breeding season, which ultimately can limit populations (Klaassen 2002, Inger *et al.* 2008). It is critical that adequate habitat for waterfowl is provided during winter.

Breeding

Female ducks find a mate on wintering areas and breed where they were hatched because of high natal fidelity (Rowher and Anderson 1988). Critical components to when and where a hen will nest are available brood water and adjacent upland habitat. In dry years females may leave their natal area and migrate to areas with better quality habitat (Johnson and Grier 1988). Females need time in a location to build energy stores such as protein which is typically associated with aquatic invertebrates (Krapu 1974). Egg formation and laying will be delayed until conditions are adequate (Ankney and Alisauskas 1991). Early in the breeding season many species of ducks delay nest-initiation in response to drought. During periods of severe drought many species of waterfowl may not breed at all. If a rapid decline in water levels occurs midway into nesting or during incubation females may desert their nests (Smith, 1971). By not breeding when conditions are poor, birds enhance their survival and their probability of reproducing later when habitat conditions improve (Krapu *et al.* 1983).

Reduced recruitment can occur when ducks travel great distances to find adequate habitat conditions for nesting or re-nesting because energy reserves have been depleted. Reduced recruitment can result from: choosing not to nest, smaller clutch sizes, a lower likelihood of laying a second clutch (Grand and Flint 1991) and later laying date which has been shown to reduce nest success and brood survival in

some species (Dzus and Clark 1998). Further, females that migrate out of their natal area may also have a higher mortality rate due to increase susceptibility to predation in unfamiliar areas. Reduced recruitment and adult survival could decrease short-term population levels and if poor habitat conditions persist for subsequent years, reduce long term population levels. An adaptation to drought is in years of good habitat conditions, hens can raise numerous broods giving waterfowl populations the ability to recover quickly (McLandress *et al.* 1996).

Critical breeding areas for ducks in California as identified by the Department's breeding population survey for waterfowl (Figure 3-A) are the Sacramento Valley, San Joaquin Valley Grasslands, Suisun Marsh and high desert region of Northeastern California. Figures are for mallards because they make up the majority of the breeding duck population in California (see Figure D-4). Breeding population numbers in the Central Valley (i.e. Sacramento and San Joaquin valleys) are correlated to precipitation as well as recruitment from previous years (Figure 3-B and C). Breeding mallard populations in northeastern California however, do not follow precipitation trends (Figure 3-D) indicating that other factors may be impacting duck production and breeding population trends in that region. The statewide breeding population of mallards has remained relatively stable except for northeastern California where the population trends are decreasing. The cause of this decline is unknown but speculated to be the lack of adequate brood water in early spring and the increase in invasive plant species (e.g. *Lepidium sp.*) throughout the area (Dave Mauser, Klamath Basin NWR personal communication).

Another breeding population indicating a decline is Canada geese that nest in northeastern California. Historically, Canada geese nested in this region in larger numbers but have declined considerably (Figure 4). Climate change is speculated (i.e. dry conditions over the long term; NOAA unpublished data) to play a significant role in the decline but no analysis or studies has been conducted (Melanie Weaver CDFW personal communication). The Department will include an analysis of possible climate change impacts as well as a survival analysis from Department leg banding data in an upcoming management plan for this population.

Molting

During late July, male ducks will typically migrate to a large permanent water marsh to molt while females follow soon after nesting in August. Like nest site fidelity, ducks will molt in the same location as previous years (Yarris *et al.* 1994). One study has indicated that 60 percent of mallards that breed in the Central Valley will migrate 280 miles to northeastern California to molt while 25% molt in marshes in the Central Valley (Yarris *et al.* 1994). Molt is an extremely vulnerable time for ducks because they become completely flightless for 30 – 40 days. Marsh water levels are critically important during the molting period and must be maintained or birds could be subject to depredation by mammalian and avian predators (Arnold *et al.* 1987).

Avian botulism

Botulism outbreaks typically occur in marshes with warm water, little flow, high organic load (rotting vegetation) and high amounts of algae (Rocke and Samuel 1999). Botulism is a bacterium that naturally occurs in wetland environments and persists in marshes with histories of outbreaks due to the release of spores into the environment. Ducks are infected by ingesting the bacterium and become paralyzed, eventually dying. Duck carcasses attract flies which lay eggs that produce maggots that in-turn eat the flesh of the carcass and consume botulism spore. Maggots drop into the water and are eaten by ducks in the marsh thereby escalating mortality events (Rocke and Samuel 1999). Outbreaks of avian botulism (Fleskes *et al.* 2010) often coincide with the molt cycle of ducks and the brood rearing stages of late nesting duck species. Many studies have been conducted to better understand the cycle of botulism and inform managers of how to prevent or minimize outbreaks

In California botulism outbreaks have been reported in every region of the state however, frequency is not well known due to reporting inconsistencies (Figure 5; USGS National Wildlife Health Center personal communication). A robust analysis on this disease data is not possible because of the reporting inconsistencies and the numerous factors possible that may have caused the outbreaks. In some years die-offs can be quite severe (Figure 5). Botulism outbreaks can kill large numbers of hens, broods and molting ducks (Fleskes *et al.* 2010).

During drought summer water allocation is reduced for managed wetlands in the Central Valley and the Klamath Basin in northeastern California. Decreasing the number of flooded wetlands increases concentrations of waterfowl, thus raising the chance of an outbreak and more birds being affected. Breeding mallards throughout California molt in the Klamath Basin. The Klamath Basin experiences botulism annually, even during normal water years (Figure 5-C). During drought years the potential for a high mortality event is great.

Wintering Waterfowl

Waterfowl migrate from northern latitudes to California beginning in August. Multiple stopover sites are used during migration to rebuild energy reserves. The Klamath Basin in northeastern California is one of the most important waterfowl stopover sites during fall and spring for waterfowl in the Pacific Flyway (Bellrose 1980). Peak numbers of waterfowl are seen on major wintering areas south of the Klamath Basin by December.

During early January, the Department and the Service conduct the Midwinter Waterfowl Survey. This survey has been conducted since 1953 and has provided managers with midwinter indices of waterfowl species. During midwinter California supports 66 percent of all ducks (excluding mergansers; based on long term average 1955 – 2014) in the Pacific Flyway, 40 percent of which occur in the Sacramento Valley. Of total waterfowl in the Pacific Flyway (i.e. geese, ducks, swans, coots and cranes), California supports 73 percent, the Sacramento Valley

alone supports 43 percent (Olson 2014, Department unpublished data). California waterfowl distribution based on this survey indicates the Sacramento Valley harbors 60 percent of total waterfowl, the San Joaquin has 20 percent, and the Delta, Suisun Marsh, northeastern California combined hold 10 percent of total waterfowl.

Sensitive wintering populations

Sensitive waterfowl subspecies also occur in California during winter. Tule greater white-fronted geese are monitored by the Department and Service through telemetry and population surveys throughout the winter in the Sacramento Valley, the Delta and northeastern California. This subspecies of white-fronted goose uses permanent marshes early in winter and begins to feed in rice fields during midwinter. The bulk of the Tule population overwinters (November to February) adjacent to and on the Sacramento National Wildlife Refuge Complex. A special management area that has a reduced season length and bag limit has been maintained in the Sacramento Valley for this population compared to the rest of the state. Department staff monitor harvest by actively measuring all greater white-fronted geese at check stations on the Sacramento National Wildlife Refuge Complex.

This population could be negatively impacted by poor body condition caused by limited habitat, particularly reduced rice decomposition flooding.

Wintering waterfowl habitat

Since the implementation of the NAWMP (USFWS 1986) and the subsequent initiation of the Central Valley Joint Venture (CVJV 1990), the wetlands of the Central Valley have fluctuated in size and quality (Fleskes *et al.* 2005, CVJV 2009). Wetland acres as of 2006 were estimated to be 205,900. Current wetland acres are being calculated as there have been a number of large easement properties acquired since 2006. The amount of wetland acres as well as the quality have increased since the last update (i.e. moist soil management and infrastructure).

Additionally, since 1996 changes in post-harvest rice straw decomposition have added an estimated 209,000 acres of flooded rice for wintering waterfowl in the Sacramento Valley (Garr 2014). Increased post-harvest flooded rice and increased wetland area is speculated to be the cause for the increasing densities of waterfowl seen in the Sacramento Valley relative to other areas on the midwinter survey (Fleskes and Yee 2005). Recent body condition studies of numerous wintering waterfowl species have improved significantly (Ely and Raveling 1989, Miller 1986, Thomas *et al.* 2008, Skalos *et al.* 2011) particularly within the Sacramento Valley. Numerous duck and goose species have changed their roosting and feeding habits considerably because of the increase in water on the landscape (Fleskes *et al.* 2005). For example, prior to post-harvest flooded rice Pacific greater white-fronted geese traveled an average of 17.5 miles from roost to forage areas. This distance has been reduced to 15 miles (14%) because the proximity of undisturbed roost areas (Ackerman *et al.* 2006). Increased body condition (Skalos *et al.* 2011) combined with undisturbed roost areas (Ackerman *et al.* 2006) has probably been a major contributor to the recovery of Pacific greater white-fronted geese since the

record low in the mid 1970's (USFWS 2016b; Pacific greater white-fronted goose population indices). Waterfowl and non-game waterbird species have been known to use flooded agriculture in the Sacramento/San Joaquin Delta region (Shuford 1998) as well as the Tulare Basin in the San Joaquin Valley (Fleskes *et al.* 2013). Reduction of post-harvest agricultural field flooding because of drought in these regions could have a large impact on wintering waterfowl populations because most of the natural marsh habitat has been eliminated (Gilmer *et al.* 1982).

The CVJV has modeled the food resource needs of wintering ducks in California. The CVJV estimated that California currently has an adequate supply of food resources for all waterfowl species during winter. The drought model scenario decreased the total winter flooded wetlands from an estimated 197,200 to 148,000 acres and flooded rice from 305,000 to 135,000 acres in the Central Valley. Flooding rice for decomposition was assumed to be limited and at least 136,000 acres of the dry acreage would be harvested and not deep tilled post-harvest (therefore accessible). In this scenario energy available to ducks would be reduced to below adequate levels by mid-January (CVJV 2014).

Waterfowl can make up energetic shortfalls from limited food resources (Skalos *et al.* 2011) on wintering areas during migration if the adequate food resources are provided on stopover sites (Bauer *et al.* 2008). If the Central Valley has limited food resources for waterfowl, the CVJV speculates that further stress would be applied to waterfowl populations migrating through the Klamath Basin during spring due to the ongoing water allocation issues in that region (CVJV 2014).

Avian cholera

Avian cholera (*Pasturella multocida*) is a common winter bacterial infection in waterfowl. This disease agent occurs naturally in waterfowl populations and particular species (e.g. Lesser snow geese, Ross's geese, mute swans) tend to be reservoirs for cholera (Samuel *et al.* 2005, Pedersen *et al.* 2014). Environmental and physiological conditions that stress (e.g. prolonged cold temperatures, wind, precipitation, inadequate food resources and injury) birds tend to influence the expression of this disease. Blanchong *et al.* (2006) found that highly eutrophic water conditions are correlated to cholera abundance in wetlands. These conditions would be promoted in years of drought due to slow flow-through in wetlands. Eutrophic conditions would also be exacerbated by large concentrations of waterfowl defecating in wetlands, agricultural runoff (i.e. cattle and fertilizer) or other upstream sources of nutrients. This study also cited the increased abundance of cholera in wetlands with higher protein concentrations. Increased protein concentrations were correlated with the number of dead bird carcasses found emphasizing the need for monitoring and removal to stem outbreaks.

Figure 6 indicates the frequency and intensity of avian cholera mortality events in California as reported to the USGS Wildlife Health Center. Cholera outbreaks tend to be more common in the Sacramento Valley and northeastern California. This may be from colder temperatures experienced during winter but more likely from the high densities of waterfowl (particularly *Chen sp.*) at the time of the outbreak.

Cholera outbreaks have the potential to be very severe; an outbreak in the Salton Sea during 1991 claimed an estimated 155,000 birds.

Concerning sensitive waterfowl populations Greater white-fronted geese (i.e. Tule geese) seem to be resistant to outbreaks of avian cholera (Blanchong 2006).

Hunter harvest impacts on waterfowl populations

Wintering numbers of mallards are relatively low compared to other wintering species and the population of mallards that breed in the state. The 2016 California midwinter survey indicate 1,403,260 Northern pintail, 492,840 Northern shoveler, 358,520 American wigeon, 443,100 American green-winged teal, compared to 149,680 mallards counted on the survey. Nonetheless, mallards are the most sought after species by hunters by proportion of population (USFWS 2016c).

Currently, little evidence supports hunter harvest having an additive effect on duck population trends (Afton and Anderson 2001). Rather, available breeding habitat (i.e. nesting habitat and brood habitat) is the driving factor behind most duck population changes. Even in absence of hunter or other mortality factors, density dependent factors on breeding areas (available habitat, predator response etc.) drive duck populations (Newton 1994, Clark and Shulter 1999, Viljugrein et al. 2005). Figure 7 compares hunter harvest in relation to the breeding population of mallards in California. Harvest has very little correlation (Chart A; $R^2=0.11$, Chart B; $R^2=0.22$, respectively) with subsequent breeding population levels.

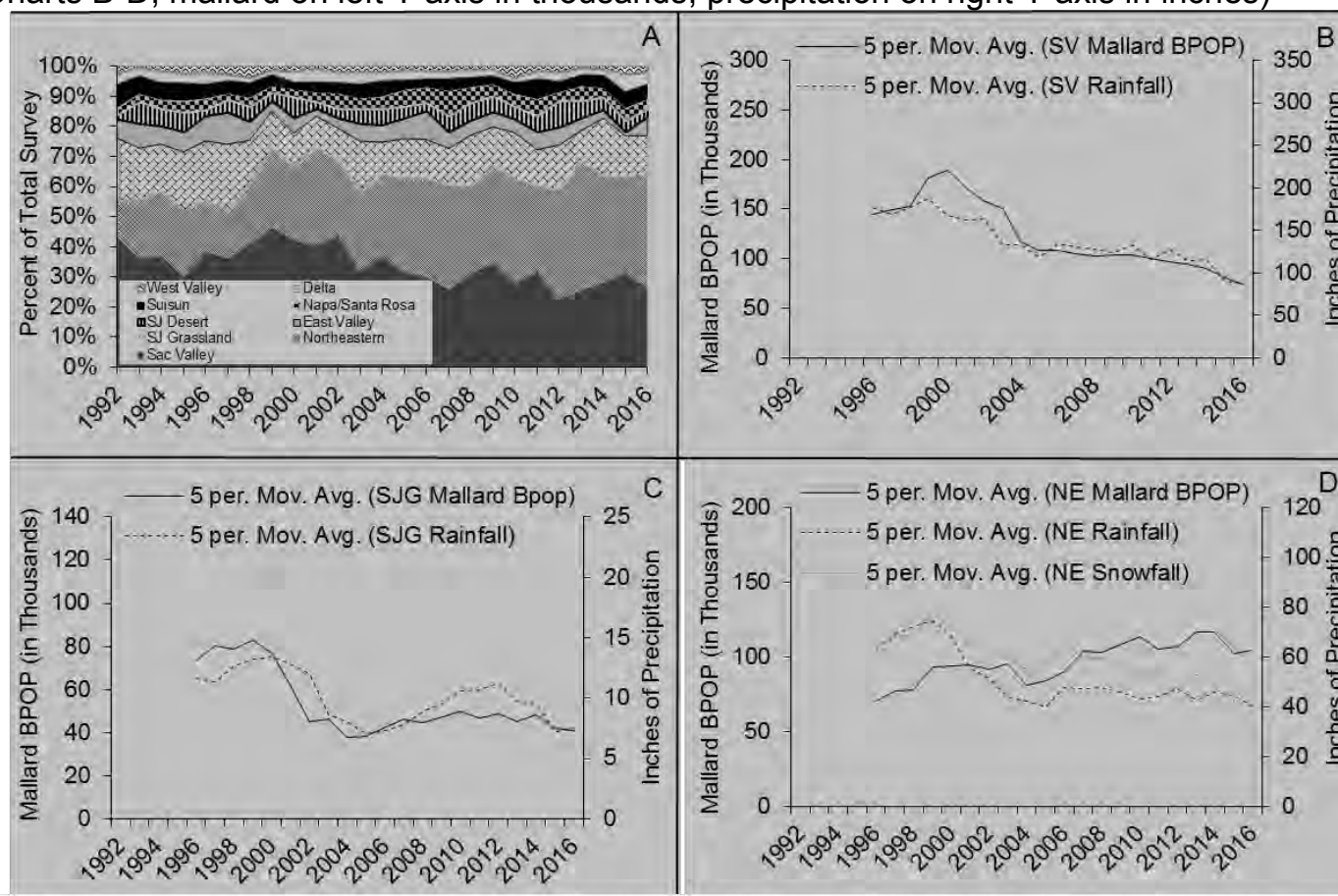
A number of goose populations have increased substantially in the Pacific Flyway in recent years, with continued hunting and more liberal season and bag limits. Examples are the Pacific greater white-fronted goose and the Ross's goose. Pacific greater white-fronted geese have increased from 75,000 in 1978 to 650,000 by 2010. Surveys conducted in the 1960's estimated Ross's geese at 10,000 while the current population estimate is 700,000. When goose populations are low they are vulnerable to over exploitation by sport hunting. Ducks can breed successfully at age one while geese will breed at age two to three (refer to "K selection"). In the past, goose populations have been subject to overexploitation by predators (e.g. Aleutian Canada goose; PFC 2006^b) or overharvest by subsistence or sport hunting (Pacific greater white-fronted goose; Pamplin 1986). Recovery actions have successfully increased these populations.

The Service implemented a general harvest strategy for setting duck framework regulations that regularly occur in California and are sought after by hunters (as explained in the Adaptive Harvest Management Section under Background and Existing Conditions). These harvest management strategies ensure duck populations are healthy over the long-term while providing hunting opportunity consistent with the long-term health. As a participant of the Pacific Flyway Council, the Department reviewed and voted to adopt these management strategies for establishing seasons and bag limits. In addition, the Department participates in the monitoring of various populations, both wintering and breeding. If defined populations goals are not met than bag or season limit reductions are triggered. For example the California Breeding Population Survey is used in the Adaptive

Harvest Management strategy that establishes regulatory packages for most duck species for all 11 states in the Pacific Flyway.

The Pacific Flyway is currently working on revising the management plan for Tule white-fronted geese. The plan will incorporate population estimates derived from Department ground surveys, telemetry data and public hunt area harvest from check station measurements. These management actions will ensure that population levels of waterfowl species in California are being monitored and hunter harvest is sustainable over the long term.

Figure 3. Proportion of California breeding population by area (Chart A) and area specific mallard BPS estimates with total rainfall (Charts B-D, mallard on left Y axis in thousands; precipitation on right Y axis in inches)



Total precipitation values derived January to April prior to breeding season using Lincoln, Nicolaus, Stonyford, Bango, Paradise, Thomas Creek weather stations.

Total precipitation values derived January to April prior to breeding season using Green Springs and Stockton weather stations.

Total precipitation values derived January to May prior to breeding season using Cedarville, Doyle, Juniper Creek and Tulelake weather stations.

Total precipitation values derived January to May prior to breeding season using Adin Mountain, Cedar Pass, Dismal Swamp and Independence SNOTEL stations.

Figure 4. California Department of Fish and Wildlife, Northeastern California Canada Goose Survey 1950-2013.

CAGO traditional survey - pairs

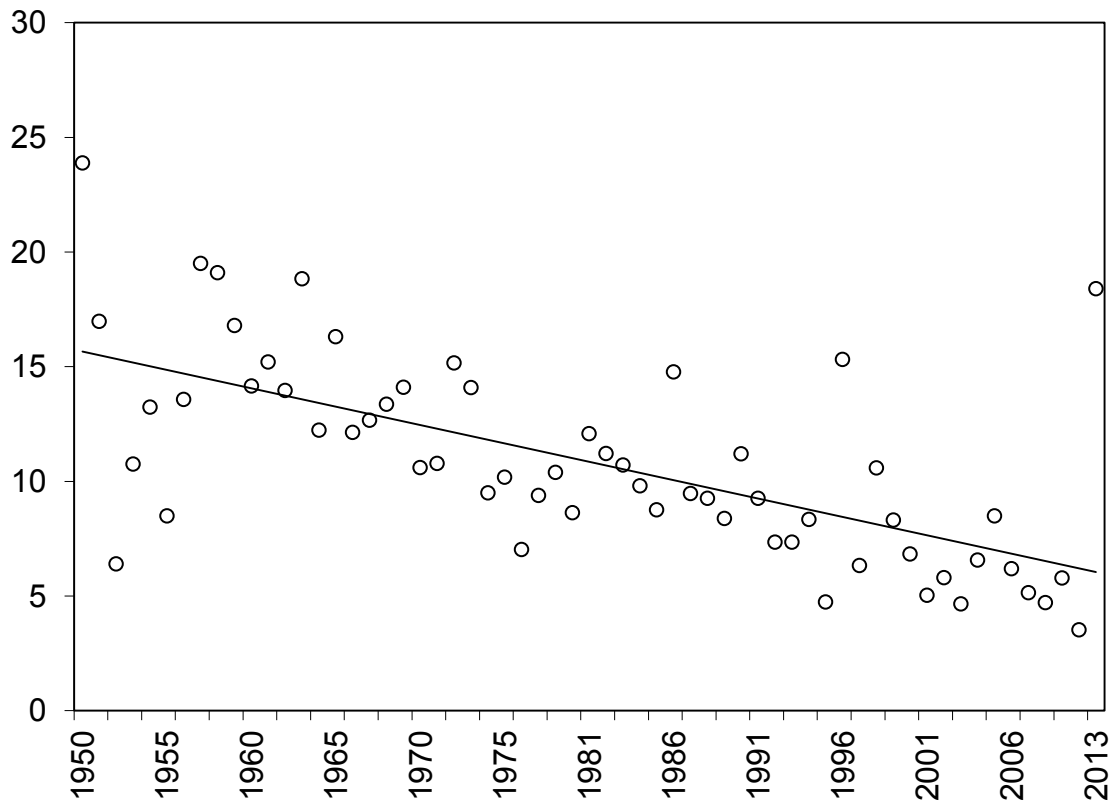
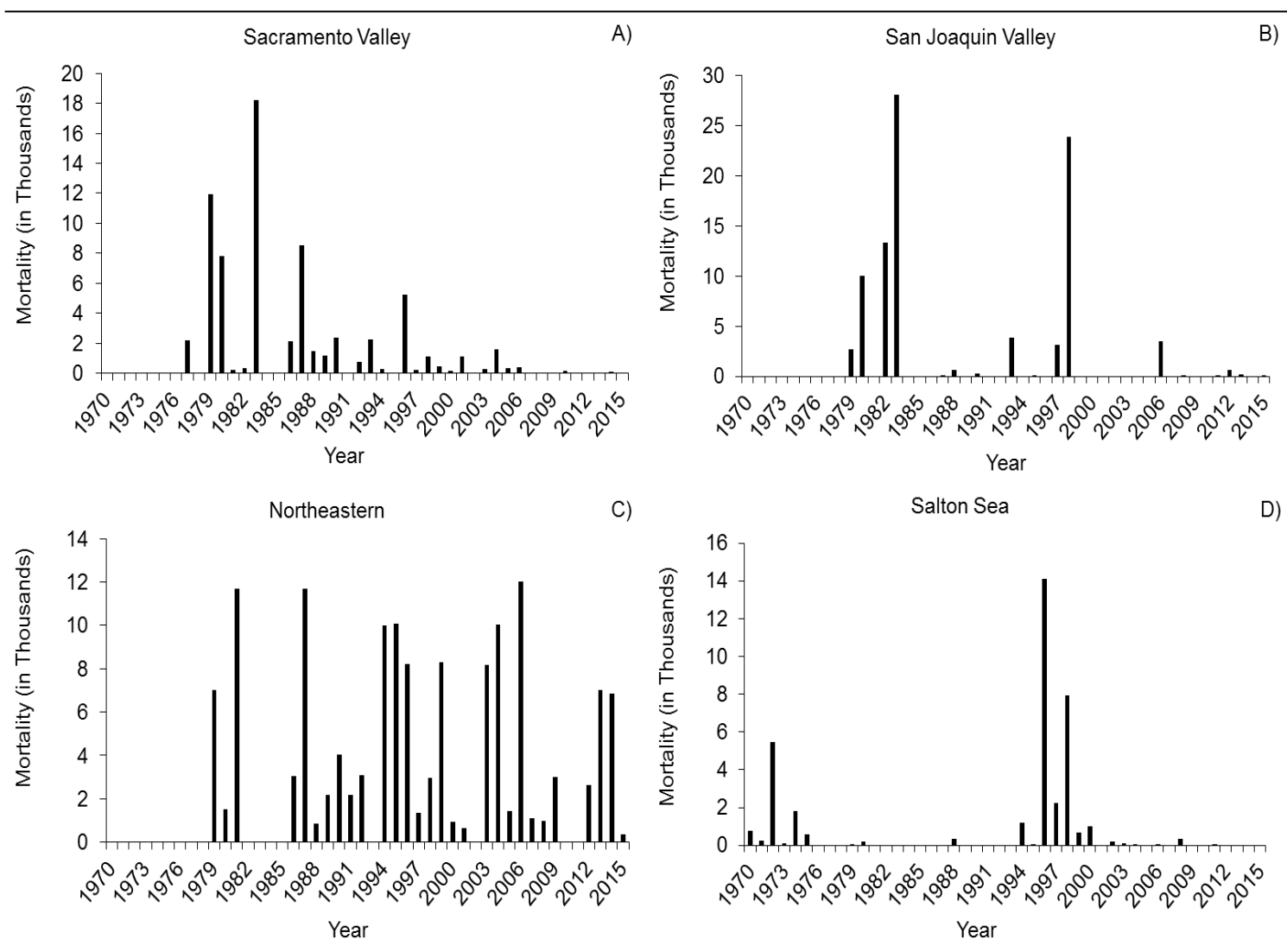
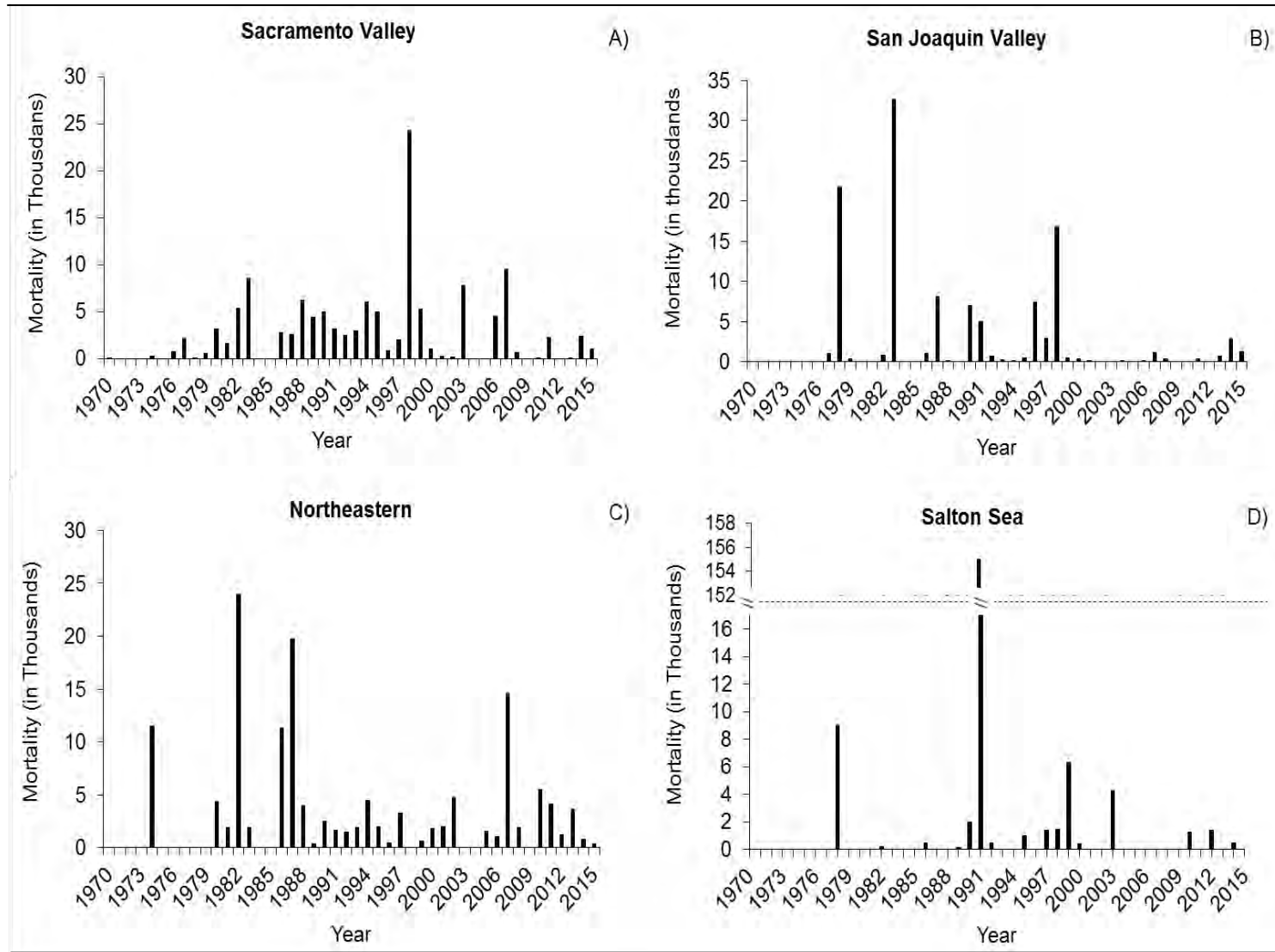


Figure 5. Waterfowl mortality from botulism by area, California 1970-2015



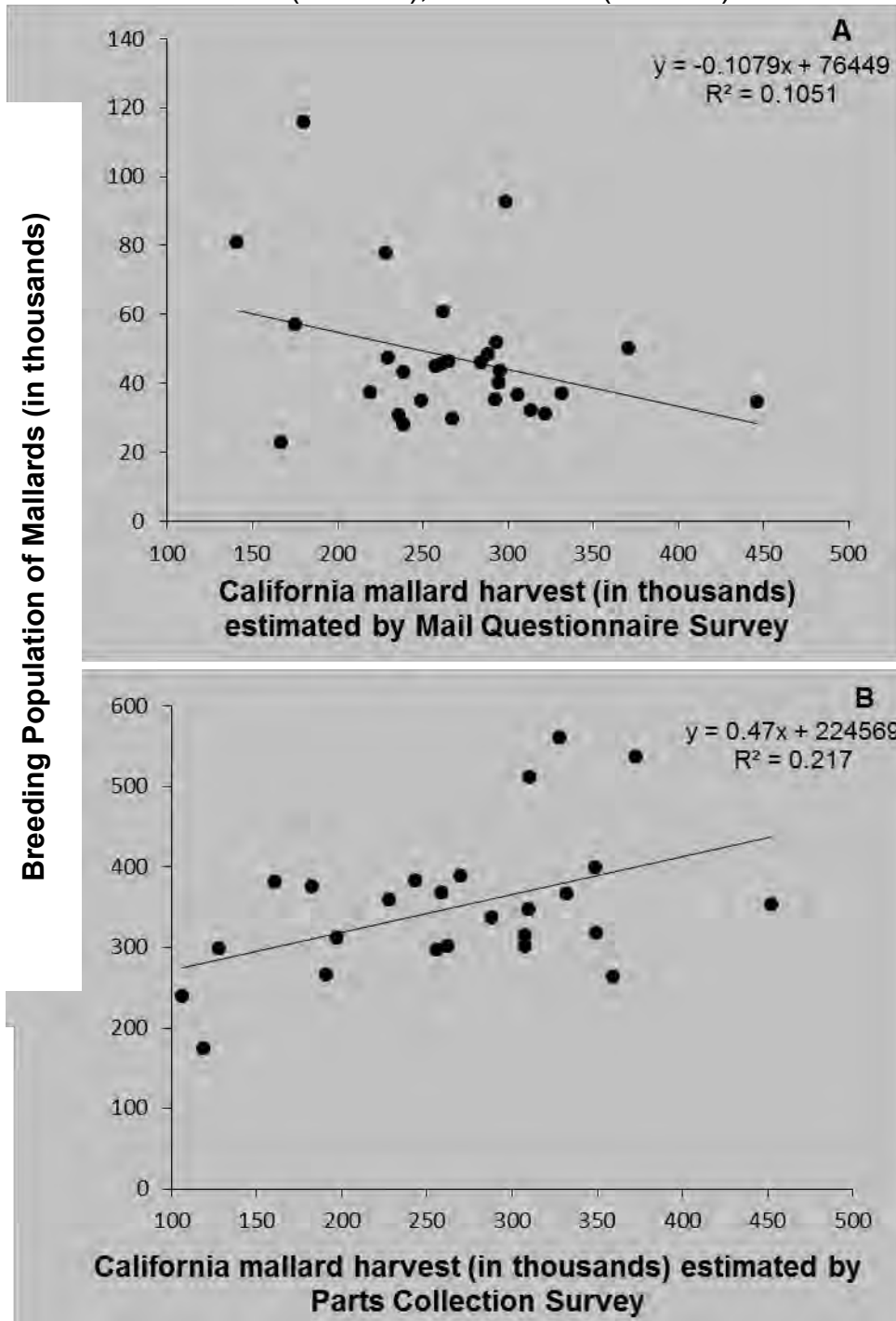
Mortality represent total number reported to the USGS Wildlife Health Center.
No data collected during 1985 due to federal government shutdown.

Figure 6. Waterfowl mortality from avian cholera by area, California 1970-2015.



Mortality represent total number reported to the USGS Wildlife Health Center.
No data collected during 1985 due to federal government shutdown.

Figure 7. California breeding mallard populations estimates vs hunter harvest: 1960-1990 (Chart A), 1991-2015 (Chart B)



CUMMULATIVE IMPACTS

Short-term uses and Long-term Productivity

The 2006 analysis was presented on page 97 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). The proposed project and existing hunting regulations will result in the temporary reduction of waterfowl, coot and moorhen populations and the use of nonrenewable fuels by hunters and the Department in the assessment of migratory game bird populations and the enforcement of the regulations. On the other hand, the Service concluded (USDI 1975:215) that the issuance of annual hunting regulations contributes significantly to the long-term productivity of the migratory game bird resource and their habitats, because hunting is allowed for only a few species of migratory birds for a limited period of time, and the revenues from hunting are important in the acquisition and management of migratory game bird habitats. Therefore, the project and existing regulations actually enhances long-term productivity of migratory game birds and results in no significant adverse impact on long-term productivity.

Growth Inducing Impacts

The 2006 analysis was presented on page 98 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). Because the hunting of migratory game birds is undertaken for a limited period of time and generally occurs in sparsely populated regions of the State, it is not likely to add to the growth in population in California or result in large-scale developments in any particular city or area. Overall numbers of migratory game bird hunters are declining, and because these numbers are declining, there is not likely to be an additional demand for housing in the specific areas in which hunting will occur. Therefore, the project and existing hunting regulations will not result in significant adverse impacts through growth.

Significant Irreversible Environmental Changes

The 2006 analysis was presented on page 98 (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115, available at 1812 9th Street, Sacramento 95811). The proposed project and existing hunting regulations would result in the continued commitment of energy resources by biologists and wardens in data collection, regulation promulgation, and law enforcement, and by hunters traveling to hunting areas. Therefore, the project will not result in significant adverse environmental impacts through irreversible changes.

The 2006 analyses and document referenced (incorporated by reference, August 2006 Final Environmental Document, SCH#2006042115) is located and available upon request from California Department of Fish and Game, Wildlife Branch, 1812 9th Street, Sacramento, CA 95811.

CHAPTER 3 – ALTERNATIVES

The three California project alternatives evaluated herein are: (1) no project – no change from the 2015-16 hunting regulations; (2) reduced season lengths and bag limits; and (3) elimination of all mechanical decoys.

Alternative 1. No project – no change from the 2016-17 hunting regulations

This alternative provides identical season and bag limit regulations as the 2016-17 seasons. Under this alternative, modifications to the zone boundary descriptions, a three-way split for white-fronted geese in the Northeastern Zone and an increase in the total goose daily bag limit and the white goose daily bag limit in the Colorado River Zone would not occur.

Advantages of This Alternative

Waterfowl regulations are inherently complicated and any changes may result in confusion for some members of the public. Maintaining the 2016-17 regulations for the 2017-18 season may result in less confusion to some members of the public.

Disadvantages of This Alternative

The no change alternative provides less hunting opportunity compared to the proposed project because an increase in the total goose daily bag limit and the white goose daily bag limit and the three-way split would not be allowed. In addition, the no change alternative does not reflect accurate boundary descriptions and is not current with the established federal frameworks for the 2017-18 season, including the requirement for the Colorado River Zone to match the adjacent zone in Arizona.

Conclusion Regarding Alternative 1

It is unlikely that significant irreversible impacts would occur immediately or statewide as a result of selecting the no change alternative. However, this alternative was not recommended because it conflicts with Federal frameworks.

Alternative 2. Reduced Season Lengths, Season Timing and Bag Limits

This alternative provides a suite of restrictions that when taken alone or in combination are expected to reduce harvests. This alternative could be selected by the Commission based on changes in Federal frameworks or a conclusion by the Commission that reduced harvests are a better alternative than the project or existing regulations. Under this alternative, for a generalized analysis, the length of each migratory bird season could be reduced by about 50 percent. For ducks, more conservative Adaptive Harvest Management regulatory alternatives (86 or 60 days) could be used. For brant, the 37-day season would be reduced to 19 days and for most other geese the season would be reduced from either 107 or 100 days to 51 days.

The AHM alternatives for the Pacific Flyway include total duck bag limits that range from 4 to 7 with differing restrictions on mallards and hen mallards. Other bag limit reductions considered in this alternative include a reduction from as many as 20 to as few as 1 geese depending on zone; a reduction in brant from two to one; and a reduction in the coot limit from 25 to 12 birds per day. Additionally, species-specific regulations, for pintail, redheads, canvasback or scaup could be further reduced under this alternative.

Advantages of This Alternative

Selection of Alternative 2, reduced season lengths, timing and bag limits, would reduce total harvest, although the magnitude of this reduction is not precisely predictable. This alternative has advantages only if the levels of harvest are suppressing populations. In 2015-16, the estimated retrieved harvest in California was 948,860 ducks, 215,630 geese and 11,100 coots. If harvest regulation restrictions cause a larger than expected decline in hunter participation, harvests might be reduced by more than 50 percent. If, as experienced in the 1989-90 season, there is a drop in hunter participation but fall flights are larger or contain higher percentages of juveniles than are expected, harvests would probably not decline by 50 percent. If harvests declined by exactly 50 percent; approximately 474,430 ducks, 107,815 geese, and 5,550 coots would not be harvested in California. If waterfowl, coots and moorhens have access to habitat of sufficient quality and quantity and these populations are being suppressed due to the levels of harvest previously experienced, populations might increase in following years as a result of the selection of this alternative. This alternative would provide recreational opportunity for hunters and meet one of the goals of the Conservation of Wildlife Resources Policy (Fish and Game Code, Section 1801), which is to include hunting as part of maintaining diversified recreational uses of wildlife.

Non-hunting opportunities to view migratory birds would not differ substantially from the proposed project, because while this would increase viewing days on hunting areas, these areas are a small percent of total waterfowl habitat.

Reduction in possible conflicts between non-hunters and hunters would be a likely result of this alternative.

Disadvantages of This Alternative

Harvest restrictions for waterfowl, coots and moorhens would probably be a disincentive for many of those private landowners who provide habitat through flooding of seasonal wetlands and agricultural lands during the fall and winter. These habitats form the majority of available wintering habitat for waterfowl and wetland dependent wildlife in California (Heitmeyer et al. 1989). Habitat provided only during the hunting season would be available for a shorter time. For many of these private landowners, the short period of time allowed for hunting may be judged to be not worth the high costs associated with providing water and managing this habitat. This would reduce the amount of habitat available for waterfowl and other wetland dependent wildlife. Overcrowding, and as a result, reduced food resources and increased losses to diseases, would be expected.

Conclusion Regarding Alternative 2

Selection of this alternative might lead to a greater decline in participation by hunters. The reductions in the number of days that waterfowl, coots and moorhens could be hunted might not be deemed to be worth the costs of licenses, stamps, travel, and entry fees. A change in season timing is not likely to significantly affect the number of active hunters. A reduction in hunter participation would result in reduced revenues to the Department and the Service which are used to acquire, manage, and maintain vital habitats. If the reduced season length resulted in a lower hunting harvest and hunting mortality was additive to natural mortality, an increase in some populations of waterfowl would be possible. However, the Department concludes that this alternative alone would not result in a significant increase in waterfowl numbers in future years.

Alternative 3. Elimination of all mechanically- and artificially-powered spinning wing decoys as a method of take.

The use of mechanical or electronic duck decoys (also known as spinning wing decoys (SWDs), “rotoducks”, “motoducks”, motion wing decoys, etc.) may lead to increases in harvest beyond those anticipated by existing bag limits and season length. Some hunters and other members of the public are opposed to the use of these devices because they believe that the devices exceed the bounds of “fair chase” and eliminate the emphasis on traditional hunting skills needed to successfully hunt ducks, and the advantages detract from the experience and dedication needed to sustain the hunting tradition.

This alternative would eliminate the use of all mechanical and artificially powered spinning wing decoys as a method of take. The Department analyzed several

sources of information relative to the possible effects of spinning wing decoys and these analyses are provided in Appendix D.

Advantages of This Alternative

The evidence seems clear that spinning blade and spinning wing decoys increase harvest at the individual hunt level, and level of observed increases in harvest at the individual hunt level are not reflected in overall estimates of harvest (Appendix E). However, the role of harvest in duck population dynamics is not clearly understood and the effect of reducing harvest success at the individual hunt level may or may not result in observable changes in population parameters. Some members of the hunting public have expressed concerns that continual advances in technology ultimately detract from the traditional hunting experience and potentially may lead to a reduction in the support for waterfowl hunting. This is thought to be due to hunters becoming less dedicated to developing skills and investing in the activity to a level that generates support for conservation and potentially increasing the negative view of hunting by those that are currently not opposed to hunting. As technology continues to improve, debates such as the one over spinning blade and spinning wing devices would continue. A new debate over each new technological advance would seem likely. Resources would continually be re-directed to assess each new technological advance.

Disadvantages of This Alternative

As detailed in Appendix D, existing analyses do not clearly establish an effect of harvest on duck population dynamics. To some unmeasured extent, the use of SWD may influence more hunters to join or remain in hunting, thereby providing support for wetland and waterfowl conservation. Commercial enterprises that develop and market these devices would likely be opposed to their regulation. There is no information regarding other duck attracting devices currently in use and there is no basis to conclude that these devices increase duck harvest. Commercial enterprises exist or may be developed to increase technological improvements for attracting ducks.

Conclusions Regarding Alternative 3

The selection of this alternative would not result in a significant adverse environmental impact. As reported in Appendix D, to date, the Department is unable to scientifically associate observed changes in duck population status, except perhaps for certain cohorts of local mallards, with the use of SWDs. The selection of this alternative would be viewed favorably by those hunters and other members of the public who are opposed to the use of non-traditional methods, but would be viewed unfavorably by those hunters who are not opposed to their use. Those commercial enterprises that develop and market these devices would likely be opposed to their regulation.

CHAPTER 4. RESPONSE TO COMMENTS REGARDING THE PROPOSED PROJECT

In accordance with CEQA, public input and agency consultation were encouraged during the environmental review process. An NOP was provided to the State Clearinghouse, land management agencies having a key role in migratory game bird management, and all individuals and organizations which expressed an interest in migratory game bird management. No comments were received as a result of the NOP circulation.

The Department prepared a DED regarding waterfowl hunting (Section 502, Title 14, CCR). The DED was made available for public review on November 7, 2016. In addition, correspondence was either emailed or letters sent to every county library for public posting and notice of the availability of the DED. Additionally, notice of availability of the DED for public review was provided to the State Clearinghouse, which provided notice of availability to interested organizations, including all county governments in California as well as the Native American Heritage Commission. A formal notice letter proposing the 2017-18 waterfowl hunting regulations dated November 28, 2016, was also sent on behalf of the Department and the Fish and Game Commission to California Tribes, who requested to be notified for CEQA projects. No California Tribes requested consultation however; The Native American Heritage Commission reviewed the DED and offered the following comments (letter via email dated 12/21/2016):

Comments from Gayle Totton, Native American Heritage Commission

Comment: There is no documentation of contact or consultation with California Tribes by the lead agency as requested under SB-18 and/or AB-52 with Native American tribes traditionally and culturally affiliated to the project area, or that mitigation measures were developed in consultation with the tribes.

Response: A formal notice letter proposing the 2017-18 waterfowl hunting regulations dated November 28, 2016, was sent on behalf of the Department and the Fish and Game Commission to California Tribes, who requested to be notified for CEQA projects. No California Tribes requested consultation.

Comment: There are no mitigation measures specifically addressing Tribal Cultural Resources separately. Mitigation measures must take Tribal Cultural Resources into consideration as required under AB-52, with or without consultation occurring.

Response: The proposed Project would modify current waterfowl hunting regulations for the 2017-18 waterfowl hunting season. The regulations governing the take of migratory game birds in California are selected by the Commission and forwarded to the U.S. Fish and Wildlife Service each year. The Federal frameworks specify the range of dates, total number of hunting days, bag limits, shooting hours, and methods of take authorized for migratory game birds. The

proposed Project provides continued opportunity for migratory game bird hunting via season lengths and bag limits. The regulations selected by the Commission must be within the frameworks established by the Service. The proposed Project is statewide and hunting on public lands that have identified Tribal Cultural Resources would have restrictions or mitigation measures in place to prevent harm. As a result, the proposed Project would have no impact to Tribal Cultural Resources.

Comment: Tribal Cultural Resources assessments are not documented. Tribal cultural resource assessments, surveys or studies should adequately assess the existence and significance of tribal cultural resources and plan for project-related impacts to Tribal cultural resources.

Response: There is no evidence that suggests the Project (modification or issuance of annual waterfowl hunting regulations) would cause any adverse change in the significance of a Tribal Cultural Resource; cause any change in the significance of an historical or archaeological resource; directly or indirectly destroy a unique paleontological resource site or unique geologic feature; or disturb any human remains. No Tribal Cultural Resources assessments have been conducted because the Project is not expected to impact Tribal Cultural Resources.

LITERATURE CITED

- Ackerman, J.T., J. M. Eadie, M. L. Szymanski, J. H. Caswell, M. P Vrtiska, A. H. Raedeke, J. M. Checkett, A. D. Afton, T. G. Moore, F. D. Caswell, D. D. Humburg and J. Yee. Effectiveness of spinning-wing decoys varies among dabbling duck species and locations. *Journal of Wildlife Management* 70: 799-804.
- Ackerman, J. T., J. Y. Takekawa, D. L. Orthmeyer, J. P. Fleskes, J. L. Yee and K. L. Kruse. 2006. Spatial use by wintering greater white-fronted geese relative to a decade of habitat change in California's Central Valley. *The Journal of Wildlife Management* 70: 965 – 976.
- Afton, A.D and M.G. Anderson. 2001. Declining scaup populations: A retrospective analysis of long-term population and harvest survey data. *Journal of Wildlife Management* 65(4): 781 – 796.
- Anderson, M. G., and L. G. Sorenson. 2001. Global climate change and waterfowl: adaptation in the face of uncertainty. *Transactions of the North American Wildlife and Natural Resources Conference* 66:307–319.
- Anderson, D.R., and K.P. Burnham. 1976. Population ecology of the mallard: VI. The effect of exploitation on survival. *U.S. Fish and Wildl. Serv. Resour. Publ.* 128. 66pp.
- Ankney, and R. Alisauskas. 1991. Nutrient reserve dynamics and diet of breeding female gadwalls. *The Condor* 93:799 – 810.
- Arnold, T.W. and E.K. Fritzell. 1987. Food habits of prairie mink during the waterfowl breeding season *Canadian Journal of Zoology* 65: 2322 – 2324.
- Batt, B. D. J., editor. 1998. The greater snow goose: report of the Arctic Goose Habitat Working Group. Arctic Goose Joint Venture special publication. U.S. Fish and Wildlife Service, Washington, D.C., USA, and Canadian Wildlife Service, Ottawa, Ontario, Canada.
- Bauer, S., M. Van Dinther, K. Hogd, M. Klaassen and J. Madsen. 2008. The consequences of climate-driven stop-over sites changes on migration schedules and fitness of Arctic geese. *Journal of Animal Ecology* 77: 654 – 660.
- Bellrose, F.C. 1980. Ducks, Geese and Swans of North America. Stackpole Books, Harrisburg, PA. 540pp.
- Blanchong, J.A., M.D. Samuel, D.R. Goldberg, D.J. Shadduck and L.H. Creekmore. 2006. Wetland environmental conditions associated with the risk of avian

- cholera outbreaks and the abundance of *Pasteurella multocida*. *Journal of Wildlife Management*, 70(1): 54 – 60.
- Boomer, G.S., F.A. Johnson, and G.S. Zimmerman. 2015. Adaptive harvest management: adjustments for SEIS 2013. U.S. Department of Interior, Washington, D.C. 20 pp. Available online at <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/AHM/AHM-intro.htm>
- Brownlee, W.C. 1985. Steel vs. lead. A ten year summary on the Murphree Wildlife Management Area. Texas Parks and Wildlife Department, Administrative Report, Federal Aid Project W-106-R. 10pp.
- Burnham, K.P. and D.R. Anderson. 1984. Tests of compensatory vs. additive hypotheses of mortality in mallards. *Ecology* 65:105-112.
- Caswell, J. H., and F. D. Caswell. 2003. Vulnerability of mallards to hunting with a spinning-wing decoy in Manitoba. *Wildlife Society Bulletin* 32:1297-1304.
- Clark, R.G. and D. Shulter. 1999. Avian habitat selection: Pattern from process in nest-site use by ducks. *Ecology* 80(1): 272 – 287.
- Conn, P. B. and W. L. Kendall. 2004. Evaluating Mallard adaptive management models with time series. *J. Wildl. Manage.* 68:1065-1081.
- CVJV. 1990. Central Valley Joint Venture Implementation Plan – A component of the North American Waterfowl Management Plane. U.S. Fish and Wildlife Service, Sacramento, CA
- CVJV. 2006. Central Valley Joint Venture Implementation Plan – Conserving bird habitat. U.S. Fish and Wildlife Service, Sacramento, CA.
- CVJV. 2014. California Drought: Potential Impacts on Ducks in the Central Valley. Report. Sacramento, CA.
- Drever, M. C. and R. G. Clark. 2007. Spring temperature, clutch initiation date, and duck nest success: a test of the mismatch hypothesis. *Journal of Animal Ecology* 76:139-148.
- Dzus, E.H. and R.G. Clark 1998. Brood survival and recruitment in Mallards of relation to wetland density and hatching date. *The Auk* 115(2): 311 – 318.
- Eadie, J. M., T. G. Moore and J. T. Ackerman. 2001. Experimental evaluation of the effect of mechanical wing decoys on hunting success and waterfowl response in California, 1999-2000. Technical Report to the California Waterfowl Association, Sacramento, California.
- Ely, C. R. and D.G. Raveling. 1989. Body composition and weight dynamics of greater white-fronted geese. *Journal of Wildlife Management* 53: 80 – 87.

- Emery, R.B. D.W. Howerter, L.M. Armstrong, M.G. Anderson, J.H. Devries, and B.L. Joynt. 2005. Seasonal variation in waterfowl nesting success and its relation to cover management in the Canadian prairies. *Journal of Wildlife Management* 69:3 pp 1181-1193.
- Fleskes, J.P., D. A. Skalos and M.A. Farinha. 2013. Changes in types and area of post-harvest flooded fields available to waterbirds in Tulare Basin, California. *Journal of Fish and Wildlife Management*
- Fleskes, J.P., D. M Mauser, J.L. Yee, D.S. Blehert and G.S. Yarris. 2010. Flightless and post-molt survival and movements of female Mallards molting in Klamath Basin. *Waterbirds* 33(2): 208 – 220.
- Fleskes, J. P., J. L. Yee, M. L. Casazza, M.R. Miller, J. Y. Takekawa, and D.L. Orthmeyer. 2005. Waterfowl distribution, movements, and habitat use relative to recent habitat changes in the Central Valley of California: A cooperative project to investigate impacts of the Central Valley Joint Venture and changing agricultural practices on the ecology of wintering waterfowl. Final Report. U.S. Geological Survey-Western Ecological Research Center, Dixon Field Station, Dixon, CA.
- Garr, J.D. 2014. The status of status of rice fields during midwinter in the Sacramento Valley California: Final Report 2014. *Wildlife Friendly Farming*, Colusa, CA.
- Gilmer, D. S., M. R. Miller, R. D. Bauer, and J. R. Ledonne. 1982. California USA Central Valley wintering waterfowl concerns and challenges. *Proceedings of the 47th North American Wildlife and Natural Resources Conference*. Pgs. 441 – 452. K. Sabol, Editor. Washington, DC, USA.
- Grand, J.B. and P.F. Flint. 1996. Renesting ecology of Northern pintail on the Yukon-Kuskokwim Delta, Alaska. *The Condor* 98: 820 – 824
- Giudice, J. H. 2003. Survival and recovery of mallards and gadwalls banded in eastern Washington, 1981-1998. *Journal of Field Ornithology* 74:1-11.
- Heitmeyer, M.E. and D.G. Raveling. 1988. Winter resource use by three species of dabbling ducks in California. Unpub. Rept. Delta Waterfowl and Wetlands Res. Sta. Manitoba, Canada. 201 pp.
- _____, D.P. Connelly, and R.L. Pederson. 1989. The Central, Imperial, and Coachella valleys of California. Pages 475-505 *in* L.M. Smith, R.L. Pederson, and R.M. Kaminski, eds. *Habitat Management for Migrating and Wintering Waterfowl in North America*. Texas Tech. Univ. Press, Lubbock.
- Higgins, K.F. 1977. Duck nesting in intensively farmed areas of North Dakota. *J. Wildlife Management* 41(2): 232-242.

- Inger, R., G. A. Gudmundsson, G. D. Ruxton, J. Newton, K. Colhoun, S. Auhage and S. Bearhop. 2008. Habitat utilization during staging affects body condition in a long distance migrant, *Branta bernicla hrota*: potential impacts on fitness. *Journal of Avian Biology* 39: 704 – 708.
- Johnson, D. H. and Grier, J. W. 1988. Determinants of breeding distributions of ducks. *Wildlife Monograph* 100:1-37.
- Johnson, F.A., J.E. Hines, F. Montalbano III, and J.D. Nichols. 1986. Effects of liberalized harvest regulations on wood ducks in the Atlantic Flyway. *Wildl. Soc. Bull.* 14:383-388.
- Johnson, F.A., B.K. Williams, J.D. Nichols, J.E. Hines, W.L. Kendall, G.W. Smith, and D.F. Caithamer. 1993. Developing an adaptive management strategy for harvesting waterfowl in North America. *Trans. North Am. Wildl. Nat. Resour. Conf.* 58:565-583.
- Johnson, W. C., B. V. Millett, T. Gimangy, R. A. Voldseth, G. R. Guntensnergen, and D. E. Naugle. 2005. Vulnerability of northern prairie wetlands to climate change. *Bioscience* 55:863-872.
- Klaassen, M. 2002. Relationships between migration and breeding strategies in arctic breeding birds. In Berthold, P. Gwinner, E. & Sonnenschein, E. (eds) *Avian Migration*: 237 – 249.
- Krapu, G.L. 1974. Feeding ecology of pintail hens during reproduction. *The Auk* 91: 278 – 290.
- Krapu, G. L., A. T. Klett, and D. G. Jorde. 1983. The effect of variable spring water conditions on mallard reproduction. *Auk* 100:689-698.
- Kirsch, L.M. 1969. Waterfowl production in relation to grazing. *J. Wildlife Management* 33(4): 821-828.
- McLandress, R. M., G. S. Yarris, A. E. H. Perkins, D.P. Connelly and D. G. Raveling. 1996. Nesting Biology of Mallards in California. *The Journal of Wildlife Management* 60(1): 94 – 107.
- McWilliams, S.R., C. Guglielmo, B. Pierce and M. Klaassen. 2004. Flying, fasting, and feeding in birds during migration: a nutritional and physiological ecology perspective. *Journal of Avian Biology* 35: 377 – 393.
- Miller, M. R. 1986. Northern pintail body condition during wet and dry winters in the Sacramento Valley, California. *The Journal of Wildlife Management* 50: 189 – 198.
- Miller, M. R., J. Beam, and D.P. Connelly. 1988. Dabbling duck harvest dynamics in the Central Valley of California - implications for recruitment. Pages

- 553- 569 *in* M.W. Weller, ed. Waterfowl in winter. Univ. of Minnesota Press, Minneapolis MN. 624 pp.
- Miller, N.L., K. Bashford, E. Strem. 2003. Potential Impacts of Climate Change on California Hydrology. *Journal of the American Water Resources Association* 39:771-784.
- Milonski, M. 1958. The significance of farmland for waterfowl nesting and techniques for reducing losses due to agricultural practices. *Trans. N. Am. Wildl. Conf.* 23:215-228.
- Murphy-Klassen, H., T. Underwood, S. G. Sealy, and A. A. Czymyi. 2005. Long-term trends in spring arrival dates of migrate birds at Delta Marsh, Manitoba, in relation to climate change. *Auk* 122:1130-1148.
- Newton, I. 1994. The role of nest sites in limiting the numbers of hole-nesting birds: A review. *Biological Conservation* 70(3) 265 – 276.
- Nichols, J.D. and J.E. Hines. 1982. The relationship between harvest and survival rates of mallards: a straight forward approach with portioned data sets. *J. Wildl. Manage.* 47:334-348.
- Nichols, J.D. 1991. Responses of North American duck populations to exploitation. Pages 498-525 *in* J. D. Lebreton and G. J. M. Hirons, Eds. *Bird population studies: Their relevance to conservation and management*. Oxford Univ. Press, Oxford, England.
- Nichols, J.D., M.J. Conroy, D.R. Anderson, and K.P. Burnham. 1984. Compensatory mortality in waterfowl populations: A review of the evidence and implications for research and management. *Trans. North Am. Wildl. and Nat. Resour. Conf.* 49:535-554.
- Nichols, J.D., Blohm, R. J., Reynolds, R. E., Trost, R. E., Hines, J. E., and Blade, J. P. 1991. Band reporting rates for mallards with reward bands of different dollar values. *Journal of Wildlife Management* 55:1119-126.
- Nichols, J. D., Reynolds, R. E., Blohm, R. J., Trost, R. E., Hines, J. E. and Bladen, J. P. (1995). Geographic variation in band reporting rates for mallards based on reward banding. *Journal of Wildlife Management* 59 697–708.
- Olson, S.M., Compiler. 2015. *Pacific Flyway Data Book*. U.S. Fish and Wildlife Service, Vancouver, WA.
- Orthmeyer, D., J. Y. Takekawa, C. R. Ely, M. L. Wege and W. E. Newton. 1995. Morphological variation in greater white-fronted geese in the Pacific flyway. *Condor* 97: 123 – 132.

Pacific Flyway Council. 2002. Pacific Flyway management plan for Pacific brant. Pacific Flyway Study Comm. [c/o USFWS, DMBM], Portland, OR. Unpubl. rept. 40 pp.+ appendices.

_____. 2006. Pacific Flyway management plan for the Aleutian goose. Aleutian Goose Subcomm., Pacific Flyway Study Comm. [c/o USFWS], Portland, OR. Unpubl. rept. 20 pp.+ appendices.

Pamplin, W.L. Jr. 1986. Cooperative efforts to halt population declines of geese nesting on Alaska's Yukon Kuskokwim Delta. Transcripts of the North American Wildlife and Natural Resources Conference 51: 487 – 506.

Palmer, R.S. 1976. Handbook of North American birds. Vols. 2 and 3. Yale University Press, New Haven and London, CT. 521 pp. and 560 pp.

Parry, G. D. 1981. The meanings of r- and K-selection. *Oecologia* 48(2): 260 – 264.

Raveling, D. G. and M.E. Heitmeyer. 1989. Relationships of population size and recruitment of pintails to habitat conditions and harvest. *J. Wildl. Manage.* 53:1088-1103.

Rocke, T.E. and M. D. Samuel. 1999. Water and sediment characteristics associated with avian botulism outbreaks in wetlands. *The Journal of Wildlife Management* 63(4) 1249 – 1260.

Rohwer, F.C and M. Anderson. 1988. Female-biased philopatry, monogamy, and the timing of pair formation in migratory waterfowl. *Current Ornithology* 5: 187 – 221.

Royle, J.A., and P. Garrettson. 2005. The effect of reward band value on mid-continent mallard band reporting rates. *Journal of Wildlife Management* 69:800-804.

Sedinger, J.S., N. D. Chelgren, D. H. Ward, M. S. Lindberg. 2008. Fidelity and breeding probability related to population density and individual quality in black brent geese *Branta bernicla nigricans*. *Journal of Animal Ecology* 77:4 pp 702-712.

Sedinger, J. S., and E. Rexstad. 1994. Do restrictive harvest regulations result in higher survival rates in mallards? Reply to Smith and Reynolds (1992). *Journal of Wildlife Management* 58:571-577.

Shuford, W.D., G.W. Page and J.E. Kjelson. 1998. Patterns and dynamics of shorebird use of California's Central Valley. *The Condor* 100: 227 – 244.

Skalos, D.A 2011. Evaluating body condition and predicting lipid mass of wintering Pacific greater white-fronted geese (*Anser albifrons frontalis*). M.S. Thesis, UC Davis.

Smith, G.W. and R.E. Reynolds. 1992. Hunting and mallard survival. *J. Wildl. Manage.* 56(2):306-316.

- Sorenson, L. G., R. Goldberg, T. L. Root, and M. G. Anderson. 1988. Potential effects of global warming on waterfowl populations breeding in the northern Great Plains. *Climatic Change* 40:343-369.
- Szymanski, M. L., and A. D. Afton. 2004. Effects of spinning-wing decoys on flock behavior and hunting vulnerability of mallards in Minnesota. *Wildlife Society Bulletin* 33:993-1001.
- Thomas, D.R. 2009. Assessment of waterfowl body condition to evaluate the effectiveness of The Central Valley Joint Venture. M.S. Thesis, UC Davis.
- Trost, R.E. 1987. Mallard survival and harvest rates: a reexamination of relationships. *Trans. N.Am. Wildl. Nat. Resour. Conf.* 52:264-284.
- USDI. 1975. Issuance of annual regulations permitting the sport hunting of migratory birds. U.S. Fish and Wildl. Serv. Final environ. impact statement. Wash. D.C. 710pp. + append.
- USDI. 1988. Issuance of annual regulations permitting the sport hunting of migratory birds. U.S. Fish Wildl. Serv. Final supplem. environ. impact statement. Wash. D.C. 130 pp. + append.
- USDI. 2013. Issuance of annual regulations permitting the sport hunting of migratory birds. U.S. Fish Wildl. Serv. Final supplem. Environ. Impact statement. Wash. D.C. 271 pp. + append.
- U. S. Fish and Wildlife Service. 1989. North American Wetland Conservation Act. U.S. Department of the Interior, Washington, D.C. USA.
- _____. 2016a. Adaptive Harvest Management: 2017 Hunting Season. U.S. Department of Interior, Washington, D.C. 70 pp. Available online at <http://www.fws.gov/birds/management/adaptive-harvest-management/publications-and-reports.php>
- _____. 2016b. Waterfowl population status, 2016 U.S. Department of the Interior, Washington, D.C. USA.
- _____. 2016c. Migratory bird hunting activity and harvest during the 2014 and 2015 hunting seasons: Preliminary estimates. U.S. Department of the Interior, Washington, D.C. U.S.A.
- Viljugrien, H., N.C. Stenseth, G.W. Smith, and G.H. Steinbakk. 2005. Density dependence in North America Ducks. *Ecology* 86(1): 245 – 254.

- Ward, D. H., A. Reed, J. S. Sedinger, J. M. Black, D. V. Derksen, and P. M. Caselli. 2005. North American brant: effects of changes in habitat and climate on population dynamics. *Global Change Biology* 11:869-880.
- White, G. C., and K. P. Burnham. 1999. Program MARK: survival estimation from populations of marked animals. *Bird Study* 46 Supplement: 120-138.
- Yarris, G.S., R.M. McLandress and A. E. H. Perkins. 1994. Molt migration of postbreeding female mallards from Suisun Marsh, California. *The Condor* 96(1): 36 – 45.
- Zeiner, D.C., W.F. Laudenslayer Jr., K.E. Mayer, and M. White. 1990. California's wildlife. Vol. II - birds. California statewide wildlife habitat relationships system. Calif. Dep. Fish and Game, Wildl. Manage. Div., Sacramento, CA.

Appendix A. 2016-17 Regulations Related to Migratory Waterfowl, Coot, Moorhen, (Common Gallinule).

§502. Waterfowl, Migratory; American Coot and Common Moorhen (Common Gallinule).

(a) Definitions.

(1) Dark geese. Dark geese include Canada geese, cackling geese, Aleutian geese and white-fronted geese (“specklebelly”).

(2) Large Canada geese. Large Canada geese include western Canada geese (“honker”) and lesser Canada geese (“lessers”).

(3) Small Canada geese. Small (about the size of a mallard) Canada geese include cackling geese and Aleutian geese. Both are white-cheeked geese nearly identical in appearance to Large Canada geese. Aleutian geese have a thin white neck ring and Cackling geese have dark breasts. Both species have a high-pitched cackle as opposed to the deeper “honking”.

(4) White geese. White geese include Ross' geese, snow geese and blue phase of both species.

(b) Waterfowl Hunting Zones.

(1) Northeastern California Zone: In that portion of California lying east and north of a line beginning at the intersection of Interstate 5 with the California-Oregon state line; south along Interstate 5 to its junction with Walters Lane south of the town of Yreka; west along Walters Lane to its junction with Easy Street; south along Easy Street to the junction with Old Highway 99; south along Old Highway 99 to the point of intersection with Interstate 5 north of the town of Weed; south along Interstate 5 to its junction with Highway 89; east and south along Highway 89 to Main Street in Greenville; north and east to its junction with North Valley Road; south to its junction of Diamond Mountain Road; north and east to its junction with North Arm Road; south and west to the junction of North Valley Road; south to the junction with Arlington Road (A22); west to the junction of Highway 89; south and west to the junction of Highway 70; east on Highway 70 to Highway 395; south and east on Highway 395 to the point of intersection with the California-Nevada state line; north along the California-Nevada state line to the junction of the California-Nevada-Oregon state lines west along the California-Oregon state line to the point of origin.

(2) Southern San Joaquin Valley Zone: All of Kings and Tulare counties and that portion of Kern County north of the Southern California Zone.

(3) Southern California Zone: In that portion of southern California (but excluding the Colorado River zone) lying south and east of a line beginning at the mouth of the Santa Maria River at the Pacific Ocean; east along the Santa Maria River to where it crosses Highway 166 near the City of Santa Maria; east on Highway 166 to the junction with Highway 99; south on Highway 99 to the crest of the Tehachapi Mountains at Tejon Pass; east and north along the crest of the Tehachapi Mountains to where it intersects Highway 178 at Walker Pass; east on Highway 178 to the junction of Highway 395 at the town of Inyokern; south on Highway 395 to the junction of Highway 58; east on Highway 58 to the junction of Interstate 15; east on Interstate 15 to the junction with

Highway 127; north on Highway 127 to the point of intersection with the California-Nevada state line.

(4) Colorado River Zone: In those portions of San Bernardino, Riverside, and Imperial counties lying east of the following lines: Beginning at the intersection of Highway 95 with the California-Nevada state line; south along Highway 95 to Vidal Junction; south through the town of Rice to the San Bernardino-Riverside county line on a road known as "Aqueduct Road" in San Bernardino County; south from the San Bernardino-Riverside county line on road known in Riverside County as the "Desert Center to Rice Road" to the town of Desert Center; east 31 miles on Interstate 10 to its intersection with the Wiley Well Road; south on this road to Wiley Well; southeast along the Army-Milpitas Road to the Blythe, Brawley, Davis Lake intersections; south on the Blythe-Brawley paved road to its intersection with the Ogilby and Tumco Mine Road; south on this road to Highway 80; east seven miles on Highway 80 to its intersection with the Andrade-Algodones Road; south on this paved road to the intersection of the Mexican boundary line at Algodones, Mexico.

(5) Balance of State Zone: That portion of the state not included in Northeastern California, Southern California, Colorado River or the Southern San Joaquin Valley zones.

(6) Special Management Areas

(A) North Coast. All of Del Norte and Humboldt counties.

(B) Humboldt Bay South Spit (West Side). Beginning at the intersection of the north boundary of Table Bluff County Park and the South Jetty Road; north along the South Jetty Road to the South Jetty; west along the South Jetty to the mean low water line of the Pacific Ocean; south along the mean low water line to its intersection with the north boundary of the Table Bluff County Park; east along the north boundary of the Table Bluff County Park to the point of origin.

(C) Sacramento Valley. Beginning at the town of Willows; south on Interstate 5 to the junction with Hahn Road; east on Hahn Road and the Grimes-Arbuckle Road to the town of Grimes; north on Highway 45 to its junction with Highway 162; north on Highway 45-162 to the town of Glenn; west on Highway 162 to the point of beginning.

(D) Morro Bay. Beginning at a point where the high tide line intersects the State Park boundary west of Cuesta by the Sea; northeasterly to a point 200 yards offshore of the high tide line at the end of Mitchell Drive in Baywood Park; northeasterly to a point 200 yards offshore of the high tide line west of the Morro Bay State Park Boundary, adjacent to Baywood Park; north to a point 300 yards south of the high tide line at the end of White Point; north along a line 400 yards offshore of the south boundary of the Morro Bay City limit to a point adjacent to Fairbanks Point; northwesterly to the high tide line on the sand spit; southerly along the high tide line of the sand spit to the south end of Morro Bay; easterly along the Park boundary at the high tide line to the beginning point.

(E) Martis Creek Lake. The waters and shoreline of Martis Creek Lake, Placer and Nevada counties.

(F) Northern Brant. Del Norte, Humboldt and Mendocino counties.

(G) Balance of State Brant. That portion of the state not included in the Northern Brant Special Management Area.

(H) Imperial County. Beginning at Highway 86 and the Navy Test Base Road; south on Highway 86 to the town of Westmoreland; continue through the town of Westmoreland to Route S26; east on Route S26 to Highway 115; north on Highway 115 to Weist Rd.; north on Weist Rd. to Flowing Wells Rd.; northeast on Flowing Wells Rd. to the Coachella Canal; northwest on the Coachella Canal to Drop 18; a straight line from Drop 18 to Frink Rd.; south on Frink Rd. to Highway 111; north on Highway 111 to Niland Marina Rd.; southwest on Niland Marina Rd. to the old Imperial County boat ramp and the water line of the Salton Sea; from the water line of the Salton Sea, a straight line across the Salton Sea to the Salinity Control Research Facility and the Navy Test Base Road; southwest on the Navy Test Base Road to the point of beginning.

(d) Seasons and Bag and Possession Limits for Ducks and Geese by Zone.		
(1) Northeastern California Zone (NOTE: SEE SUBSECTION 502(d)(6) BELOW FOR SPECIAL SEASONS AND CLOSURES.)		
(A) Species	(B) Season	(C) Daily Bag and Possession Limits
Ducks (including Mergansers)	From the second Saturday in October extending for 105 days. Scaup: from the second Saturday in October extending for a period of 58 days and from the fourth Saturday in December extending for a period of 28 days.	Daily bag limit: 7 Daily bag limit may include: • 7 mallards, but not more than 2 females. • 2 pintail (either sex). • 2 canvasback (either sex). • 2 redheads (either sex). • 3 scaup (either sex). Possession limit: triple the daily bag limit.
Geese	Regular Season: Dark geese from the second Saturday in October extending for 100 days. White geese from the first Saturday October extending for a period of 58 days and from the first Saturday in January extending for a period of 14 days. Late Season: White-fronted geese from March 4 extending for 5 days. White geese from the first Monday in February extending	Daily bag limit: 30 Daily bag limit may include: • 20 white geese. • 10 dark geese but not more than 2 Large Canada geese (see definitions: 502(a)). Possession limit: triple the daily bag limit.

	<p>for 33 days</p> <p>During the Late Season, hunting is only permitted on Type C wildlife areas listed in Section 550-552, navigable waters, and private lands with the permission of the land owner under provisions of Section 2016, Fish and Game Code. Hunting is prohibited on Type A and Type B wildlife areas, the Klamath Basin National Wildlife Refuge Complex, the Modoc National Wildlife Refuge, and any waters which are on, encompassed by, bounded over, flow over, flow through, or are adjacent to any Type A and Type B wildlife areas, the Klamath Basin National Wildlife Refuge Complex, or the Modoc National Wildlife Refuge.</p>	
(2) Southern San Joaquin Valley Zone (NOTE: SEE SUBSECTION 502(d)(6) BELOW FOR SPECIAL SEASONS AND CLOSURES.)		
(A) <i>Species</i>	(B) <i>Season</i>	(C) <i>Daily Bag and Possession Limits</i>
Ducks (including Mergansers)	<p>From the fourth Saturday in October extending for 100 days.</p> <p>Scaup: from the first Saturday in November extending for 86 days.</p>	<p>Daily bag limit: 7</p> <p>Daily bag limit may include:</p> <ul style="list-style-type: none"> • 7 mallards, but not more than 2 females. • 2 pintail (either sex). • 2 canvasback (either sex). • 2 redheads (either sex). • 3 scaup (either sex). <p>Possession limit: triple the daily bag limit.</p>

Geese	From the fourth Saturday in October extending for 100 days.	<p>Daily bag limit: 30 Daily bag limit may include:</p> <ul style="list-style-type: none"> • 20 white geese. • 10 dark geese (see definitions: 502(a)). <p>Possession limit: triple the daily bag limit.</p>
(3) Southern California Zone (NOTE: SEE SUBSECTION 502(d)(6) BELOW FOR SPECIAL SEASONS AND CLOSURES.)		
<i>(A) Species</i>	<i>(B) Season</i>	<i>(C) Daily Bag and Possession Limits</i>
Ducks (including Mergansers)	<p>From the fourth Saturday in October extending for 100 days.</p> <p>Scaup: from the first Saturday in November extending for 86 days.</p>	<p>Daily bag limit: 7 Daily bag limit may include:</p> <ul style="list-style-type: none"> • 7 mallards, but not more than 2 females. • 2 pintail (either sex). • 2 canvasback (either sex). • 2 redheads (either sex). • 3 scaup (either sex). <p>Possession limit: triple the daily bag limit.</p>
Geese	From the fourth Saturday in October extending for 100 days.	<p>Daily bag limit: 23 Daily bag limit may include:</p> <ul style="list-style-type: none"> • 20 white geese. • 3 dark geese (see definitions: 502(a)). <p>Possession limit: triple the daily bag limit.</p>
(4) Colorado River Zone (NOTE: SEE SUBSECTION 502(d)(6) BELOW FOR SPECIAL SEASONS AND CLOSURES.)		
<i>(A) Species</i>	<i>(B) Season</i>	<i>(C) Daily Bag and Possession Limits</i>
Ducks (including Mergansers).	<p>From the third Friday in October extending for 101 days.</p> <p>Scaup: from the first Saturday in November extending for 86 days.</p>	<p>Daily bag limit: 7 Daily bag limit may include:</p> <ul style="list-style-type: none"> • 7 mallards, but not more than 2 females or Mexican-like ducks. • 2 pintail (either sex). • 2 canvasback (either sex). • 2 redheads (either sex). • 3 scaup (either sex).

		Possession limit: triple the daily bag limit.
Geese	From the third Friday in October extending for 101 days.	<p>Daily bag limit: 14 Daily bag limit may include:</p> <ul style="list-style-type: none"> • 10 white geese. • 4 dark geese <p>(see definitions: 502(a)).</p> <p>Possession limit: triple the daily bag limit.</p>
(5) Balance of State Zone (NOTE: SEE SUBSECTION 502(d)(6) BELOW FOR SPECIAL SEASONS AND CLOSURES.)		
<i>(A) Species</i>	<i>(B) Season</i>	<i>(C) Daily Bag and Possession Limits</i>
Ducks (including Mergansers).	<p>From the fourth Saturday in October extending for 100 days.</p> <p>Scaup: from the first Saturday in November extending for 86 days.</p>	<p>Daily bag limit: 7 Daily bag limit may include:</p> <ul style="list-style-type: none"> • 7 mallards, but not more than 2 females. • 2 pintail (either sex). • 2 canvasback (either sex). • 2 redheads (either sex). • 3 scaup (either sex). <p>Possession limit: triple the daily bag limit.</p>
Geese	<p>Early Season: Large Canada geese only from the Saturday closest to October 1 for a period of 5 days EXCEPT in the North Coast Special Management Area where Large Canada geese are closed during the early season.</p> <p>Regular Season: Dark and white geese from the fourth Saturday in October extending for 100 days EXCEPT in the Sacramento Valley Special Management Area where the white-fronted goose season will close after December 21.</p>	<p>Daily bag limit: 30 Daily bag limit may include:</p> <ul style="list-style-type: none"> • 20 white geese. • 10 dark geese <p>EXCEPT in the Sacramento Valley Special Management Area where only 3 may be white-fronted geese (see definitions: 502(a)).</p> <p>Possession limit: triple the daily bag limit.</p>

	Late Season: White-fronted geese and white geese from the second Saturday in February extending for a period of 5 days EXCEPT in the Sacramento Valley Special Management Area where the white-fronted goose season is closed. During the Late Season, hunting is not permitted on wildlife areas listed in Sections 550-552 EXCEPT on Type C wildlife areas in the North Central and Central regions.			
(6) Special Management Areas (see descriptions in 502(b)(6))				
	(A) Species	(B) Season	(C) Daily Bag and Possession Limits	
1. North Coast	All Canada Geese	From November 7 extending for a period of 84 days (Regular Season) and from February 18 extending for a period of 21 days (Late Season). During the Late Season, hunting is only permitted on private lands with the permission of the land owner under provisions Section 2016, Fish and Game Code.	Daily bag limit: 10 Canada Geese of which only 1 may be a Large Canada goose (see definitions: 502(a)), EXCEPT during the Late Season the bag limit on Large Canada geese is zero. Possession limit: triple the daily bag limit.	
2. Humboldt Bay South Spit (West Side)	All Species	Closed during brant Season		
3. Sacramento Valley	White-Fronted Geese	Open concurrently with the goose season through December 21, and during Youth Waterfowl Hunting Days.	Daily bag limit: 3 white-fronted geese. Possession limit: triple the daily bag limit.	
4. Morro Bay	All species	Open in designated area only from the opening day of brant season		

		through the remainder of waterfowl season.		
5. Martis Creek Lake	All species	Closed until November 16.		
6. Northern Brant	Black Brant	From November 8 extending for 37 days.	Daily bag limit: 2 Possession limit: triple the daily bag limit.	
7. Balance of State Brant	Black Brant	From November 9 extending for 37 days.	Daily bag limit: 2 Possession limit: triple the daily bag limit.	
8. Imperial County	White Geese	From the first Saturday in November extending for a period of 86 days (Regular Season) and from the first Saturday in February extending for a period of 16 days (Late Season). During the Late Season, hunting is only permitted on private lands with the permission of the land owner under provisions of Section 2016, Fish and Game Code.	Daily bag limit: 20 Possession limit: triple the daily bag limit.	
(e) Youth Waterfowl Hunting Days Regulations (NOTE: To participate in these Youth Waterfowl Hunts, federal regulations require that hunters must be 17 years of age or younger and must be accompanied by a non-hunting adult 18 years of age or older.)				
(1) Statewide Provisions.				
<i>(A) Species</i>	<i>(B) Season</i>		<i>(C) Daily Bag Limit</i>	
Ducks (including Mergansers), American Coot, Common Moorhen, Black Brant, Geese	1. Northeastern California Zone: The Saturday fourteen days before the opening of waterfowl season extending for 2 days. 2. Southern San Joaquin Valley Zone: The Saturday following the closing of waterfowl season extending for 2 days. 3. Southern California Zone: The Saturday following the closing of		Same as regular season.	

	<p>waterfowl season extending for 2 days.</p> <p>4. Colorado River Zone: The Saturday following the closing of waterfowl season extending for 2 days.</p> <p>5. Balance of State Zone: The Saturday following the closing of waterfowl season extending for 2 days.</p>	
(f) Falconry Take of Ducks (including Mergansers), Geese, American Coots, and Common Moorhens.		
(1) Statewide Provisions		
(A) Species	(B) Season	(C) Daily Bag and Possession Limits
Ducks (including Mergansers), Geese, American Coot and Common Moorhen	<p>1. Northeastern California Zone. Open concurrently with duck season through January 15, 2017.</p> <p>2. Balance of State Zone. Open concurrently with duck season and February 4-5, 2017 EXCEPT in the North Coast Special Management Area where the falconry season for geese runs concurrently with the season for Small Canada geese (see 502(d)(6))</p> <p>3. Southern San Joaquin Valley Zone. Open concurrently with duck season and January 30-February 1, 2017. Goose hunting in this zone by means of falconry is not permitted.</p> <p>4. Southern California Zone. Open concurrently with duck season and January 30-February 3, 2017. EXCEPT in the Imperial County Special Management Area where the</p>	<p>Daily bag limit: 3</p> <p>Daily bag limit makeup:</p> <ul style="list-style-type: none"> • Either all of 1 species or a mixture of species allowed for take. <p>Possession limit: 9</p>

	<p>falconry season for geese runs concurrently with the season for white geese.</p> <p>5. Colorado River Zone. Open concurrently with duck season and January 30-February 1, 2017.</p> <p>Goose hunting in this zone by means of falconry is not permitted. Federal regulations require that California's hunting regulations conform to those of Arizona, where goose hunting by means of falconry is not permitted.</p>	
--	---	--

Note: Authority cited: Sections 202 and 355, Fish and Game Code. Reference: Sections 202, 355 and 356, Fish and Game Code.

Appendix B. Estimated Retrieved Harvest of Geese in California.

Year	Canada	White- Front	Snow	Ross'	Brant	TOTAL
1962	53,532	50,088	28,826	0	9,433	141,879
1963	99,888	56,694	66,810	0	8,008	231,400
1964	77,920	51,735	55,151	0	3,748	188,554
1965	49,685	42,211	33,771	0	10,735	136,402
1966	72,415	65,321	155,543	1,022	7,155	301,456
1967	8,756	62,819	72,413	533	6,929	151,450
1968	72,935	47,345	53,308	0	8,298	181,886
1969	72,613	68,443	72,545	2,514	10,056	226,171
1970	95,112	70,639	112,614	5,114	393	283,872
1971	74,008	34,216	94,123	3,646	2,524	208,517
1972	148,888	51,813	41,998	0	13,698	256,397
1973	69,701	44,615	106,721	4,398	2,161	227,596
1974	72,166	40,682	50,764	8,464	1,693	173,769
1975	62,002	30,193	81,993	6,968	0	181,156
1976	58,444	44,044	127,678	7,726	515	238,407
1977	42,610	33,572	77,771	3,395	9,700	167,048
1978	46,530	34,719	28,578	2,360	674	112,861
1979	31,373	21,399	26,179	4,419	0	83,370
1980	26,950	18,693	28,459	2,795	0	76,897
1981	52,089	21,781	28,591	6,316	0	108,777
1982	46,418	15,004	26,263	7,298	0	94,983
1983	56,384	16,157	43,223	6,789	3,573	126,126
1984	38,004	6,686	49,609	8,373	0	102,672
1985	40,313	15,157	65,085	8,913	0	129,468
1986	21,999	7,542	31,839	3,477	0	64,857
1987	1,348	9,634	28,601	2,375	0	41,958
1988	26,296	4,707	30,571	884	0	62,458
1989	24,486	9,519	30,263	5,106	566	69,940
1990	32,691	7,003	8,104	2,438	475	50,711
1991	9,474	9,828	25,839	3,253	211	48,605
1992	28,546	11,705	26,407	3,076	1,810	71,544
1993	21,066	12,311	46,461	7,430	2,368	89,636
1994	28,469	12,597	21,847	7,476	2,774	73,163
1995	21,119	11,476	30,679	4,833	328	68,435
1996	25,487	16,530	46,849	12,405	2,639	103,910
1997	23,659	22,448	27,628	8,058	4,029	85,822
1998	23,299	21,984	38,371	6,049	12,097	101,800
1999	14,017	23,925	35,563	23,545	2,639	99,689
2000	25,877	21,184	31,721	6,749	1,800	87,331
2001	30,228	27,080	33,167	13,015	4,100	107,590
2002	37,762	31,497	30,279	15,662	1,100	116,300
2003	41,946	24,685	32,851	16,333	2,300	118,115
2004	44,492	39,924	35,355	10,329	800	130,900
2005	49,182	42,156	46,653	7,729	900	146,620
2006	41,381	52,492	43,296	5,875	2,900	145,944
2007	50,484	59,416	52,038	7,961	1,800	171,699
2008	49,252	110,523	70,946	13,779	1,000	245,500
2009	53,865	56,101	30,693	8,740	900	150,299
2010	68,666	67,810	54,548	14,974	541	206,539
2011	51,870	55,760	43,718	14,635	750	166,733
2012	47,877	41,842	45,261	14,886	1,093	150,959
2013	44,071	65,071	38,747	13,310	952	162,151
2014	52,735	74,976	66,492	18,343	3,080	215,626
2015*	40,431	62,484	51,947	12,007	2,238	169,107
Averages:						
1962-2015	46,311	36,264	49,347	6,959	2,879	141,760
1962-65	70,256	50,182	46,140	0	7,981	174,559
1966-70	64,366	62,913	93,285	1,837	6,566	228,967
1971-75	85,353	40,304	75,120	4,695	4,015	209,487
1976-80	41,181	30,485	57,733	4,139	2,178	135,717
1981-85	46,642	14,957	42,554	7,538	715	112,405
1986-90	21,364	7,681	25,876	2,856	208	57,985
1991-95	21,735	11,583	30,247	5,214	1,498	70,277
1996-00	22,468	21,214	36,026	11,361	4,641	95,710
2001-05	40,722	33,068	35,661	12,614	1,840	123,905
2006-10	52,730	63,465	48,842	10,528	1,256	176,191
2011-15	47,397	60,027	49,233	14,636	1,623	172,915
% Change from:						
2014	-23.3%	-16.7%	-21.9%	-34.5%	-27.3%	-21.6%
1962-2015	-12.7%	72.3%	5.3%	72.5%	-22.3%	19.3%
% State's Total Goose Harvest:						
2015	23.9%	36.9%	30.7%	7.1%	1.3%	
1962-2015	32.7%	25.6%	34.8%	4.9%	2.0%	
*Preliminary Data						

Appendix C. 2016 Pacific Flyway Fall and Winter Goose Surveys
Pacific White-fronted Goose abundance indices from breeding pair surveys in
Alaska (Yukon-Kuskokwim Delta Coastal Zone Survey and Alaska-Yukon
Waterfowl Breeding Population and Habitat Survey) and fall counts in California,
1979–current.

Year	Yukon-Kuskokwim		Bristol Bay	Total	Projected fall population ^b	Fall Survey ^a
	Delta	Interior				
1979						73,100
1980						93,500
1981						116,500
1982						91,700
1983						112,900
1984						100,200
1985	18,914	12,082	5,050	36,046	163,249	93,900
1986	13,400	10,019	4,266	27,685	141,930	107,100
1987	15,717	7,564	3,657	26,938	140,026	130,600
1988	27,191	14,145	3,918	45,254	186,728	124,690
1989	28,004	16,307	5,398	49,709	198,087	263,350
1990	37,836	18,468	2,003	58,307	220,010	237,050
1991	31,286	13,262	4,527	49,075	196,470	215,655
1992	34,671	16,110	7,052	57,833	218,802	230,675
1993	39,748	22,790	1,306	63,844	234,128	253,820
1994	56,513	12,966	4,092	73,571	258,930	298,930
1995	77,710	10,215	2,612	90,537	302,190	251,970
1996	78,032	36,543	4,353	118,928	374,582	350,850
1997	83,215	30,452	3,657	117,324	370,492	318,954
1998	87,881	34,381	1,915	124,177	387,966	413,100
1999	95,040	27,800	3,483	126,323	393,437	285,514
2000	91,911	16,798	1,654	110,363	352,743	284,044
2001	113,603	24,460	6,095	144,158	438,913	337,848
2002	90,407	17,387	5,311	113,105	359,734	402,565
2003	117,951	17,387	2,177	137,515	421,975	424,900
2004	100,622	16,601	1,828	119,051	374,895	337,971
2005	121,017	18,566	6,530	146,113	443,898	508,890
2006	138,067	28,979	4,702	171,748	509,262	426,300
2007	178,515	28,488	2,177	209,180	604,706	476,009
2008	161,979	54,913	1,045	217,937	627,035	602,699
2009	144,678	32,712	5,137	182,527	536,746	457,802
2010	174,556	44,402	7,923	226,881	649,840	783,648
2011	168,925	33,989	6,095	209,009	604,270	646,501
2012	181,519	47,250	3,744	232,513	664,201	831,955
2013	164,399	29,568	5,485	199,452	579,902	No Survey
2014	205,081	16,503	348	221,932	637,221	663,257
2015	140,313	18,468	1,132	159,913	479,085	634,478
2016	206,503	31,042	3,309	240,854	685,469	
Averages:						
Long Term	100,788	23,769	3,812	128,369	398,654	332,859
3-yr	183,966	22,004	1,596	207,566	600,592	709,897
% Change from:						
Long Term	104.9	30.6	-13.2	87.6	71.9	
3-yr	12.3	41.1	107.3	16.0	14.1	
2015	47.2	68.1	192.3	50.6	43.1	

^aFall surveys were initiated in 1979 and guided management actions until 1998.

Management actions after 1998 were based on total indicated birds (AK Total) from the breeding ground survey and a factor derived from the historic relationship between the fall survey and breeding ground survey (1985–1998). Timing of the Fall survey is as follows: 1979–1988 (November) and 1989–2015 (October).

^bProjected fall population = (Alaska total * 2.5498) + 71,339.

White Goose (Snow Goose and Ross's Goose) abundance indices from the California Special white goose survey and Skagit-Fraser photo inventory conducted in December, 1979–current.

Year	Skagit-Fraser	California	Total
1979	35,600	492,500	528,100
1980	22,400	181,800	204,200
1981	48,600	711,300	759,900
1982	26,100	328,000	354,100
1983	24,500	523,100	547,600
1984	26,600	439,700	466,300
1985	46,200	503,600	549,800
1986	39,900	481,800	521,700
1987	47,700	477,600	525,300
1988	43,800	397,200	441,000
1989	32,200	431,700	463,900
1990	31,700	676,800	708,500
1991	39,100	651,000	690,100
1992	34,300	605,000	639,300
1993	49,100	520,100	569,200
1994	42,600	435,600	478,200
1995	37,000	464,400	501,400
1996	45,800	320,500	366,300
1997	47,000	369,400	416,400
1998	47,100	307,200	354,300
1999	28,600	550,400	579,000
2000	56,300	600,500	656,800
2001	52,000	396,200	448,200
2002	73,100	523,700	596,800
2003	66,800	521,000	587,800
2004	68,141	682,128	750,269
2005	80,040	630,686	710,726
2006	79,891	719,810	799,701
2007	94,859	978,622	1,073,481
2008	57,000	900,403	957,403
2009	73,964	827,055	901,019
2010	63,641	800,156	863,797
2011	69,964	1,027,887	1,097,851
2012	56,973	824,432	881,405
2013	75,313	1,275,890	1,351,203
2014	58,007	1,122,679	1,180,686
2015 ¹	66,501		
Averages:			
Long Term	51,038	602,774	653,382
3-yr	66,607	1,199,285	1,265,945
% Change from:			
Long Term	31.4	-100.0	-100.0
3-yr	-0.2	-100.0	-100.0
2014	14.6	-100.0	-100.0

¹The California Special White Goose Survey was not conducted.

Aleutian Canada Goose abundance indices from direct count and mark-resight methods, 1975–current.

Year	Estimate	SE	L95% C.I.	U95% C.I.	Method
1975	790				Direct count
1976	900				Direct count
1977	1,280				Direct count
1978	1,500				Direct count
1979	1,590				Direct count
1980	1,740				Direct count
1981	2,000				Direct count
1982	2,700				Direct count
1983	3,500				Direct count
1984	3,800				Direct count
1985	4,200				Direct count
1986	4,300				Direct count
1987	5,000				Direct count
1988	5,400				Direct count
1989	5,800				Direct count
1990	6,300				Direct count
1991	7,000				Direct count
1992	7,680				Direct count
1993	11,680				Direct count
1994	15,700				Direct count
1995	19,150				Direct count
1996 ^a	21,420				Direct count
1997 ^a	22,800				Direct count
1998 ^a	27,600				Direct count
1999 ^a	15,417	556	14,326	16,508	Mark-resight
2000 ^a	20,352	761	18,861	21,843	Mark-resight
2001 ^a	32,408	1,069	30,313	34,503	Mark-resight
1999	35,508	3,118	29,396	41,619	Mark-resight
2000	34,245	1,346	31,607	36,882	Mark-resight
2001 ^u					
2002 ^o					
2003	72,750	2,705	67,448	78,051	Mark-resight
2004	108,505	4,642	99,407	117,604	Mark-resight
2005	87,091	4,553	78,167	96,014	Mark-resight
2006	100,030	4,525	91,161	108,898	Mark-resight
2007	107,467	7,559	92,650	122,283	Mark-resight
2008	110,950	6,661	97,894	124,006	Mark-resight
2009	83,589	11,798	60,465	106,712	Mark-resight
2010	107,439	8,568	90,646	124,231	Mark-resight
2011	101,435	6,979	87,756	115,114	Mark-resight
2012	132,526	10,052	112,823	152,229	Mark-resight
2013	161,137	14,530	132,657	189,616	Mark-resight
2014	147,609	12,905	122,316	172,903	Mark-resight
2015	189,110	17,925	153,977	224,243	Mark-resight
2016	156,030	13,711	129,157	182,904	Mark-resight
Averages:					
Long Term	46,219	7,051	81,107	108,745	
3-yr	164,250	15,009	135,833	194,623	
% Change from:					
Long Term	257.8	105.2	64.7	74.8	
3-yr	-5.0	-8.6	-4.9	-6.0	
2015	-17.5	-23.5	-16.1	-18.4	

^aMethods overlapped by three years.

^oThere is no estimate for 2001 and 2002 because of insufficient data.

Pacific Brant population indices from the Mid-winter Waterfowl Survey, 1936–current. The table continues on the next page and includes long-term summary statistics.

Year	U.S. and Canada						Mexico ^b			MWS Index		Izembek Index	
	Ak ^e	BC ^a	WA	OR	CA	Subtotal ^a	Baja	Mainland	Subtotal	Annual ^c	3-yr Avg ^c	Annual ^d	% Juv ^d
1936			8,202	3,085	19,910	31,197							
1937			13,450	5,935	13,460	32,845							
1938			24,560	10,475	38,200	73,235							
1939			25,595	9,502	16,890	51,987							
1940			35,520	5,350	35,050	75,920							
1941			24,100	5,000	31,785	60,885							
1942			53,950	6,850	28,983	89,783							
1943			37,000	575	18,000	55,575							
1944			33,950	7,250	20,250	61,450							
1945			32,650	3,000	30,100	65,750							
1946			25,462	55	60,452	85,969							
1947			20,250	8,200	39,640	68,090							
1948			20,660	2,850	32,750	56,260							
1949			20,650	803	66,515	87,968							
1950			15,574	3,600	57,792	76,966							
1951			21,639	2,110	48,131	71,880	93,200	0	93,200				
1952			16,578	3,200	43,840	63,618	102,945	0	102,945				
1953			27,473	1,509	37,557	66,539	87,905	0	87,905				
1954			15,376	1,560	28,750	45,686	86,316	0	86,316				
1955			21,915	1,686	34,070	57,671	76,679	0	76,679				
1956			15,914	2,073	38,510	56,497	52,743	0	52,743				
1957			20,701	1,493	35,848	58,042	73,380	0	73,380				
1958			25,219	2,778	26,560	54,557	71,305	4	71,309				
1959			10,815	1,121	10,750	22,686	71,305	1,400	72,705				
1960			17,614	652	3,771	22,037	113,087	1,115	114,202	136,239	--		
1961			16,675	1,330	6,853	24,858	138,625	4,355	142,980	167,838	--		
1962			25,815	2,266	23,510	51,591	116,245	2,400	118,645	170,236	158,104		
1963			20,400	2,639	2,388	25,427	101,575	13,240	114,815	140,242	159,439		
1964			34,169	2,000	8,353	44,522	117,470	23,290	140,760	185,282	165,253		23.853
1965			19,938	1,325	3,372	24,635	117,350	24,915	142,265	166,900	164,141		25.568
1966			22,175	798	3,284	26,257	115,601	19,505	135,106	161,363	171,182		19.231
1967			21,235	1,523	3,824	26,582	111,755	41,315	153,070	179,652	169,305		41.815
1968			15,746	865	1,729	18,340	111,600	24,400	136,000	154,340	165,118		16.836
1969			10,063	382	166	10,611	97,400	35,075	132,475	143,086	159,026		17.101
1970			8,916	963	207	10,086	98,200	33,400	131,600	141,686	146,371		21.803
1971			10,915	1,374	130	12,419	105,800	31,000	136,800	149,219	144,664		34.074
1972			4,328	1,047	0	5,375	91,200	28,200	119,400	124,775	138,560		28.835
1973			5,911	2,544	950	9,405	85,500	30,100	115,600	125,005	133,000		35.913
1974			4,977	1,904	470	7,351	96,900	26,400	123,300	130,651	126,810		29.364
1975			6,163	1,507	480	8,150	80,825	34,455	115,280	123,430	126,362		4.596
1976			7,540	1,769	680	9,989	82,783	29,273	112,056	122,045	125,375		36.719
1977			14,111	2,100	0	16,211	86,534	44,222	130,756	146,967	130,814	107,784	35.279
1978			18,100	1,110	560	19,770	106,469	36,648	143,117	162,887	143,966	116,298	31.603
1979			8,078	1,255	10	9,343	87,860	32,210	120,070	129,413	146,422		14.691
1980			7,665	1,015	135	8,815	89,690	47,860	137,550	146,365	146,222	128,204	14.660
1981	3,271		10,107	1,790	540	15,708	160,560	21,200	181,760	197,468	157,749	127,667	25.801
1982			6,451	706	485	7,642	85,105	28,297	113,402	121,044	154,959	180,734	18.553
1983			3,113	718	565	4,396	81,761	23,157	104,918	109,314	142,609	125,177	9.535
1984	1,611		7,097	930	700	10,338	95,170	29,533	124,703	135,041	121,800	147,933	24.049
1985		283	11,793	641	800	13,517	101,405	30,163	131,568	145,085	129,813	120,122	13.689

^aIn British Columbia, totals for 1984–1991 are Christmas Bird Counts, and from 1992–on are from Canadian Wildlife Service counts.

^bIncomplete survey in Mexico during 1951–1959.

^cIncludes Western High Arctic brant. 3-year average considers most recent 3 years of annual counts.

^dIzembek index from fall before Mid-winter Waterfowl Survey, includes Western High Arctic brant.

^eThe historical Alaska MWS index was recalculated in 2015, following the recommendation by Wilson and Dau 2015.

Pacific Brant population index, continued.

Year	U.S. and Canada						Mexico ^b			MWS Index		Izembek Index	
	Ak ^f	BC ^a	WA	OR	CA	Subtotal ^a	Baja	Mainland	Subtotal	Annual ^c	3-yr Avg ^c	Annual ^d	% Juv ^d
1986	5,338	319	12,026	1,113	706	19,502	92,525	22,200	114,725	134,227	134,227	122,673	13.731
1987	7,550	205	14,371	1,133	736	23,995	73,825	13,088	86,913	110,908	122,568	108,582	15.306
1988	6,180	263	19,831	1,104	947	28,325	99,066	17,630	116,696	145,021	130,052	136,765	31.163
1989	6,918	484	18,538	871	1,033	27,844	89,600	18,121	107,721	135,565	130,498	123,822	19.249
1990	5,303	406	13,756	1,399	992	21,856	107,545	22,320	129,865	151,721	144,102	135,041	23.870
1991	4,742	591	16,221	1,262	1,340	24,156	88,650	19,905	108,555	132,711	139,999	123,551	19.189
1992	7,043	283	13,505	1,397	2,424	24,652	78,280	14,905	93,185	117,837	134,090	128,784	27.840
1993	8,369	180	13,058	1,254	9,415	32,276	68,280	24,444	92,724	125,000	125,183	119,965	16.523
1994	12,125	382	13,595	666	2,299	29,067	83,130	17,135	100,265	129,332	124,056	143,375	23.626
1995	11,381	363	20,231	708	3,987	36,670	74,060	22,755	96,815	133,485	126,414	142,701	11.613
1996	10,278	634	6,941	644	2,008	20,505	87,280	20,205	107,485	127,990	128,952	152,613	36.110
1997	10,049	500	9,753	669	3,598	24,569	108,018	22,720	130,738	155,307	138,927	125,475	21.712
1998	8,562	619	10,881	580	6,091	26,733	97,805	14,300	112,105	138,838	140,712	130,104	16.948
1999	10,354	985	15,252	645	4,296	31,532	84,965	15,795	100,760	132,292	142,146	117,312	25.665
2000	8,120	1,238	13,859	523	3,389	27,129	92,020	16,420	108,440	135,569	135,566	131,134	21.630
2001	17,790	1,254	10,197	695	4,197	34,133	78,850	13,010	91,860	125,993	131,285	151,216	30.898
2002	13,576	1,483	13,478	552	4,092	33,181	93,995	11,055	105,050	138,231	133,264	112,554	7.475
2003	7,677	1,103	11,455	557	3,124	23,916	74,132	8,094	82,226	106,142	123,455	115,839	20.486
2004	12,756	2,117	14,544	528	6,372	36,317	71,685	13,270	84,955	121,272	121,882	135,944	13.707
2005	12,041	1,020	14,286	609	5,224	33,180	59,960	14,068	74,028	107,208	111,541	134,474	18.192
2006	15,404	1,792	16,305	649	5,069	39,219	87,483	14,254	101,737	140,956	123,145	134,189	33.339
2007	28,533	2,078	12,712	702	7,387	51,412	65,250	13,932	79,182	130,594	126,253	120,875	20.303
2008	27,422	1,264	19,775	370	4,827	53,658	83,856	19,443	103,299	156,957	142,836	135,551	28.204
2009	21,482	2,574	29,243	823	6,392	60,514	no survey conducted ^e			--	142,836	130,294	15.276
2010	28,234	2,699	23,908	0	13,553	68,394	71,688	23,389	95,077	163,471	150,341	144,594	26.788
2011	42,937	2,414	21,457	0	15,610	82,418	61,153	18,897	80,050	162,468	160,965	130,093	20.263
2012	44,252	1,229	17,502	687	2,227	65,897	101,571	9,873	111,444	177,341	167,760	126,028	17.565
2013	41,821	2,204	16,454	200	7,448	68,127	71,607	23,566	95,173	163,300	167,703	154,481	13.825
2014	48,140	2,104	17,485	511	7,916	76,156	68,290	28,869	97,159	173,315	171,319	157,781	15.247
2015	50,316	1,636	10,706	486	4,906	68,050	44,533	23,899	68,432	136,482	157,699	171,714	14.286
2016	46,772	3,364	11,811	583	5,105	67,635	55,066	17,324	72,390	140,025	149,941	132,926	12.896
Averages:													
Long Term	17,768	1,190	17,030	1,816	12,648	39,203	89,329	18,954	108,284	142,234	141,941	132,933	21.8
3-yr	48,409	2,368	13,334	527	5,976	70,614	55,963	23,364	79,327	149,941	159,653	154,140	14.1
% Change from:													
Long Term	177.4	200.5	-30.9	-68.2	-59.9	74.1	-38.7	-8.7	-33.5	-1.6	5.7	0.0	-41.4
3-yr	-3.4	42.1	-11.4	10.7	-14.6	-4.2	-1.6	-25.9	-8.7	-6.6	-6.1	-13.8	-8.8
2015	-7.0	105.6	10.3	20.0	4.1	-0.6	23.7	-27.5	5.8	2.6	-4.9	-22.6	-9.7
Objectives:	9,000	8,000	25,000	3,000	10,000	55,000	107,000			162,000			

^aIn British Columbia, totals for 1984–1991 are Christmas Bird Counts, and from 1992–on are from Canadian Wildlife Service counts.

^bAerial surveys were not flown (2009, 2011–2012, 2014–2015) in Mexico due to pilot safety concerns. Instead, ground-counts conducted by Palacios and Avila (including 2013).

^cIncludes Western High Arctic brant. 3-year average considers most recent 3 years of annual counts.

^dIzembek index from fall before Mid-winter Waterfowl Survey, includes Western High Arctic brant.

^eNo survey conducted due to pilot survey concerns.

^fThe historical Alaska MWS index was recalculated in 2015, following the recommendation by Wilson and Dau 2015.

Snow Goose population and productivity indices from Wrangel Island, Russia, 1966–current.

Year	Population			Total spring	Nesting			Brood Size		Colony Size (ha)
	Adults	Breeding adults	% Juvenile		Nests	% Successful	Clutch Size	At Nesting colony	At brood rearing area	
1966							3.6			
1967							4.9			
1968										
1969		114,000			58,200		3.7			1,962
1970	120,000	120,000	20.0	150,000	60,000	96.0	3.7	3.5	2.5	2,600
1971	120,000	24,000	9.1	132,000	12,000	55.0	4.7	3.4	2.3	825
1972	106,000	36,000	0.6	107,000	18,000	45.0	4.2	3.5	2.3	950
1973	85,900	12,000	0.0	86,000	6,000	67.0	6.0	3.9		200
1974	69,500	32,000	0.7	70,000	15,000	0.0	4.7			800
1975	56,000	56,000	0.0	56,000	28,000	74.4	3.8	3.4	2.4	
1976	46,000	46,000	20.7	58,000	23,000	79.0	3.7	3.2	2.8	1,840
1977	57,200	10,000	16.1	68,200	5,000	76.8	5.0	3.7		400
1978	64,900	42,000	0.8	65,400	21,000	80.0	4.2	3.7	2.4	2,200
1979	62,100	60,000	26.5	84,500	30,000	90.0	3.8	3.6		1,860
1980	80,300	20,000	11.5	90,700	10,000	70.0	5.4	3.3		315
1981	86,200	78,000	3.2	89,000	39,000	95.0	4.0	3.7	3.1	2,118
1982	81,000	28,000	18.5	100,000	14,000	65.0	4.1	3.2	2.8	688
1983	92,800	3,400	2.4	95,000	1,700	5.9	4.8			125
1984	85,000	42,000	0.0	85,000	21,000	83.3	3.7	3.2	2.1	1,500
1985	80,000	50,000	5.4	85,000	25,000	87.7	3.7	3.2	2.4	1,457
1986	70,000	58,000	20.4	90,000	29,000	90.0	3.9	3.6	3.2	2,100
1987	85,000	47,000	15.0	100,000	23,500	80.0	3.7	3.4	2.8	1,900
1988	80,000	13,000	17.7	80,000	6,500	51.0	5.2	3.4	2.7	675
1989	70,000	60,000	1.4	70,000	30,000	60.0	3.8	3.3		1,025
1990	60,000	53,000	0.0	60,000	26,500	49.2	3.8	3.2	2.2	940
1991	56,000	41,600	6.6	60,000	20,800	82.0	4.1	3.4	2.7	888
1992	56,000	46,200	20.0	70,000	23,100	70.1	4.0	3.5	3.5	742
1993	64,500	52,200	0.8	65,000	26,100	85.1	3.9	3.2		910
1994	52,500	30,000	25.0	70,000	15,000	13.0	2.8	2.1		1,000
1995	64,000	8,800	0.8	65,000	4,400	50.0	4.7	2.8		430
1996	75,000	75,400	0.0	75,000	37,700	75.4		3.7	2.4	740
1997	70,000	55,200	15.0	85,000	22,600	71.2	4.0	3.5		628
1998	80,000	31,800	10.0	90,000	15,900	66.0	4.6	3.5		750
1999	85,000	20,800	5.6	90,000	10,400	75.0	4.7	3.3		278
2000	87,400	49,600	8.0	95,000	24,800	87.8	3.5	3.2	2.8	738
2001	92,400	48,000	12.0	105,000	24,000	87.0	3.6	3.2	2.3	900
2002		60,600		110,000	30,300	81.5	4.0	3.5	3.0	855
2003		55,000		115,000	27,500	77.5			2.2	900
2004	111,700	56,800	4.9	117,500	28,400	75.0	3.6	3.2		838
2005		95,800		117,500	47,900	82.3	4.2	3.7	3.3	900
2006	100,800	93,200	23.9	132,500	46,600	87.7	4.0	3.7	3.2	875
2007		79,000		140,000	39,500	84.4	4.0	3.5	3.1	1,100
2008		20,000		140,000	10,000	35.0				
2009		108,800		132,500	54,400	79.5	4.1	3.6		
2010		10,000		150,000	5,000					
2011		144,000	5.0	155,000	72,000	81.0	4.2	3.7		
2012 ^a										
2013				160,000	78,300	75.8	3.7	3.2	2.7	1,063
2014 ^a										
2015	228,500	215,600	4.8	240,000	107,800	89.1	4.0	3.7		2,680
2016	251,000	236,000	20.0	300,000	118,000	89.5	3.9	3.7		3,240
Averages:										
Long Term	87,019	58,640	9.5	104,484	30,280	70.5	4.1	3.4	2.7	1,145
3-yr	193,433	198,533	9.9	233,333	101,367	84.8	3.9	3.5	3.0	2,328
% Change from:										
Long Term	204.9	332.2	116.6	199.9	316.5	27.8	-5.7	8.8	-	196.6
3-yr	70.7	91.6	78.0	62.2	37.2	9.2	-1.5	4.3	-	73.1
2015	9.8	9.5	316.7	25.0	9.5	0.4	-2.5	0.0	-	20.9

^aData were not gathered in 2012 or 2014.

Appendix D. Possible Effects of Spinning Wing Decoys in California

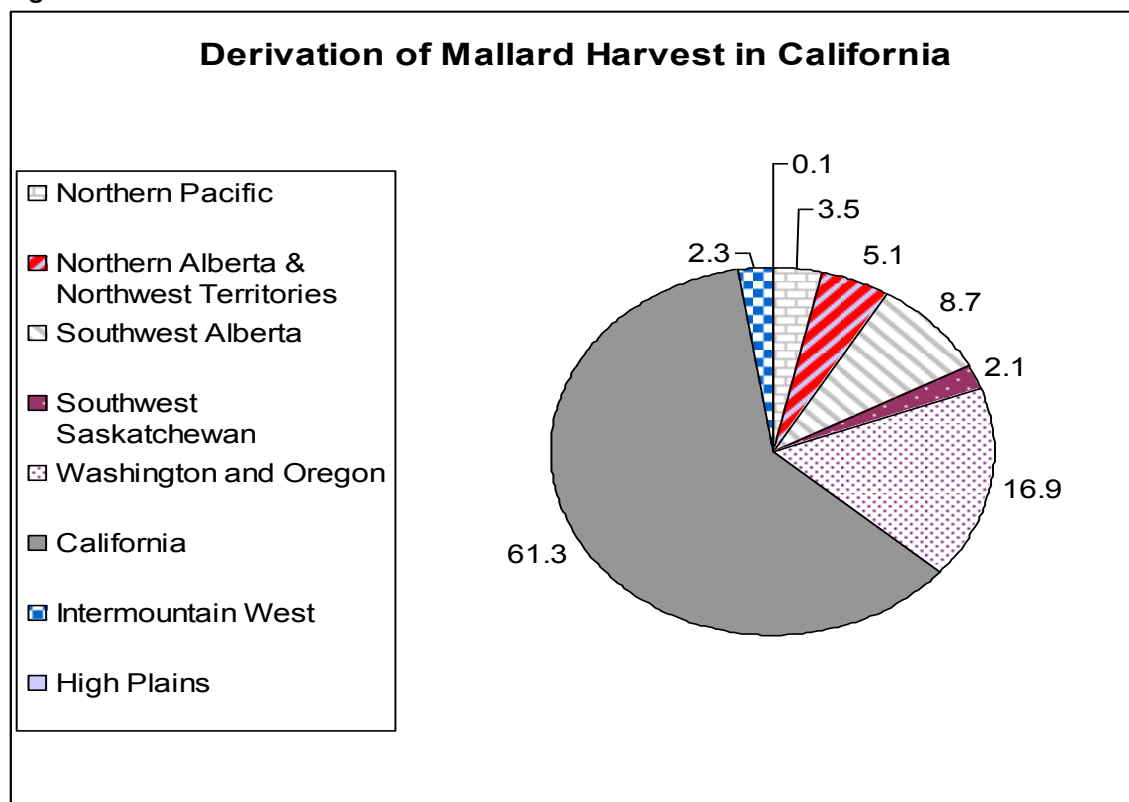
Introduction

The use of mechanical or electronic duck decoys (also known as spinning wing decoys (SWDs), “rotoducks”, “motoducks”, motion wing decoys, etc.) may lead to increases in harvest beyond those anticipated by existing bag limits and season length. Some hunters and other members of the public are opposed to the use of these devices because they believe that the devices may lead to excessive harvest or exceed the bounds of “fair chase” and eliminate the emphasis on traditional hunting methods.

The Department examined the results of studies, existing monitoring programs, and initiated additional analyses to assess the potential effects of SWDs on the harvest of ducks. Monitoring programs (i.e. estimates of breeding populations, total harvests) are not designed to measure the effectiveness of a single harvest method, such as a SWD.

These analyses mostly focus on mallards because mallards are the most abundant breeding duck in the State, are the most frequently occurring duck species in the harvest (Appendix E) and, unlike other species of ducks, are mostly derived from within California (62%; J. Dubovsky, USFWS, unpub data, Figure D-1).

Figure D-1. Derivation of Mallard Harvest in California.



Department Surveys on the Use and Effectiveness of SWDs

The widespread use of SWDs in California began in 1998. The Department compared the daily harvest of hunters on public hunting areas who said they used SWDs to those that said they did not during the 1999-00 to 2001-02 seasons.

Hunters were sampled on five public hunting areas (Delevan National Wildlife Refuge, Upper Butte Basin Wildlife Area, Grizzly Island Wildlife Area, Los Banos Wildlife Area, and Mendota Wildlife Area) on 10 randomly-selected dates during the 1999-00 hunting season and again on five areas (Sacramento National Wildlife Refuge, Upper Butte Basin Wildlife Area, Grizzly Island Wildlife Area, Los Banos Wildlife Area, and Mendota Wildlife Area) on 14 random days during the 2000-01 hunting season. During the 2001-02 hunting season, sampling occurred on 10 days picked at random on the Delevan National Wildlife Refuge, Upper Butte Basin Wildlife Area, Grizzly Island Wildlife Area, Los Banos Wildlife Area, and Mendota Wildlife Area.

The results from nearly 23,000 hunter-days from the three year survey are summarized in Table D-1. Use of SWDs generally increased in the second year of study, especially in the Sacramento Valley, but use declined on some areas during the third year of study on some areas. SWD use varied from 16 to 59 percent of hunters. There were no other differences between years. Total ducks harvested was significantly greater for hunters using SWDs on all five areas, and the overall average increase was about 1 bird per hunter.

Although the average number of mallards taken by hunters using mechanical duck decoys trended higher, harvest on only one of the five areas was higher at a statistically significant level in one year. The overall average increase in mallards bagged for hunters using SWDs was about 0.5 mallards per hunter-day.

Although average numbers of ducks taken by hunters using SWDs were higher than the averages by hunters that did not use the devices, and use of the devices was common, overall duck harvest on the public hunting areas in 1999 (201,000); 2000 (165,000); and 2001 (157,000); was lower than in 1998 and the overall ducks per hunter per day was essentially unchanged.

Effectiveness of December 1st Regulation

Beginning in 2001, the Commission adopted a prohibition on the use of electronic or mechanically operated spinning-wing decoys from the beginning of the waterfowl season until November 30th. Before and after the regulation change, a variety of changes have occurred with mallard harvest regulations (i.e. opening days, bag limits, season length). The Department analyzed public hunt results to see if any changes have occurred with mallard harvest in relation to the regulation change. Mallards were chosen for this analysis, since the December 1st regulation was created when the

Table D-1. Use and success of hunters using SWD on selected public hunting areas.

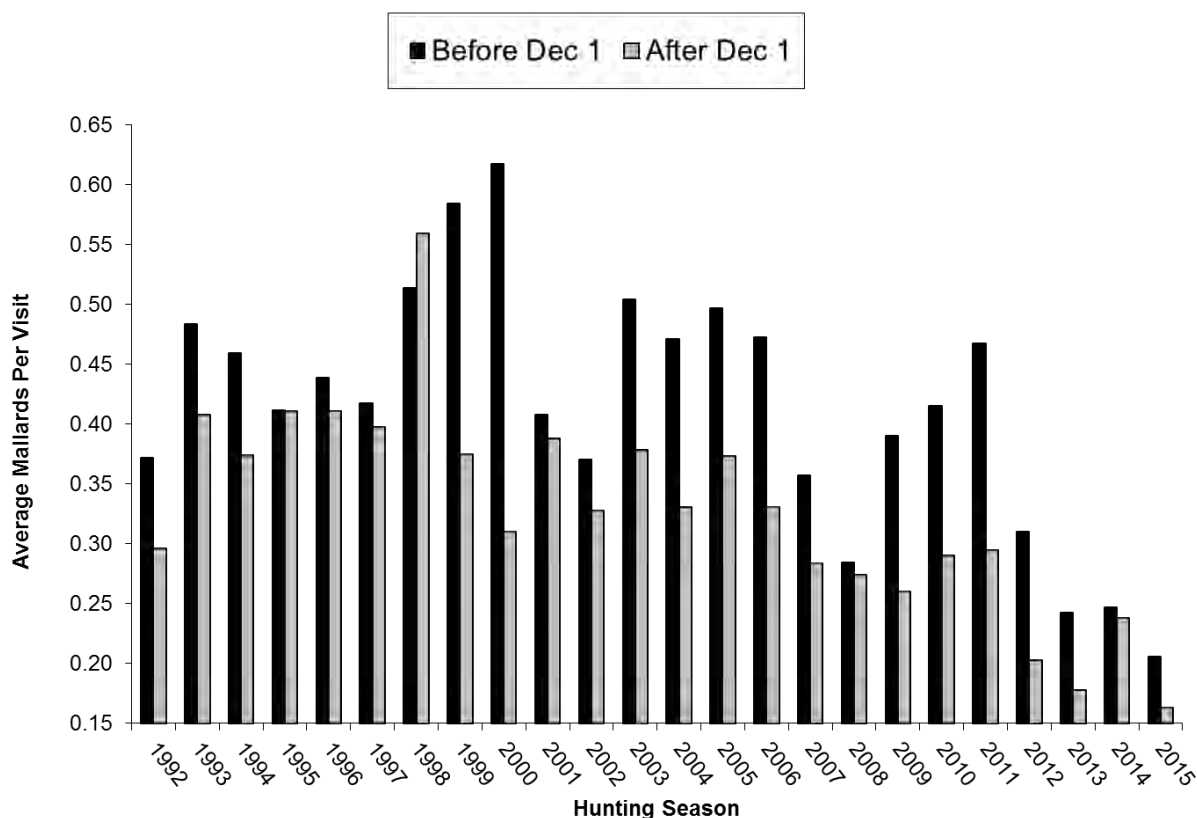
Area	Year	% Who Used Decoy	Total Duck Harvest	Percent Mallard	Avg Mallards per Hunter	Avg Ducks per Hunter	Sample Size	Total Annual Hunter Visits
Little Dry Creek	1999-00	52 - YES	2431	36	1.4	3.9	1197	5030
		48 - NO	1610	34	1	2.8		
	2000-01	59 - YES	2707	47	1.4	2.9	1550	4650
		41 - NO	1006	51	0.8	1.6		
	2001-02	52 - YES	2697	42	1.86	4.42	1165	4188
		47 - NO	1553	47	1.32	2.79		
Delevan	1999-00	52 - YES	1643	17	0.5	2.6	1210	7061
		48 - NO	1177	18	0.4	2		
	2000-01	not sampled						
	2001-02	45 - YES	1831	30	1.09	3.55	1132	5941
		54 - NO	1251	30	0.6	2.02		
	2001-02	not sampled						
Sacramento	1999-00	not sampled						
	2000-01	57 - YES	1271	24	0.5	1.8	1212	8656
		43 - NO	904	32	0.6	1.7		
	2001-02	not sampled						
Grizzly Island	1999-00	29 - YES	1129	14	0.3	2	1978	8658
		71 - NO	1998	18	0.3	1.4		
	2000-01	36 - YES	1508	28	0.5	1.8	2305	7176
		64 - NO	1852	26	0.3	1.2		
	2001-02	39 - YES	699	17	0.24	1.42	1250	5880
		60 - NO	652	17	0.14	0.85		
Los Banos	1999-00	24 - YES	416	31	0.6	1.8	981	4314
		76 - NO	786	28	0.3	1.1		
	2000-01	41 - YES	802	31	0.7	2.1	914	4698
		59 - NO	448	35	0.3	0.9		
	2001-02	34 - YES	454	16	0.32	2	654	4427
		65 - NO	502	23	0.26	1.17		
Mendota	1999-00	16 - YES	790	16	0.4	2.4	2133	9886
		84 - NO	3179	13	0.2	1.8		
	2000-01	24 - YES	1224	29	0.6	2	2638	10196
		76 - NO	2716	20	0.3	1.3		
	2001-02	28 - YES	1842	12	0.33	2.59	2497	11132
		71 - NO	3056	12	0.22	1.71		

breeding population of mallards in California was declining. Beginning in December, a larger percentage of migrant mallards start appearing in the harvest.

A mallard per hunter visit was calculated for all public hunt areas. Although waterfowl zones and other issues exist (e.g. delay due to rice harvest), these were controlled for by computing an average mallard take per hunter day on all areas before and after December 1st (including this date). Additionally, for analysis, data from 1992 – 2006 was partitioned into three categories: 1992-1997, 1998-2000, and 2001-2006). Use of SWDs began during the 1998-1999 hunting season in California, and continued without limitations until the December 1st restriction starting with the 2001-02 waterfowl hunting season. Therefore we have a five year buffer (before and after restriction) on each side of their uncontrolled use on public hunting areas (Figure D-2). Also Included are past years (2007 – 2015) average mallard take per day on public areas.

Based on statistical tests (ANOVAs), there was no difference in mallard harvest per hunter day during the three time periods after December 1st ($P = 0.617$). However, there were significant differences in hunter harvest per day among the three time periods before December 1st ($P = .005$). On average, the mallard harvest per hunter-day was 33% larger from 1998-2000 than 1992-1997 before December 1st. The mallard harvest per hunter day was 26% larger for the same period when compared to 2001-2006 seasons. Based on public hunt results, it appears that the December 1st restriction has significantly decreased the before December 1st harvest on mallards on public hunt areas (on a hunter-day basis).

Figure D-2. Average mallard harvest on the public hunting areas relative to December 1, 1992-2015 hunt seasons.

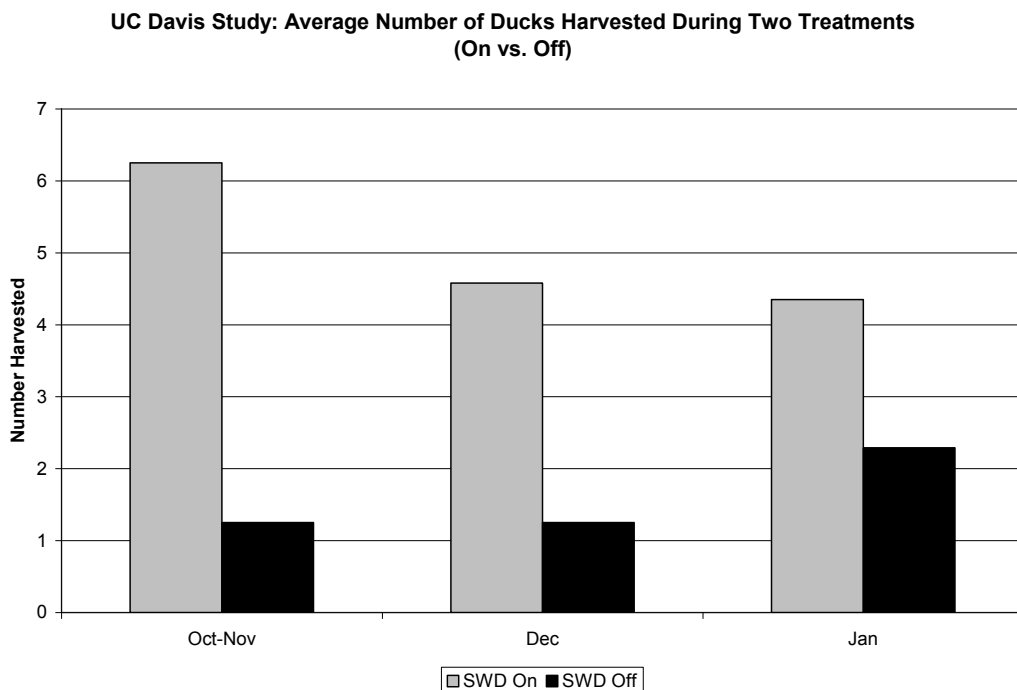


Studies and Scientific Literature on Spinning Wing Decoys (SWDs)

University of California Davis Study

A more rigorous study during the 1999-00 hunting season by the University of California, Davis, also indicated an increase in harvest, particularly early in the season. In this study, hunters were observed during alternating 30 minute periods with SWDs in use and not in use. A total of 37 hunts were conducted. Overall, when hunters used a mechanical duck decoy, they shot about 2.5 times as many ducks as when they didn't use one. Early in the season, hunters using the device shot nearly 7 times more ducks than when the same hunters didn't use the device (Eadie *et al.* 2001). Summary information from this study is provided in the Figure D-3.

Figure D-3. Summary results from University of California, Davis Study



Arkansas Study

In Arkansas, as study was conducted during 2 years (2001-02 and 2002-03) to evaluate their effectiveness. Overall, 272 hunters killed 537 ducks during 101 hunts. Mallards comprised 57% of the harvest. Of ducks taken, 64 percent were harvested during periods when decoys were on and only 36 percent when off. Results of paired observations indicate that kill per hunter was 1.8 times greater with decoys on versus off. Similarly, 1.3 times as many flocks were seen per hunt, 1.8 times as many shots were fired per hunter and 1.2 times as many cripples were lost during periods when SWDs were on versus off. Age ratios of harvested mallards were similar with decoy use (Imm./Adult ratio = 0.26 when ON and Imm./Adult ratio = 0.23 when OFF), however, adult mallards were 2 times more likely to be shot during periods with a robo" decoy on than off. Body mass was similar for mallards shot and retrieved during both treatments (ON and OFF) (M. Checkett, Arkansas Game & Fish Commission, unpub. data).

Manitoba, Canada, Study

In Manitoba, Canada, during the falls of 2001 and 2002, 99 experimental marsh and 55 experimental field hunts were conducted. Each hunt consisted of a series of equal and alternating 15-minute experimental (SWD on) and control (SWD off) periods, separated by a 3-minute buffer. Duration of total hunts ranged from 1.0 to 3.0 hours with an average of 1.4 ± 0.5 hours. Experimental marsh hunts indicated that mallards were 1.9 times more likely to fly within gun range, the kill rate was 5.0 times greater, size adjusted body mass of harvested mallards was greater, and the crippling rate was 1.6 times lower in experimental than control periods. Field hunts indicated that mallards

were 6.3 times more likely to fly within gun range, kill rate was 33 times greater, and crippling rate was 2.2 times lower in experimental than control periods. A SWD activity*age interaction indicated that adult males harvested during experimental periods had higher size adjusted body mass than that of juveniles mallards harvested during experimental periods. However, body condition of harvested adult and juvenile mallards did not differ significantly during control periods (Caswell and Caswell 2004).

Minnesota study

In Minnesota, due to concerns about the potential increased harvest of local mallards, 219 experimental hunts with 367 volunteer hunters were conducted during 1,556 sampling periods (both ON and OFF treatments) during the 2002 waterfowl season. When using a SWD, mallards were 2.91 times more likely to respond to the decoy (within 40 m) as compared to when off. Flock size was larger when the decoy was on, as compared to off. The number of mallards killed/hour/hunter was 4.71 times higher when the SWD was on. There was no difference in crippling loss in treatment types (ON vs. OFF). Age ratios of mallards were 1.89 (HY/AHY birds) versus 0.61 when ON and OFF, respectively. Overall, the study predicted an increase in mallard harvest, if SWDs became widely used in Minnesota (Szymanski and Afton 2004).

Missouri Study

In Missouri, efforts to evaluate the use and attitudes regarding SWD were completed in 2000 and 2001. Hunters using SWDs shot and retrieved 1.28 more total ducks per hunting party (2-3 hunters) and 0.82 more male mallards than when not using a SWD. Missouri waterfowl hunters hunting on public areas were more successful in 2000 when using SWDs than hunters who did not use SWDs. The overall difference in success rate between users and non-users was 0.78 ducks per hunter trip; however, about half of this difference was attributed to factors other than SWDs, such as greater hunting skills. The remaining increase in hunting success, between 0.32 and 0.45 ducks/ hunter trip (13%-19% increase in success rate), was attributed to SWDs (A. Raedecke, Missouri Department of Conservation, unpub. data).

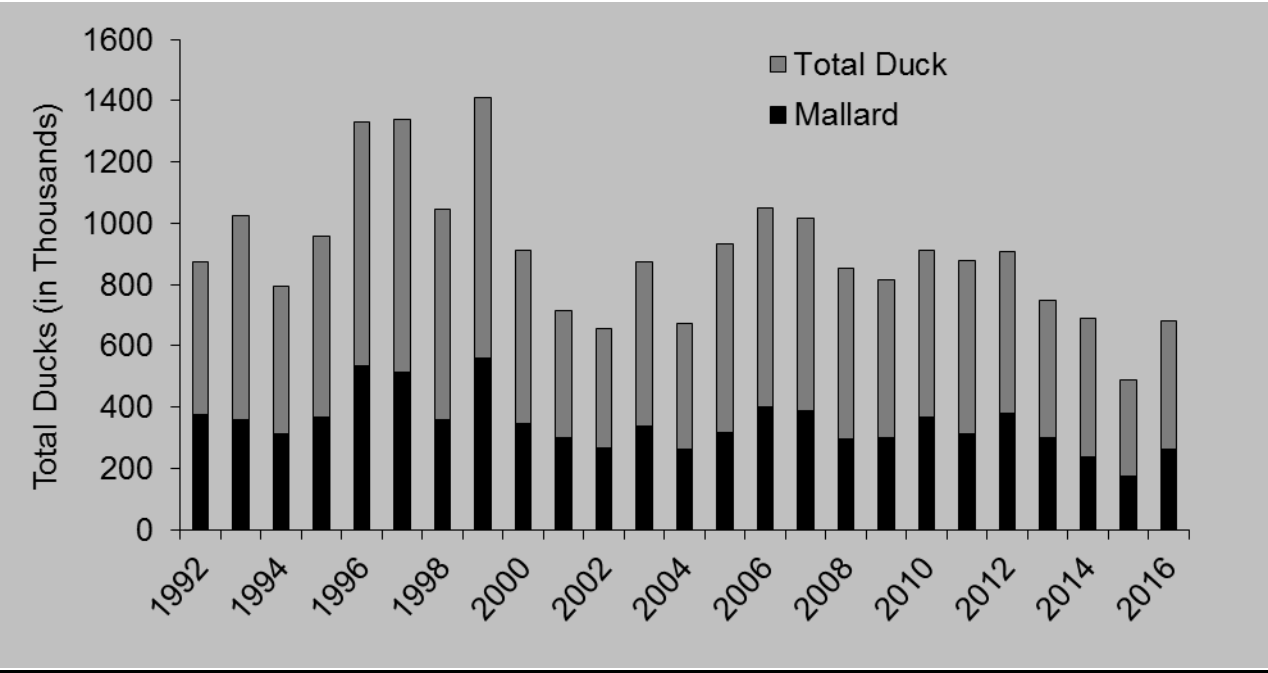
These brief summaries of the additional results and other studies (Nebraska) were summarized in Ackerman et al (2006). Overall, 70.2% of all ducks were harvested when the SWDs were used, as compared to 29.8% when the decoy was not in use. Significant results indicated that the probability of being shot increased with latitude (study location) and annual survival rates of species. These results support that fact that ducks may be more naïve at the beginning of migration (i.e. Manitoba), as compared to late in migration (i.e. Arkansas). Ackerman et al. (2006) suggested that these studies “only measured the effect of SWDs on kill rates of ducks and these rates will not necessarily translate into overall changes in population harvest rates.”

California breeding populations

The Department annually estimates the breeding population of ducks in California. Results of the current year breeding population survey are not usually available until

June of each year. Based on the mallard breeding population, a decline was observed following the 1999 waterfowl season, but this trend was not statistically significant because the annual estimates have large confidence intervals. More recent mallard breeding population levels are similar to the mid-1990s levels when SWDs were not being used for duck hunting. Furthermore, breeding populations of mallards and total ducks have remained relatively stable since 2008 (Figure D-4).

Figure D-4. California Duck Breeding Population Estimates, 1992- 2016



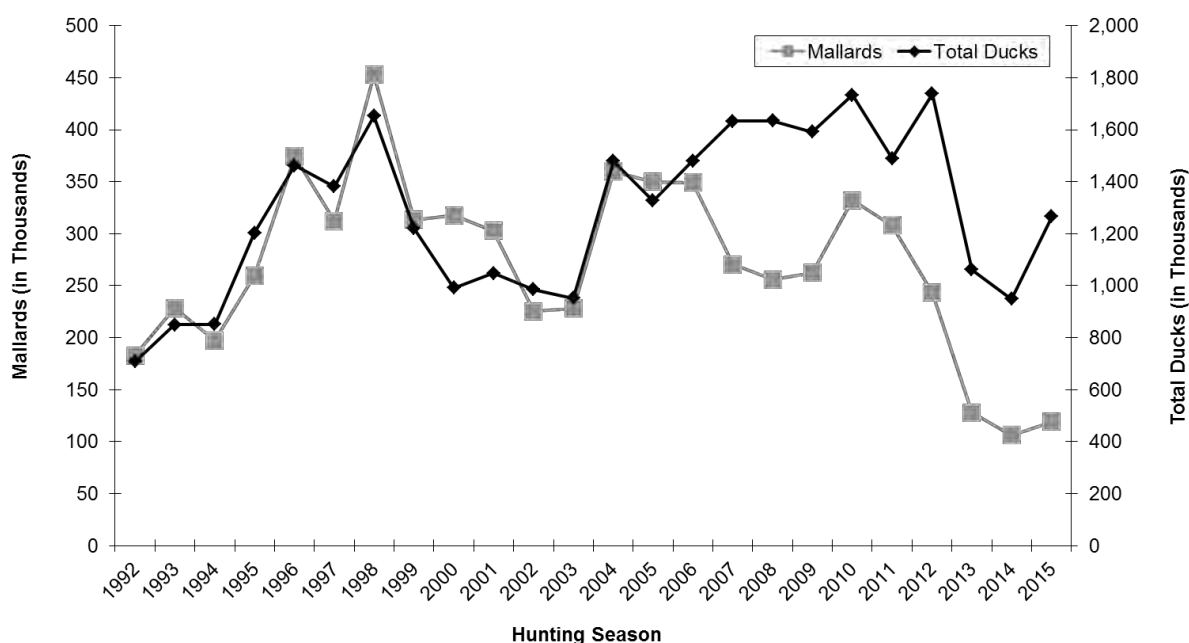
Total estimated duck harvest

The Service annually estimates the harvest of ducks in California and though out the United States. However, the most recent year of harvest is not available until July of the following year. For example, at this time, harvest information from the 2015-16 season is available but harvest estimates from 2016-17 will not be available until July, 2017. This information will be updated in the Final Environmental Document. There remain many factors (e.g. regulations, weather, hunter participation, age ratios in duck populations, etc.) besides the use SWDs that may impact hunter success on an individual hunt, which may transfer to decreased or increased total statewide duck harvest.

Relationships Among Survival & Harvest in Mallards: Issues in Findings

The studies cited above indicate that the use of SWDs increases harvest at the individual hunt level, however, despite the widespread use of SWDs (at least when last measured) overall estimates of harvest have not changed at the same magnitude as indicated in the individual hunt studies (Appendix E, Figure D-5). To have a biological effect at the population level, SWDs would have to be shown to lead to increased harvests and those increased harvests would have to be shown to lead to decreased annual survival rates. Other unmeasured variables act on populations during and after hunting seasons and it is not possible to unequivocally attribute potential population level effects due to SWDs through existing monitoring programs. However, banding data are the most likely of these monitoring programs that provide any inference on the role of SWDs on population parameters of ducks.

Figure D-5. Mallard and Total Duck (all species combined) harvest in California.



Numerous scientific studies have attempted to improve the understanding of the relationship among harvest rates and annual survival rates of waterfowl (Anderson and Burnham 1976, Nichols *et al.* 1984, Nichols and Hines 1982, Burnham and Anderson 1984, Johnson *et al.* 1986, Trost 1987, Raveling and Heitmeyer 1989, Nichols 1991, Smith and Reynolds 1992, Conn and Kendall 2004). Most of these studies have relied on banding data. As an example, Smith and Reynolds (1992) concluded that survival rates increased in response to restrictive regulations, and they rejected the completely compensatory model of population dynamics. Conversely, Sedinger and Rextad (1994) contested those conclusions because Smith and Reynolds pooled data and their analyses had low statistical power. Thus, there is still debate whether existing harvest levels affect survival rates in mallard populations. Partially due to this debate and uncertainty, the Service implemented Adaptive Harvest Management in 1995 to help reduce the uncertainty about the role of harvest and survival rates in population dynamics of mid-continent mallards.

The ability to detect significant changes in estimates of mallard recovery and survival rates in California, and relate these changes solely to the use of SWDs, is difficult if not impossible for several reasons.

First, survival and recovery rates are calculated through modeling using data from banded ducks. The data from these banded ducks consists of the number of birds banded (categorized by age, sex, date and location of banding) and reports of encountered bands (usually through hunting for game birds). The number of birds encountered divided by the number of birds banded is the recovery rate. However, not all bands encountered are reported, and an estimate of reporting rate is needed. The product of the recovery rate and the reporting rate is the harvest rate.

Reporting rates have been estimated because this rate is necessary to estimate the harvest rate and harvest rate is necessary to understand the relationship between harvest and population dynamics. Reporting rates vary widely due to band type and even geography (Nichols *et al.* 1991, 1995, Royle and Garretson 2004). Band types (i.e. their inscriptions) have changed over time. Before the 1990s, “avise” bands were used. These bands were inscribed with “AVISE BIRD BAND, WRITE WASHINGTON DC USA”. Later, “address” bands were introduced with the inscription “WRITE BIRD BAND LAUREL MD 20708”. These bands were replaced beginning in 1995, but not entirely until about 1999, with “toll-free” bands that were inscribed with “CALL 1 800 327 BAND and WRITE BIRD BAND LAUREL MD 20708 USA”. The adoption and widespread advertising of this new reporting method greatly increased reporting rate and apparent recovery rates. Due to the overlap of band types and the timing and duration of research into reporting rates, harvest rates can not be calculated for all areas in all years.

Secondly, changes in basic hunting regulations (e.g. season length and bag limits) occurred before and after the use of SWDs began. For instance, in 2001 (the first year of the December 1 regulation), the season was 100 days long with a 7 mallard (2 hen) daily bag limit whereas in 2002, the season was 74 days long with a 5 mallard (1 hen) daily bag limit. Thus, changes in harvest and survival rates due to basic regulations could be confounded with any changes to these parameters due to the use of SWDs.

More inferences could be made from the standard monitoring programs with stabilized regulations over a period of time.

Third, duck (and presumably mallard) harvest varies annually due to non-regulatory effects (weather, hunter participation, etc.) and survival rates vary due to variation in natural mortality (disease, etc.) (Miller et al. 1988).

With these caveats in mind, the Department calculated recovery rates and survival rates for mallards banded in California between 1988 and 2005. These ducks were banded by the Department, the California Waterfowl Association, and the U.S. Fish and Wildlife Service. Only normal, wild mallards banded from June to September with standard USFWS bands were used in this analysis. The Department examined the data by age class (adult and hatch-year or immature) and sex. Survival and recovery rates were calculated using Brownie models (Brownie *et al.* 1985) in Program MARK (White and Burnham 1999). Harvest rates were calculated from recovery rates by incorporating reporting rates (Nichols *et al.* 1995, Royle and Garretson 2004). For comparison purposes, the Department summarized harvest rates for mid-continent mallards during liberal seasons (1979-1984) (Smith and Reynolds 1992) and for mallards from eastern Washington (1981-198) (Giudice 2003).

For data from mallards banded in California, the data were portioned into 4 time periods (Table D-3): Period 1 (Restrictive season lengths and bag limits, no SWD); Period 2 (Liberal season lengths and bag limits, no SWD); Period 3 (Liberal regulations with SWD, but no December 1 regulation) and, Period 4 (Liberal regulations with December 1 regulation). If SWD affected harvest and survival rates, harvest rates should be highest and survival rates lowest during Period 3. If regulations by themselves change these parameters, harvest rates should be higher and survival rates lower in Period 2 compared to Period 1. If SWD had an effect, survival rates should be lower and harvest rates higher in Period 3 compared to Period 2. If the December 1 regulation had an effect, harvest rates should be lower and survival rates higher during Period 4 compared to Period 3.

Table D-3. Time periods used to summarize basic regulations, SWD use, and the December 1 regulation.

Time Period	Starting Season	Ending Season	Regulations	Pre or Post-SWD	Dec 1st Restrictions
1st	1988	1994	Conservative	Pre-SWD	No
2nd	1995	1997	Liberal	Pre-SWD	No
3rd	1998	2000	Liberal	Post-SWD	No
4th	2001	2004	Liberal	Post-SWD	Yes

Unfortunately, due to the introduction of “toll-free” bands and the increasing and changing reporting rates, harvest rate estimates are only available for Periods 1 and 4. Harvest rates for adults between Period 1 and Period 4 were unchanged and lower than those rates for eastern Washington and mallards from the mid-continent region (Table D-4). However, harvest rates of immature mallards banded in California have increased between periods 1 and 4 by 62 and 30 percent for males and females, respectively. Thus, the combination of regulation changes and use of SWD did not change harvest rates of adults, but the combination of more liberal regulations and the use of SWD did change harvest rates of immature mallards. The combination of liberalized regulations and SWD appears to have increased the harvest rate of mallards banded in California to higher levels than occurred in the mid-continent region or eastern Washington (Table D-4).

Table D-4. Harvest rates for mallards banded in California (restrictive and liberal periods), eastern Washington (liberal period) and the mid-continent region (liberal period).

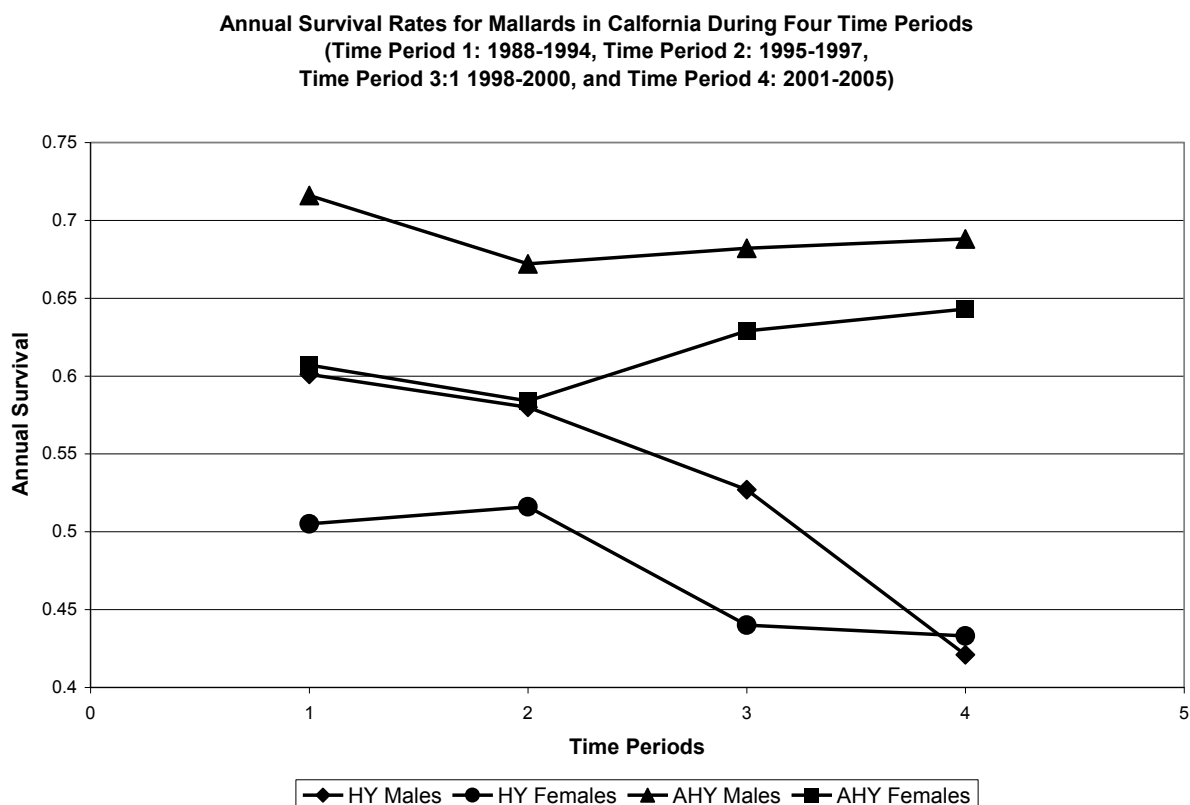
	California (restrictive)	California (liberal)	Eastern Washington	Mid- Continent (liberal)
Adult Males	0.138	0.138	0.172	0.150
Hatch-Year Males	0.202	0.327	0.286	0.228
Adult Females	0.058	0.058	0.100	0.097
Hatch-Year Females	0.143	0.186	0.172	0.157

Survival rates could be calculated for each cohort (age and sex) for each period (Figure D-6) since recovery and survival rate are not conditional on each other. Covariance among recovery and survival rates must be addressed to understand the impact of harvest on survival rates. Although recovery rates may have increased during these periods, it would not have as large an impact on survival rates, as compared to computed harvest rates. Furthermore, the grouping into time periods also correlates with the introduction of different band types.

Survival rates were constant for adult birds of sexes irrespective of harvest regulations, the use of SWD or the December 1 regulation (Figure D-6). However, survival rates for immature birds declined but only for males was the decline statistically significant ($P=0.048$).

From these analyses, it appears that adult mallard recovery, harvest and survival rates have not changed despite changes in regulations, the use of SWDs, or the imposition of the December 1 regulation. In contrast, immature mallard harvest rates have increased and survival rates have declined, but these changes may have been due to changing basic regulations, the use of SWDs, both, or other unmeasured variables.

Figure D-6. Annual survival rates of Mallards banded in California.



Public Perception of SWDs

The findings of this section have concentrated on biological information as related to the SWD in California. However, since past public views to the Commission has demonstrated different views on “fair chase”, public opinion information has been added to this review of this topic. In 2005, D. J. Case & Associates, as commissioned by the Association of Fish and Wildlife Agencies, released the findings of the National Duck Hunter Survey. According to this study, 55% of California duck hunters stated that SWDs should be allowed, whereas 26% opposed their use and 19% had no opinion on the subject. Other surveys have shown a wide variety of responses to their opinions on SWDs. For instance, California Waterfowl Association’s (CWA) 2006 survey indicated that a majority of hunters opposed electronic decoys, but accepted wind driven decoys (CWA, pers. comm.).

Summary of Findings

There is substantial evidence that SWDs can/have increased harvest and harvest potential on an individual hunt basis. Although SWDs have been shown to increase potential harvest, total harvest estimates have not increased at the same magnitude. Furthermore, SWDs have not increased harvest rates nor decreased survival rates on adult mallards. In hatch-year mallards, harvest rates have increased over 60 percent

on males, and survival rates have significantly declined. However, this is not a cause-and-effect relationship because other unmeasured variables were likely occurring simultaneously. The implementation of the December 1 regulation appears to have reduced daily harvest rates of mallards on public hunt areas when compared to unrestricted use of SWDs (1998-2000).

There is no clearly explicit link detectable through existing monitoring programs (or population level measures) between the introduction of SWDs and changes in measured population parameters. There remains no substantial evidence either for or against their large-scale effect on waterfowl populations. There are strongly held opposing positions on the “fair-chase” and other aspects of SWDs. For this reason, the Department has provided an alternative in Chapter 3.

Appendix E. Estimated Retrieved Harvest of Certain Ducks in California, 1962-2015

Year	Mallard	Gadwall	American Wigeon	G-w Teal	B-w/Cin. Teal	Northern Shoveler	Pintail	Wood Duck	Red-head	Canvas-back	All Other Species	TOTAL
1961	197.0	19.2	183.9	153.3	28.9	108.4	299.3	7.3	0.8	0.4	49.3	1,047.8
1962	167.0	17.5	128.5	145.1	48.8	86.8	285.3	12.1	1.0	0.0	70.1	962.2
1963	267.5	42.3	159.2	242.5	59.5	182.3	415.7	14.7	4.3	0.0	72.0	1,460.0
1964	249.0	40.5	166.3	214.6	49.4	77.2	342.0	17.0	7.8	9.2	74.2	1,247.3
1965	295.0	41.7	202.2	216.2	59.1	139.6	373.0	34.7	10.6	8.3	79.9	1,460.3
1966	288.4	51.5	215.2	267.1	36.6	162.3	563.0	13.1	8.6	39.9	97.5	1,743.2
1967	446.0	85.3	311.8	363.1	73.1	194.2	798.5	24.3	9.8	15.5	133.6	2,455.2
1968	236.2	34.2	169.6	262.5	42.6	111.5	381.1	11.3	5.5	10.5	68.3	1,333.4
1969	331.7	43.3	229.9	332.2	49.2	197.4	900.5	18.8	6.0	12.3	94.4	2,215.8
1970	371.0	43.5	264.0	361.3	38.2	201.8	1,032.9	21.4	12.9	26.9	77.7	2,451.5
1971	313.4	66.0	255.3	295.9	44.6	189.3	752.1	14.2	13.2	34.4	96.6	2,075.0
1972	321.8	49.3	231.5	332.6	64.9	157.4	715.3	21.2	5.8	0.9	90.2	1,991.0
1973	219.4	32.4	145.6	245.2	94.8	101.1	477.0	32.7	9.5	13.8	79.5	1,451.0
1974	292.3	60.2	194.3	319.6	59.8	167.4	712.4	21.7	8.9	27.1	59.4	1,923.0
1975	293.1	46.5	193.9	344.7	47.7	184.5	746.9	19.3	5.4	28.1	49.5	1,959.6
1976	305.6	37.6	278.7	403.0	42.5	185.6	680.6	23.4	6.6	34.2	82.9	2,080.6
1977	229.7	27.4	162.4	306.4	44.8	115.3	350.8	24.3	7.1	22.4	82.9	1,373.5
1978	294.3	39.2	179.4	405.1	64.9	161.0	596.0	29.0	8.2	14.1	66.0	1,857.2
1979	260.7	47.9	168.3	292.0	42.4	112.6	641.5	12.4	6.6	14.8	63.1	1,662.3
1980	238.6	64.2	165.6	259.1	27.1	108.4	410.0	40.2	10.8	10.3	67.6	1,401.8
1981	239.0	33.6	125.8	211.8	28.9	120.4	261.0	23.8	7.9	14.3	73.8	1,140.3
1982	284.2	53.8	122.8	266.5	50.3	140.2	327.9	26.2	10.9	10.6	59.6	1,353.1
1983	298.6	59.2	103.7	203.7	58.9	112.4	334.3	23.1	14.8	6.9	71.4	1,287.0
1984	265.1	43.3	94.6	178.2	52.6	91.9	194.9	15.7	6.6	12.2	50.8	1,005.9
1985	261.8	53.6	106.0	180.7	28.6	99.6	200.3	9.5	6.7	27.5	52.7	1,027.0
1986	257.6	57.7	113.9	176.8	19.0	86.6	194.5	20.2	4.4	16.3	43.2	990.2
1987	228.4	50.4	124.3	214.1	29.4	113.1	243.8	11.8	5.3	12.6	49.8	1,083.0
1988	139.7	23.2	62.7	122.1	16.0	44.1	70.3	9.6	2.3	0.1	23.7	513.8
1989	175.8	42.1	71.8	185.0	31.9	64.2	91.6	15.9	4.6	7.2	33.3	723.3
1990	179.7	45.2	80.1	149.9	19.4	69.5	80.3	11.4	2.5	4.2	28.7	671.0
1991	161.2	40.4	94.3	169.7	13.7	49.4	81.3	14.3	1.8	4.7	23.0	653.9
1992	182.7	33.3	72.9	183.9	18.4	74.1	75.0	16.4	3.5	8.8	39.2	708.1
1993	228.4	63.1	77.3	219.2	25.7	60.2	90.5	31.9	5.6	10.2	37.1	849.2
1994	197.4	68.7	97.6	183.0	14.7	106.0	92.0	20.8	5.8	14.4	51.0	851.3
1995	259.8	85.4	159.2	291.2	35.4	101.5	162.7	28.8	9.0	10.2	59.6	1,202.8
1996	374.4	104.1	175.6	306.5	39.4	164.1	182.0	26.4	10.8	12.7	66.4	1,462.4
1997	312.2	79.4	162.0	311.6	36.9	172.6	188.2	22.5	11.7	17.1	67.3	1,381.5
1998	452.6	129.6	166.5	352.4	62.0	217.1	146.3	33.4	15.9	21.4	55.2	1,652.4
1999	328.2	69.4	153.9	285.5	66.8	116.1	123.3	25.6	5.0	13.8	47.9	1,235.5
2000	309.5	62.4	113.1	207.2	31.3	87.5	85.4	32.0	4.7	10.6	39.6	983.3
2001	307.9	65.4	146.9	200.5	36.1	111.6	89.7	32.5	4.3	6.6	51.5	1,053.0
2002	191.3	83.7	134.4	239.7	35.6	103.9	79.9	24.7	4.9	0.7	52.4	951.2
2003	288.1	79.7	112.8	218.0	46.2	96.2	79.2	25.2	8.2	7.0	51.5	1,012.1
2004	359.7	132.6	196.8	348.7	57.3	147.7	98.8	22.5	9.6	11.5	94.1	1,479.3
2005	349.8	105.0	176.8	297.6	58.2	128.8	115.7	39.4	7.8	4.8	43.3	1,327.2
2006	349.1	124.2	165.7	331.3	56.9	224.6	123.2	31.3	9.1	17.5	47.9	1,480.8
2007	270.3	122.2	218.8	402.9	43.4	275.3	137.9	33.7	9.5	32.6	86.4	1,632.9
2008	255.9	110.2	271.8	468.5	39.9	209.5	169.4	36.3	7.0	0.6	64.2	1,633.7
2009	262.4	117.9	195.3	387.5	35.3	157.7	177.1	27.1	6.6	9.8	63.6	1,591.4
2010	332.0	124.4	226.2	394.9	48.2	220.8	242.6	34.1	7.7	17.6	85.6	1,734.1
2011	308.1	106.2	169.8	311.9	36.9	253.9	201.6	21.0	14.3	15.9	47.2	1,489.1
2012	243.5	95.3	193.7	371.2	31.9	291.5	201.1	21.9	14.6	23.4	25.0	1,738.1
2013	127.9	60.7	152.5	258.8	22.0	197.3	130.5	5.5	7.7	30.0	67.9	1,062.3
2014	106.3	56.4	161.5	240.5	18.1	155.1	115.6	9.3	3.8	15.5	66.7	948.8
2015*	119.3	83.4	221.1	327.5	19.2	233.0	161.5	8.0	4.4	25.3	62.2	1,266.3
Averages:												
1961-15	265.9	64.6	164.1	272.0	41.5	142.6	305.9	21.9	7.4	14.1	62.5	1,369.6
1961-65	235.1	32.3	168.0	194.3	49.2	118.9	343.1	17.2	4.9	3.6	69.1	1,235.5
1966-70	334.7	51.6	238.1	317.2	47.9	173.4	735.2	17.8	8.6	21.0	94.3	2,039.8
1971-75	288.0	50.9	204.1	307.6	62.4	159.9	680.7	21.8	8.6	20.9	75.0	1,879.9
1976-80	265.8	43.2	190.9	333.1	44.3	136.6	535.8	25.8	7.9	19.2	72.5	1,675.1
1981-85	269.7	48.7	110.6	208.2	43.9	112.9	263.7	19.7	9.4	14.3	61.7	1,162.7
1986-90	196.2	43.7	90.6	169.6	23.1	75.5	136.1	13.8	3.8	8.1	35.8	796.3
1991-95	205.9	58.2	100.3	209.4	21.6	78.3	100.3	22.4	5.1	9.7	42.0	853.1
1996-00	355.4	89.0	154.2	292.6	47.3	151.5	145.0	28.0	9.6	15.1	55.3	1,343.0
2001-05	299.4	93.3	153.5	260.9	46.7	117.6	92.7	28.9	7.0	6.1	58.6	1,164.6
2006-10	293.9	119.8	215.6	397.0	44.7	217.6	170.0	32.5	8.0	15.6	69.5	1,614.6
2011-15	181.0	80.4	179.7	302.0	25.6	226.2	162.1	13.1	9.0	22.0	53.8	1,300.9
% Change from:												
2014	12.2%	47.9%	36.9%	36.2%	6.1%	50.2%	39.7%	-14.0%	15.8%	63.2%	-6.7%	33.5%
1961-15	-55.1%	29.0%	34.7%	20.4%	-53.8%	63.4%	-47.2%	-63.5%	-40.8%	78.9%	-0.5%	-7.5%
% State's Total Duck Harvest:												
2015	9.4%	6.6%	17.5%	25.9%	1.5%	18.4%	12.8%	0.6%	0.3%	2.0%	4.9%	
1961-15	19.4%	4.7%	12.0%	19.9%	3.0%	10.4%	22.3%	1.6%	0.5%	1.0%	4.6%	

* Preliminary Data

Appendix F. Possible Effects of Climate Change Impacts on Waterfowl

Over the long term climate change models suggest temperature increases in many areas, both increases and decreases in precipitation, its timing, sea level rise, changes in the timing and length of the four seasons, declining snow packs and increasing frequency and intensity of severe weather events. Many uncertainties make it difficult to predict the precise impacts that climate change will have on wetlands and waterfowl. The effects of climate change on waterfowl populations, including their size and distribution, will probably be species specific and variable, with some effects considered negative and others considered positive (Anderson and Sorenson 2001). For example, a longer and warmer ice-free season in the Arctic would be expected to result in higher overall reproductive success for Arctic nesting geese (Batt 1998).

Breeding Season

Increasing spring temperatures have led to earlier arrival of waterfowl on northern breeding areas (Murphy-Klassen et al. 2005), yet nest survival has not decreased at this point of time (Drever and Clark 2007). In fact, earlier nest initiations are often more successful (Emery et al. 2005, Sedinger et al. 2008). However, future changes in wetland distribution and type (Johnson et al. 2005) on northern breeding grounds may impact settling patterns (Johnson and Grier 1988), and potentially recruitment for certain species through differences in breeding probability (Krapu et al. 1983), nest survival, and duckling survival. In California, areas with wetland brood habitat may become more limited if precipitation decreases with increasing temperatures, as predicted for the prairie pothole region of the United States and Canada (Sorenson et al 1998). Production of waterfowl that rely on agricultural habitats may be similarly affected if water availability (amounts and or timing) change.

Non-breeding Season

The Central Valley of California has one of the world's largest concentrations of over-wintering waterfowl (Heitmeyer et al. 1989). The primary expected response of waterfowl to climate change is redistribution as birds seek to maintain energy balance. Increased fall and winter temperatures in northern regions would make it unnecessary for waterfowl to migrate as far south and the wintering populations of waterfowl in California may be reduced. Shifting patterns of precipitation and temperatures may cause decreased availability of water for managed wetlands and agricultural production in the Central Valley. Changes in water availability and timing (Miller et al 2003) would likely have the greatest impact on rice agriculture, an important component of wintering waterfowl habitat in California. Decreasing habitats may cause a decline in body condition which may impact recruitment and survival in waterfowl populations. Ultimately, this will cause decreased recruitment as birds shift out of optimal nesting habitats (e. g. Ward et al. 2005), and a decrease in over-wintering populations.

Summary of Findings

There is substantial evidence that climate change will cause changes in habitats and other factors that affect waterfowl populations over the long term. Waterfowl populations are assessed in many ways on an annual basis (See pages 38-40 of the 2006 Final Environmental Document for Migratory Game Bird Hunting, SCH #2006042115, incorporated by reference, available at 1812 9th Street, Sacramento 95811). In summary, the condition of breeding habitats is assessed annually during the breeding population surveys conducted by the Service with assistance from some states and the Canadian Wildlife Service (CWS) in the spring and summer. The specific methodology of these surveys is provided in Chapter 3, pages 55-57, 2006 Final Environmental Document for Migratory Game Bird Hunting, SCH #2006042115, incorporated by reference, available at 1812 9th Street, Sacramento 95811).

Because the effect of regulated harvest is minimal (pages 57-67 of 2006 Final Environmental Document for Migratory Game Bird Hunting, SCH #2006042115, , incorporated by reference, available at 1812 9th Street, Sacramento 95811) implementation of the proposed project in the current year is not expected to result in significant negative effects to waterfowl populations. The effect is minimal because summary, the weight of historic scientific evidence leans toward the compensatory mortality hypothesis, though there are enough ambiguities to make complete reliance on this hypothesis as a management strategy an unwise approach (USDI 1988a:96). Accordingly, restrictive regulations have been established when populations reached low levels. For example, duck seasons were reduced from 93 days to 59 days, and bag limits were reduced from seven birds per day to four birds per day during the late 1980s in response to declines in duck populations caused by drought (Page 66, 2006 Final Environmental Document for Migratory Game Bird Hunting, SCH #2006042115, incorporated by reference, available at 1812 9th Street, Sacramento 95811).

Memorandum

Date: November 3, 2016

To: Valerie Termini
Executive Director
Fish and Wildlife Commission

From: Charlton H. Bonham
Director

Subject: **Agenda Item for the December 7-8, 2016 Fish and Game Commission Meeting Regarding Amendments to Section 502, Title 14, California Code of Regulations (CCR), Waterfowl, Migratory, American Coot and Common Moorhen**

The Department of Fish and Wildlife (Department) requests that the Fish and Game Commission (Commission) authorize publishing notice of its intent to amend Section 502, Title 14, CCR. The Department is proposing three changes to the existing waterfowl regulations for the 2017-18 season:

1. Modify the boundary descriptions in the Southern California and Colorado River zones;
2. Allow the white-fronted goose season to be split into three segments in the Northeastern California Zone;
3. Increase the daily bag limit for white geese in the Colorado River Zone from 10 to 20 per day.

If you have any questions regarding this item, please contact Rick Mayfield, Acting Wildlife Branch Chief, at (916) 445-3555. The public notice for this rulemaking should identify Senior Environmental Scientist, Melanie Weaver as the Department's point of contact. She can be reached at (916) 445-3717 or via email at Melanie.Weaver@wildlife.ca.gov.

Attachment

ec: Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

Rick Mayfield, Acting Chief
Wildlife Branch
Wildlife and Fisheries Division
Rick.Mayfield@wildlife.ca.gov

Valerie Termini, Executive Director
Fish and Game Commission
November 3, 2016
Page 2

Craig Stowers
Game Program Manager
Wildlife Branch
Wildlife and Fisheries Division
Craig.Stowers@wildlife.ca.gov

Melanie Weaver, Senior
Environmental Scientist
Waterfowl Program
Wildlife Branch
Melanie.Weaver@wildlife.ca.gov

Craig Martz, Program Manager
Regulations Unit
Wildlife and Fisheries Division
Craig.Martz@wildlife.ca.gov

Mike Randall, Analyst
Regulations Unit
Wildlife and Fisheries Division
Mike.Randall@wildlife.ca.gov



2017-18 Waterfowl Hunting Recommendations Section 502



Fish and Game Commission Meeting

April 26, 2017

Melanie Weaver

Wildlife Branch

Recommended Changes

- No change in duck season length or bag limits except for pintail bag of 1
- 3-way split for whitefronts in NE Zone, to coincide with white goose season
- Increase white goose bag limit in Colorado River Zone
- Modify zone boundary descriptions

Ducks

Western Mallard

- 107 days from Sat nearest Sept 24 to last Sunday in January

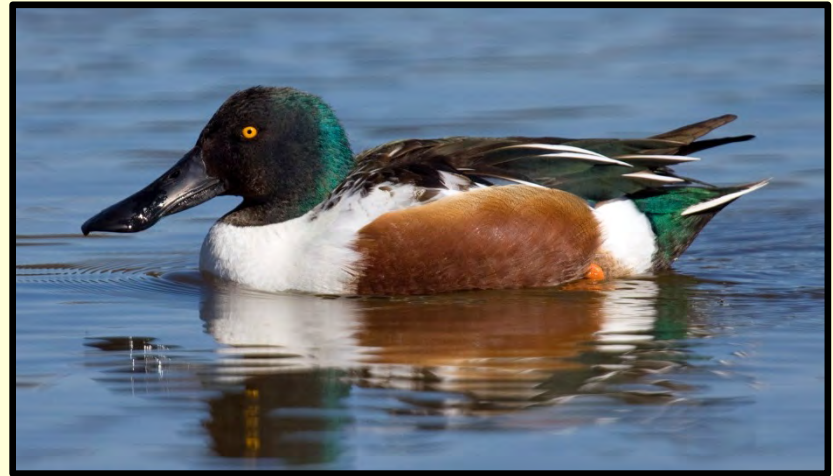
7 ducks, 7 mallards, 2 hen mallards

Pintail: 1

Canvasback: 2

Scaup: 86/3

Redhead: 2



Duck Seasons by Zone

NE Zone

- Regular Season: Oct 7 – Jan 19 (105 days)
- Scaup: Oct 7 – Dec 3 (58 days) & Dec 23 – Jan 19 (28 days)

BOS, SSJV, So CA Zones

- Regular Season: Oct 21 – Jan 28 (100 days)
- Scaup: Nov 4 – Jan 28 (86)

CO River Zone

- Regular Season: Oct 20 – Jan 28 (101 days)
- Scaup: Nov 4 – Jan 28 (86 days)
- Must match AZ regulations



Geese

Between 100-107 day season

Generally 30/day

- 20 white geese
- 10 dark geese
- 2 Brant/day
- Special Management Area regulations – no changes



NE Zone - Geese

Regular Season

- Dark geese: Oct 7 – Jan 14 (100 days)
- White geese and whitefronts:
Oct 7 – Dec 3 (58 days) & Jan 6 – Jan 19 (14 days)

Late Season

- White geese & whitefronts: Feb 6 – Mar 10 (33 days)

30/day: 20 white/10 dark geese, no more than 2 Large Canada geese

Geese - Balance of State Zone

Early Season Canada geese

- Sept 30 – Oct 4 (5 days)

Regular Season

- Oct 21 – Jan 28 (100)

Late Season

- White-fronts & white geese Feb 10 – Feb 14 (5)

30/day: 20 white/10 dark geese



Goose Seasons Continued...

SSJV and So CA Zones

- Oct 21 – Jan 28 (100 days)
- 30/day: 20 white/10 dark geese

CO River Zone

- Oct 20 – Jan 28 (101)
 - 20/day: up to 20 white/4 dark geese
 - CA must match AZ adjacent zone

Brant Season

Northern Brant

➤ Nov 8 – Dec 14

Balance of State Brant

➤ Nov 9 – Dec 15



SMAAs and Youth Hunt

North Coast

- Regular Season Nov 7 – Jan 28 (83 days)
- Late Season Feb 17 – Mar 10 (22 days)

Sac Valley

- Oct 21 – Dec 21 (62)

Imperial Valley

- Regular Season Nov 4 – Jan 28 (86)
- Late Season Feb 3 – Feb 19 (17)

Youth Hunt Days

- NE Zone 14 days prior, Sept 23-24
- All other zones 7 days after, Feb 3-4



NE Zone Late Season White-fronted Goose

Modoc Co. Fish and Game Commission requested whitefront season to mimic white goose season

Season timing to coincide with greatest concentration of both white and white-fronted geese

- Days removed from December
- Most winter in Central Valley
- Low harvest potential in Dec in NE Zone

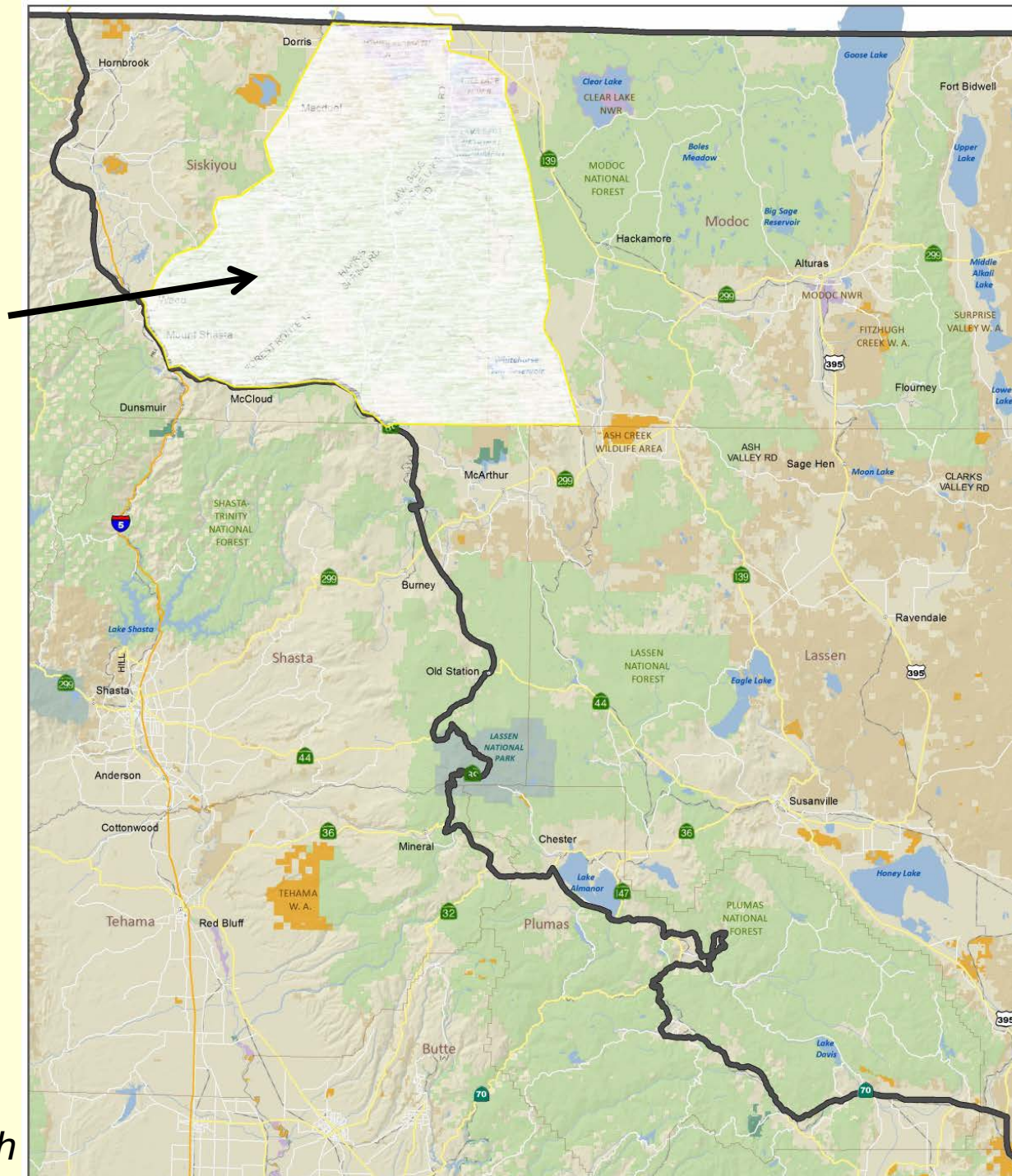
Type A/B areas, Klamath NWRs and Modoc NWR remain closed during late season



Concerns & Possible Solutions

- Goose depredation affects private lands
- DFW can only provide hunting as a tool
- Late season goose hunts affects public area hunters
- Extending whitefront late season may affect tule geese
- Creation of a goose special management area in NE
- Promote SHARE program
- Opportunity- most liberal season/bag limits
 - 23 days/2 bird bag to 107 days/10 bird bag

**Shaded white
area =
suggested
special
management
area for the
18/19 season**



Wildlife Branch



Questions?



Melanie Weaver
Waterfowl Program Leader
(916)445-3717
Melanie.weaver@wildlife.ca.gov

Wildlife Branch



February 22, 2017

To: *California Fish and Game Commission*

P.O. Box 944209

Sacramento, CA 94244-2090

From: Gary Robeson: Past Chairman of the Board Cal-Ore Wetlands & Waterfowl Council

PO Box 168, Tulelake, CA 96123

RE: Proposed loss of four weeks of waterfowl season in NE Zone of California to increase length of Spring Spec Season 2017/2018

I am not in favor of the above Referenced proposal because of the significant loss of hunter opportunity to the general public for the benefit of so few. How many refuges will be closed: Modoc NWL Refuge; Tule Lake NWL Refuge; Lower Klamath NWL Refuge; also the State Refuges including Ash Creek; Shasta Valley; Butte Valley and others? Most if not 98% of the public land hunters have no access to private land hunting for the spring spec hunt. We are looking at a significant number of lost hunting days for the Public Refuge hunters. How many people would benefit from this proposal by comparison, a hundred, two hundred? Would these same private landowners receive financial gain for fees charged for hunting their property? It appears to me that there is more than one motivation for this proposed change that penalizes the public land hunter so significantly.

Why would Fish and Game back such a denial of hunting opportunity for the average income waterfowl hunter? Public land hunting is most important to the average income hunter because they cannot afford to hunt private gun clubs. Hunting public land is not cost free but the daily fee or seasonal pass is more affordable! Please do not take away from the general public hunter 4 weeks from the normal hunting season.

I assert that increasing the number of hunting days for the spring spec season does not recognize that the real problem is that the greatest spec numbers occur after the Federal Flyway closes. So this proposal does little to decrease crop damages caused by spec geese in the spring.

Conclusion: The cost borne by the public hunter and the business owners around the public Refuges is disproportionate to minimal benefit it will provide private landowners in the NE Zone of California.

Respectfully submitted,

Gary Robeson

[REDACTED]

[REDACTED]

From: Rich Klug [mailto:RichK@rfpco.com]

Sent: Friday, March 10, 2017 11:43 AM

To: FGC

Cc: Bill Gaines

Subject: proposal to adds greater white fronted geese to spring hunt in NE Cal waterfowl zone.

Please see the attached letter from the Siskiyou County Fish and Game Commission regarding its opposition to the DFW proposal to add 30 days of White-Fronted Goose season to the spring season in the NE California waterfowl zone.

Rich Klug

WILDLIFE BIOLOGIST

ROSEBURG RESOURCES COMPANY

98 MILL STREET

WEED, CA 96094

(530) 938-5729

(530) 938-5490 FAX

(541) 643-0843 CELL

"NATURE IS A WET PLACE OVER WHICH LARGE NUMBERS OF DUCKS FLY UNCOOKED"





Siskiyou County Fish and Game Commission

1119 S. Oregon St, Yreka, CA 96097 530-842-2281



Rich Klug – Chairman
George Harper – Secretary

Harold Duchi – Vice-
Chair/Treasure

Dan Parken– Member
George Steen – Member

California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090

Dear President Sklar,

The Siskiyou County Fish and Game Commission would like to go on record as opposing the proposal to move 30 days of the White-Fronted Goose season from the current season dates to the spring season in the NE Zone. This proposal would take valuable hunting opportunity away from public land hunters and reallocate that opportunity to only those select few with access to private lands. Under the current proposal there would be no hunting permitted on any state or federal lands with the exception of California Type C Wildlife Areas. The Type C areas in the NE zone support almost zero opportunity for spring goose hunting as they do not provide the types of habitats used by White-Fronted and Snow Geese in the spring.

We appreciate the Department of Fish and Wildlife's efforts to work with landowners in the NE Zone to try deal with crop damage issues however, we feel that this latest attempt will too severely impact those who hunt our state wildlife areas and federal refuges. The public land hunter has already had 30 days of Snow Goose season and five days of White Fronted Goose season taken from them in an attempt to appease private landowners. Any further reduction in public land opportunity should be avoided at all costs. We have urged the DFW to look for other alternatives on private lands that do not take away from the public land hunters. Public land hunters provide a desperately needed boost to Siskiyou County's rural economy in towns such as Weed, Dorris, and Tulelake.

To reiterate, we oppose any attempt that would further reduce hunting opportunity on public lands.

Thank you for the opportunity to provide this input,
Sincerely,

Rich Klug
Chairman, Siskiyou County Fish and Game Commission



Mr. Eric Sklar, President
CA Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2099

April 10, 2017

RE: 2017/18 Waterfowl Regulations

Dear President Sklar:

California Waterfowl Association (CWA) would like to take this opportunity to comment on the proposed waterfowl seasons and bag limits for the 2017/18 season. CWA is a 20,000 member nonprofit organization dedicated to the conservation of California's waterfowl, wetlands and hunting heritage.

After considerable input from affected hunters and discussions with the Department of Fish and Wildlife (DFW), CWA's Board of Directors recently voted to support the waterfowl regulatory package proposed by DFW, but with one significant exception: *In the Northeast (NE) Zone, we respectfully ask that the Commission not approve for this season shifting up to 28 hunt days for white-fronted geese from the regular season (when public hunting is allowed) to the late season (when hunting is mostly limited to private lands). Rather, this regulatory proposal should be delayed one year to give the Department time to create a special management area for the Klamath Basin and perform necessary outreach to landowners to facilitate greater public hunting access during the late season.*

We believe that by delaying the implementation of this regulatory proposal and allowing the Department time to first take these actions, impacts on public hunting opportunities would be minimized. The creation of a special management area would ensure that existing public hunting opportunities on the Lower Klamath and Tule Lake Refuges are not impacted. SHARE Program outreach by the Department may also help to mitigate for the loss of public hunting opportunity outside the Klamath Basin by encouraging private landowners through voluntary incentives to open their lands to public hunting.

Please note that the goose depredation issues in the NE Zone are significant, and that CWA strongly supports providing landowners with appropriate tools to address them. We also recognize the critical role that farmers and other landowners play in providing waterfowl habitat and food resources throughout California, and urge that the Commission and Department's policies and regulations continue to support these important efforts.

Thank you for your consideration of this request.

Sincerely,

Mark Hennelly, Vice President of Legislative Affairs and Public Policy

Cc: Members, California Fish and Game Commission

Amend Subsection 360(b),
Title 14, California Code of Regulations (CCR)
Re: Deer: X-Zone Hunts

- 1

The following table provides a proposed range of tag numbers for each zone from which a final number of tags will be determined:

Deer: § 360(b) X-Zone Hunts Tag Allocations			
§	Zone	Current 2016	Proposed 2017 [Range]
(1)	X-1	760	0 - 6,000
(2)	X-2	175	0 - 500
(3)	X-3a	355	0 - 1,200
(4)	X-3b	795	0 - 3,000
(5)	X-4	460	0 - 1,200
(6)	X-5a	75	0 - 200
(7)	X-5b	50	0 - 500
(8)	X-6a	330	0 - 1,200
(9)	X-6b	310	0 - 1,200
(10)	X-7a	230	0 - 500
(11)	X-7b	135	0 - 200
(12)	X-8	210	0 - 750
(13)	X-9a	650	0 - 1,200
(14)	X-9b	325	0 - 600
(15)	X-9c	325	0 - 600
(16)	X-10	400	0 - 600
(17)	X-12	680	0 - 1,200

The actual tag numbers for each affected zone will be reflected in the Final Statement of Reasons and will be selected from the range of values provided by this proposal. The number of tags is intended to allow the appropriate level of hunting opportunity and harvest of bucks and does in the population, while achieving or maintaining the buck to doe ratios at, or near, objective levels set forth in the approved deer herd management plans. These final values for the license tag numbers will be based upon findings from the annual harvest and herd composition counts. However, under circumstances where various environmental factors such as severe winter conditions can adversely affect herd recruitment and over-winter adult survival, final tag quotas may fall below the “Low Kill” alternative identified in the most recent Environmental Document Regarding Deer Hunting.

(b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Sections 200, 202, 203, 220, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code.

Reference: Sections 200, 202, 203, 203.1, 207, 458, 459, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code.

(c) Specific Technology or Equipment Required by Regulatory Change:

None

(d) Identification of Reports or Documents Supporting Regulation Change:

2007 Final Environmental Document Regarding Deer Hunting

(e) Public Discussions of Proposed Regulations Prior to Notice Publication:

Fish and Game Commission Wildlife Resources Committee meeting held in Woodland on September 21, 2016.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

1. Allocate 40 X3b tags exclusively for apprentice hunters

The proposal is to reallocate 40 tags from the total number allocated for hunt zone X3b and reserve them solely for apprentice hunters. This proposal would reduce the number of tags available to non-apprentice hunters and would increase the number of points necessary for other hunters to draw this tag. In order to avoid unnecessarily reducing hunter opportunity for non-apprentice hunters, additional analysis and discussion amongst affected parties is required. Therefore, this alternative is rejected until the analysis of hunter recruitment/retention data is concluded and potential actions are discussed in a public forum.

(b) No Change Alternative:

The "No Change Alternative" was considered and found inadequate to attain the project objectives. Retaining the current number of tags for the zones listed may not be responsive to changes in the status of the herds. The deer herd management plans specify objective levels for the proportion of bucks in the herds. These ratios are maintained and managed in part by modifying the number of hunting tags. The "No Change Alternative" would not allow management of the desired proportion of bucks stated in the approved deer herd management plans.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

(d) Description of Reasonable Alternatives That Would Lessen Adverse Impact on Small Business: None.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed. The maximum number of tags available in the newly proposed range is at or below the number of tags analyzed in the most recent Final Environmental Document regarding Deer Hunting and the approved deer herd management plans.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made.

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed action adjusts tag quotas for existing deer hunts. Given the number of tags available and the area over which they are distributed, these proposals are economically neutral to business.

(b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The proposed action will not have significant impacts on the creation or elimination of jobs or the creation of new businesses or the elimination of existing businesses within California because it is unlikely to result in a change in hunting effort. The proposed action does not provide benefits to worker safety because it does not address working conditions.

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources. The Commission anticipates benefits to the State's environment in the sustainable management of natural resources.

(c) Cost Impacts on Private Persons:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with this proposed action.

(d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None

(e) Other Nondiscretionary Costs/Savings to Local Agencies: None

(f) Programs Mandated on Local Agencies or School Districts: None

(g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed under Part 7 (commencing with Section 17500) of Division 4: None

(h) Effect on Housing Costs: None

VII. Economic Impact Assessment:

The proposed action will have no statewide economic or fiscal impact because the proposed action is unlikely to constitute a significant change from the 2016 deer season in the X zones. The number of tags to be set in regulation for 2017 is intended to achieve or maintain the levels set forth in the approved deer herd management plans to preserve herd health and hunting opportunities in subsequent seasons.

(a) Effects of the regulation on the creation or elimination of jobs within the State:

The regulation will not affect the creation or elimination of jobs because no significant changes in hunting activity levels are anticipated.

(b) Effects of the regulation on the creation of new businesses or the elimination of existing businesses within the State:

The regulation will not impact the creation of new businesses or the elimination of businesses because no significant changes in hunting activity levels are anticipated.

- (c) Effects of the regulation on the expansion of businesses currently doing business within the State

The regulation will not affect the expansion of businesses currently doing business within the State because no significant changes in hunting activity levels are anticipated.

- (d) Benefits of the regulation to the health and welfare of California residents:

The proposed regulation will benefit the health and welfare of California residents by maintaining healthy deer herds and providing opportunities for the public to participate in a healthy outdoor activity.

- (e) Benefits of the regulation to worker safety.

The proposed regulation will not affect worker safety.

- (f) Benefits of the regulation to the State's environment

It is the policy of the State to encourage the conservation, maintenance, and utilization of the State's living resources. The proposed action will further this core objective.

INFORMATIVE DIGEST
(Policy Statement Overview)

Existing regulations provide for the number of deer hunting tags for the X zones. The proposed action changes the number of tags for all existing zones to a series of ranges presented in the table below. These ranges are necessary at this time because the final number of tags cannot be determined until spring herd data are collected in March/April. Because various environmental factors such as severe winter conditions can adversely affect herd recruitment and over-winter adult survival, the final recommended quotas may fall below the current proposed range into the “Low Kill” alternative identified in the most recent Environmental Document Regarding Deer Hunting.

	Deer: § 360(b) X-Zone Hunts Tag Allocations		
§	Zone	Current 2016	Proposed 2017 [Range]
(1)	X-1	760	0 - 6,000
(2)	X-2	175	0 - 500
(3)	X-3a	355	0 - 1,200
(4)	X-3b	795	0 - 3,000
(5)	X-4	460	0 - 1,200
(6)	X-5a	75	0 - 200
(7)	X-5b	50	0 - 500
(8)	X-6a	330	0 - 1,200
(9)	X-6b	310	0 - 1,200
(10)	X-7a	230	0 - 500
(11)	X-7b	135	0 - 200
(12)	X-8	210	0 - 750
(13)	X-9a	650	0 - 1,200
(14)	X-9b	325	0 - 600
(15)	X-9c	325	0 - 600
(16)	X-10	400	0 - 600
(17)	X-12	680	0 - 1,200

Benefits of the regulations

The deer herd management plans specify objective levels for the proportion of bucks in the herds. These ratios are maintained and managed in part by annually modifying the

number of hunting tags. The final values for the license tag numbers will be based upon findings from the annual harvest and herd composition counts. Adjusting tag allocations in response to current deer herd conditions contributes to the sustainable management of healthy deer populations and the maintenance of continued hunting opportunities.

Non-monetary benefits to the public

The Commission does not anticipate non-monetary benefits to the protection of public health and safety, worker safety, the prevention of discrimination, the promotion of fairness or social equity and the increase in openness and transparency in business and government.

Consistency and Compatibility with State Regulations

The Fish and Game Commission, pursuant to Fish and Game Code Sections 200, 202 and 203, has the sole authority to regulate deer hunting in California. Commission staff has searched the California Code of Regulations and has found the proposed changes pertaining to deer tag allocations are consistent with Sections 361, 701, 702, 708.5 and 708.6 of Title 14. Therefore the Commission has determined that the proposed amendments are neither inconsistent nor incompatible with existing State regulations.

REGULATORY TEXT

Subsection (b) of Section 360 is amended to read:

§360. Deer.

. . . [subsection (a)]

(b) X-Zone Hunts.

(1) Zone X-1.

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~760~~ [0 - 6,000].

(2) Zone X-2.

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~175~~ [0 - 500].

(3) Zone X-3a.

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~355~~ [0 - 1,200].

(4) Zone X-3b.

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~795~~ [0 - 3,000].

(5) Zone X-4.

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~460~~ [0 - 1,200].

(6) Zone X-5a.

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~75~~ [0 - 200].

(7) Zone X-5b.

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~50~~ [0 - 500].

(8) Zone X-6a.

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~330~~ [0 - 1,200].

(9) Zone X-6b.

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~340~~ [0 - 1,200].

(10) Zone X-7a.

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~230~~ [0 - 500].

(11) Zone X-7b.

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~135~~ [0 - 200].

(12) Zone X-8.

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~240~~ [0 - 750].

(13) Zone X-9a.

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~650~~ [0 - 1,200].

(14) Zone X-9b.

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~325~~ [0 - 600].

(15) Zone X-9c.

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~325~~ [0 - 600].

(16) Zone X-10.

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~400~~ [0 - 600].

(17) Zone X-12.

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~680~~ [0 - 1,200].

. . . *[subsections (c), (d), (e)]*

Note: Authority: Sections 200, ~~202~~, 203, ~~220~~, 265, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code. Reference: Sections 200, ~~202~~, 203, 203.1, 207, 265, 458, 459, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code.

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-Publication of Notice Statement)

Amend Subsection 360(c)
Title 14, California Code of Regulations (CCR)
Re: Deer: Additional Hunts

I. Date of Initial Statement of Reasons: September 21, 2016

II. Dates and Locations of Scheduled Hearings:

- | | | |
|-------------------------|-----------|------------------|
| (a) Notice Hearing: | Date: | December 8, 2016 |
| | Location: | San Diego, CA |
| (b) Discussion Hearing: | Date: | February 8, 2017 |
| | Location: | Rohnert Park, CA |
| (c) Adoption Hearing: | Date: | April 26, 2017 |
| | Location: | Van Nuys, CA |

III. Description of Regulatory Action:

- (a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

1. Number of Tags

Existing regulations provide for the number of deer hunting tags in the Additional Hunts. The proposed action initially provides a range of tag numbers for each zone from which a final number will be determined based on the post-winter status of each deer herd. Ranges are necessary at this time because the final number of tags cannot be determined until spring herd data are collected in March/April. A low end quota range of zero (0) tags is used in the event final tag quotas need to go lower. Hunts may be cancelled due to events such as fire, disease or other factors.

In early spring, surveys of deer herds are conducted to determine the proportion of fawns that have survived the winter. This information is used in conjunction with the prior year harvest and fall herd composition data to estimate overall herd size, sex and age ratios, and the predicted number of available deer (allowable deer harvest) next season. The number of bucks and does (ADH) needs to be estimated prior to the hunting season to determine how many surplus deer will exist over and above the number required to maintain the desired buck: doe ratio objectives stated in the approved deer herd management plans.

The proposed action changes the number of tags for all existing hunts (except those on military installations) to a series of ranges as indicated in the following table:

Deer: § 360(c) Additional Hunts Tag Allocations			
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(1)	G-1 (Late Season Buck Hunt for Zone C-4)	2,710	0 - 5,000
(2)	G-3 (Goodale Buck Hunt)	35	0 - 50
(3)	G-6 (Kern River Deer Herd Buck Hunt)	50	0 - 100
(4)	G-7 (Beale Either-Sex Deer Hunt)	20 Military*	20 Military*
(5)	G-8 (Fort Hunter Liggett Antlerless Deer Hunt)	20 Tags Total* (10 Military & 10 Public)	20 Tags Total* (10 Military and 10 Public)
(6)	G-9 (Camp Roberts Antlerless Deer Hunt)	0	30 Tags Total* (15 Military and 15 Public)
(7)	G-10 (Camp Pendleton Either-Sex Deer Hunt)	250 Military*	250 Military*
(8)	G-11 (Vandenberg Either-Sex Deer Hunt)	200 Military*, DOD and as Authorized by the Installation Commander**	200 Military*, DOD and as Authorized by the Installation Commander**
(9)	G-12 (Gray Lodge Shotgun Either-Sex Deer Hunt)	30	0 - 50
(10)	G-13 (San Diego Antlerless Deer Hunt)	300	0 - 300
(11)	G-19 (Sutter-Yuba Wildlife Areas Either-Sex Deer Hunt)	25	0 - 50
(12)	G-21 (Ventana Wilderness Buck Hunt)	25	0 - 100

Deer: § 360(c) Additional Hunts Tag Allocations			
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(13)	G-37 (Anderson Flat Buck Hunt)	25	0 - 50
(14)	G-38 (X-10 Late Season Buck Hunt)	300	0 - 300
(15)	G-39 (Round Valley Late Season Buck Hunt)	5	0 - 150
(16)	M-3 (Doyle Muzzleloading Rifle Buck Hunt)	20	0 - 75
(17)	M-4 (Horse Lake Muzzleloading Rifle Buck Hunt)	5	0 - 50
(18)	M-5 (East Lassen Muzzleloading Rifle Buck Hunt)	5	0 - 50
(19)	M-6 (San Diego Muzzleloading Rifle Either-Sex Deer Hunt)	80	0 - 100
(20)	M-7 (Ventura Muzzleloading Rifle Either-Sex Deer Hunt)	150	0 - 150
(21)	M-8 (Bass Hill Muzzleloading Rifle Buck Hunt)	20	0 - 50
(22)	M-9 (Devil's Garden Muzzleloading Rifle Buck Hunt)	15	0 - 100
(23)	M-11 (Northwestern California Muzzleloading Rifle Buck Hunt)	20	0 - 200
(24)	MA-1 (San Luis Obispo Muzzleloading Rifle/Archery Either-Sex Deer Hunt)	150	0 - 150
(25)	MA-3 (Santa Barbara Muzzleloading Rifle/Archery Buck Hunt)	150	0 - 150
(26)	J-1 Lake Sonoma Apprentice Either-Sex Deer Hunt)	25	0 - 25
(27)	J-3 (Tehama Wildlife Area Apprentice Buck Hunt)	15	0 - 30
(28)	J-4 Shasta-Trinity Apprentice Buck Hunt)	15	0 - 0

	Deer: § 360(c) Additional Hunts Tag Allocations		
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(29)	J-7 (Carson River Apprentice Either-Sex Deer Hunt)	15	0 - 50
(30)	J-8 (Daugherty Hill Wildlife Area Apprentice Either-Sex Deer Hunt)	15	0 - 20
(31)	J-9 (Little Dry Creek Apprentice Shotgun Either-Sex Deer Hunt)	5	0 - 10
(32)	J-10 (Fort Hunter Liggett Apprentice Either-Sex Deer Hunt)	75 Tags Total* (15 Military & 60 Public)	85 Tags Total* (25 Military & 60 Public)
(33)	J-11 (San Bernardino Apprentice Either-Sex Deer Hunt)	40	0 - 50
(34)	J-12 (Round Valley Apprentice Buck Hunt)	10	0 - 20
(35)	J-13 (Los Angeles Apprentice Either-Sex Deer Hunt)	40	0 - 100
(36)	J-14 (Riverside Apprentice Either-Sex Deer Hunt)	30	0 - 75
(37)	J-15 (Anderson Flat Apprentice Buck Hunt)	10	0 - 30
(38)	J-16 (Bucks Mountain-Nevada City Apprentice Either-Sex Deer Hunt)	75	0 - 75
(39)	J-17 (Blue Canyon Apprentice Either-Sex Deer Hunt)	25	0 - 25
(40)	J-18 (Pacific-Grizzly Flat Apprentice Either-Sex Deer Hunt)	75	0 - 75
(41)	J-19 (Zone X-7a Apprentice Either-Sex Deer Hunt)	25	0 - 40
(42)	J-20 (Zone X-7b Apprentice Either-Sex Deer Hunt)	20	0 - 20

Deer: § 360(c) Additional Hunts Tag Allocations			
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(43)	J-21 (East Tehama Apprentice Either-Sex Deer Hunt)	50	0 - 80

* *Specific numbers of tags are provided for military hunts through a system which restricts hunter access to desired levels and ensures biologically conservative hunting programs.*

** *DOD = Department of Defense and eligible personnel as authorized by the Installation Commander.*

The actual tag numbers for each affected zone will be reflected in the Final Statement of Reasons and will be selected from the range of values provided by this proposal. The number of tags is intended to allow the appropriate level of hunting opportunity and harvest of bucks and does in the population, while achieving or maintaining the buck to doe ratios at, or near, objective levels set forth in the approved deer herd management plans. These final values for the license tag numbers will be based upon findings from the annual harvest and herd composition counts. However, under circumstances where various environmental factors such as severe winter conditions can adversely affect herd recruitment and over-winter adult survival, final tag quotas may fall below the “Low Kill” alternative identified in the most recent Environmental Document Regarding Deer Hunting.

Note: The current tag quota of zero (0) for additional deer hunt G-9 (Camp Roberts Antlerless Deer Hunt) reflects the Base’s closure to hunting while construction was under way on the base. Construction was scheduled for completion in 2013; however the timetable for resumption of base hunting programs has not been determined. The Department is currently in meetings with base command, and a decision regarding tag quotas is anticipated prior to the April 2017 Fish and Game Commission meeting date. At this time, the current tag quota of zero (0) has been modified to the former tag quota of thirty (30) in anticipation of the possible resumption of deer hunting activities by the Base in the 2017/2018 season. However, if Base operations take precedence over conducting the G-9 hunt, the tag quota will be reduced to zero (0) and reflected in the Final Statement.

2. Modify Season for Additional Hunt G-8

Existing regulations for Additional Hunt G-8 (Fort Hunter Liggett Antlerless Deer Hunt) provide for hunting to begin on October 8 and October 15, and continue for 3 and 2 days respectively, including the Columbus Day holiday, in order to accommodate Base operations and other hunt opportunities.

The current proposal would modify the season to account for the annual calendar shift by changing the season dates to open on October 7 and continue for three (3) consecutive days, including the Columbus Day holiday, and reopen on October 14 and continue for two (2) consecutive days. No loss of hunter opportunity would result from this action and the proposal is consistent with existing deer herd management plan recommendations.

3. Modify Season for Additional Hunt G-10

Existing regulations for Additional Hunt G-10 (Camp Pendleton Either-Sex Deer Hunt) provide for hunting to begin on the first Saturday in September extending through the first Sunday in December on Saturdays, Sundays, holidays and the day after Thanksgiving.

The current proposal would modify the season to account for the annual calendar shift by changing the season dates to open on the first Saturday in September extending through the first Sunday in December. The proposal would also allow hunting on Fridays in addition to Saturdays, Sundays, Labor Day, Columbus Day, and Veterans Day. Season dates may be open to further restrictions, or additional hunt days scheduled with concurrence from the Department, between the season opener and December 31 by the Commanding Officer due to military operations. This proposal is consistent with current deer herd management objectives and recommendations.

4. Modify Season for Additional Hunt G-11

Existing regulations for Additional Hunt G-11 (Vandenberg Either-Sex Deer Hunt) provide for hunting to begin on the last Monday in August extending through December 31.

The current proposal would modify the season to account for base operations beginning the season on the last Monday in August extending through October 1.

The proposal to shorten the season is necessary to accommodate base operations and is consistent with current deer herd management objectives and recommendations.

5. Modify Season for Additional Hunt J-10

Existing regulations for Additional Hunt J-10 (Fort Hunter Liggett Junior Either-Sex Deer Hunt) provide for hunting to begin on October 8 and October 15, and continue for 3 and 2 days respectively, including the Columbus Day holiday, in order to accommodate Base operations and other hunt opportunities.

The current proposal would modify the season to account for the annual calendar shift by changing the season dates to open on October 7 and continue for three (3) consecutive days, including the Columbus Day holiday, and reopen on October 14 and continue for two (2) consecutive days. No loss of hunter opportunity would result from this action and the proposal is consistent with existing deer herd management plan recommendations.

6. Minor Editorial Changes

Minor editorial changes are necessary for consistency in subsection numbering, spelling, grammar, and clarification.

Recent changes to Section 550 require that such references be changed to Section 551 in subsections (c)(11)(A) and (c)(30)(A).

(b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Sections 200, 202, 203, 220, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code.

Reference: Sections 200, 202, 203, 203.1, 207, 458, 459, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code.

(c) Specific Technology or Equipment Required by Regulatory Change: None

(d) Identification of Reports or Documents Supporting Regulation Change:

2007 Final Environmental Document Regarding Deer Hunting.

(e) Public Discussions of Proposed Regulations Prior to Notice Publication:

Fish and Game Commission Wildlife Resources Committee meeting held in Woodland on September 21, 2016.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

1. Number of Tags

There is no reasonable alternative to the proposed action.

2. Modify Season for Additional Hunt G-8

Modify season to allow for the annual calendar shift. This proposal was approved because it allows for base operation scheduling with no loss of hunter opportunity..

3. Modify Season for Additional Hunt G-10

Modify season to allow for the annual calendar shift and include Fridays, Labor Day, Columbus Day and Veterans Day. This proposal was approved because it allows for base operations with additional hunter opportunity.

4. Modify Season for Additional Hunt G-11

Modify season by shortening it to accommodate base operations. The proposal was approved in response to the need for flexibility in base operations. Although the proposal will result in some loss of hunter opportunity, it is consistent with deer herd objectives.

5. Modify Season Additional Hunt J-10

Modify season to allow for annual calendar shift. This proposal was approved because it accommodates military operations and provides hunter opportunity.

6. Minor Editorial Changes

There is no reasonable alternative to the proposed action.

(b) No Change Alternative:

1. Number of Tags

The “No Change Alternative” was considered and found inadequate to attain the project objectives. Retaining the current number of tags for the hunts listed may not be responsive to changes in the status of the herds. The deer herd management plans specify objective levels for the proportion of bucks in the herds. These ratios are maintained and managed in part by modifying the number of tags. The “No Change Alternative” would not allow management of the desired proportion of bucks stated in the approved deer herd management plans.

2. Modify Season for Additional Hunt G-8

The “No Change Alternative” was considered and found inadequate to attain the project objectives. Retaining the current season length and timing would be unresponsive to Base operations, scheduled activities and unnecessarily restrict hunter opportunity.

3. Modify Season for Additional Hunt G-10

The “No Change Alternative” was considered and found inadequate to attain the project objectives. Retaining the current season length and timing would be unresponsive to Base operations, scheduled activities and/or unnecessarily restrict hunter opportunity.

4. Modify Season for Additional Hunt G-11

The “No Change Alternative” was considered and found inadequate to attain the project objectives. Retaining the current season length and timing would be unresponsive to Base operations and scheduled activities.

5. Modify Season for Additional Hunt J-10

The “No Change Alternative” was considered and found inadequate to attain the project objectives. Retaining the current season length and timing would be unresponsive to Base operations, scheduled activities and/or unnecessarily restrict hunter opportunity.

6. Minor Editorial Changes

The “No Change Alternative” was considered and found inadequate to attain the project objectives, because inconsistencies in section and subsection references, numbering, spelling, grammar and lack of clarification would exist within the regulations, potentially leading to confusion and possible violations.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed. The maximum number of tags available in the newly proposed range is at or below the number of tags analyzed in the most recent Final Environmental Document regarding Deer Hunting and the approved deer herd management plans.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and following initial determinations relative to the required statutory categories have been made.

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed action adjusts tag quotas for existing hunts, modifies season dates for two hunts on military land and makes minor editorial changes for consistency in Section numbering. Given the number of tags available and the area over which they are distributed, these proposals are economically neutral to business.

(b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The proposed action will not have significant impacts on the creation or elimination of jobs or the creation of new businesses or the elimination of existing businesses within California because it is unlikely to result in a change in hunting effort. The proposed action does not provide benefits to worker safety because it does not address working conditions.

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources. The Commission anticipates benefits to the State's environment in the sustainable management of natural resources.

(c) Cost Impacts on Private Persons:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with this proposed action.

(d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None

(e) Other Nondiscretionary Costs/Savings to Local Agencies: None

(f) Programs Mandated on Local Agencies or School Districts: None

- (g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed under Part 7 (commencing with Section 17500) of Division 4:

None

- (h) Effect on Housing Costs: None

VII. Economic Impact Assessment:

The proposed action will have no statewide economic or fiscal impact because the proposed action is unlikely to constitute a significant change from the 2016 deer season in the additional hunt zones. The number of tags to be set in regulation for 2017 is intended to achieve or maintain the levels set forth in the approved deer herd management plans to preserve herd health and hunting opportunities in subsequent seasons.

- (a) Effects of the regulation on the creation or elimination of jobs within the State:

The regulation will not affect the creation or elimination of jobs because no significant changes in hunting activity levels are anticipated.

- b) Effects of the regulation on the creation of new businesses or the elimination of existing businesses within the State:

The regulation will not impact the creation of new businesses or the elimination of businesses because no significant changes in hunting activity levels are anticipated.

- (c) Effects of the regulation on the expansion of businesses currently doing business within the State

The regulation will not affect the expansion of businesses currently doing business within the State because no significant changes in hunting activity levels are anticipated.

- (d) Benefits of the regulation to the health and welfare of California residents:

The proposed regulation will benefit the health and welfare of California residents by maintaining sustainable deer populations and providing opportunities for the public to participate in a healthy outdoor activity.

- (e) Benefits of the regulation to worker safety.

The proposed regulation will not affect worker safety.

- (f) Benefits of the regulation to the State's environment

It is the policy of the State to encourage the conservation, maintenance, and utilization of the State's living resources. The proposed action will further this core objective.

INFORMATIVE DIGEST (Policy Statement Overview)

Existing regulations provide for the number of deer hunting tags in the Additional Hunts. The proposed action provides a range of tag numbers for each hunt from which a final number will be determined, based on the post-winter status of each deer herd. These ranges are necessary at this time because the final number of tags cannot be determined until spring herd data are collected in March/April. Because various environmental factors such as severe winter conditions can adversely affect herd recruitment and over-winter adult survival, the final recommended quotas may fall below the current proposed range into the “Low Kill” alternative identified in the most recent Environmental Document Regarding Deer Hunting.

Existing regulations for Additional Hunts G-8 (Fort Hunter Liggett Antlerless Deer Hunt) and J-10 (Fort Hunter Liggett Apprentice Either-Sex Deer Hunt) provide for hunting to begin on October 8 and continue for three (3) consecutive days and reopen on October 15 and continue for two (2) consecutive days, including the Columbus Day holiday. The proposal would modify the season to account for the annual calendar shift. The proposal would change the season dates to open on October 7 and October 14, for 3 and 2 consecutive days respectively, and include the Columbus Day holiday.

Existing regulations for Additional Hunt G-10 (Camp Pendleton Either-Sex Hunt) provide for hunting to begin on the first Saturday in September and extend through the first Sunday in December and allows hunting on Saturdays, Sundays, holidays and the day after Thanksgiving. The proposal would allow for the calendar shift and allow hunting on Fridays, Saturdays, Sundays, Labor Day, Columbus Day and Veterans Day.

Existing regulations for Additional Hunt G-11 (Vandenberg Either-Sex Deer Hunt) provide for hunting to begin on the last Monday in August and extend through December 31. The proposal would allow hunting to begin on August 28 and extend through October 1.

Minor editorial changes are necessary to provide consistency in subsection numbering, spelling, grammar, and clarification.

The proposed action changes the number of tags for all existing hunts (except those on military installations) to a series of ranges as indicated in the table below.

	Deer: § 360(c) Additional Hunts Tag Allocations		
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(1)	G-1 (Late Season Buck Hunt for Zone C-4)	2,710	0 - 5,000
(2)	G-3 (Goodale Buck Hunt)	35	0 - 50
(3)	G-6 (Kern River Deer Herd Buck Hunt)	50	0 - 100
(4)	G-7 (Beale Either-Sex Deer Hunt)	20 Military*	20 Military*
(5)	G-8 (Fort Hunter Liggett Antlerless Deer Hunt)	20 Tags Total* (10 Military & 10 Public)	20 Tags Total* (10 Military and 10 Public)
(6)	G-9 (Camp Roberts Antlerless Deer Hunt)	0	30 Tags Total* (15 Military and 15 Public)
(7)	G-10 (Camp Pendleton Either-Sex Deer Hunt)	250 Military*	250 Military*
(8)	G-11 (Vandenberg Either-Sex Deer Hunt)	200 Military*, DOD and as Authorized by the Installation Commander**	200 Military*, DOD and as Authorized by the Installation Commander**
(9)	G-12 (Gray Lodge Shotgun Either-Sex Deer Hunt)	30	0 - 50
(10)	G-13 (San Diego Antlerless Deer Hunt)	300	0 - 300
(11)	G-19 (Sutter-Yuba Wildlife Areas Either-Sex Deer Hunt)	25	0 - 50
(12)	G-21 (Ventana Wilderness Buck Hunt)	25	0 - 100
(13)	G-37 (Anderson Flat Buck Hunt)	25	0 - 50

Deer: § 360(c) Additional Hunts Tag Allocations			
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(14)	G-38 (X-10 Late Season Buck Hunt)	300	0 - 300
(15)	G-39 (Round Valley Late Season Buck Hunt)	5	0 - 150
(16)	M-3 (Doyle Muzzleloading Rifle Buck Hunt)	20	0 - 75
(17)	M-4 (Horse Lake Muzzleloading Rifle Buck Hunt)	5	0 - 50
(18)	M-5 (East Lassen Muzzleloading Rifle Buck Hunt)	5	0 - 50
(19)	M-6 (San Diego Muzzleloading Rifle Either-Sex Deer Hunt)	80	0 - 100
(20)	M-7 (Ventura Muzzleloading Rifle Either-Sex Deer Hunt)	150	0 - 150
(21)	M-8 (Bass Hill Muzzleloading Rifle Buck Hunt)	20	0 - 50
(22)	M-9 (Devil's Garden Muzzleloading Rifle Buck Hunt)	15	0 - 100
(23)	M-11 (Northwestern California Muzzleloading Rifle Buck Hunt)	20	0 - 200
(24)	MA-1 (San Luis Obispo Muzzleloading Rifle/Archery Either-Sex Deer Hunt)	150	0 - 150
(25)	MA-3 (Santa Barbara Muzzleloading Rifle/Archery Buck Hunt)	150	0 - 150
(26)	J-1 Lake Sonoma Apprentice Either-Sex Deer Hunt)	25	0 - 25
(27)	J-3 (Tehama Wildlife Area Apprentice Buck Hunt)	15	0 - 30
(28)	J-4 Shasta-Trinity Apprentice Buck Hunt)	15	0 - 50

	Deer: § 360(c) Additional Hunts Tag Allocations		
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(29)	J-7 (Carson River Apprentice Either-Sex Deer Hunt)	15	0 - 50
(30)	J-8 (Daugherty Hill Wildlife Area Apprentice Either-Sex Deer Hunt)	15	0 - 20
(31)	J-9 (Little Dry Creek Apprentice Shotgun Either-Sex Deer Hunt)	5	0 - 10
(32)	J-10 (Fort Hunter Liggett Apprentice Either-Sex Deer Hunt)	75 Tags Total* (15 Military & 60 Public)	85 Tags Total* (25 Military & 60 Public)
(33)	J-11 (San Bernardino Apprentice Either-Sex Deer Hunt)	40	0 - 50
(34)	J-12 (Round Valley Apprentice Buck Hunt)	10	0 - 20
(35)	J-13 (Los Angeles Apprentice Either-Sex Deer Hunt)	40	0 - 100
(36)	J-14 (Riverside Apprentice Either-Sex Deer Hunt)	30	0 - 75
(37)	J-15 (Anderson Flat Apprentice Buck Hunt)	10	0 - 30
(38)	J-16 (Bucks Mountain-Nevada City Apprentice Either-Sex Deer Hunt)	75	0 - 75
(39)	J-17 (Blue Canyon Apprentice Either-Sex Deer Hunt)	25	0 - 25
(40)	J-18 (Pacific-Grizzly Flat Apprentice Either-Sex Deer Hunt)	75	0 - 75
(41)	J-19 (Zone X-7a Apprentice Either-Sex Deer Hunt)	25	0 - 40
(42)	J-20 (Zone X-7b Apprentice Either-Sex Deer Hunt)	20	0 - 20

Deer: § 360(c) Additional Hunts Tag Allocations			
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(43)	J-21 (East Tehama Apprentice Either-Sex Deer Hunt)	50	0 - 80

**Specific numbers of tags are provided for military hunts through a system which restricts hunter access to desired levels and ensures biologically conservative hunting programs.*

***DOD = Department of Defense and eligible personnel as authorized by the Installation Commander.*

Benefits of the regulations

The deer herd management plans specify objective levels for the proportion of bucks in the herds. These ratios are maintained and managed in part by annually modifying the number of hunting tags. The final values for the license tag numbers will be based upon findings from the annual harvest and herd composition counts. Adjusting tag allocations in response to current deer herd conditions contributes to the sustainable management of healthy deer populations and the maintenance of continued hunting opportunities.

Non-monetary benefits to the public

The Commission does not anticipate non-monetary benefits to the protection of public health and safety, worker safety, the prevention of discrimination, the promotion of fairness or social equity and the increase in openness and transparency in business and government.

Consistency and Compatibility with State Regulations

The Fish and Game Commission, pursuant to Fish and Game Code Sections 200, 202 and 203, has the sole authority to regulate deer hunting in California. Commission staff has searched the California Code of Regulations and has found the proposed changes pertaining to deer tag allocations are consistent with Sections 361, 701, 702, 708.5 and 708.6 of Title 14. Therefore the Commission has determined that the proposed amendments are neither inconsistent nor incompatible with existing State regulations.

REGULATORY TEXT

Subsection (c) of Section 360 is amended to read:

§360. Deer.

. . . [subsections (a) and (b)]

(c) Additional Hunts.

(1) G-1 (Late Season Buck Hunt for Zone C-4).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~2,740~~ [0 - 5,000].

(2) G-3 (Goodale Buck Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~35~~ [0 - 50].

(3) G-6 (Kern River Deer Herd Buck Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~50~~ [0 - 100].

(4) G-7 (Beale Either Sex Hunt).

. . . [No changes to subsections (A) through (E)]

(5) G-8 (Fort Hunter Liggett Antlerless Deer Hunt).

. . . [No changes to subsection (A)]

(B) Season: The season for additional hunt G-8 (Fort Hunter Liggett Antlerless Deer Hunt) shall open on October ~~3~~ 7 and extend for ~~2~~ 3 consecutive days and reopen on October ~~10~~ 14 and extend for ~~3~~ 2 consecutive days, except if rescheduled by the Commanding Officer with Department concurrence between the season opener and December 31.

. . . [No changes to subsections (C) through (E)]

(6) G-9 (Camp Roberts Antlerless Deer Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~0~~ 30 (15 military and 15 public).

(7) G-10 (Camp Pendleton Either-Sex Deer Hunt).

. . . [No changes to subsections (A) through (D)]

(8) G-11 (Vandenberg Either-Sex Deer Hunt).

. . . [No changes to subsection (A)]

(B) Season: The season for the additional hunt G-11 (Vandenberg Either Sex Hunt) shall open on the last Monday in August and extend through October 1.

. . . [No changes to subsection (C)]

(9) G-12 (Gray Lodge Shotgun Either-Sex Deer Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~30~~ [0 - 50].

. . . *[No changes to subsection (E)]*

(10) G-13 (San Diego Antlerless Deer Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~300~~ [0 - 300].

(11) G-19 (Sutter-Yuba Wildlife Areas Either-Sex Deer Hunt).

(A) Area: Those portions of Yuba and Sutter counties within the exterior boundaries of: (1) the Feather River Wildlife Area, and (2) the Sutter Bypass Wildlife Area (as defined in Section ~~550~~ 551, Title 14, CCR).

. . . *[No changes to subsections (B) and (C)]*

(D) Number of Tags: ~~25~~ [0 - 50].

. . . *[No changes to subsection (E)]*

(12) G-21 (Ventana Wilderness Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~25~~ [0 - 100].

(13) G-37 (Anderson Flat Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~25~~ [0 - 50].

(14) G-38 (X-10 Late Season Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~300~~ [0 - 300].

(15) G-39 (Round Valley Late Season Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~5~~ [0 - 150].

(16) M-3 (Doyle Muzzleloading Rifle Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~20~~ [0 - 75].

. . . *[No changes to subsection (E)]*

(17) M-4 (Horse Lake Muzzleloading Rifle Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~5~~ [0 - 50].

- ... *[No changes to subsection (E)]*
- (18) M-5 (East Lassen Muzzleloading Rifle Buck Hunt).
- ... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~5~~ [0 - 50].
- ... *[No changes to subsection (E)]*
- (19) M-6 (San Diego Muzzleloading Rifle Either-Sex Deer Hunt).
- ... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~80~~ [0 - 100].
- ... *[No changes to subsection (E)]*
- (20) M-7 (Ventura Muzzleloading Rifle Either-Sex Deer Hunt).
- ... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~150~~ [0 - 150].
- ... *[No changes to subsection (E)]*
- (21) M-8 (Bass Hill Muzzleloading Rifle Buck Hunt).
- ... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~20~~ [0 - 50].
- ... *[No changes to subsection (E)]*
- (22) M-9 (Devil's Garden Muzzleloading Rifle Buck Hunt).
- ... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~15~~ [0 - 100].
- ... *[No changes to subsection (E)]*
- (23) M-11 (Northwestern California Muzzleloading Rifle Buck Hunt).
- ... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~20~~ [0 - 200].
- ... *[No changes to subsection (E)]*
- (24) MA-1 (San Luis Obispo Muzzleloading Rifle/Archery Either-Sex Deer Hunt).
- ... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~150~~ [0 - 150].
- ... *[No changes to subsection (E)]*
- (25) MA-3 (Santa Barbara Muzzleloading Rifle/Archery Buck Hunt).
- ... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~150~~ [0 - 150].
- ... *[No changes to subsection (E)]*

(26) J-1 (Lake Sonoma Apprentice Either-Sex Deer Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~25~~ [0 - 25].

. . . *[No changes to subsection (E)]*

(27) J-3 (Tehama Wildlife Area Apprentice Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~15~~ [0 - 30].

. . . *[No changes to subsection (E)]*

(28) J-4 (Shasta-Trinity Apprentice Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~15~~ [0 - 50].

. . . *[No changes to subsection (E)]*

(29) J-7 (Carson River Apprentice Either-Sex Deer Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~15~~ [0 - 50].

. . . *[No changes to subsection (E)]*

(30) J-8 (Daugherty Hill Wildlife Area Apprentice Either-Sex Deer Hunt).

(A) Area: That portion of Yuba County within the exterior boundaries of the Daugherty Hill Wildlife Area (as defined in Section ~~550~~ 551, Title 14, CCR).

. . . *[No changes to subsections (B) through (C)]*

(D) Number of Tags: ~~15~~ [0 - 20].

. . . *[No changes to subsection (E)]*

(31) J-9 (Little Dry Creek Apprentice Shotgun Either-Sex Deer Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~5~~ [0 - 10].

. . . *[No changes to subsection (E)]*

(32) J-10 (Fort Hunter Liggett Apprentice Either-Sex Deer Hunt).

. . . *[No changes to subsection (A)]*

(B) Season: The season for additional hunt J-10 (Fort Hunter Liggett Apprentice Either-Sex Deer Hunt) shall open on October ~~3~~ 7 and extend for ~~2~~ 3 consecutive days and reopen on October ~~10~~ 14 and extend for ~~3~~ 2 consecutive days, except if rescheduled by the Commanding Officer with Department concurrence between the season opener and December 31.

. . . *[No changes to subsection (C)]*

- (D) Number of Tags: ~~75~~ 85 (~~15~~ 25 military and 60 general public).
... *[No change to subsection (E)]*
- (33) J-11 (San Bernardino Apprentice Either-Sex Deer Hunt).
... *[No changes for subsections (A) through (C)]*
- (D) Number of Tags: ~~40~~ [0 - 50].
... *[No changes to subsection (E)]*
- (E) Special Conditions:
- (34) J-12 (Round Valley Apprentice Buck Hunt).
... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~40~~ [0 - 20].
... *[No changes to subsection (E)]*
- (35) J-13 (Los Angeles Apprentice Either-Sex Deer Hunt).
... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~40~~ [0 - 100].
... *[No changes to subsection (E)]*
- (36) J-14 (Riverside Apprentice Either-Sex Deer Hunt).
... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~30~~ [0 - 75].
... *[No changes to subsection (E)]*
- (37) J-15 (Anderson Flat Apprentice Buck Hunt).
... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~40~~ [0 - 30].
... *[No changes to subsection (E)]*
- (38) J-16 (Bucks Mountain-Nevada City Apprentice Either-Sex Deer Hunt).
... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~75~~ [0 - 75].
... *[No changes to subsection (E)]*
- (39) J-17 (Blue Canyon Apprentice Either-Sex Deer Hunt).
... *[No changes to subsections (A) through (C)]*
- (D) Number of Tags: ~~25~~ [0 - 25].
... *[No changes to subsection (E)]*
- (40) J-18 (Pacific-Grizzly Flat Apprentice Either-Sex Deer Hunt).
... *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~75~~ [0 - 75].

. . . *[No changes to subsection (E)]*

(41) J-19 (Zone X-7a Apprentice Either-Sex Deer Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~25~~ [0 - 40].

. . . *[No changes to subsection (E)]*

(42) J-20 (Zone X-7b Apprentice Either-Sex Deer Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~20~~ [0 - 20].

. . . *[No changes to subsection (E)]*

(43) J-21 (East Tehama Apprentice Either-Sex Deer Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~50~~ [0 - 80].

. . . *[No changes to subsection (E)]*

(44) Conditions for Additional Hunts.

. . . *[No changes to subsections (A) and (B)]*

. . . *[subsections (d) and (e)]*

Note: Authority: Sections 200, ~~202~~, 203, ~~220~~265, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code. Reference: Sections 200, ~~202~~, 203, 203.1, 207, 265, 458, 459, 460, 3051, 3452, 3453, 3953 and 4334, Fish and Game Code.

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-Publication of Notice Statement)

Amend Section 361
Title 14, California Code of Regulations (CCR)
Re: Archery Deer Hunting

I. Date of Initial Statement of Reasons: September 21, 2016

II. Dates and Locations of Scheduled Hearings:

- | | | |
|-------------------------|-----------|------------------|
| (a) Notice Hearing: | Date: | December 8, 2016 |
| | Location: | San Diego, CA |
| (b) Discussion Hearing: | Date: | February 8, 2017 |
| | Location: | Rohnert Park, CA |
| (c) Adoption Hearing: | Date: | April 26, 2017 |
| | Location: | Van Nuys, CA |

III. Description of Regulatory Action:

- (a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

1. Number of Tags

Existing regulations provide for the number of deer hunting tags for area-specific archery hunts. The proposed action initially provides a range of tag numbers for each zone from which a final number will be determined based on the post-winter status of each deer herd. Ranges are necessary at this time because the final number of tags cannot be determined until spring herd data are collected in March/April. A low end quota range of zero (0) tags is used in the event final tag quotas need to go lower. Hunts may be cancelled due to events such as fire, disease or other factors.

In early spring, surveys of deer herds are conducted to determine the proportion of fawns that have survived the winter. This information is used in conjunction with the prior year harvest and fall herd composition data to estimate overall herd size, sex and age ratios, and the predicted number of available deer (allowable deer harvest) next season. The number of bucks and does (ADH) needs to be estimated prior to the hunting season to determine how many surplus deer will exist over and above the number

required to maintain the desired buck: doe ratio objectives stated in the approved deer herd management plans.

This proposed regulatory action would change the number of tags for all existing hunts to a series of ranges as indicated in the following table:

Archery Deer Hunting: § 361(b) Tag Allocations			
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(1)	A-1 (C Zones Archery Only Hunt)	1,945	[0 - 3,000]
(2)	A-3 (Zone X-1 Archery Hunt)	100	[0 - 1,000]
(3)	A-4 (Zone X-2 Archery Hunt)	10	[0 - 100]
(4)	A-5 (Zone X-3a Archery Hunt)	40	[0 - 300]
(5)	A-6 (Zone X-3b Archery Hunt)	70	[0 - 400]
(6)	A-7 (Zone X-4 Archery Hunt)	120	[0 - 400]
(7)	A-8 (Zone X-5a Archery Hunt)	15	[0 - 100]
(8)	A-9 (Zone X-5b Archery Hunt)	5	[0 - 100]
(9)	A-11 (Zone X-6a Archery Hunt)	50	[0 - 200]
(10)	A-12 (Zone X-6b Archery Hunt)	90	[0 - 200]
(11)	A-13 (Zone X-7a Archery Hunt)	45	[0 - 200]
(12)	A-14 (Zone X-7b Archery Hunt)	25	[0 - 100]
(13)	A-15 (Zone X-8 Archery Hunt)	40	[0 - 100]
(14)	A-16 (Zone X-9a Archery Hunt)	140	[0 - 500]
(15)	A-17 (Zone X-9b Archery Hunt)	300	[0 - 500]
(16)	A-18 (Zone X-9c Archery Hunt)	350	[0 - 500]

Archery Deer Hunting: § 361(b) Tag Allocations			
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(17)	A-19 (Zone X-10 Archery Hunt)	100	[0 - 200]
(18)	A-20 (Zone X-12 Archery Hunt)	100	[0 - 500]
(19)	A-21 (Anderson Flat Archery Buck Hunt)	25	[0 - 100]
(20)	A-22 (San Diego Archery Either-Sex Deer Hunt)	1,000	[0 - 1,500]
(21)	A-24 (Monterey Archery Either-Sex Deer Hunt)	100	[0 - 200]
(22)	A-25 (Lake Sonoma Archery Either-Sex Deer Hunt)	35	[0 - 75]
(23)	A-26 (Bass Hill Archery Buck Hunt)	30	[0 - 100]
(24)	A-27 (Devil's Garden Archery Buck Hunt)	5	[0 - 75]
(25)	A-30 (Covelo Archery Buck Hunt)	40	[0 - 100]
(26)	A-31 (Los Angeles Archery Either-Sex Deer Hunt)	1,000	[0 - 1,500]
(27)	A-32 (Ventura/Los Angeles Archery Late Season Either-Sex Deer Hunt)	250	[0 - 300]
(28)	A-33 (Fort Hunter Liggett Late Season Archery Either-Sex Deer Hunt)	50 Tags Total* (25 Military & 25 Public)	50 Tags Total* (25 Military & 25 Public)

The actual tag numbers for each affected zone will be reflected in the Final Statement of Reasons and will be selected from the range of values provided in this proposal. The number of tags is intended to allow the appropriate level of hunting opportunity and harvest of bucks and does in the population, while achieving or maintaining the buck to doe ratios at, or near, objective levels set forth in the approved deer herd management plans. These final values for the license tag numbers will be based upon findings from the annual harvest and herd composition counts. However, under circumstances where various environmental factors such as severe winter conditions can adversely affect

herd recruitment and over-winter adult survival, final tag quotas may fall below the “Low Kill” alternative identified in the most recent Environmental Document Regarding Deer Hunting.

2. Modify Season for Area Specific Archery Hunt A-33

Existing regulations in subsection 361(b)(28) for Area Specific Archery Hunt A-33 (Fort Hunter Liggett Late Season Archery Either Sex Hunt) provide for hunting to begin on the first Saturday in October and continuing through November 11 in order to accommodate base operations and other hunts. The proposal would change the season dates to open on the first Saturday in October until November 12 to account for the annual calendar shift.

A minor editorial correction is proposed for subsection 361(b)(26)(C) changing the referenced subsection to 351(c) which is the correct citation for the definition of either-sex deer.

(b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Sections 200, 202, 203, 220, and 4370, Fish and Game Code.

Reference: Sections 200, 202, 203, 203.1, 207, and 4370, Fish and Game Code.

(c) Specific Technology or Equipment Required by Regulatory Change: None

(d) Identification of Reports or Documents Supporting Regulation Change:

2007 Final Environmental Document Regarding Deer Hunting

(e) Public Discussions of Proposed Regulations Prior to Notice Publication:

Fish and Game Commission Wildlife Resources Committee meeting held in Woodland on September 21, 2016.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

1. Number of Tags

There is no reasonable alternative to the proposed action.

2. Modify Season for Hunt A-33

Modify season to allow for the calendar shift allowing hunting for 37 consecutive days. This proposal was considered and approved because the changes in the season opening and closing dates and the length of the season (shorter by 5 days) would not significantly impact herd objectives or performance.

3. One public petition (Preston Taylor, Tracking Number 2015-016) was forwarded from the Fish and Game Commission for consideration during this rule-making package. The petition requested A) create an Archery Only either-sex deer tag or Archery Only antlerless deer tag and B) the addition of a traditional archery deer season (longbows & recurve bows only). These proposals were considered and rejected for the following reasons:

A. Antlerless hunting is a management tool that must be supported by adequate population data prior to implementation of any antlerless hunts. At this time the data being collected does not support the blanket implementation of antlerless hunts across the State and may produce relatively long-term negative impacts on the State's deer population. When the data supports it, the Department will recommend antlerless hunting on a limited basis.

B. Archers are currently provided an early-archery season, are allowed to use archery equipment during the general season, and in many cases are provided late-season archery hunts that are not available to those using firearms while hunting. Archers may choose to use whatever equipment they wish as long as it conforms to Section 353, T14, CCR and the establishment of a "traditional archery deer season" may negatively impact hunter opportunity for those hunters not choosing to use "traditional" archery equipment.

(b) No Change Alternative:

1. Number of Tags

The "No Change Alternative" was considered and found inadequate to attain the project objectives. The deer herd management plans specify objective levels for the proportion of bucks in the herds. These ratios are maintained and managed in part by modifying the number of hunting tags. The "No Change Alternative" would not allow management of the desired proportion of bucks or does stated in the approved deer herd management plans.

2. Modify Season for Hunt A-33

The “No Change Alternative” was considered and found inadequate to attain project objectives. Retaining current season dates would be unresponsive to Base operations and scheduled activities.

3. Establishment of Archery-only either-sex deer tags and establishment of traditional archery season requiring the use of only longbows and/or recurve bows.

The “No Change Alternative” was considered and found adequate to attain project objectives for the reasons listed in Section IV(a)(3), above.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

(d) Description of Reasonable Alternatives That Would Lessen Adverse Impact on Small Business: None.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed. The maximum number of tags available in the newly proposed range is at or below the number of tags analyzed in the most recent Final Environmental Document Regarding Deer Hunting and the approved deer herd management plans.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made.

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed action adjusts tag quotas for existing hunts. Given the number of tags available and

the area over which they are distributed, these proposals are economically neutral to business.

- (b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The proposed action will not have significant impacts on the creation or elimination of jobs or the creation of new businesses or the elimination of existing businesses within California because it is unlikely to result in a significant change in hunting effort. The proposed action does not provide benefits to worker safety because it does not address working conditions.

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources. The Commission anticipates benefits to the State's environment in the sustainable management of natural resources.

- (c) Cost Impacts on Private Persons:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with this proposed action.

- (d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None
- (e) Other Nondiscretionary Costs/Savings to Local Agencies: None
- (f) Programs Mandated on Local Agencies or School Districts: None
- (g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed under Part 7 (commencing with Section 17500) of Division 4: None
- (h) Effect on Housing Costs: None

VII. Economic Impact Assessment:

The proposed action will have no statewide economic or fiscal impact because the proposed action is unlikely to constitute a significant change from the 2016 deer season in the archery hunt zones. The number of tags to be set in regulation for 2017 is intended to achieve or maintain the levels set forth in the approved deer

herd management plans to preserve herd health and hunting opportunities in subsequent seasons.

(a) Effects of the regulation on the creation or elimination of jobs within the State:

The regulation will not affect the creation or elimination of jobs because no significant changes in hunting activity levels are anticipated.

(b) Effects of the regulation on the creation of new businesses or the elimination of existing businesses within the State:

The regulation will not impact the creation of new businesses or the elimination of businesses because no significant changes in hunting activity levels are anticipated.

(c) Effects of the regulation on the expansion of businesses currently doing business within the State

The regulation will not affect the expansion of businesses currently doing business within the State because no significant changes in hunting activity levels are anticipated.

(d) Benefits of the regulation to the health and welfare of California residents:

The proposed regulation will benefit the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources and the action contributes to the sustainable management of natural resources.

(e) Benefits of the regulation to worker safety.

The proposed regulation will not affect worker safety.

(f) Benefits of the regulation to the State's environment

It is the policy of the State to encourage the conservation, maintenance, and utilization of the State's living resources. The proposed action will further this core objective.

INFORMATIVE DIGEST
(Policy Statement Overview)

Existing regulations provide for the number of deer hunting tags for existing area-specific archery hunts. The proposed action changes the number of tags for existing hunts to a series of ranges presented in the table below. These ranges are necessary at this time because the final number of tags cannot be determined until spring herd data are collected in March/April. Because various environmental factors such as severe winter conditions can adversely affect herd recruitment and over-winter adult survival, the final recommended quotas may fall below the current proposed range into the “Low Kill” alternative identified in the most recent Environmental Document Regarding Deer Hunting.

Existing regulations for Hunt A-33 (Fort Hunter Liggett Late Season Archery Either Sex Hunt) provide for hunting to begin on the first Saturday in October and end on November 11. The proposal would modify the season to allow for the annual calendar shift by opening the season on the first Saturday in October and ending on November 12.

	Archery Deer Hunting: § 361(b)		
	Tag Allocations		
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(1)	A-1 (C Zones Archery Only Hunt)	1,945	[0 - 3,000]
(2)	A-3 (Zone X-1 Archery Hunt)	100	[0 - 1,000]
(3)	A-4 (Zone X-2 Archery Hunt)	10	[0 - 100]
(4)	A-5 (Zone X-3a Archery Hunt)	40	[0 - 300]
(5)	A-6 (Zone X-3b Archery Hunt)	70	[0 - 400]
(6)	A-7 (Zone X-4 Archery Hunt)	120	[0 - 400]
(7)	A-8 (Zone X-5a Archery Hunt)	15	[0 - 100]
(8)	A-9 (Zone X-5b Archery Hunt)	5	[0 - 100]
(9)	A-11 (Zone X-6a Archery Hunt)	50	[0 - 200]
(10)	A-12 (Zone X-6b Archery Hunt)	90	[0 - 200]

	Archery Deer Hunting: § 361(b) Tag Allocations		
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(11)	A-13 (Zone X-7a Archery Hunt)	45	[0 - 200]
(12)	A-14 (Zone X-7b Archery Hunt)	25	[0 - 100]
(13)	A-15 (Zone X-8 Archery Hunt)	40	[0 - 100]
(14)	A-16 (Zone X-9a Archery Hunt)	140	[0 - 500]
(15)	A-17 (Zone X-9b Archery Hunt)	300	[0 - 500]
(16)	A-18 (Zone X-9c Archery Hunt)	350	[0 - 500]
(17)	A-19 (Zone X-10 Archery Hunt)	100	[0 - 200]
(18)	A-20 (Zone X-12 Archery Hunt)	100	[0 - 500]
(19)	A-21 (Anderson Flat Archery Buck Hunt)	25	[0 - 100]
(20)	A-22 (San Diego Archery Either-Sex Deer Hunt)	1,000	[0 - 1,500]
(21)	A-24 (Monterey Archery Either-Sex Deer Hunt)	100	[0 - 200]
(22)	A-25 (Lake Sonoma Archery Either-Sex Deer Hunt)	35	[0 - 75]
(23)	A-26 (Bass Hill Archery Buck Hunt)	30	[0 - 100]
(24)	A-27 (Devil's Garden Archery Buck Hunt)	5	[0 - 75]
(25)	A-30 (Covelo Archery Buck Hunt)	40	[0 - 100]
(26)	A-31 (Los Angeles Archery Either-Sex Deer Hunt)	1,000	[0 - 1,500]
(27)	A-32 (Ventura/Los Angeles Archery Late Season Either-Sex Deer Hunt)	250	[0 - 300]

Archery Deer Hunting: § 361(b) Tag Allocations			
§	Hunt Number (and Title)	Current 2016	Proposed 2017 [Range]
(28)	A-33 (Fort Hunter Liggett Late Season Archery Either-Sex Deer Hunt)	50 Tags Total* (25 Military & 25 Public)	50 Tags Total* (25 Military & 25 Public)

** Specific numbers of tags are provided for military hunts through a system which restricts hunter access to desired levels and ensures biologically conservative hunting programs.*

Benefits of the regulations

The deer herd management plans specify objective levels for the proportion of bucks in the herds. These ratios are maintained and managed in part by annually modifying the number of hunting tags. The final values for the license tag numbers will be based upon findings from the annual harvest and herd composition counts. Adjusting tag allocations in response to current deer herd conditions contributes to the sustainable management of healthy deer populations and the maintenance of continued hunting opportunities.

Non-monetary benefits to the public

The Commission does not anticipate non-monetary benefits to the protection of public health and safety, worker safety, the prevention of discrimination, the promotion of fairness or social equity and the increase in openness and transparency in business and government.

Consistency and Compatibility with State Regulations

The Fish and Game Commission, pursuant to Fish and Game Code Sections 200, 202 and 203, has the sole authority to regulate archery deer hunting in California. Commission staff has searched the California Code of Regulations and has found the proposed changes pertaining to archery deer tag allocations are consistent with Sections 360, 701, 702, 708.5 and 708.6 of Title 14. Therefore the Commission has determined that the proposed amendments are neither inconsistent nor incompatible with existing State regulations.

REGULATORY TEXT

Section 361 is amended to read:

§361. Archery Deer Hunting.

. . . [No changes in subsection (a)]

(b) Archery Hunting With Area-specific Archery Tags. Deer may be taken only with archery equipment specified in Section 354, only during the archery seasons as follows:

(1) A-1 (C Zones Archery Only Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~4,945~~ [0 - 3,000] A-1 (C Zones Archery Only Hunt) tags are valid in Zones C-1, C-2, C-3, and C-4 only during the archery season as specified above in subsections 361(b)(1)(B)1 through 4.

(2) A-3 (Zone X-1 Archery Hunt)

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~400~~ [0 - 1,000].

(3) A-4 (Zone X-2 Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~40~~ [0 - 100].

(4) A-5 (Zone X-3a Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~40~~ [0 - 300].

(5) A-6 (Zone X-3b Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~70~~ [0 - 400].

(6) A-7 (Zone X-4 Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~120~~ [0 - 400].

(7) A-8 (Zone X-5a Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~15~~ [0 - 100].

(8) A-9 (Zone X-5b Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~5~~ [0 - 100].

(9) A-11 (Zone X-6a Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~50~~ [0 - 200].

(10) A-12 (Zone X-6b Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~90~~ [0 - 200].

(11) A-13 (Zone X-7a Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~45~~ [0 - 200].

(12) A-14 (Zone X-7b Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~25~~ [0 - 100].

(13) A-15 (Zone X-8 Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~40~~ [0 - 100].

(14) A-16 (Zone X-9a Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~140~~ [0 - 500].

(15) A-17 (Zone X-9b Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~300~~ [0 - 500].

(16) A-18 (Zone X-9c Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~350~~ [0 - 500].

(17) A-19 (Zone X-10 Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~400~~ [0 - 200].

(18) A-20 (Zone X-12 Archery Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~400~~ [0 - 500].

(19) A-21 (Anderson Flat Archery Buck Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~25~~ [0 - 100].

(20) A-22 (San Diego Archery Either-Sex Deer Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~4,000~~ [0 - 1,500].

(21) A-24 (Monterey Archery Either-Sex Deer Hunt).

. . . [No changes to subsections (A) through (C)]

(D) Number of Tags: ~~400~~ [0 - 200].

(22) A-25 (Lake Sonoma Archery Either-Sex Deer Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~35~~ [0 - 75].

. . . *[No changes to subsection (E)]*

(23) A-26 (Bass Hill Archery Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~30~~ [0 - 100].

(24) A-27 (Devil's Garden Archery Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~5~~ [0 - 75].

(25) A-30 (Covelo Archery Buck Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~40~~ [0 - 100].

(26) A-31 (Los Angeles Archery Either-Sex Deer Hunt).

. . . *[No changes to subsections (A) through (B)]*

(C) Bag and Possession Limit: One either-sex deer (see subsection 351-~~(b)~~ (c)) per tag.

(D) Number of Tags: ~~1,000~~ [0 - 1,500].

(27) A-32 (Ventura/Los Angeles Late Season Archery Either-Sex Deer Hunt).

. . . *[No changes to subsections (A) through (C)]*

(D) Number of Tags: ~~250~~ [0 - 300].

(28) A-33 (Fort Hunter Liggett Late Season Archery Either-Sex Deer Hunt).

. . . *[No changes to subsection (A)]*

(B) Season: The season for hunt A-33 (Fort Hunter Liggett Late Season Archery Either Sex Deer Hunt) shall be open beginning the first Saturday in October and continuing through November ~~11~~ 12, except if rescheduled by the Commanding Officer with Department concurrence between the season opener and December 31.

. . . *[No changes to subsections (C) and (D)]*

Note: Authority cited: Sections 200, ~~202~~, 203, ~~220~~265 and 4370, Fish and Game Code.
Reference: Sections 200, ~~202~~, 203, 203.1, 207, 265 and 4370, Fish and Game Code.

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-Publication of Notice Statement)

Amend Subsection 362,
Title 14, California Code of Regulations (CCR)
Re: Nelson Bighorn Sheep

Date of Initial Statement of Reasons: September 21, 2016

II. Dates and Locations of Scheduled Hearings:

- | | | | |
|-----|----------------------|-----------|------------------|
| (a) | Notice Hearing: | Date: | December 8, 2016 |
| | | Location: | San Diego, CA |
| (b) | Discussion Hearings: | Date: | February 8, 2017 |
| | | Location: | Rohnert Park, CA |
| (c) | Adoption Hearing: | Date: | April 26, 2017 |
| | | Location: | Van Nuys, CA |

III. Description of Regulatory Action:

- (a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

In accordance with management goals and objectives, and in order to maintain hunting quality, tag quotas for hunts need to be adjusted annually. Current regulations specify the number of bighorn sheep hunting tags for the 2016 season. This proposed regulatory action will amend subsection 362(d) providing the number of tags for bighorn sheep hunting in 2017.

Preliminarily, the tag numbers are presented as ranges (e.g., [0-3]) in the table in subsection 362(d) of the amended Regulatory Text. Final tag quotas for each zone will be identified and recommended to the Fish and Game Commission at the April 26, 2017 adoption hearing.

Section 4902 of the Fish and Game Code specifies that the Commission may allow the take of no more than 15 percent of the mature Nelson bighorn rams estimated in the hunt areas in a single year, based on the Department's annual estimate of the population in each management unit. The Department is currently implementing aerial surveys. The proposed tag ranges are biologically conservative by design to ensure that harvest is consistent with management plan guidelines for individual units and not more than 15 percent of the mature rams in any zone are taken. The Department's research indicates that aerial surveys do not detect all mature rams present.

The Department's recommendations to the Commission will be consistent with the following criteria as supported by management plans:

- If the Department's annual population estimate for any of the individual management units is below 50 adult ewes and/or the ram/ewe ratio falls below 40:100, then the Department will recommend a 0 tag quota for the 2017 season in that unit.
- If no substantial reduction in population is determined in the estimate of the population, then tag quotas for 2017 will be recommended consistent with management plan guidelines and the statutory requirement that no more than 15% of the mature rams may be harvested through hunting, Fish and Game Code section 4902(a)(2).

(b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Sections 200, 202, 203, 220, 1050, and 4902, Fish and Game Code.

Reference: Sections 1050, 3950, and 4902, Fish and Game Code.

(c) Specific Technology or Equipment Required by Regulatory Change: None.

(d) Identification of Reports or Documents Supporting Regulation Change:

2011 Final Environmental Document Regarding Bighorn Sheep Hunting

(e) Public Discussions of Proposed Regulations Prior to Notice Publication:

Fish and Game Commission's Wildlife Resources Committee meeting held on September 21, 2016 in Woodland, California.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

No alternatives were identified.

(b) No Change Alternative:

The no-change alternative was considered and rejected because it would not attain project objectives of providing for hunting opportunities while maintaining bighorn sheep populations within desired population objectives. Retaining the current tag quota for each zone may not be responsive to biologically-based changes in the status of the various herds.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the

regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed. The maximum number of tags available in the newly proposed range is at or below the number of tags analyzed in the 2011 Final Environmental Document Regarding Bighorn Sheep Hunting.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made.

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed action adjusts tag quotas for existing hunts. The proposed quotas are to allow for the continuation of limited hunting activity by sustaining Bighorn Sheep populations. The number of tags issued is so limited in number and in the area over which the hunts occur, that these regulatory actions will be economically neutral to business.

(b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment: The proposed action affects a small number of hunting tags over a limited area and will not have any impacts on the creation or elimination of jobs, the creation of new business, the elimination of existing businesses or the expansion of businesses in California and does not affect worker safety.

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources. The Commission anticipates benefits to the State's environment in the sustainable management of natural resources.

(c) Cost Impacts on Representative Private Persons/Business:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

- (d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None.
- (e) Other Nondiscretionary Costs/Savings to Local Agencies: None.
- (f) Programs Mandated on Local Agencies or School Districts: None.
- (g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed under Part 7 (commencing with Section 17500) of Division 4: None.
- (h) Effect on Housing Costs: None.

VII. Economic Impact Assessment

The proposed action will have no statewide economic or fiscal impact because the proposed action is unlikely to constitute a significant change from the last bighorn sheep season. The number of tags to be set in regulation for 2017 is intended to achieve or maintain the levels set forth in the approved management plans to preserve herd health and hunting opportunities in subsequent seasons.

- (a) Effects of the regulation on the creation or elimination of jobs within the State:

The regulation will not affect the creation or elimination of jobs because no significant changes in hunting activity are anticipated.

- (b) Effects of the regulation on the creation of new businesses or the elimination of existing businesses within the State:

The regulation will not impact the creation of new businesses or the elimination of businesses because no significant changes in hunting activity are anticipated.

- (c) Effects of the regulation on the expansion of businesses currently doing business within the State

The regulation will not affect the expansion of businesses currently doing business within the State because no significant changes in hunting activity are anticipated.

- (d) Benefits of the regulation to the health and welfare of California residents:

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family

activities and promotes respect for California's environment by the future stewards of the State's resources.

- (e) Benefits of the regulation to worker safety.

The proposed regulation will not affect worker safety.

- (f) Benefits of the regulation to the State's environment

It is the policy of the State to encourage the conservation, maintenance, and utilization of the living resources. The proposed action will further this core objective.

INFORMATIVE DIGEST (Policy Statement Overview)

The current regulation in Section 362, T14, CCR, provides for limited hunting of Nelson bighorn rams in specified areas of the State. The proposed amendments are intended to adjust the number of hunting tags for the 2017 season based on the Department's annual estimate of the population in each of the nine hunt zones. The Department's final recommendations will ensure that the take will be no more than 15 percent of the mature rams estimated in each zone in accordance with Fish and Game Code Section 4902.

Preliminarily, the tag numbers are presented as ranges (e.g., [0-3]) in the table in subsection 362(d) of the amended Regulatory Text. Final tag quotas for each zone will be identified and recommended to the Fish and Game Commission at the April 26, 2017 adoption hearing.

Benefits of the regulations

The Nelson Bighorn Sheep management plans specify objective levels for the herds. These ratios are maintained and managed in part by annually modifying the number of tags. The final values for the license tag numbers will be based upon findings from the population surveys. Adjusting tag allocations in response to current herd conditions contributes to the sustainable management of healthy bighorn sheep populations and the maintenance of continued hunting opportunities.

Non-monetary benefits to the public

The Commission does not anticipate non-monetary benefits to the protection of public health and safety, worker safety, the prevention of discrimination, the promotion of fairness or social equity and the increase in openness and transparency in business and government.

Consistency and Compatibility with State Regulations

The Fish and Game Commission, pursuant to Fish and Game Code Sections 200, 202 and 203, has the sole authority to regulate Nelson Bighorn Sheep hunting in California. Commission staff has searched the California Code of Regulations and has found the proposed changes pertaining to Nelson Bighorn Sheep tag allocations are consistent with the provisions of Title 14. Therefore the Commission has determined that the proposed amendments are neither inconsistent nor incompatible with existing State regulations.

REGULATORY TEXT

Subsection (d) of Section 362, Title 14, CCR is amended to read:

§ 362. Nelson Bighorn Sheep.

[No changes to subsections (a) through (c)]

(d) Number of License Tags:

<i>Nelson Bighorn Sheep Hunt Zones</i>	<i>Tag Allocation</i>
Zone 1 - Marble/Clipper Mountains	3 [0-4]
Zone 2 - Kelso Peak/Old Dad Mountains	4 [0-4]
Zone 3 - Clark/Kingston Mountain Ranges	2 [0-2]
Zone 4 - Orocopia Mountains	4 [0-2]
Zone 5 - San Gorgonio Wilderness	2 [0-3]
Zone 6 - Sheep Hole Mountains	0 [0-2]
Zone 7 - White Mountains	3 [0-5]
Zone 8 - South Bristol Mountains	4 [0-3]
Zone 9 - Cady Mountains	4 [0-4]
Open Zone Fund-Raising Tag	4 [0-1]
Marble/Clipper/South Bristol Mountains Fund-Raising Tag	0 [0-1]
Kelso Peak/Old Dad Mountains Fund-Raising Tag	4 [0-1]
Total:	49 [0-32]

[No changes to subsection (e)]

Note: Authority cited: Sections 200, ~~202~~, 203, ~~220~~265, 1050 and 4902, Fish and Game Code. Reference: Sections ~~200, 202, 203, 203.1, 207~~, 1050, 3950 and 4902, Fish and Game Code.

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-Publication of Notice Statement)

Amend Section 363
Title 14, California Code of Regulations (CCR)
Re: Pronghorn Antelope

I. Date of Initial Statement of Reasons: September 21, 2016

II. Dates and Locations of Scheduled Hearings:

(a) Notice Hearing: Date: December 8, 2016
 Location: San Diego, CA

(b) Discussion Hearings: Date: February 8, 2017
 Location: Rohnert Park, CA

(c) Adoption Hearing: Date: April 26, 2017
 Location: Van Nuys, CA

III. Description of Regulatory Action:

(a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

1. Number of Tags

In accordance with management goals and objectives, and in order to maintain hunting quality, tag quotas for hunts need to be adjusted annually. Current regulations specify the number of pronghorn antelope hunting tags for the 2016 season. This proposed regulatory action will amend subsection 363(m) providing the number of tags for hunting in 2017.

Preliminarily, the tag numbers are presented as ranges (e.g., [0-3]) in the table in subsection 363(m) of the amended Regulatory Text. Final tag quotas for each zone will be identified and recommended to the Fish and Game Commission at the April 26, 2017 adoption hearing.

Ranges are necessary because final quotas cannot be determined until survey data is analyzed. Winter surveys are scheduled for January 2016. Analysis of survey results will be completed by March 2017. Final tag quotas will allow for a biologically appropriate harvest of bucks and does in the population and will achieve/maintain buck ratios at or above minimum levels specified in appropriate management plans. Administrative procedures and the Fish and Game Code require the Fish and Game Commission to receive

proposed changes to existing regulations prior to the time winter pronghorn antelope surveys are completed. Final tag quotas for each zone will be identified and reported in the Final Statement of Reasons based upon findings from the annual winter surveys.

2. Minor Editorial Changes

Minor editorial changes are also proposed for consistency in subsection numbering, spelling, grammar, and clarity.

(b) Authority and Reference:

Authority: Fish and Game Code sections 219, 220, 331, 1050 and 10502.

Reference: Fish and Game Code Sections 331, 713, 1050, 10500 and 10502.

(c) Specific Technology or Equipment Required by Regulatory Change:

None.

(d) Identification of Reports or Documents Supporting Regulation Change:

Pronghorn Antelope Hunting, Final Environmental Document, 2004.

(e) Public Discussions of Proposed Regulations Prior to Notice Publication:

Fish and Game Commission's Wildlife Resources Committee meeting held on September 21, 2016 in Woodland, California.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

1. Number of Tags

No alternatives were identified. Pronghorn antelope license tag quotas must be changed periodically in response to a variety of biological and environmental conditions.

2. Minor Editorial Changes

No alternatives were identified.

(b) No Change Alternative:

1. Number of Tags

The no change alternative was considered and rejected because it would not attain project objectives of maintaining pronghorn antelope populations within desired population objectives while providing for hunting opportunities. Retaining the current tag quota for each zone may not be responsive to biologically-based changes in the status of various herds. Management plans specify minimum desired buck to doe ratios which are attained/maintained in part by modifying tag quotas on an annual basis. The no change alternative would not allow for adjustment of tag quotas in response to changing environmental/biological conditions.

2. Minor Editorial Changes

The no change alternative was considered and rejected because it would not attain consistency in regulations.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed. The maximum number of tags available in the newly proposed ranges is at or below the number of tags analyzed in the 2004 Final Environmental Document Regarding Pronghorn Antelope Hunting.

VI. Impact of Regulatory Action.

This proposed action adjusts tag quotas for existing hunts. Given the number of tags available, and the area over which they are distributed, this proposal is economically neutral to business. The proposed regulations are to allow for the continuation of limited hunting activity by sustaining Pronghorn Antelope populations.

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States.

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed action adjusts tag quotas for existing hunts. Considering the small number of tags issued over the entire state, this proposal is economically neutral to business.

- (b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The proposed action affects a small number of hunting tags over a limited area and will not have any impacts on the creation or elimination of jobs, the creation of new business, the elimination of existing businesses or the expansion of businesses in California and does not affect worker safety.

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources. The Commission anticipates benefits to the State's environment in the sustainable management of natural resources.

- (c) Cost Impacts on Private Persons.

The agency is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

- (d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None.

- (e) Other Nondiscretionary Costs/Savings to Local Agencies: None.

- (f) Programs Mandated on Local Agencies or School District: None.

- (g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed under Part 7 (commencing with Section 17500) of Division 4:

None.

- (h) Effect on Housing Costs:

None.

VII. Economic Impact Assessment

The proposed action will have no statewide economic or fiscal impact because the proposed action is unlikely to constitute a significant change from the last pronghorn antelope season. The number of tags to be set in regulation for 2017 is intended to achieve or maintain the levels set forth in the approved management plans to preserve herd health and hunting opportunities in subsequent seasons.

- (a) Effects of the regulation on the creation or elimination of jobs within the State:

The regulation will not affect the creation or elimination of jobs because no significant changes in hunting activity are anticipated.

- (b) Effects of the regulation on the creation of new businesses or the elimination of existing businesses within the State:

The regulation will not impact the creation of new businesses or the elimination of businesses because no significant changes in hunting activity are anticipated.

- (c) Effects of the regulation on the expansion of businesses currently doing business within the State

The regulation will not affect the expansion of businesses currently doing business within the State because no significant changes in hunting activity are anticipated.

- (d) Benefits of the regulation to the health and welfare of California residents:

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources.

- (e) Benefits of the regulation to worker safety.

The proposed regulation will not affect worker safety.

- (f) Benefits of the regulation to the State's environment

It is the policy of the State to encourage the conservation, maintenance, and utilization of the living resources. The proposed action will further this core objective.

INFORMATIVE DIGEST (Policy Statement Overview)

Amend Section 363, Pronghorn Antelope, Title 14, California Code of Regulations (CCR).

In accordance with management goals and objectives, and in order to maintain hunting quality, tag quotas for Pronghorn Antelope hunts need to be adjusted annually. Current regulations specify the number of pronghorn antelope hunting tags for the 2016 season. This proposed regulatory action will amend subsection 363(m) providing the number of tags for hunting in 2017.

Preliminarily, the tag numbers are presented as ranges (e.g., [0-3]) in the table in subsection 363(m) of the amended Regulatory Text. Final tag quotas for each zone will be identified and recommended to the Fish and Game Commission at the April 26, 2017, adoption hearing.

Other minor changes to the regulatory text to reduce redundancy, improve accuracy and clarity are proposed.

Benefits of the regulations

The management plans specify objective levels for the herds. These levels are maintained and managed in part by annually modifying the number of tags. The final values for the license tag numbers will be based upon findings from the population surveys. Adjusting tag allocations in response to current herd conditions contributes to the sustainable management of healthy pronghorn antelope populations and the maintenance of continued hunting opportunities.

Non-monetary benefits to the public

The Commission does not anticipate non-monetary benefits to the protection of public health and safety, worker safety, the prevention of discrimination, the promotion of fairness or social equity and the increase in openness and transparency in business and government.

Consistency and Compatibility with State Regulations

The Fish and Game Commission, pursuant to Fish and Game Code Sections 200, 202 and 203, has the sole authority to regulate pronghorn antelope hunting in California. Commission staff has searched the California Code of Regulations and has found the proposed changes pertaining to pronghorn antelope tag allocations are consistent with the provisions of Title 14. Therefore the Commission has determined that the proposed amendments are neither inconsistent nor incompatible with existing State regulations.

REGULATORY TEXT

Section 363 is amended to read:

§ 363. Pronghorn Antelope.

The Lava Beds National Monument and Federal and State Game Refuges lying within the hunt boundary are closed to pronghorn antelope hunting, except for the state's Hayden Hill (1S) and Blacks Mountain (1F) game refuges in Lassen County and the Clear Lake National Wildlife Refuge in Modoc County. Refer to subsection 363(b)(5) for special conditions for permission to enter and hunt pronghorn antelope in the Clear Lake National Wildlife Refuge.

... [No changes to subsections 363(a)(1) through 363(l)(7)]

(m) Pronghorn Antelope Tag Allocations Table.

2016 2017 Pronghorn Antelope Tag Allocations						
Hunt Area	Archery-Only Season		General Season			
	Buck	Doe	Buck	Doe	Buck	Doe
Zone 1 - Mount Dome	0 [0-10]	0 [0-3]	2 [0-60]	0 [0-20]	0	0
Zone 2 - Clear Lake	4 [0-10]	0 [0-3]	15 [0-80]	0 [0-25]	0	0
Zone 3 - Likely Tables	45 [0-20]	0 [0-7]	45 [0-150]	0 [0-50]	45 [0-130]	0 [0-50]
Zone 4 – Lassen	40 [0-20]	0 [0-7]	45 [0-150]	0 [0-50]	45 [0-130]	0 [0-50]
Zone 5 - Big Valley	4 [0-15]	0 [0-5]	20 [0-150]	0 [0-50]	0	0
Zone 6 - Surprise Valley	4 [0-10]	0	40 [0-25]	0 [0-7]	0	0
Likely Tables Apprentice Hunt	N/A		5 [0-15] Either Sex		0	
Lassen Apprentice Hunt	N/A		5 [0-15] Either Sex		0	

Big Valley Apprentice Hunt	N/A	4 <u>[0-4]</u> Either Sex	0
Surprise Valley Apprentice Hunt	N/A	4 <u>[0-5]</u> Either Sex	0
Fund-Raising Hunt	N/A	2 <u>[0-10]</u> Buck	

Note: Authority cited: Sections 219, ~~220~~, 331, 1050, Fish and Game Code. Reference: Sections 331, 713, and 1050, Fish and Game Code.

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-Publication of Notice Statement)

Amend Section 364
Title 14, California Code of Regulations (CCR)
Re: Elk Hunts, Seasons, and Number of Tags.

- I. Date of Initial Statement of Reasons: September 21, 2016
- II. Dates and Locations of Scheduled Hearings:
- (a) Notice Hearing: Date: December 8, 2016
Location: San Diego
- (b) Discussion Hearings: Date: February 8, 2017
Location: Rohnert Park. CA
- (c) Adoption Hearing: Date: April 26, 2017
Location: Van Nuys, CA
- III. Description of Regulatory Action:
- (a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:
1. Modify the Independence General Methods Tule Elk Hunt to establish the Goodale General Methods Tule Elk Hunt in the western half of the Independence Zone:
- The Department is recommending changes to the hunt described in the 2010 Final Environmental Document regarding Elk hunting for the Independence zone. The proposed modification establishes the Goodale Tule Elk Hunt Zone as described in the proposed subsection 364(d)(10)(A). Establishing this hunt will allow Department personnel to allocate elk tags specifically for this zone; the tag quota will remain unchanged but distributed between the Independence and Goodale zones. The elk herd in this area can then be managed more effectively while providing a biologically appropriate harvest within each zone in accordance with management goals and objectives.
2. Number of Tags:
- In order to maintain appropriate harvest levels and hunting quality it is necessary to annually adjust tag quotas (total number of hunting tags to be made available)

in response to dynamic environmental and biological conditions. Current regulations in Section 364 specify elk license tag quotas for each hunt zone in accordance with management goals and objectives.

The amendments to Section 364 will establish new tag quotas to adjust for periodic fluctuations in elk population numbers. The proposed tag quotas are expressed as ranges [shown in brackets] in the tables of the amended Regulatory Text (subsections 364 (r) through (aa)) attached to this ISOR. The quotas are expressed in ranges because the final number of tags cannot be determined until survey and harvest data from the 2016-17 hunt season are analyzed and the results are available in the spring of 2017. The final number of tags allocated to each hunt will be recommended to the Commission at the adoption hearing on April 26, 2017.

3. Modify Season Dates: Fort Hunter Liggett Tule Elk and Northeastern Rocky Mountain Elk:

Due to military use constraints at Fort Hunter Liggett, hunt dates are subject to change from year to year and may be changed or cancelled by the base commander.

The proposal modifies season dates for the Northeastern antlerless elk hunts. Modifying season dates and tag distribution allows flexibility in hunter effort which will help achieve harvest goals for this zone. The antlerless hunt in the Northeast California Rocky Mountain Elk zone occurs during the same season as the hunt for bulls. Hunts for bull elk and antlerless elk occurring simultaneously in the same area can result in potential conflicts between hunters for access to animals and reduced hunter satisfaction. Competition between elk hunters can be reduced by moving the antlerless elk season later in the year.

4. Minor Editorial Changes:

Minor editorial changes are necessary for consistency in subsection numbering, spelling, grammar, and clarification.

(b) Authority and Reference:

Authority: Fish and Game Code sections 200, 202, 203, 332 and 1050.

Reference: Fish and Game Code sections 332 and 1050.

(c) Specific Technology or Equipment Required by Regulatory Change: None.

(d) Identification of Reports or Documents Supporting Regulation Change:

2010 Final Environmental Document Regarding Elk Hunting

(e) Public Discussions of Proposed Regulations Prior to Notice Publication:

Fish and Game Commission's Wildlife Resources Committee meeting held on September 21, 2016 in Woodland, California.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

1. Modify Existing Hunt Area:

No alternatives were identified for establishing the proposed Goodale Hunt zone. Distributing hunting pressure between the Independence and Goodale zones allows the Department to manage elk more effectively.

2. Number of Tags:

No alternatives were identified. Elk license tag quotas must be adjusted periodically in response to a variety of environmental and biological conditions including forage availability, population structure and overwinter survival rates.

3. Modify Season Dates and Tag Distribution: Fort Hunter Liggett tule elk and Northeastern Rocky Mountain Elk:

No alternatives were identified for the Fort Hunter Liggett Tule Elk Hunt season date and tag distribution modifications. Access is entirely controlled by Fort Hunter Liggett and the new dates and tag distribution are the only option that accommodates military operations while still providing hunter opportunity.

No alternatives were identified for modifying the season dates of the Northeastern Rocky Mountain antlerless elk season. Modifying season dates will provide greater hunter satisfaction and will result in the desired harvest level.

4. Minor Editorial Changes:

There is no reasonable alternative to the proposed action.

(b) No Change Alternative:

The no-change alternative was considered and rejected because it would not attain project objectives. Elk hunts and opportunity must be adjusted periodically in response to a variety of environmental and biological conditions including forage availability, population structure, and over-winter survival rates. Elk populations have

increased and landowner conflicts have also escalated in several areas. Adjusting tag quotas provides for appropriate harvest levels within the hunt zones.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed. The number of tags that will be issued from the newly proposed tag ranges will result in a harvest that is at or below the harvest analyzed in the 2010 Final Environmental Document Regarding Elk hunting.

VI. Impact of Regulatory Action.

This proposed action adjusts tag quotas, modifies existing hunt zones, and modifies season dates in order to meet management goals and provide hunting opportunities for the public. Given the number of tags available, and the area over which they are distributed, this proposal is economically neutral to business.

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businessmen to Compete with Businesses in Other States.

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. Considering the relatively small number of tags issued over the entire state, this proposal is economically neutral to business.

(b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The proposed action will not have any impacts on the creation or elimination of jobs, the creation of new business, the elimination of existing businesses or the expansion of businesses in California and does not affect worker safety.

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources. The Commission anticipates benefits to the State's environment in the sustainable management of natural resources.

(c) Cost Impacts on Representative Private Persons/Business.

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with this proposed action.

(d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None.

(e) Other Nondiscretionary Costs/Savings to Local Agencies: None.

(f) Programs Mandated on Local Agencies or School Districts: None.

(g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed under Part 7 (commencing with Section 17500) of Division 4: None.

(h) Effect on Housing Costs: None.

VII. Economic Impact Assessment

The proposed action will have no statewide economic or fiscal impact because the proposed action is unlikely to constitute a significant change from the 2016 elk season. The number of tags to be set in regulation for 2017 is intended to achieve or maintain the levels set forth in the approved management plans and environmental documents to sustainably manage elk populations and maintain hunting opportunities in subsequent seasons.

(a) Effects of the regulation on the creation or elimination of jobs within the State:

The regulation will not affect the creation or elimination of jobs because no significant changes in hunting activity levels are anticipated.

(b) Effects of the regulation on the creation of new businesses or the elimination of existing businesses within the State:

The regulation will not impact the creation of new businesses or the elimination of businesses because no significant changes in hunting activity levels are anticipated.

- (c) Effects of the regulation on the expansion of businesses currently doing business within the State

The regulation will not affect the expansion of businesses currently doing business within the State because no significant changes in hunting activity levels are anticipated.

- (d) Benefits of the regulation to the health and welfare of California residents:

The proposed regulation will benefit the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources and the action contributes to the sustainable management of natural resources.

- (e) Benefits of the regulation to worker safety.

The proposed regulation will not affect worker safety.

- (f) Benefits of the regulation to the State's environment

It is the policy of the State to encourage the conservation, maintenance, and utilization of the State's living resources. The proposed action will further this core objective.

INFORMATIVE DIGEST (Policy Statement Overview)

Existing regulations in Section 364, Title 14, CCR, specify elk license tag quotas for each hunt. In order to achieve elk herd management goals and objectives and maintain hunting quality, it is periodically necessary to adjust quotas, seasons, hunt areas and other criteria in response to dynamic environmental and biological conditions. The proposed amendments to Section 364 will establish 2017 tag quotas within each hunt area, adjusting for annual fluctuations in population number, season dates, and tag distribution.

The complete amended text is found in the amended Regulatory Text of Section 364 with the Initial Statement of Reasons.

Proposed Amendments:

1. Establish the Goodale Tule Elk Hunt in the western part of the Independence zone. The Department is recommending adding a new subsection 364(d)(10)(A) establishing a Goodale General Methods Tule Elk Hunt.
2. In order to achieve appropriate harvest levels and maintain hunting quality, it is necessary to annually adjust quotas (total number of tags) in response to dynamic environmental and biological conditions. Subsections 364(r) through (aa) specify elk license tag quotas for each hunt in accordance with management goals and objectives.
3. Modify Season Dates. The Department makes many different times and seasons of the year available to the public. In order to provide opportunity for hunters, the Department modifies the calendar day for the start of individual hunts and the number of days of hunting. The proposed table sets forth the recommended days for each hunt.
4. Minor Editorial Changes are proposed to improve clarity and reduce redundancy.

Benefits of the regulations

The proposed regulations will contribute to the sustainable management of elk populations in California. Existing elk herd management goals specify objective levels for the proportion of bulls in the herds. These ratios are maintained and managed in part by annually modifying the number of tags. The final values for the license tag numbers will be based upon findings from annual harvest and herd composition counts.

Non-monetary benefits to the public

The Commission does not anticipate non-monetary benefits to the protection of public health and safety, worker safety, the prevention of discrimination, the promotion of fairness or social equity and the increase in openness and transparency in business and government

Consistency and Compatibility with State Regulations

The Fish and Game Commission, pursuant to Fish and Game Code Sections 200, 202 and 203, has the sole authority to regulate elk hunting in California. Commission staff has searched the California Code of Regulations and has found the proposed changes pertaining to elk tag allocations are consistent with Title 14. Therefore the Commission has determined that the proposed amendments are neither inconsistent nor incompatible with existing State regulations.

REGULATORY TEXT

Section 364 is amended to read as follows:

§364. Elk Hunts, Seasons, and Number of Tags.

. . . [*No changes subsections (a) through (d)(9)]*

(10) Goodale General Methods Tule Elk Hunt:

(A) Area: In that portion of Inyo County beginning at the junction of Highway 395 and Onion Valley Road; west along Onion Valley Road to the intersection of the Section 25 Township 13S, Range 33E; south along the eastern boundary of Section 25 Township 13S, Range 33E to the southern boundary of Section 25 Township 13S, Range 33E; west along the southern boundary of sections 27, 26, 25 Township 13S, Range 33E to the Inyo County line; North along the Inyo County Line to Taboose Creek; east along Taboose Creek to the intersection of Highway 395; south along Highway 395 to the point of beginning.

~~(40)~~ (11) Grizzly Island General Methods Tule Elk Hunt:

(A) Area: Those lands owned and managed by the Department of Fish and Game as the Grizzly Island Wildlife Area.

(B) Special Conditions: All tagholders will be required to attend a mandatory orientation. Tagholders will be notified of the time and location of the orientation meeting after receipt of their elk license tags.

~~(44)~~ (12) Fort Hunter Liggett General Public General Methods Tule Elk Hunt:

(A) Area: That portion of Monterey County lying within the exterior boundaries of Fort Hunter Liggett, except as restricted by the Commanding Officer.

(B) Fort Hunter Liggett Special Conditions: See subsection 364(p).

~~(42)~~ (13) East Park Reservoir General Methods Tule Elk Hunt:

(A) Area: In those portions of Glenn and Colusa counties within a line beginning in Glenn County at the junction of Interstate Highway 5 and Highway 162 at Willows; west along Highway 162 (Highway 162 becomes Alder Springs Road) to the Glenn-Mendocino County line; south along the Glenn-Mendocino County line to the Glenn-Lake County line; east and then south along the Glenn-Lake County line to the Colusa-Lake County line; west, and then southeast along the Colusa-Lake County line to Goat Mountain Road; north and east along Goat Mountain Road to the Lodoga-Stonyford Road; east along the Lodoga-Stonyford Road to the Sites-Lodoga Road at Lodoga; east along the Sites-Lodoga Road to the Maxwell-Sites Road at Sites; east along the Maxwell-Sites Road to Interstate Highway 5 at Maxwell; north along Interstate Highway 5 to the point of beginning.

(B) Special Conditions:

1. All tagholders will be required to attend a mandatory orientation. Tagholders will be notified of the time and location of the orientation meeting after receipt of their elk license tags.

2. Access to private land may be restricted or require payment of an access fee.

3. A Colusa County ordinance prohibits firearms on land administered by the USDI Bureau of Reclamation in the vicinity of East Park Reservoir. A variance has been requested to allow use of muzzleloaders (as defined in Section 353) on Bureau of Reclamation land within the hunt zone.

~~(13)~~ (14) San Luis Reservoir General Methods Tule Elk Hunt:

(A) Area: In those portions of Merced, Fresno, San Benito, and Santa Clara counties within a line beginning in Merced County at the junction of Highway 152 and Interstate 5 near the town of Santa Nella, west along Highway 152 to Highway 156 in Santa Clara County, southwest along Highway 156 to Highway 25 near the town of Hollister in San Benito County, south along Highway 25 to the town of Paicine, south and east along J1 to Little Panoche Road, North and east along Little Panoche Road to Interstate 5 in Fresno County, north along Interstate 5 to the point of beginning.

~~(14)~~ (15) Bear Valley General Methods Tule Elk Hunt:

(A) Area: in those portions of Colusa, Lake, and Yolo counties within a line beginning in Colusa County at the junction of Interstate Highway 5 and Maxwell Sites Road at Maxwell; west along Maxwell Sites Road to the Sites Lodoga Road; west along the Sites Lodoga Road to Lodoga Stonyford Road; west along Lodoga Stonyford Road to Goat Mountain Road; west and south along Goat Mountain Road to the Colusa-Lake County line; south and west along the Colusa-Lake County line to Forest Route M5; south along Forest Route M5 to Bartlett Springs Road; east along Bartlett Springs Road to Highway 20; east on Highway 20 to the fork of Cache Creek; north on the north fork of Cache Creek to Indian Valley Reservoir to Walker Ridge-Indian Valley Reservoir Access Road; east on Walker Ridge-Indian Valley Reservoir Access Road to Walker Ridge Road; south on Walker Ridge Road to Highway 20; east on Highway 20 to Highway 16; south on Highway 16 to Rayhouse Road; south and west on Rayhouse Road to the Yolo-Napa County line; east and south along the Yolo-Napa County line to Road 8053; east on Road 8053 to County Road 78A; east on County Road 78A to Highway 16; east on Highway 16 to Route E4 at Capay; north and east on Route E4 to Interstate Highway 5; north on Interstate Highway 5 to the point of beginning.

~~(15)~~ (16) Lake Pillsbury General Methods Tule Elk Hunt:

(A) Area: in those portions of Lake County within a line beginning at the junction of the Glenn-Lake County line and the Mendocino County line; south and west along the Mendocino-Lake County line to Highway 20; southeast on Highway 20 to the intersection of Bartlett Springs Road; north and east along Bartlett Springs Road to the intersection of Forest Route M5; northwest on Forest Route M5 to the Colusa-Lake County Line; northwest and east on the Colusa-Lake County Line to the junction of the Glenn-Colusa County Line and the Lake-Glenn County Line; north and west on the Lake-Glenn County Line to the point of beginning.

~~(16)~~ (17) Santa Clara General Methods Tule Elk Hunt:

(A) Area: Those portions of Merced, Santa Clara, and Stanislaus Counties within the following line: beginning at the intersection of the Interstate 5 and the San Joaquin/Stanislaus County line; southeast along Interstate 5 to the intersection of Highway 152; west along Highway 152 to the intersection of Highway 101 near the town of Gilroy; north along Highway 101 to the intersection of Interstate 680 near San Jose; north along Interstate 680 to the intersection of the Alameda/Santa Clara County line; east along the Alameda/Santa Clara County line to the intersection of the San Joaquin, Stanislaus, Alameda, Santa Clara County lines; northeast along the San Joaquin/Stanislaus County line to the point of beginning.

~~(17)~~ (18) Alameda General Methods Tule Elk Hunt:

(A) Area: Those portions of Alameda and San Joaquin Counties within the following line: beginning at the intersection of the Interstate 5 and the San Joaquin/Stanislaus County line; southwest along the San Joaquin/Stanislaus County line to the intersection

of the San Joaquin, Stanislaus, Alameda, Santa Clara County lines; west along the Alameda/Santa Clara County Line to the intersection of Interstate 680; north along Interstate 680 to the intersection of Interstate 580; east and south along Interstate 580 to the intersection of Interstate 5; south along Interstate 5 to the point of beginning.

. . . [*No changes subsections (e) through (e)(5)*]

(6) Grizzly Island General Methods Tule Elk Apprentice Hunt:

(A) Area: The tag shall be valid in the area described in subsection 364(d)~~(10)~~(11)(A).

(B) Special Conditions:

1. All tagholders will be required to attend a mandatory orientation. Tagholders will be notified of the time and location of the orientation meeting after receipt of their elk license tags.

2. Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt license tags. Apprentice Hunt tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.

(7) Fort Hunter Liggett General Methods General Public Tule Elk Apprentice Hunt:

(A) Area: The tag shall be valid in the area described in subsection 364(d)~~(11)~~(12)(A).

(B) Special Conditions: See subsection 364(p).

(C) Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt license tags. Apprentice Hunt tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.

(f) Department Administered Archery Only Elk Hunts:

(1) Northeastern California Archery Only Rocky Mountain Elk Hunt:

(A) Area: The tag shall be valid in the area described in subsection 364(b)(1)(A).

(B) Special Conditions: Elk may be taken with Archery Equipment only as specified in Section 354.

(2) Owens Valley Multiple Zone Archery Only Tule Elk Hunt:

(A) Area: The tag shall be valid in areas described in subsections 364(d)(3)(A), (d)(4)(A) ~~and (d)(5)(A)~~, and (d)(10)(A).

(B) Special Conditions: Elk may be taken with Archery Equipment only as specified in Section 354.

(3) Lone Pine Archery Only Tule Elk Hunt:

(A) Area: The tag shall be valid in the area described in subsection 364(d)(5)(A).

(B) Special Conditions: Elk may be taken with Archery Equipment only as specified in Section 354.

(4) Tinemaha Archery Only Tule Elk Hunt:

(A) Area: The tag shall be valid in the area described in subsection 364(d)(6)(A).

(B) Special Conditions: Elk may be taken with Archery Equipment only as specified in Section 354.

(5) Whitney Archery Only Tule Elk Hunt:

(A) Area: The tag shall be valid in the area described in subsection 364(d)(9)(A).

(B) Special Conditions: Elk may be taken with Archery Equipment only as specified in Section 354.

(6) Fort Hunter Liggett General Public Archery Only Tule Elk Hunt:

(A) Area: The tag shall be valid in the area described in subsection 364(d)~~(11)~~(12)(A).

(B) Special Conditions: See subsection 364(p).

- (C) Elk may be taken with Archery Equipment only as specified in Section 354.
- (g) Department Administered Muzzleloader Only Elk Hunts:
 - (1) Bishop Muzzleloader Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(3)(A).
 - (B) Special Conditions: Elk may be taken with muzzleloader equipment only as specified in Section 353.
 - (2) Independence Muzzleloader Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(4)(A).
 - (B) Special Conditions: Elk may be taken with muzzleloader equipment only as specified in Section 353.
 - (3) Fort Hunter Liggett General Public Muzzleloader Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(11)(12)(A).
 - (B) Special Conditions: See subsection 364(p).
- (C) Elk may be taken with Muzzleloader Equipment only as specified in Section 353.
- (h) Department Administered Muzzleloader/Archery Only Roosevelt Elk Hunts:
 - (1) Marble Mountains Muzzleloader/Archery Only Roosevelt Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(a)(3)(A).
 - (B) Special Conditions: Elk may be taken with archery or muzzleloader equipment only as specified in Sections 353 and 354.
- (i) Fund Raising Elk Hunts:
 - (1) Multi-zone Fund Raising Elk Hunt:
 - (A) Area: The tag shall be valid in the areas described in subsections 364(a)(1)(A), (a)(2)(A), (a)(3)(A), (b)(1)(A), and (d)(2)(A).
 - (2) Grizzly Island Fund Raising Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(10)(11)(A).
 - (B) Special Conditions: Advance reservations required by contacting the Grizzly Island Wildlife Area by telephone at (707) 425-3828.
 - (3) Owens Valley Fund Raising Tule Elk Hunt:
 - (A) Area: The tag shall be valid in areas described in subsections 364(d)(3)(A), (d)(4)(A), (d)(5)(A), (d)(6)(A), (d)(7)(A), (d)(8)(A), ~~and (d)(9)(A)~~, and (d)(10)(A).
- (j) Military Only Elk Hunts. These hunts are sponsored and tag quotas are set by the Department. The tags are assigned and the hunts are administered by the Department of Defense.
 - (1) Fort Hunter Liggett Military Only General Methods Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(11)(12)(A).
 - (B) Special Conditions: See subsection 364(p).
 - (2) Fort Hunter Liggett Military Only General Methods Tule Elk Apprentice Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(11)(12)(A).
 - (B) Special Conditions: See subsection 364(p).
 - (C) Only persons possessing valid junior hunting licenses may apply for Apprentice Hunt license tags. Apprentice Hunt tagholders shall be accompanied by a nonhunting, licensed adult chaperon 18 years of age or older while hunting.
 - (3) Fort Hunter Liggett Military Only Archery Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(11)(12)(A).
 - (B) Special Conditions: See subsection 364(p).
 - (C) Elk may be taken with Archery Equipment only as specified in Section 354.
 - (4) Fort Hunter Liggett Military Only Muzzleloader Only Tule Elk Hunt:
 - (A) Area: The tag shall be valid in the area described in subsection 364(d)(11)(12)(A).

(B) Special Conditions: See subsection 364(p).

. . . [No changes subsections (k) through (q)]

§	Hunt	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		5. Season			
(r) Department Administered General Methods Roosevelt Elk Hunts					
(1)(A)	Siskiyou	20 [0-30]	20 [0-30]		
		Shall open on the Wednesday preceding the second Saturday in September and continue for 12 consecutive days.			
(2)(A)	Northwestern	15 [0-15]	0 [0-10]	0 [0-10]	
		Shall open on the first Wednesday in September and continue for 23 consecutive days.			
(3)(A)	Marble Mountains	35 [0-70]	40 [0-30]		
		Shall open on the Wednesday preceding the second Saturday in September and continue for 12 consecutive days.			
(s) Department Administered General Methods Rocky Mountain Elk Hunts					
(1)(A)	Northeastern California Bull	15 [0-30]	10		
		The <u>bull</u> season shall open on the Wednesday preceding the third Saturday in September and continue for 12 consecutive days			
(B)	<u>Northeastern California Antlerless</u>		[0-10]		
		<u>The antlerless season shall open on the second Wednesday in November and continue for 12 consecutive days.</u>			
(t) Department Administered General Methods Roosevelt/Tule Elk Hunts					
(1)(A)	Mendocino	2 [0-4]	0 [0-4]		
		The season shall open on the Wednesday preceding the fourth Saturday in September and continue for 12 consecutive days.			
(u) Department Administered General Methods Tule Elk Hunts					
(1)(A)	Cache Creek Bull	2 [0-4]			
		The Bull season shall open on the second Saturday in October and continue for 16 consecutive days.			

§	Hunt	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		5. Season			
(B)	Antlerless		2 [0-4]		
		The Antlerless season shall open on the third Saturday in October and continue for 16 consecutive days.			
(2)(A)	La Panza Period 1	6 [0-12]	5 [0-10]		
		Shall open on the second Saturday in October and extend for 23 consecutive days			
(B)	Period 2	6 [0-12]	6 [0-12]		
		Shall open on the second Saturday in November and extend for 23 consecutive days.			
(3)(A)	Bishop Period 3	0 [0-10]	0 [0-30]		
		Shall open on the third Saturday in October and extend for 9 consecutive days.			
(B)	Period 4	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in November and extend for 9 consecutive days.			
(C)	Period 5	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in December and continue for 9 consecutive days.			
(4)(A)	Independence Period 2	4 [0-10]	4 [0-30]		
		Shall open on the first Saturday in October and extend for 9 consecutive days.			
(B)	Period 3	0 [0-10]	4 [0-30]		
		Shall open on the third Saturday in October and extend for 9 consecutive days.			
(C)	Period 4	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in November and extend for 9 consecutive days.			
(D)	Period 5	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in December and continue for 9 consecutive days.			
(5)(A)	Lone Pine Period 2	2 [0-10]	0 [0-30]		
		Shall open on the first Saturday in October and extend for 9 consecutive days.			
(B)	Period 3	4 [0-10]	0 [0-30]		

§	Hunt	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		5. Season			
		Shall open on the third Saturday in October and extend for 9 consecutive days.			
(C)	Period 4	0 [0-10]	4 [0-30]		
		Shall open on the first Saturday in November and extend for 9 consecutive days.			
(D)	Period 5	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in December and continue for 9 consecutive days.			
(6)(A)	Tinemaha Period 2	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in October and extend for 9 consecutive days.			
(B)	Period 3	0 [0-10]	0 [0-30]		
		Shall open on the third Saturday in October and extend for 9 consecutive days.			
(C)	Period 4	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in November and extend for 9 consecutive days.			
(D)	Period 5	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in December and continue for 9 consecutive days.			
(7)(A)	West Tinemaha Period 1	0 [0-10]	0 [0-30]		
		Shall open on the second Saturday in September and extend for 16 consecutive days.			
(B)	Period 2	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in October and extend for 9 consecutive days.			
(C)	Period 3	0 [0-10]	0 [0-30]		
		Shall open on the third Saturday in October and extend for 9 consecutive days.			
(D)	Period 4	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in November and extend for 9 consecutive days.			
(E)	Period 5	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in December and continue for 9 consecutive days.			
(8)(A)	Tinemaha Mountain	0 [0-8]			

§	Hunt	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		5. Season			
	Period 1	Shall open on the second Saturday in September and extend for 16 consecutive days.			
(B)	Period 2	0 [0-8]			
		Shall open on the first Saturday in October and extend for 9 consecutive days.			
(C)	Period 3	0 [0-8]			
		Shall open on the third Saturday in October and extend for 9 consecutive days			
(D)	Period 4	0 [0-8]			
		Shall open on the first Saturday in November and extend for 9 consecutive days.			
(E)	Period 5	0 [0-8]			
		Shall open on the first Saturday in December and continue for 9 consecutive days.			
(9)(A)	Whitney Period 2	0 [0-4]	0 [0-10]		
		Shall open on the first Saturday in October and extend for 9 consecutive days.			
(B)	Period 3	0 [0-4]	0 [0-10]		
		Shall open on the third Saturday in October and extend for 9 consecutive days			
(C)	Period 4	0 [0-4]	0 [0-10]		
		Shall open on the first Saturday in November and extend for 9 consecutive days.			
(D)	Period 5	0 [0-4]	0 [0-10]		
		Shall open on the first Saturday in December and continue for 9 consecutive days.			
(10)(A)	Goodale Period 1	[0-10]	[0-30]		
		Shall open on the second Saturday in September and extend for 16 consecutive days.			
(B)	Period 2	[0-10]	[0-30]		
		Shall open on the first Saturday in October and extend for 9 consecutive days.			
(C)	Period 3	[0-10]	[0-30]		
		Shall open on the third Saturday in October and extend for 9 consecutive days			

§	Hunt	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		5. Season			
(D)	Period 4	[0-10]	[0-30]		
		Shall open on the first Saturday in November and extend for 9 consecutive days.			
(E)	Period 5	[0-10]	[0-30]		
		Shall open on the first Saturday in December and continue for 9 consecutive days.			
(10)(A) (11)(A)	Grizzly Island Period 1	0 [0-3]	6 [0-12]		0 [0-6]
		Shall open on the second Tuesday after the first Saturday in August and continue for 4 consecutive days.			
(B)	Period 2	0 [0-3]	2 [0-12]		2 [0-6]
		Shall open on the first Thursday following the opening of period one and continue for 4 consecutive days.			
(C)	Period 3	0 [0-3]	6 [0-12]		0 [0-6]
		Shall open on the first Tuesday following the opening of period two and continue for 4 consecutive days			
(D)	Period 4	0 [0-3]	2 [0-12]		2 [0-6]
		Shall open on the first Thursday following the opening of period three and continue for 4 consecutive days.			
(E)	Period 5	0 [0-3]	8 [0-12]		0 [0-6]
		Shall open on the first Tuesday following the opening of period four and continue for 4 consecutive days			
(F)	Period 6	0 [0-3]	0 [0-12]		0 [0-6]
		Shall open on the first Thursday following the opening of period five and continue for 4 consecutive days.			
(G)	Period 7	0 [0-3]	8 [0-12]		0 [0-6]
		Shall open on the first Tuesday following the opening of period six and continue for 4 consecutive days			
(H)	Period 8	0 [0-3]	0 [0-12]		6 [0-6]
		Shall open on the first Thursday following the opening of period seven and continue for 4 consecutive days.			
(I)	Period 9	0 [0-3]	8 [0-12]		0 [0-6]
		Shall open on the first Tuesday following the opening of period eight and continue for 4 consecutive days.			
(J)	Period 10	3 [0-3]	0 [0-12]		0 [0-6]

§	Hunt	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		5. Season			
		Shall open on the first Thursday following the opening of period nine and continue for 4 consecutive days.			
(K)	Period 11	0 [0-3]	8 [0-12]		0 [0-6]
		Shall open on the first Tuesday following the opening of period ten and continue for 4 consecutive days.			
(L)	Period 12	2 [0-3]	0 [0-12]		2 [0-6]
		Shall open on the first Thursday following the opening of period eleven and continue for 4 consecutive days.			
(M)	Period 13	0 [0-3]	8 [0-12]		0 [0-6]
		Shall open on the first Tuesday following the opening of period twelve and continue for 4 consecutive days.			
(11)(A) <u>(12)(A)</u>	Fort Hunter Liggett General Public Period 1	0	4 [0-16]		
		Shall open on the first Thursday in November and continue for 9 consecutive days.			
(B)	Period 2	0	4 [0-16]		
		Shall open November 22 and continue for 9 consecutive days.			
(C)	Period 3	4 [0-14]	0		
		Shall open on the third Saturday in December and continue for 16 consecutive days.			
(12)(A) <u>(13)(A)</u>	East Park Reservoir	2 [0-4]	2 [0-8]		
		Shall open the first Saturday in September and continue for 27 consecutive days.			
(13)(A) <u>(14)(A)</u>	San Luis Reservoir	0 [0-10]	0 [0-10]	5 [0-10]	
		Shall open on the first Saturday in October and continue for 23 consecutive days.			
(14)(A) <u>(15)(A)</u>	Bear Valley	2 [0-4]	4 [0-2]		
		Shall open on the second Saturday in October and continue for 9 consecutive days.			
(15)(A) <u>(16)(A)</u>	Lake Pillsbury Period 1		4 [0-4]		
		Shall open on the Wednesday preceding the second Saturday in September and continue for 10 consecutive days.			
(B)	Period 2	2 [0-4]			
		Shall open Monday following the fourth Saturday in September and continue for 10 consecutive days.			

§	Hunt	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		5. Season			
(16)(A) (17)(A)	Santa Clara	0 [0-4]	0		
		Shall open on the second Saturday in October and continue for 16 consecutive days.			
(17)(A) (18)(A)	Alameda	0 [0-4]	0		
		Shall open on the second Saturday in October and continue for 16 consecutive days.			
(v) Department Administered Apprentice Hunts					
(1)(A)	Marble Mountain General Methods Roosevelt Elk Apprentice			2 [0-4]	
		Shall open on the Wednesday preceding the second Saturday in September and continue for 12 consecutive days.			
(2)(A)	Northeast California General Methods Rocky Mountain Elk Apprentice			2 [0-4]	
		Shall open on the Wednesday preceding the third Saturday in September and continue for 12 consecutive days			
(3)(A)	Cache Creek General Methods Tule Elk Apprentice	4 [0-2]	0 [0-2]		
		Shall open on the second Saturday in October and continue for 16 consecutive days.			
(4)(A)	La Panza General Methods Tule Elk Apprentice	0 [0-2]	4 [0-2]		
		Shall open on the second Saturday in October and extend for 23 consecutive days.			
(5)(A)	Bishop General Methods Tule Elk Apprentice Period 2	0 [0-10]	0 [0-30]		
		Shall open on the first Saturday in October and extend for 9 consecutive days.			
(6)(A)	Grizzly Island General Methods Tule Elk Apprentice Period 1		2 [0-4]		0 [0-4]
		Shall open on the second Tuesday after the first Saturday in August and continue for 4 consecutive days			
(B)	Period 2		0 [0-4]		2 [0-4]
		Shall open on the first Thursday following the opening of period one and continue for 4 consecutive days.			
(C)	Period 3		2 [0-4]		0 [0-4]
		Shall open on the first Tuesday following the opening of period two and continue for 4 consecutive days.			

§	Hunt	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		5. Season			
(D)	Period 4		0 [0-4]		2 [0-4]
		Shall open on the first Thursday following the opening of period three and continue for 4 consecutive days.			
(7)(A)	Fort Hunter Liggett General Public General Methods Apprentice	4 [0-2]	4 [0-8]		
		Shall open on the third Saturday in December and continue for 16 consecutive days.			
(w) Department Administered Archery Only Hunts					
(1)(A)	Northeast California Archery Only	0	0	40 [0-20]	
		Shall open on the Wednesday preceding the first Saturday in September and continue for 12 consecutive days.			
(2)(A)	Owens Valley Multiple Zone Archery Only	3 [0-10]	0 [0-5]		
		Shall open on the second Saturday in August and extend for 9 consecutive days.			
(3)(A)	Lone Pine Archery Only Period 1	0 [0-10]	0 [0-30]		
		Shall open on the second Saturday in September and extend for 16 consecutive days.			
(4)(A)	Tinemaha Archery Only Period 1	4 [0-10]	0 [0-30]		
		Shall open on the second Saturday in September and extend for 16 consecutive days.			
(5)(A)	Whitney Archery Only Period 1	0 [0-10]	0 [0-30]		
		Shall open on the second Saturday in September and extend for 16 consecutive days.			
(6)(A)	Fort Hunter Liggett General Public Archery Only Either Sex			2 [0-10]	
		Shall open on the last Wednesday in July and continue for 9 consecutive days.			
(B)	Fort Hunter Liggett General Public Archery Only Antlerless		4 [0-10]		
		Shall open on the last Wednesday in September and continue for 9 consecutive days. Shall open on the Tuesday preceding the fourth Thursday in November and continue for 9 consecutive days.			
(x) Department Administered Muzzleloader Only Tule Elk Hunts					
(1)(A)	Bishop Muzzleloader Only Period 1	0 [0-10]	0 [0-30]		
		Shall open on the second Saturday in September and extend for 16 consecutive days.			

§	Hunt	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		5. Season			
(2)(A)	Independence Muzzleloader Only Period 1	4 [0-10]	0 [0-10]		
		Shall open on the second Saturday in September and extend for 16 consecutive days.			
(3)(A)	<u>Goodale Muzzleloader Only Period 1</u>	[0-10]	[0-10]		
		<u>Shall open on the second Saturday in September and extend for 16 consecutive days.</u>			
(3)(A) (4)(A)	Fort Hunter Liggett General Public Muzzleloader Only	0 [0-10]	0 [0-10]		
		Shall open on the second Saturday in October and continue for 12 consecutive days. <u>Shall open on the third Saturday in December and continue for 17 consecutive days.</u>			
(y) Department Administered Muzzleloader/Archery Only Hunts					
(1)(A)	Marble Mountain Muzzleloader/Archery Roosevelt Elk			5 [0-20]	
		Shall open on the last Saturday in October and extend or 9 consecutive days.			
(z) Fund Raising Elk Tags					
(1)(A)	Multi-zone Fund Raising Tags	1			
		Siskiyou and Marble Mountains Roosevelt Elk Season shall open on the Wednesday preceding the first Saturday in September and continue for 19 consecutive days. Northwestern Roosevelt Elk Season shall open on the last Wednesday in August and continue for 30 consecutive days. Northeastern Rocky Mountain Elk Season shall open on the Wednesday preceding the last Saturday in August and continue for 33 consecutive days. La Panza Tule Elk Season shall open on the first Saturday in October and extend for 65 consecutive days.			
(2)(A)	Grizzly Island Fund Raising Tags	1			
		Shall open on the first Saturday in August and continue for 30 consecutive days.			
(3)(A)	Owens Valley Fund Raising Tags	1			
		Shall open on the last Saturday in July and extend for 30 consecutive days.			

§	Hunt	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		5. Season			
(aa) Military Only Tule Elk Hunts					
(1)(A)	Fort Hunter Liggett Military Only General Methods Early Season	2 [0-2]	4 [0-2]		
		The early season shall open on the second Monday in August and continue for 5 consecutive days and reopen on the fourth Monday in August and continue for 5 consecutive days.			
(B)	Period 1		-4 [0-16]		
		Shall open on the first Thursday in November and continue for 9 consecutive days.			
(C)	Period 2		-4 [0-14]		
		Shall open November 22 and continue for 9 consecutive days.			
(D)	Period 3	-4 [0-14]			
		Shall open on the third Saturday in December and continue for 16 consecutive days			
(2)(A)	Fort Hunter Liggett Military Only General Methods Apprentice	4 [0-2]	4 [0-8]		
		Shall open on the third Saturday in December and continue for 16 consecutive days.			
(3)(A)	Fort Hunter Liggett Military Only Archery Only Either sex			2 [0-6]	
		Shall open on the last Wednesday in July and continue for 9 consecutive days			
(B)	Antlerless		-4 [0-10]		
		Shall open on the last Wednesday in September and continue for 9 consecutive days.			
(4)(A)	Fort Hunter Liggett Military Only Muzzleloader Only	0 [0-6]			
		Shall open on the second Saturday in October and continue for 12 consecutive days. Shall open on the <u>third Saturday in December and continue for 17 consecutive days.</u>			

Note: Authority cited: Sections 200, ~~202~~, 203, 332, 265 and 1050, Fish and Game Code. Reference: Sections 332 and 1050, Fish and Game Code.

Amend Section 364.1
Title 14, California Code of Regulations (CCR)
Re: SHARE Elk Hunts

- 1 -

environmental and biological conditions. Current regulations in Section 364.1 specify elk license tag quotas for each hunt in accordance with management goals and objectives.

The amendments to Section 364.1 will establish new tag quotas to adjust for periodic fluctuations in elk population numbers. The proposed tag allocations are expressed as ranges [shown in brackets] in the tables of the amended Regulatory Text (subsections 364.1 (i) through (j)) attached to this ISOR. The quotas are expressed as ranges because the final number of tags cannot be determined until survey of the herds and harvest data from the 2016-17 hunt season are analyzed and the results are available in the spring of 2017. The final number of tags allocated to each zone will be recommended to the Commission at the adoption hearing on April 26, 2017.

The SHARE private property elk hunts correspond with elk hunts identified in Section 364. These regulations authorize SHARE elk hunts with separate seasons and tag quotas. Tag issuance will be through the SHARE program utilizing the department's existing tag distribution procedures.

The proposed ranges of elk tags for 2017 are presented in the Regulatory Text of Section 364.1.

3. Minor Editorial Changes:

Minor editorial changes are necessary for consistency in subsection numbering, spelling, grammar, and clarification.

(b) Authority and Reference:

Authority: Fish and Game Code sections 200, 202, 203, 332 and 1050.

Reference: Fish and Game Code sections 332 and 1050.

(c) Specific Technology or Equipment Required by Regulatory Change: None.

(d) Identification of Reports or Documents Supporting Regulation Change:

Final Environmental Document Regarding Elk Hunting dated April 21, 2010

(e) Public Discussions of Proposed Regulations Prior to Notice Publication:

Fish and Game Commission's Wildlife Resources Committee meeting held on September 21, 2016 in Woodland, California.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

No alternatives were identified. Elk license tag quotas for the SHARE program must be adjusted periodically in response to a variety of environmental and biological conditions, including forage availability, population structure, overwinter survival rates, and landowner interest.

(b) No Change Alternative:

The no-change alternative was considered and rejected because it would not attain project objectives. Elk hunts and opportunity must be adjusted periodically in response to a variety of environmental and biological conditions, including forage availability, population structure, and over-winter survival rates. Elk populations have increased and landowner conflicts have also escalated in several areas. Adjusting tag quotas provides for appropriate harvest levels within the hunt zones.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed. The number of tags that will be issued from the newly proposed tag range will result in a harvest that is at or below the harvest analyzed in the Final Environmental Document Regarding Elk Hunting dated April 21, 2010.

VI. Impact of Regulatory Action.

This proposed action adjusts tag quotas in an effort to meet management goals and provide hunting opportunities for the public. Given the number of tags available, and the area over which they are distributed, this proposal is economically neutral to business.

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businessmen to Compete with Businesses in Other States.

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. Considering the relatively small number of tags issued over the entire state, this proposal is economically neutral to business.

- (b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The proposed action will not have significant impacts on the creation or elimination of jobs or the creation of new businesses or the elimination of existing businesses within California because it is unlikely to result in a significant change in hunting effort. The proposed action does not provide benefits to worker safety because it does not address working conditions.

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources. The Commission anticipates benefits to the State's environment in the sustainable management of natural resources.

- (c) Cost Impacts on Representative Private Persons/Business.

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with this proposed action.

- (d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None.

- (e) Other Nondiscretionary Costs/Savings to Local Agencies: None.

- (f) Programs Mandated on Local Agencies or School Districts: None.

- (g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed under Part 7 (commencing with Section 17500) of Division 4: None.

- (h) Effect on Housing Costs: None.

VII. Economic Impact Assessment

The proposed action will have no statewide economic or fiscal impact because the proposed action is unlikely to constitute a significant change from the 2016 elk season. The number of tags to be set in regulation for 2017 is intended to achieve or maintain the levels set forth in the approved management plans and environmental documents to sustainably manage elk populations and maintain hunting opportunities in subsequent seasons.

- (a) Effects of the regulation on the creation or elimination of jobs within the State:

The cumulative effects of the changes throughout the Elk SHARE program are estimated to be neutral to job elimination and potentially positive to job

creation in California. No significant changes are expected as a direct result of the proposed regulation changes.

- (b) Effects of the regulation on the creation of new businesses or the elimination of existing businesses within the State:

The cumulative effects of the proposed amendments in various areas of the State are expected to be neutral to positive to the creation or elimination of businesses in California. There are no significant changes in the Elk SHARE program to businesses as a direct result of the proposed regulation changes.

- (c) Effects of the regulation on the expansion of businesses currently doing business within the State

The cumulative effects of the proposed amendments in various areas of the State are expected to be neutral to positive with respect to the expansion of businesses currently doing business in California. There are no significant changes in the Elk SHARE program to businesses as a direct result of the proposed regulation changes.

- (d) Benefits of the regulation to the health and welfare of California residents:

The proposed regulation will benefit the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources and the action contributes to the sustainable management of natural resources.

- (e) Benefits of the regulation to worker safety.

The proposed regulation will not affect worker safety.

- (f) Benefits of the regulation to the State's environment

It is the policy of the State to encourage the conservation, maintenance, and utilization of the State's living resources. The proposed action will further this core objective.

INFORMATIVE DIGEST (Policy Statement Overview)

Existing regulations in Section 364.1, Title 14, CCR, specify elk license tag quotas for each SHARE hunt. In order to achieve elk herd management goals and objectives and maintain hunting quality, it is periodically necessary to adjust quotas, seasons, hunt areas and other criteria, in response to dynamic environmental and biological conditions. The proposed amendments to Section 364.1 will establish 2017 tag quotas within each hunt adjusting for annual fluctuations in population number, season dates, and tag distribution.

1. Modify SHARE Hunt. The Department is recommending establishing a new Goodale SHARE hunt in subsection 364(l)(10).
2. Modify Tag Quotas. In order to achieve appropriate harvest levels and maintain hunting quality it is necessary to annually adjust quotas (total number of tags) in response to dynamic environmental and biological conditions. Section 364 regulations specify elk license tag quotas for each hunt in accordance with management goals and objectives.

Other minor editorial changes and renumbering have also been made.

The complete Table and text is found in the attached proposed Regulatory Text of Section 364.1.

Benefits of the regulations

The proposed regulations will contribute to the sustainable management of elk populations in California. Existing elk herd management goals specify objective levels for the proportion of bulls in the herds. These ratios are maintained and managed in part by annually modifying the number of tags. The final values for the license tag numbers will be based upon findings from annual harvest and herd composition counts in accordance with management goals and objectives.

Non-monetary benefits to the public

The Commission does not anticipate non-monetary benefits to the protection of public health and safety, worker safety, the prevention of discrimination, the promotion of fairness or social equity and the increase in openness and transparency in business and government.

Consistency and Compatibility with State Regulations

The Fish and Game Commission, pursuant to Fish and Game Code Sections 200, 202 and 203, has the sole authority to regulate elk hunting in California. Commission staff has searched the California Code of Regulations and has found the proposed changes pertaining to elk tag allocations are consistent with Title 14. Therefore the Commission has determined that the proposed amendments are neither inconsistent nor incompatible with existing State regulations.

REGULATORY TEXT

Section 364.1 is amended to read:

§ 364.1. Department Administered Shared Habitat Alliance for Recreational Enhancement (SHARE) Elk Hunts

. . . [No changes to subsections (a) through (h)]

§	(A) Hunts	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		(B) Area			
(i) Department Administered SHARE Roosevelt Elk Hunts					
(1)	Siskiyou	2 [0-10]	2 [0-10]		
		(B) Area: The tag shall be valid in the area described in subsection 364(a)(1)(A).			
(2)	Northwestern	7 [0-10]	13 [0-20]	0 [0-5]	
		(B) Area: The tag shall be valid in the area described in subsection 364(a)(2)(A).			
(3)	Marble Mountain	0 [0-10]	0 [0-15]		
		(B) Area: The tag shall be valid in the area described in subsection 364(a)(3)(A).			
(j) Department Administered General Methods SHARE Rocky Mountain Elk Hunts					
(1)	Northeast California	0 [0-10]	0 [0-10]		
		(B) Area: The tag shall be valid in the area described in subsection 364(b)(1)(A).			
(k) Department Administered SHARE Roosevelt/Tule Elk Hunts					
(1)	Mendocino	2 [0-4]	4 [0-4]		
		(B) Area: The tag shall be valid in the area described in subsection 364(c)(1)(A).			
(l) Department Administered SHARE Tule Elk Hunts					
(1)	Cache Creek	4 [0-2]	4 [0-2]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(1)(A).			
(2)	La Panza	5 [0-10]	10 [0-10]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(2)(A).			

§	(A) Hunts	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		(B) Area			
(3)	Bishop	0 [0-2]	0 [0-2]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(3)(A).			
(4)	Independence	0 [0-2]	0 [0-2]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(4)(A).			
(5)	Lone Pine Period 2	0 [0-2]	0 [0-2]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(5)(A).			
(6)	Tinemaha	0 [0-2]	0 [0-2]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(6)(A).			
(7)	West Tinemaha	0 [0-2]	0 [0-2]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(7)(A).			
(8)	Tinemaha Mountain	0 [0-2]			
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(8)(A).			
(9)	Whitney	0 [0-2]	0 [0-2]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(9)(A).			
(10)	Goodale	[0-2]	[0-2]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(10)(A).			
(10)(11)	Grizzly Island	0 [0-2]	0 [0-10]		0 [0-10]
		(B) Area: The tag shall be valid in the area described in subsection 364(d)-(10)(11)(A).			
(11)(12)	Fort Hunter Liggett	0 [0-4]	0 [0-4]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)-(11)(12)(A).			
(12)(13)	East Park Reservoir	2 [0-6]	4 [0-6]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(12)(13)(A).			

§	(A) Hunts	1. Bull Tags	2. Antlerless Tags	3. Either-Sex Tags	4. Spike Tags
		(B) Area			
(13)(14)	San Luis Reservoir	2 [0-5]	3 [0-5]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(13)(14)(A).			
(14)(15)	Bear Valley	4 [0-2]	4 [0-2]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(14)(15)(A).			
(15)(16)	Lake Pillsbury	0 [0-4]	0 [0-4]		
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(15)(16)(A).			
(16)(17)	Santa Clara	0 [0-2]			
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(16)(17)(A).			
(17)(18)	Alameda	0 [0-2]			
		(B) Area: The tag shall be valid in the area described in subsection 364(d)(17)(18)(A).			

Note: Authority Cited: Sections 332 and 1050, Fish and Game Code. Reference: Sections 332, 1050 and 1574, Fish and Game Code.

State of California
Department of Fish and Wildlife

Memorandum

Date: November 7, 2016

To: Valerie Termini
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director

RECIEVED
CALIFORNIA
FISH AND GAME
COMMISSION

2016 NOV 08 AM 8:07

Subject: **Agenda Item for the December 7-8, 2016 Fish and Game Commission Meeting; Request for Authorization to Publish Notice of the Commission's Intent to Amend Sections 360, 361, 362, 363, 364 and 364.1 RE: Big Game Hunting – Recommended Quotas and Seasons for 2017**

Attached are the Department of Fish and Wildlife's (Department's) proposals for the 2017-18 big game hunting quotas and seasons. Sections in Title 14, California Code of Regulations that would be affected include:

- 360b Deer X zones
- 360c Deer Additional Hunts
- 361 Archery Deer
- 362 Bighorn sheep
- 363 Antelope
- 364 Elk
- 364.1 Elk SHARE

(Note: no changes are proposed to Section 360(a), Deer zones A-D)

Annual tag quotas for big game species are indicated as ranges (e.g., [0-40]) from which the final 2017 recommendation will be made at the conclusion of population survey efforts next spring.

If you have any questions or need additional information, please contact Acting Wildlife Branch Chief, Rick Mayfield at (916) 445-3555 or by email at Rick.Mayfield@wildlife.ca.gov. The public notice should identify Environmental Program Manager, Craig Stowers as the Department's primary contact for this rulemaking. Mr. Stowers can be reached at (916) 445-3553 or by email at Craig.Stowers@wildlife.ca.gov.

Attachments

ec: Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

Valerie Termini, Executive Director
November 7, 2016
Page 2

David Bess, Chief
Law Enforcement Division
David.Bess@wildlife.ca.gov

Wendy Bogdan, Chief Counsel
Office of the General Counsel
Wendy.Bogdan@wildlife.ca.gov

Richard Reyes, Program Manager
ALDS
Richard.Reyes@wildlife.ca.gov

Maria Melchiorre, Assistant Chief
License and Revenue Branch
Maria.Melchiorre@wildlife.ca.gov

Craig Stowers, Game Program Manager
Wildlife Branch
Wildlife and Fisheries Division
Craig.Stowers@wildlife.ca.gov

Stuart Itoga, Senior Environmental
Scientist Supervisor
Wildlife Branch
Wildlife and Fisheries Division
Stuart.Itoga@wildlife.ca.gov

Joe Hobbs, Senior Environmental
Scientist Specialist
Wildlife Branch
Wildlife and Fisheries Division
Joe.Hobbs@wildlife.ca.gov

Regina Abella, Environmental Scientist
Wildlife Branch
Wildlife and Fisheries Division
Regina.Abella@wildlife.ca.gov

Craig Martz, Program Manager
Regulations Unit
Wildlife and Fisheries Division
Craig.Martz@wildlife.ca.gov

Mike Randall, Analyst
Regulations Unit
Wildlife and Fisheries Division
Mike.Randall@wildlife.ca.gov

ADDENDUM
FINAL ENVIRONMENTAL DOCUMENT
SECTION 364, 555, AND 601
TITLE 14, CALIFORNIA CODE OF REGULATIONS
REGARDING
ELK HUNTING
APRIL 21, 2010
(SCH No. 2009112083)

PREPARED BY:
STATE OF CALIFORNIA
NATURAL RESOURCES AGENCY
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
FOR THE LEAD AGENCY:
CALIFORNIA FISH AND GAME COMMISSION

PURPOSE:

AMEND SUBSECTION 364(d), TITLE 14, CCR

SPLIT THE INDEPENDENCE ZONE AREA

JANUARY 2017

INTRODUCTION

The Commission is considering amending California Code of Regulations, Title 14, Section 364, subsection (d)(4), to modify the Independence Zone for tule elk hunting from the current boundary description by splitting the zone into two separate zones. The zone east of Highway 395, in Inyo County, will continue to be referred to as the Independence Zone. The other zone west of Highway 395, in Inyo County, will be referred to as the Goodale Zone.

The California Department of Fish and Wildlife (CDFW) has prepared this Addendum pursuant to the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq, on behalf of the California Fish and Game Commission (Commission). The Commission is the lead agency under CEQA for the purpose of regulating the take, including the hunt areas, of elk pursuant to Fish and Game Code Section 332. This Addendum documents the Commission's consideration of related environmental effects.

FINAL ENVIRONMENTAL DOCUMENT REGARDING ELK HUNTING ADOPTED IN 2010

The Commission adopted the Final Environmental Document Regarding Elk Hunting in 2010 (2010 Final ED) (SCH No. 2009112083). The document identified hunt zones, hunt seasons, and annual hunting tag quotas. The Commission is considering this Addendum to modify the Independence Zone against the backdrop of the prior environmental review under CEQA for elk hunting regulations in accordance with the Commission's certified regulatory program under Public Resources Code Section 21080.5 and California Code of Regulations, Title 14, Section 15251.

The 2010 Final ED, Appendix 1 (page A-4, proposed regulatory language for Section 364, T14, CCR) identified the boundaries for the Independence Zone in subsection 364(g)(1)(C) as follows:

(C) Independence Zone: In that portion of Inyo County beginning at the junction of Highway 395 and Aberdeen Station Road; east on Aberdeen Station Road to its terminus at the southern boundary of Section 5, Township 11S, Range 35E; east along the southern boundary of sections 5, 4, 3, and 2, Township 11S, Range 35E to the Papoose Flat Road at Papoose Flat; south and east on Papoose Flat Road to Mazourka Canyon Road; south and then west on Mazourka Canyon Road to Highway 395; west along Onion Valley Road to the intersection of the Section 25 Township 13S, Range 33E; south along the eastern boundary of Section 25 Township 13S, Range 33E to the southern boundary of Section 25 Township 13S, Range 33E; west along the southern

boundary of sections 27, 26, 25 Township 13S, Range 33E to the Inyo County line; North along the Inyo County Line to Taboose Creek; east along Taboose Creek to the intersection of Highway 395; south along Highway 395 to the point of beginning.

2010 No Significant Impact Findings:

The initial study and 2010 Final ED prepared by CDFW, concluded that there would be no significant effects including impacts on the gene pool, impacts on social structure, effects on habitat, effects on recreational opportunities, effects on other wildlife species, effects on economics, effects on public safety, growth inducing impacts, short-term uses and long term productivity, significant irreversible environmental changes, welfare to the individual animal, and cumulative impacts. Additionally, the 2010 Final ED presented some analysis of zone splitting as one of the alternatives to the proposed project (referred to as Alternative 4). Based on these conclusions, the Commission found that both the proposed project and the alternative implementing zone splitting would have no significant adverse impact on the environment. These findings are summarized in Table 1 below.

Table 1. Impact Summary

Alternative	Significant Impact	Nature of Impact	Mitigation Available	Nature of Mitigation
(Proposed Project)	No	None	N/A	N/A
1. No Change	No	None	N/A	N/A
2. Increased Harvest (+50%)	No	Some population levels may be reduced	N/A	Eliminating hunting opportunity in future years
3. Reduced Harvest (-50%)	No	None	N/A	N/A
4. Zone Splitting	No	None	N/A	N/A

2017 PROPOSED HUNT ZONE MODIFICATION:

The elk zones as described in the 2010 Final Environmental Document Regarding Elk Hunting are currently in regulation. The Commission is considering a regulatory action to modify the Independence tule elk zone by splitting the current described area into two zones, to be known as the Independence Zone and the Goodale Zone:

The current regulatory text in Section 364 is proposed to read as follows:

(d) Department Administered General Methods Tule Elk Hunts:

(4) Independence General Methods Tule Elk Hunt:

(A) Area: In that portion of Inyo County beginning at the junction of Highway 395 and Aberdeen Station Road; east on Aberdeen Station Road to its terminus at the southern boundary of Section 5, Township 11S, Range 35E; east along the southern boundary of sections 5, 4, 3, and 2, Township 11S, Range 35E to the Papoose Flat Road at Papoose Flat; south and east on Papoose Flat Road to Mazourka Canyon Road; south and then west on Mazourka Canyon Road to Highway 395; north along Highway 395 to the point of beginning.

And,

(10) Goodale General Methods Tule Elk Hunt:

(A) Area: In that portion of Inyo County beginning at the junction of Highway 395 and Onion Valley Road; west along Onion Valley Road to the intersection of the Section 25 Township 13S, Range 33E; south along the eastern boundary of Section 25 Township 13S, Range 33E to the southern boundary of Section 25 Township 13S, Range 33E; west along the southern boundary of sections 27, 26, 25 Township 13S, Range 33E to the Inyo County line; North along the Inyo County Line to Taboose Creek; east along Taboose Creek to the intersection of Highway 395; south along Highway 395 to the point of beginning.

The changes would take effect in the 2017/18 big game hunting season.

No SUBSEQUENT OR SUPPLEMENTAL NEGATIVE DECLARATION IS REQUIRED:

In general, CEQA applies whenever a public agency proposes to carry out or approve a discretionary project. (Pub. Resources Code, § 21080, subd. (a)). CEQA provides that, where a public agency proposes to modify a previously approved project for which a Final Environmental Document was prepared and certified, no subsequent or supplemental Final Environmental Document is required, except in limited circumstances. (Pub. Resource Code , §§ 21080.5, 21166; Cal. Code Regs., tit. 14, §§ 15162-15164.) Those circumstances are limited to one or more of the following:

- Substantial changes are proposed in the project, which will require major revisions to the previous environmental impact report (EIR) or environmental document.
- Substantial changes occur with respect to the circumstances under which the project is being undertaken, which will require major revisions to the previous EIR or environmental documentation.
- New information, which was not known and could not have been known at the time the previous EIR or environmental document was certified as complete, becomes available.

(Pub. Resources Code, § 21166; Cal. Code Regs., tit. 14, § 15162, subd. (a).)

Likewise generally speaking, new information and required revisions to a prior environmental document or EIR trigger the need to prepare subsequent or supplemental analyses under CEQA only where changes to the project, changes in circumstance, or new information reveal:

- A new potentially significant environmental impact not previously disclosed in the prior analysis; or
- A substantial increase in severity of a previously identified potentially significant impact.

(Pub. Resources Code, § 15162, subd. (a)(1)-(3).)

Subsequent environmental analysis is not required under CEQA where substantial evidence in light of the whole record supports the agency decision maker's determination that none of the conditions highlighted above are present. The Commission has determined that these conditions are not present and will not occur with the proposed boundary modification (zone splitting). Therefore, the Commission may rely on this Addendum to the 2010 Final ED to fulfill its obligations under CEQA. (Pub. Resources Code, § 15164.)

No Additional Impacts under CEQA:

The Commission finds approving an amendment to California Code of Regulations, Title 14, Section 364, subdivision (G)(1), to modify the boundary (zone splitting) of the Independence Zone for tule elk hunting and tag quota adjustment will not result in any new or significant or substantially more severe environmental impacts than previously analyzed and disclosed in the 2010 Final ED for this project.

The proposed change does not impact the amount of area hunted or total animals harvested. It is merely a regulatory change splitting a currently established zone into two separate zones. The Independence tule elk zone is being split to efficiently distribute hunting pressure and manage harvest. Sufficient numbers of elk occur within each of the proposed hunt zones to provide opportunity for the public to hunt elk. Splitting the existing zone allows CDFW to more appropriately manage harvest.

This zone modification and tag quota adjustment does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. There are no impacts to the habitat of fish and wildlife species because the project is designed to have no significant impact. The project is a minor regulatory modification.

This approval action only adjusts the boundaries of an elk zone to split it into two separate zones. No other aspect of the project analyzed in the 2010 Final ED is changed. No new or significant or substantially more severe impacts under CEQA will occur due to this change.

ADOPTION OF THE PROPOSED MODIFICATION OF THE INDEPENDENCE ZONE:

The Fish and Game Commission finds that approving the modification to the Independence Zone for elk hunting (splitting the zone), as described in this Addendum, will not result in any new significant or substantially more severe environmental effects than previously analyzed and disclosed in the 2010 Final ED. The Commission also finds that subsequent or supplemental review beyond this Addendum is not warranted pursuant to the California Code of Regulations, Title 14, Section 15164, in connection with this proposed action.

Valerie Termini, Executive Director
California Fish and Game Commission

Date

Data Supplement To The California Fish and Game Commission

Regarding:

**Recommended 2017 Deer Tag Allocations
(Updated 2016 Deer Harvest and Population
Estimates)**



April 24, 2017

**STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF FISH AND WILDLIFE**

Table of Contents

2016 DEER TAG QUOTA RECOMMENDATIONS

TABLE 1-1. Recommended 2017 Deer Tag Allocations for the A, B, C, and D Zones.....	1
TABLE 1-2. Recommended 2017 Deer Tag Allocations For the X Zones.....	2
TABLE 1-3. Recommended 2017 Deer Tag Allocations for the Additional Hunts.....	3
TABLE 1-4. Recommended 2017 Deer Tag Allocations for the Area Specific Archery Hunts.....	6

2015 DEER HARVEST SUMMARY

TABLE 2-1. Summary of 2016 Statewide Reported and Estimated Deer Harvest and Hunter Success by Zone or Hunt.....	8
TABLE 2-2. 2016 Statewide Reported Private Lands Management Area Deer Kill.....	12
TABLE 2-3. 2016 Statewide Reported Deer Harvest by Hunt Type and Zone of Kill.....	15
TABLE 2-4. 2016 Statewide Estimated Deer Harvest by Hunt Type and Zone of Kill.	16
TABLE 2-5. Summary of 2016 Big Game Drawing for Deer Hunt Tags.	17

DEER POPULATION ANALYSIS

TABLE 3-1. Summary of the Estimated 2016 Hunter Kill, Area Buck Ratio Objectives, 2016 Post-Season Buck and Fawn Ratios, and 2017 Population Estimates by Zone or Hunt.	19
TABLE 3-2. Statewide Population Analysis	22
TABLE 3-3. Zone A Population Analysis	22
TABLE 3-4. Zone B-1 Population Analysis	22
TABLE 3-5. Zone B-2 Population Analysis	22
TABLE 3-6. Zone B-3 Population Analysis	23
TABLE 3-7. Zone B-4 Population Analysis	23
TABLE 3-8. Zone B-5 Population Analysis	23
TABLE 3-9. Zone B-6 Population Analysis	23
TABLE 3-10. Zone C-1 Population Analysis	24
TABLE 3-11. Zone C-2 Population Analysis	24
TABLE 3-12. Zone C-3 Population Analysis	24
TABLE 3-13. Zone C-4 Population Analysis	24
TABLE 3-14. Zone D-3 Population Analysis	25
TABLE 3-15. Zone D-4 Population Analysis	25
TABLE 3-16. Zone D-5 Population Analysis	25
TABLE 3-17. Zone D-6 Population Analysis	25

Table of Contents

DEER POPULATION ANALYSIS (continued)

TABLE 3-18. Zone D-7 Population Analysis	26
TABLE 3-19. Zone D-8 Population Analysis	26
TABLE 3-20. Zone D-9 Population Analysis	26
TABLE 3-21. Zone D-10 Population Analysis	26
TABLE 3-22. Zone D-11 Population Analysis	27
TABLE 3-23. Zone D-12 Population Analysis	27
TABLE 3-24. Zone D-13 Population Analysis	27
TABLE 3-25. Zone D-14 Population Analysis	27
TABLE 3-26. Zone D-15 Population Analysis	28
TABLE 3-27. Zone D-16 Population Analysis	28
TABLE 3-28. Zone D-17 Population Analysis	28
TABLE 3-29. Zone D-19 Population Analysis	28
TABLE 3-30. Zone X-1 Population Analysis	29
TABLE 3-31. Zone X-2 Population Analysis	29
TABLE 3-32. Zone X-3a Population Analysis	29
TABLE 3-33. Zone X-3b Population Analysis	29
TABLE 3-34. Zone X-4 Population Analysis	30
TABLE 3-35. Zone X-5a Population Analysis	30
TABLE 3-36. Zone X-5b Population Analysis	30
TABLE 3-37. Zone X-6a Population Analysis	30
TABLE 3-38. Zone X-6b Population Analysis	31
TABLE 3-39. Zone X-7a Population Analysis	31
TABLE 3-40. Zone X-7b Population Analysis	31
TABLE 3-41. Zone X-8 Population Analysis	31
TABLE 3-42. Zone X-9a Population Analysis	32
TABLE 3-43. Zone X-9b Population Analysis	32
TABLE 3-44. Zone X-9c Population Analysis	32
TABLE 3-45. Zone X-10 Population Analysis	32
TABLE 3-46. Zone X-12 Population Analysis	33

2017 DEER TAG QUOTA RECOMMENDATIONS

TABLE 1-1. Recommended 2017 Deer Tag Allocations (Tag Quotas) for the A, B, C, and D Zones.

Zone	Current	Original Proposal	Modified Proposal
A	65,000	30,000-65,000	65,000
B	35,000	35,000-65,000	35,000
C	8,150	5,000-15,000	8,150
D3-5	33,000	30,000-40,000	33,000
D6	10,000	6,000-16,000	10,000
D7	9,000	4,000-10,000	9,000
D8	8,000	5,000-10,000	8,000
D9	2,000	1,000-2,500	2,000
D10	700	400-800	700
D11	5,500	2,500-6,000	5,500
D12	950	100-1,500	950
D13	4,000	2,000-5,000	4,000
D14	3,000	2,000-3,500	3,000
D15	1,500	500-2,000	1,500
D16	3,000	1,000-3,500	3,000
D17	500	100-800	500
D19	1,500	500-2,000	1,500

2017 DEER TAG QUOTA RECOMMENDATIONS

TABLE 1-2. Recommended 2017 Deer Tag Allocations (Tag Quotas) For the X Zones.

Zone	Current	Original Proposal	Modified Proposal
X1	760	0-6,000	760
X2	175	0-500	190
X3a	355	0-1,200	355
X3b	795	0-3,000	795
X4	460	0-1,200	480
X5a	75	0-200	75
X5b	50	0-500	50
X6a	330	0-1,200	330
X6b	310	0-1,200	310
X7a	230	0-500	230
X7b	135	0-200	135
X8	210	0-750	210
X9a	650	0-1,200	270
X9b	325	0-600	230
X9C	325	0-600	325
X10	400	0-600	400
X12	680	0-1,200	350

2017 DEER TAG QUOTA RECOMMENDATIONS

TABLE 1-3. Recommended 2017 Deer Tag Allocations (Tag Quotas) for the Additional Hunts.

Hunt Number (and Title)	Current	Original Proposal	Modified Proposal
G-1 (Late Season Buck Hunt for Zone C-4)	2,710	0-5,000	2,710
G-3 (Goodale Buck Hunt)	35	0-50	25
G-6 (Kern River Deer Herd Buck Hunt)	50	0-100	50
G-7 (Beale Either-Sex Deer Hunt)	20 Military*	20 Military*	20 Military*
G-8 (Fort Hunter Liggett Antlerless Deer Hunt)	10 Military* & 10 Public	10 Military* & 10 Public	10 Military* & 10 Public
G-9 (Camp Roberts Antlerless Deer Hunt)	0***	15 Military* & 15 Public	0***
G-10 (Camp Pendleton Either-Sex Deer Hunt)	250 Military*	250 Military *	250 Military*
G-11 (Vandenberg Either-Sex Deer Hunt)	200 Military* & DOD**	200 Military* & DOD**	200 Military* & DOD**
G-12 (Gray Lodge Shotgun Either-Sex Deer Hunt)	30	0-50	30
G-13 (San Diego Antlerless Deer Hunt)	300	0-300	300
G-19 (Sutter-Yuba Wildlife Areas Either-Sex Deer Hunt)	25	0-50	25
G-21 (Ventana Wilderness Buck Hunt)	25	0-100	25
G-37 (Anderson Flat Buck Hunt)	25	0-50	25
G-38 (X-10 Late Season Buck Hunt)	300	0-300	300
G-39 (Round Valley Late Season Buck Hunt)	5	0-150	2
M-3 (Doyle Muzzleloading Rifle Buck Hunt)	20	0-75	20
M-4 (Horse Lake Muzzleloading Rifle Buck Hunt)	5	0-50	10
M-5 (East Lassen Muzzleloading Rifle Buck Hunt)	5	0-50	5
M-6 (San Diego Muzzleloading Rifle Either-Sex Deer Hunt)	80	0-100	80
M-7 (Ventura Muzzleloading Rifle Either-Sex Deer Hunt)	150	0-150	150

2017 DEER TAG QUOTA RECOMMENDATIONS

TABLE 1-3. Recommended 2017 Deer Tag Allocations (Tag Quotas) for the Additional Hunts.

Hunt Number (and Title)	Current	Original Proposal	Modified Proposal
M-8 (Bass Hill Muzzleloading Rifle Buck Hunt)	20	0-50	20
M-9 (Devil's Garden Muzzleloading Rifle Buck Hunt)	15	0-100	15
M-11 (Northwestern California Muzzleloading Rifle Buck Hunt)	20	0-200	20
MA-1 (San Luis Obispo Muzzleloading Rifle/Archery Buck Hunt)	150	0-150	150
MA-3 (Santa Barbara Muzzleloading Rifle/Archery Buck Hunt)	150	0-150	150
J-1 (Lake Sonoma Apprentice Either-Sex Deer Hunt)	25	0-25	25
J-3 (Tehama Wildlife Area Apprentice Buck Hunt)	15	0-30	15
J-4 (Shasta-Trinity Apprentice Buck Hunt)	15	0-50	15
J-7 (Carson River Apprentice Either-Sex Deer Hunt)	15	0-50	0 Vetoed by Alpine County
J-8 (Daugherty Hill Wildlife Area Apprentice Either-Sex Deer Hunt)	15	0-20	15
J-9 (Little Dry Creek Apprentice Shotgun Either-Sex Deer Hunt)	5	0-10	5
J-10 (Fort Hunter Liggett Apprentice Either-Sex Deer Hunt)	15 Military* & 60 Public	25 Military* & 60 Public	25 Military* & 60 Public
J-11 (San Bernardino Apprentice Either-Sex Deer Hunt)	40	0-50	40
J-12 (Round Valley Apprentice Buck Hunt)	10	0-20	3
J-13 (Los Angeles Apprentice Either-Sex Deer Hunt)	40	0-100	40
J-14 (Riverside Apprentice Either-Sex Deer Hunt)	30	0-75	30
J-15 (Anderson Flat Apprentice Buck Hunt)	10	0-30	10

2017 DEER TAG QUOTA RECOMMENDATIONS

TABLE 1-3. Recommended 2017 Deer Tag Allocations (Tag Quotas) for the Additional Hunts.

Hunt Number (and Title)	Current	Original Proposal	Modified Proposal
J-16 (Bucks Mountain/Nevada City Apprentice Either-Sex Deer Hunt)	75	0-75	75
J-17 (Blue Canyon Apprentice Either-Sex Deer Hunt)	25	0-25	25
J-18 (Pacific/Grizzly Flat Apprentice Either-Sex Deer Hunt)	75	0-75	75
J-19 (Zone X-7a Apprentice Either-Sex Deer Hunt)	25	0-40	25
J-20 (Zone X-7b Apprentice Either-Sex Deer Hunt)	20	0-20	20
J-21 (East Tehama Apprentice Either-Sex Deer Hunt)	50	0-80	50

* Specific numbers of tags are provided for military hunts through a system which restricts hunter access to desired levels and ensures biologically conservative hunting programs.

** DOD = Department of Defense and as Authorized by the Installation Commander.

*** Due to construction on Camp Roberts, the Base Commander has requested no hunting through the 2016 season.

2017 DEER TAG QUOTA RECOMMENDATIONS

TABLE 1-4. Recommended 2017 Deer Tag Allocations (Tag Quotas) for the Area Specific Archery Hunts.

Hunt Number (and Title)	Current	Original Proposal	Modified Proposal
A-1 (C Zone Archery Only Tag)	1,945	0-3,000	1,945
A-3 (Zone X-1 Archery)	115	0-1,000	100
A-4 (Zone X-2 Archery)	10	0-100	10
A-5 (Zone X-3a Archery)	35	0-300	40
A-6 (Zone X-3b Archery)	70	0-400	70
A-7 (Zone X-4 Archery)	120	0-400	120
A-8 (Zone X-5a Archery)	15	0-100	10
A-9 (Zone X-5b Archery)	5	0-100	5
A-11 (Zone X-6a Archery)	50	0-200	50
A-12 (Zone X-6b Archery)	90	0-200	90
A-13 (Zone X-7a Archery)	45	0-200	45
A-14 (Zone X-7b Archery)	25	0-100	25
A-15 (Zone X-8 Archery)	40	0-100	40
A-16 (Zone X-9a Archery)	140	0-500	30
A-17 (Zone X-9b Archery)	300	0-500	210
A-18 (Zone X-9c Archery)	350	0-500	350
A-19 (Zone X-10 Archery)	100	0-200	100
A-20 (Zone X-12 Archery)	100	0-500	40
A-21 (Anderson Flat Archery Buck Hunt)	25	0-100	25
A-22 (San Diego Archery Either-Sex Deer Hunt)	1,000	0-1,500	1,000
A-24 (Monterey Archery Either-Sex Deer Hunt)	100	0-200	100
A-25 (Lake Sonoma Archery Either-Sex Deer Hunt)	35	0-75	35
A-26 (Bass Hill Archery Buck Hunt)	30	0-100	30
A-27 (Devil's Garden Archery Buck Hunt)	5	0-75	10

2017 DEER TAG QUOTA RECOMMENDATIONS

TABLE 1-4. Recommended 2017 Deer Tag Allocations (Tag Quotas) for the Area Specific Archery Hunts.

Hunt Number (and Title)	Current	Original Proposal	Modified Proposal
A-30 (Covelo Archery Buck Hunt)	40	0-100	40
A-31 (Los Angeles Archery Either-Sex Deer Hunt)	1,000	0-1,500	1,000
A-32 (Ventura/Los Angeles Archery Late Season Either-Sex Deer Hunt)	250	0-300	250
A-33 (Fort Hunter Liggett Late Season Archery Either-Sex Deer Hunt)	25 Military* & 25 Public	25 Military* & 25 Public	25 Military* & 25 Public

* *Specific numbers of tags are provided for military hunts through a system which restricts hunter access to desired levels and ensures biologically conservative hunting programs.*

2016 DEER HARVEST SUMMARY

TABLE 2-1. Summary of 2016 Statewide Reported and Estimated Deer Harvest and Hunter Success by Zone or Hunt (a).

Zone or Hunt Number	Percent Non-Reporting Rate (NRR; b)	Tag Quota	Tags Issued	Reported Deer Kill (b)				Estimated Deer Kill (b)			
				Does	Bucks	Total	Percent Hunter Success (c)	Does	Bucks	Total	Percent Hunter Success (c)
AO Tag (d)	18.1%	7,953	7,953	4	696	700	8.8%	5	849	854	10.7%
A	20.1%	65,000	28,859	0	5,602	5,602	19.4%	0	7,009	7,009	24.3%
B Zone Tags	15.6%	35,000	34,990	0	6,573	6,573	18.8%	0	7,784	7,784	22.2%
B1	15.6%	N/A	N/A	0	2,230	2,230	(e)	0	2,641	2,641	(e)
B2	15.6%	N/A	N/A	0	2,248	2,248	(e)	0	2,662	2,662	(e)
B3	15.6%	N/A	N/A	0	413	413	(e)	0	489	489	(e)
B4	15.6%	N/A	N/A	0	233	233	(e)	0	276	276	(e)
B5	15.6%	N/A	N/A	0	537	537	(e)	0	636	636	(e)
B6	15.6%	N/A	N/A	0	912	912	(e)	0	1,080	1,080	(e)
C Zone Tags	9.6%	8,150	8,149	0	1,864	1,864	22.9%	0	2,064	2,064	25.3%
C1	9.6%	N/A	N/A	0	316	316	(e)	0	350	350	(e)
C2	9.6%	N/A	N/A	0	371	371	(e)	0	411	411	(e)
C3	9.6%	N/A	N/A	0	459	459	(e)	0	508	508	(e)
C4	9.6%	N/A	N/A	0	718	718	(e)	0	795	795	(e)
D3-5 Zone Tags	15.2%	33,000	32,999	2	4,220	4,222	12.8%	2	4,978	4,980	15.1%
D3	15.2%	N/A	N/A	2	1,960	1,962	(e)	2	2,312	2,314	(e)
D4	15.2%	N/A	N/A	0	518	518	(e)	0	611	611	(e)
D5	15.2%	N/A	N/A	0	1,742	1,742	(e)	0	2,055	2,055	(e)
D6	12.5%	10,000	9,997	0	774	774	7.7%	0	884	884	8.8%
D7	14.4%	9,000	9,000	0	583	583	6.5%	0	681	681	7.6%
D8	19.5%	8,000	6,589	0	338	338	5.1%	0	420	420	6.4%
D9	11.3%	2,000	2,007	0	164	164	8.2%	0	185	185	9.2%
D10	16.4%	700	678	0	109	109	16.1%	0	130	130	19.2%
D11	24.4%	5,500	4,614	0	331	331	7.7%	0	438	438	10.2%
D12	16.4%	950	950	0	151	151	15.9%	0	181	181	19.1%
D13	22.1%	4,000	3,091	0	288	288	8.3%	0	370	370	10.7%
D14	15.2%	3,000	2,998	0	305	305	10.2%	0	360	360	12.0%
D15	18.7%	1,500	825	0	46	46	5.8%	0	57	57	7.2%
D16	14.6%	3,000	3,001	0	319	319	10.6%	0	374	374	12.5%
D17	11.8%	500	500	0	128	128	25.6%	0	145	145	29.0%
D19	22.5%	1,500	1,500	0	116	116	7.7%	0	150	150	10.0%
X1	9.5%	760	760	0	352	352	46.3%	0	389	389	51.2%
X2	2.9%	175	175	0	119	119	68.0%	0	122	122	69.7%
X3A	7.0%	355	355	0	147	147	41.4%	0	158	158	44.5%
X3B	8.9%	795	795	0	321	321	40.4%	0	352	352	44.3%
X4	8.3%	460	459	0	239	239	52.1%	0	261	261	56.9%

2016 DEER HARVEST SUMMARY

TABLE 2-1. Summary of 2016 Statewide Reported and Estimated Deer Harvest and Hunter Success by Zone or Hunt (a).

Zone or Hunt Number	Percent Non-Reporting Rate (NRR; b)	Tag Quota	Tags Issued	Reported Deer Kill (b)				Estimated Deer Kill (b)			
				Does	Bucks	Total	Percent Hunter Success (c)	Does	Bucks	Total	Percent Hunter Success (c)
X5A	5.3%	75	75	0	37	37	49.3%	0	39	39	52.0%
X5B	2.0%	50	50	0	41	41	82.0%	0	42	42	84.0%
X6A	6.1%	330	330	0	223	223	67.6%	0	237	237	71.8%
X6B	9.7%	310	310	0	141	141	45.5%	0	156	156	50.3%
X7A	5.2%	230	230	0	106	106	46.1%	0	112	112	48.7%
X7B	9.6%	135	135	0	51	51	37.8%	0	56	56	41.5%
X8	7.6%	210	210	0	52	52	24.8%	0	56	56	26.7%
X9A	6.2%	650	650	0	232	232	35.7%	0	247	247	38.0%
X9B	10.5%	325	325	0	108	108	33.2%	0	121	121	37.2%
X9C	15.7%	325	325	0	87	87	26.8%	0	103	103	31.7%
X10	8.0%	400	400	0	62	62	15.5%	0	67	67	16.8%
X12	8.7%	680	680	0	232	232	34.1%	0	254	254	37.4%
A1	9.9%	1,945	1,944	0	351	351	18.1%	0	388	388	20.0%
A3	8.0%	100	100	0	35	35	35.0%	0	38	38	38.0%
A4	10.0%	10	10	0	5	5	50.0%	0	6	6	60.0%
A5	7.5%	40	40	0	15	15	37.5%	0	16	16	40.0%
A6	5.7%	70	70	0	20	20	28.6%	0	21	21	30.0%
A7	5.8%	120	120	0	36	36	30.0%	0	38	38	31.7%
A8	20.0%	10	10	0	2	2	20.0%	0	2	2	20.0%
A9	0.0%	5	5	0	2	2	40.0%	0	2	2	40.0%
A11	2.0%	50	50	0	33	33	66.0%	0	34	34	68.0%
A12	8.9%	90	90	0	39	39	43.3%	0	43	43	47.8%
A13	6.7%	45	45	0	10	10	22.2%	0	11	11	24.4%
A14	8.0%	25	25	0	11	11	44.0%	0	12	12	48.0%
A15	7.5%	40	40	0	2	2	5.0%	0	2	2	5.0%
A16	8.6%	140	140	0	44	44	31.4%	0	48	48	34.3%
A17	11.3%	300	300	0	40	40	13.3%	0	45	45	15.0%
A18	15.6%	350	333	0	10	10	3.0%	0	12	12	3.6%
A19	6.0%	100	100	0	4	4	4.0%	0	4	4	4.0%
A20	7.0%	100	100	0	26	26	26.0%	0	28	28	28.0%
A21	4.0%	25	25	0	7	7	28.0%	0	7	7	28.0%
A22	13.3%	1,000	1,000	40	31	71	7.1%	46	36	82	8.2%
A24	2.0%	100	100	4	7	11	11.0%	4	7	11	11.0%
A25	2.9%	35	35	2	2	4	11.4%	2	2	4	11.4%
A26	3.3%	30	30	0	22	22	73.3%	0	23	23	76.7%
A27	0.0%	5	5	0	3	3	60.0%	0	3	3	60.0%
A30	7.5%	40	40	0	9	9	22.5%	0	10	10	25.0%

2016 DEER HARVEST SUMMARY

TABLE 2-1. Summary of 2016 Statewide Reported and Estimated Deer Harvest and Hunter Success by Zone or Hunt (a).

Zone or Hunt Number	Percent Non-Reporting Rate (NRR; b)	Tag Quota	Tags Issued	Reported Deer Kill (b)				Estimated Deer Kill (b)			
				Does	Bucks	Total	Percent Hunter Success (c)	Does	Bucks	Total	Percent Hunter Success (c)
A31	10.0%	1,000	1,000	47	21	68	6.8%	52	23	75	7.5%
A32	16.0%	250	250	5	9	14	5.6%	6	11	17	6.8%
A33	8.0%	50	50	5	3	8	16.0%	5	3	8	16.0%
G1	9.6%	2,710	2,710	0	759	759	28.0%	0	840	840	31.0%
G3	0.0%	35	35	0	33	33	94.3%	0	33	33	94.3%
G6	0.0%	50	50	0	32	32	64.0%	0	32	32	64.0%
G7	5.0%	20	20	6	4	10	50.0%	6	4	10	50.0%
G8	10.0%	20	20	12	2	14	70.0%	13	2	15	75.0%
G9	0.0%	0	0	No hunt conducted in 2016							
G10	12.8%	250	242	27	30	57	23.6%	31	34	65	26.9%
G11	13.0%	200	200	46	15	61	30.5%	53	17	70	35.0%
G12	10.0%	30	30	7	5	12	40.0%	8	6	14	46.7%
G13	11.7%	300	300	56	9	65	21.7%	63	10	73	24.3%
G19	12.0%	25	25	3	12	15	60.0%	3	14	17	68.0%
G21	0.0%	25	25	0	1	1	4.0%	0	1	1	4.0%
G37	4.0%	25	25	0	23	23	92.0%	0	24	24	96.0%
G38	6.3%	300	300	0	48	48	16.0%	0	51	51	17.0%
G39	0.0%	5	5	0	5	5	100.0%	0	5	5	100.0%
M3	0.0%	20	20	0	17	17	85.0%	0	17	17	85.0%
M4	0.0%	10	10	0	5	5	50.0%	0	5	5	50.0%
M5	0.0%	5	5	0	4	4	80.0%	0	4	4	80.0%
M6	13.8%	80	80	3	5	8	10.0%	3	6	9	11.3%
M7	6.7%	150	150	27	4	31	20.7%	29	4	33	22.0%
M8	0.0%	20	20	0	13	13	65.0%	0	13	13	65.0%
M9	6.7%	15	15	0	13	13	86.7%	0	14	14	93.3%
M11	0.0%	20	19	0	11	11	57.9%	0	11	11	57.9%
MA1	10.0%	150	150	8	6	14	9.3%	9	7	16	10.7%
MA3	11.3%	150	150	0	6	6	4.0%	0	7	7	4.7%
J1	0.0%	25	25	0	2	2	8.0%	0	2	2	8.0%
J3	6.7%	15	15	0	10	10	66.7%	0	11	11	73.3%
J4	13.3%	15	15	0	9	9	60.0%	0	10	10	66.7%
J7	13.3%	15	15	1	5	6	40.0%	1	6	7	46.7%
J8	0.0%	5	5	0	2	2	40.0%	0	2	2	40.0%
J9	10.0%	85	80	23	33	56	70.0%	26	37	63	78.8%
J10	2.5%	40	40	8	7	15	37.5%	8	7	15	37.5%

2016 DEER HARVEST SUMMARY

TABLE 2-1. Summary of 2016 Statewide Reported and Estimated Deer Harvest and Hunter Success by Zone or Hunt (a).

Zone or Hunt Number	Percent Non-Reporting Rate (NRR; b)	Tag Quota	Tags Issued	Reported Deer Kill (b)				Estimated Deer Kill (b)			
				Does	Bucks	Total	Percent Hunter Success (c)	Does	Bucks	Total	Percent Hunter Success (c)
J11	10.0%	10	10	0	9	9	90.0%	0	10	10	100.0%
J12	2.5%	40	40	9	5	14	35.0%	9	5	14	35.0%
J13	3.3%	30	30	9	2	11	36.7%	9	2	11	36.7%
J14	10.0%	10	10	0	9	9	90.0%	0	10	10	100.0%
J15	6.7%	75	75	30	7	37	49.3%	32	8	40	53.3%
J16	0.0%	25	25	11	0	11	44.0%	11	0	11	44.0%
J17	1.3%	75	75	31	2	33	44.0%	31	2	33	44.0%
J18	24.0%	25	25	5	10	15	60.0%	7	13	20	80.0%
J19	15.0%	20	20	1	8	9	45.0%	1	9	10	50.0%
J20	2.0%	50	50	10	20	30	60.0%	10	20	30	60.0%
J21	0.0%	25	25	0	2	2	8.0%	0	2	2	8.0%
Gold Opp (d)	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
Open Zone (d)	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
Statewide:	15.7%	216,278	176,192	442	27,166	27,608	15.7%	485	32,029	32,514	18.5%

- (a) Table does not include harvest within Section 554-Landowner Programs or Private Lands Management (PLM) programs.
(b) Reported deer harvest, non-reporting rates (NRR) and estimated deer harvest based on ALDS license reports as of 3-6-2017.
(c) Hunter success is total deer kill divided by tags issued.
(d) Archery Only and statewide Fundraising tag kill are included but not categorized by specific zone in this table.
(e) Unable to calculate individual B, C and D3-D5 zone success rates due to unknown individual zone effort.

2016 DEER HARVEST SUMMARY

TABLE 2-2. 2016 Statewide Reported Private Lands Management Area (PLM) Deer Kill.

PLM Name	Deer Zone	County	Reported Deer Kill (a)		
			Does	Bucks	Total
3D Ranch	B5	Tehama	0	3	3
Ackerman-South Daugherty WMA	A	Mendocino	0	6	6
Alexander Ranch	A	Monterey	0	0	0
Ash Valley Ranch	X3A	Lassen	0	2	2
Basin View Ranch	X2	Modoc	0	3	3
Bell Ranch	C4	Tehama	0	12	12
Big Bluff Ranch	B5	Tehama	0	2	2
Big Morongo Springs Ranch	D14	San Bernardino	0	3	3
Bird Haven Ranch	B3	Glenn	0	5	5
Black Ranch	C3	Shasta	1	1	2
Buckeye Ranch	A	Solano	0	1	1
Camp 5 Outfitters - Roth Ranch	A	Monterey	0	0	0
Capistran Ranch	B1	Mendocino	0	2	2
Carley Ranch	B1	Mendocino	1	2	3
Chimney Rock Ranch	A	San Luis Obispo	0	3	3
Christensen Ranch	B1	Mendocino	1	6	7
Clarks Valley Ranch	X3B	Lassen	0	1	1
Clover Creek Ranch	C3	Shasta	0	2	2
Coon Creek Ranch	A	Santa Clara	0	1	1
Cottrell Ranch	B1	Humboldt	0	11	11
DeFrancesco and Eaton Ranch	A	Merced	0	3	3
Deseret Farms - Ballard Unit	C4	Butte	9	2	11
Deseret Farms - Wilson Unit	C4	Butte	13	8	21
Diamond C Outfitters	B1	Humboldt	0	17	17
Dixie Valley Ranch	X3A	Lassen	0	4	4
Duncan Creek	C3	Shasta	0	3	3
Eden Valley Ranch	B1	Mendocino	0	8	8
Elk Creek Ranch	B1	Mendocino	0	0	0
Five Dot Ranch - Avila Unit	X3A	Lassen	0	4	4
Five Dot Ranch - Horse Lake Unit	X5A	Lassen	0	1	1
Five Dot Ranch - School House Unit	X5A	Lassen	0	1	1
Five Dot Ranch - Tunnel Springs Unit	X5A	Lassen	0	1	1

2016 DEER HARVEST SUMMARY

TABLE 2-2. 2016 Statewide Reported Private Lands Management Area (PLM) Deer Kill.

PLM Name	Deer Zone	County	Reported Deer Kill (a)		
			Does	Bucks	Total
Five Dot Ranch - Willow Creek Unit	X4	Lassen	0	6	6
Four Pines Ranch	B1	Mendocino	2	9	11
Hartnell Ranch	A	Monterey	0	1	1
Hathaway Oak Run Ranch	C3	Shasta	0	10	10
Hunter Ranch	B1	Humboldt	0	13	13
Indian Valley Cattle Co.	A	Monterey	0	2	2
Jerusalem Creek Ranch	B5	Shasta	0	2	2
JS Ranch	C3	Shasta	0	11	11
Kramer Ranch	X1	Lassen	0	3	3
Little Dry Creek Ranch	C4	Tehama	0	0	0
Llano Seco Rancho	C4	Butte	4	17	21
Lone Ranch	A	San Benito	0	3	3
Long Prairie Farms	X1	Siskiyou	0	0	0
Lookout Ranch & Lodge	X1	Modoc	0	3	3
M&T Chico Ranch	C4	Butte	8	3	11
Mendiboure Cold Spring Ranch	X5B	Lassen	0	1	1
Mendiboure Ranch	X5B	Lassen	0	3	3
Miller-Eriksen Ranch	B1	Mendocino	0	5	5
Ordway Ranch	D5	Calaveras	0	2	2
Pacheco Ranch	A	Santa Clara	0	0	0
Pepperwood Springs Ranch	B1	Humboldt	0	10	10
Rainbow Ridge	B4	Humboldt	0	7	7
Rancho la Questa	A	San Benito	0	0	0
Red Rock Ranch	X3B	Lassen	0	0	0
Red Rock Valley Farm	X1	Siskiyou	0	0	0
Redwood House Ranch	B1	Humboldt	0	12	12
Roaring River Ranch	B5	Shasta	0	0	0
Robert's Ranch	X1	Modoc	0	2	2
Rock Creek Ranch	C4	Butte	0	26	26
Rooster Comb Ranch	A	Stanislaus	0	0	0
Roseburg Resources Pondosa	X1	Siskiyou	0	2	2
R-Wild Horse Ranch	B5	Tehama	0	1	1

2016 DEER HARVEST SUMMARY

TABLE 2-2. 2016 Statewide Reported Private Lands Management Area (PLM) Deer Kill.

PLM Name	Deer Zone	County	Reported Deer Kill (a)		
			Does	Bucks	Total
Salt Creek Ranch	B5	Tehama	0	1	1
Sanhedrin Ranch	B1	Mendocino	0	1	1
Santa Catalina Island	D15	Los Angeles	137	107	244
Schneider Ranch	B1	Mendocino	0	3	3
Seven Springs Ranch	A	Mendocino	0	4	4
Shamrock Ranch	B1	Mendocino	3	23	26
Sky Rose Ranch	A	Monterey	0	4	4
SL Ranch	X3A	Modoc	0	4	4
Soper-Wheeler Ranch	D3	Yuba	0	12	12
Spring Valley Ranch	A	Mendocino	0	8	8
Spurlock Ranch	B3	Glenn	0	1	1
Stackhouse Ranch	C3	Shasta	0	1	1
Stewart Ranch	B1	Trinity	4	31	35
Sugarloaf Bangor Ranch	D3	Yuba	0	6	6
Summer Camp Ranch	B1	Mendocino	0	43	43
Tejon Ranch	D10	Kern	5	22	27
Travis Ranch	B1	Trinity	1	10	11
Triple B Ranch	C3	Shasta	0	1	1
Work Ranch	A	Monterey	2	6	8
Statewide PLM Deer Kill Totals:			191	560	751

(a) Data derived through ALDS and individual PLM harvest reports.

2016 DEER HARVEST SUMMARY

TABLE 2-3. 2016 Statewide Reported Deer Harvest by Hunt Type and Zone of Kill.

ZONE	General Zone Tag Quota	General Zone Tags Issued	REPORTED GENERAL AND ARCHERY SEASON DEER KILL				REPORTED ARCHERY ONLY (AO TAG) DEER KILL				REPORTED ADDITIONAL HUNT DEER KILL (All A, G, J, M & MA Hunts and Fundraising Tags)				SUBTOTAL REPORTED ZONE DEER KILL WITHOUT SECTION 554 and PLM				REPORTED SECTION 554-LANDOWNER PROGRAM DEER KILL				REPORTED (ACTUAL) PRIVATE LANDS MANAGEMENT AREA (PLM) DEER KILL				STATEWIDE REPORTED DEER KILL				
			Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	
Unknown						0				0				0	0	0	0	0				0				0	0	0	0	0	
A	65,000	29,175	1	4,156		4,157		91		91	82	74		156	83	4,321	0	4,404		1		1	1	40		41	84	4,362	0	4,446	
B1	35,000	35,000		1,433		1,433		20		20		23		23	0	1,476	0	1,476				0	19	202		221	19	1,678	0	1,697	
B2				1,298		1,298		27		27		12		12	0	1,337	0	1,337				0				0	0	1,337	0	1,337	
B3				306		306		14		14				0	0	320	0	320				0	0	6		6	0	326	0	326	
B4				242		242		18		18				0	0	260	0	260				0	0	5		5	0	265	0	265	
B5				430		430		7		7				0	0	437	0	437				0	1	28		29	1	465	0	466	
B6				540		540		8		8					0	0	548	0	548				0				0	0	548	0	548
B Unknown						0				0				0	0	0	0	0				0				0	0	0	0	0	
C1	8,150	8,150		264		264				0		60		60	0	324	0	324				0	0	2		2	0	326	0	326	
C2				248		248				0		46		46	0	294	0	294				0				0	0	294	0	294	
C3				294		294				0		46		46	0	340	0	340				2	2	1	27		28	1	369	0	370
C4				521		521				0	13	693		706	13	1,214	0	1,227		1		1	37	76		113	50	1,291	0	1,341	
C Unknown						0				0				0	0	0	0	0		0		0				0	0	0	0	0	
D3	33,000	32,999		1,268		1,268		50		50	50	24		74	50	1,342	0	1,392				0	0	20		20	50	1,362	0	1,412	
D4				382		382		10		10	7	1		8	7	393	0	400				0				0	7	393	0	400	
D5				1,067		1,067		52		52	17	3		20	17	1,122	0	1,139				0	0	4		4	17	1,126	0	1,143	
D3-5 Unk						0				0					0	0	0	0	0				0				0	0	0	0	0
D6	10,000	9,999		614		614		90		90		43		43	0	747	0	747				0				0	0	747	0	747	
D7	9,000	8,998		476		476		41		41				0	0	517	0	517				0				0	0	517	0	517	
D8	8,000	7,031		287		287		22		22		24		24	0	333	0	333				0				0	0	333	0	333	
D9	2,000	2,002		156		156		17		17				0	0	173	0	173				0				0	0	173	0	173	
D10	700	579		81		81		10		10				0	0	91	0	91				0	4	35		39	4	126	0	130	
D11	5,500	4,977		218		218		6		6	44	26		70	44	250	0	294				0				0	44	250	0	294	
D12	950	950		100		100		5		5				0	0	105	0	105				0				0	0	105	0	105	
D13	4,000	3,128		147		147		2		2	6	8		14	6	157	0	163				0				0	6	157	0	163	
D14	3,000	3,000		202		202		8		8	4	4		8	4	214	0	218				0	0	7		7	4	221	0	225	
D15	1,500	850		29		29	1	11		12	20	25		45	21	65	0	86				0	97	118		215	118	183	0	301	
D16	3,000	3,000		263		263		23		23	73	34		107	73	320	0	393				0				0	73	320	0	393	
D17	500	500		63		63		2		2				0	0	65	0	65				0				0	0	65	0	65	
D19	1,500	1,500		73		73		2		2	3	3		6	3	78	0	81				0				0	3	78	0	81	
X1	775	775		269		269				0		38		38	0	307	0	307		9		9	0	1		1	0	317	0	317	
X2	160	160		71		71				0		18		18	0	89	0	89		4		4	0	6		6	0	99	0	99	
X3a	315	315		130		130				0		11		11	0	141	0	141		21		21	0	17		17	0	179	0	179	
X3b	795	795		256		256				0		20		20	0	276	0	276		14		14	0	6		6	0	296	0	296	
X4	435	435		144		144				0		37		37	0	181	0	181		1		1	0	1		1	0	183	0	183	
X5a	75	75		28		28				0		4		4	0	32	0	32		5		5	0	2		2	0	39	0	39	
X5b	50	50		33		33				0		6		6	0	39	0	39		7		7	0	3		3	0	49	0	49	
X6a	320	320		143		143				0		49		49	0	192	0	192		3		3				0	0	195	0	195	
X6b	305	305		114		114				0		43		43	0	157	0	157		6		6				0	0	163	0	163	
X7a	225	225		83		83				0	4	21		25	4	104	0	108		3		3				0	4	107	0	111	
X7b	135	135		59		59				0	4	17		21	4	76	0	80				0				0	4	76	0	80	
X8	209	209		59		59				0	5	4		9	5	63	0	68				0				0	5	63	0	68	
X9a	650	650		255		255				0		46		46	0	301	0	301				0				0	0	301	0	301	
X9b	325	325		93		93				0		57		57	0	150	0	150				0				0	0	150	0	150	
X9c	325	325		68		68				0		12		12	0	80	0	80				0				0	0	80	0	80	
X10	400	400		34		34				0		32		32	0	66	0	66				0				0	0	66	0	66	
X12	680	680		185		185				0		23		23	0	208	0	208				0				0	0	208	0	208	
	Quota	Issued																													
General/Archery	196,979	158,017	1	17,182	0	17,183	1	536	0	537	332	1,587	0	1,919	334	19,305	0	19,639	0	77	0	77	160	606	0	766	494	19,988	0	20,482	
Archery Only (AO)	7,371	7,371																													
Add'l Hunt	11,275	11,229	General/Archery Season REPORTED KILL				Archery Only REPORTED KILL				Additional Hunt REPORTED KILL				Statewide REPORTED KILL w/o PLM				Section 554-Landowner Program REPORTED KILL				Statewide PLM KILL				STATEWIDE REPORTED KILL				
	215,625	176,617																													

TABLE 2-3 Notes: 1) The Reported deer kill is derived from analysis of ALDS harvest reports as of 3-10-2016. 2) The Reported Fundraising tag deer kill is included in TABLE 2-1 and in the appropriate zone additional hunt column of this table. 3) The Reported Additional Hunt kill is detailed individually in TABLE 2-1 and rolled-up by zone in this table. 4) The Reported Section 554-Landowner Program deer kill is summarized by zone in the appropriate column. 5) The PLM deer kill is derived directly from PLM operator harvest reports and/or ALDS harvest analysis. The PLM kill is summarized in TABLE 2-2.

2016 DEER HARVEST SUMMARY

TABLE 2-4. 2016 Statewide Estimated Deer Harvest by Hunt Type and Zone of Kill.

Zone	General Zone Tag Quota	General Zone Tags Issued	2016 Estimated Non-Reporting Rate	ESTIMATED GENERAL AND ARCHERY SEASON DEER KILL				ESTIMATED ARCHERY ONLY (AO TAG) DEER KILL				ESTIMATED ADDITIONAL HUNT DEER KILL (All A, G, J, M & MA Hunts and Fundraising Tags)				SUBTOTAL ESTIMATED ZONE DEER KILL WITHOUT SECTION 554 and PLM				ESTIMATED SECTION 554-LANDOWNER PROGRAM DEER KILL				ESTIMATED (ACTUAL) PRIVATE LANDS MANAGEMENT AREA (PLM) DEER KILL				STATEWIDE ESTIMATED DEER KILL			
				Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill	Doe Kill	Buck Kill	Unk. Kill	Total Kill
Unknown							0				0				0	0	0	0				0	0	0	0	0	0	0	0	0	0
A	65,000	28,859	20.1%		7,009		7,009		156		156	118	96		214	118	7,261	0	7,379				0	2	42		44	120	7,303	0	7,423
B1			15.6%		2,641		2,641		42		42		21		21	0	2,704	0	2,704				0	12	206		218	12	2,910	0	2,922
B2			15.6%		2,662		2,662		67		67		10		10	0	2,739	0	2,739				0				0	0	2,739	0	2,739
B3			15.6%		489		489		17		17				0	0	506	0	506				0	0	6		6	0	512	0	512
B4			15.6%		276		276		21		21				0	0	297	0	297				0	0	7		7	0	304	0	304
B5			15.6%		636		636		18		18		1		1	0	655	0	655				0	0	9		9	0	664	0	664
B6			15.6%		1,080		1,080		26		26				0	0	1,106	0	1,106				0				0	0	1,106	0	1,106
Unknown B			15.6%				0				0				0	0	0	0	0				0				0	0	0	0	0
C1			9.6%		350		350				0		71		71	0	421	0	421		1		1				0	0	422	0	422
C2			9.6%		411		411				0		45		45	0	456	0	456		2		2				0	0	458	0	458
C3			9.6%		508		508				0		45		45	0	553	0	553		5		5	1	29		30	1	587	0	588
C4			9.6%		795		795				0	10	1,100		1,110	10	1,895	0	1,905				0	34	68		102	44	1,963	0	2,007
Unknown C			9.6%				0				0				0	0	0	0	0		0		0				0	0	0	0	0
D3			15.2%	2	2,312		2,314		67		67	50	38		88	52	2,417	0	2,469				0	0	18		18	52	2,435	0	2,487
D4			15.2%		611		611		23		23	11			11	11	634	0	645				0				0	11	634	0	645
D5			15.2%		2,055		2,055		84		84	31	2		33	31	2,141	0	2,172				0	0	2		2	31	2,143	0	2,174
Unknown D3-5			15.2%				0				0				0	0	0	0	0				0				0	0	0	0	0
D6	10,000	9,997	12.5%		884		884		125		125		42		42	0	1,051	0	1,051				0				0	0	1,051	0	1,051
D7	9,000	9,000	14.4%		681		681		39		39				0	0	720	0	720				0				0	0	720	0	720
D8	8,000	6,589	19.5%		420		420		24		24		32		32	0	476	0	476				0				0	0	476	0	476
D9	2,000	2,007	11.3%		185		185		27		27				0	0	212	0	212				0				0	0	212	0	212
D10	700	678	16.4%		130		130		10		10				0	0	140	0	140				0	5	22		27	5	162	0	167
D11	5,500	4,614	24.4%		438		438		29		29	61	28		89	61	495	0	556				0				0	61	495	0	556
D12	950	950	16.4%		181		181		12		12				0	0	193	0	193				0				0	0	193	0	193
D13	4,000	3,091	22.1%		370		370		2		2	29	4		33	29	376	0	405				0				0	29	376	0	405
D14	3,000	2,998	15.2%		360		360		11		11	8	7		15	8	378	0	386				0	0	3		3	8	381	0	389
D15	1,500	825	18.7%		57		57	5	2		7	31	34		65	36	93	0	129				0	137	107		244	173	200	0	373
D16	3,000	3,001	14.6%		374		374		37		37	112	52		164	112	463	0	575				0				0	112	463	0	575
D17	500	500	11.8%		145		145		9		9				0	0	154	0	154				0				0	0	154	0	154
D19	1,500	1,500	22.5%		150		150		1		1	9	2		11	9	153	0	162				0				0	9	153	0	162
X1	760	760	9.5%		389		389				0		39		39	0	428	0	428		13		13	0	10		10	0	451	0	451
X2	175	175	2.9%		122		122				0		26		26	0	148	0	148		4		4	0	3		3	0	155	0	155
X3a	355	355	7.0%		158		158				0		16		16	0	174	0	174		27		27	0	14		14	0	215	0	215
X3b	795	795	8.9%		352		352				0		21		21	0	373	0	373		17		17	0	1		1	0	391	0	391
X4	460	459	8.3%		261		261				0		38		38	0	299	0	299		0		0	0	6		6	0	305	0	305
X5a	75	75	5.3%		39		39				0		7		7	0	46	0	46		8		8	0	3		3	0	57	0	57
X5b	50	50	2.0%		42		42				0		6		6	0	48	0	48		8		8	0	4		4	0	60	0	60
X6a	330	330	6.1%		237		237				0		70		70	0	307	0	307		5		5				0	0	312	0	312
X6b	310	310	9.7%		156		156				0		60		60	0	216	0	216		4		4				0	0	220	0	220
X7a	230	230	5.2%		112		112				0	7	24		31	7	136	0	143		6		6				0	7	142	0	149
X7b	135	135	9.6%		56		56				0	1	21		22	1	77	0	78				0				0	1	77	0	78
X8	210	210	7.6%		56		56				0		2		2	0	58	0	58				0				0	0	58	0	58
X9a	650	650	6.2%		247		247				0		63		63	0	310	0	310				0				0	0	310	0	310
X9b	325	325	10.5%		121		121				0		78		78	0	199	0	199				0				0	0	199	0	199
X9c	325	325	15.7%		103		103				0		12		12	0	115	0	115				0				0	0	115	0	115
X10	400	400	8.0%		67		67				0		55		55	0	122	0	122				0				0	0	122	0	122
X12	680	680	8.7%		254		254				0		28		28	0	282	0	282				0				0	0	282	0	282
General/Archery	197,065	157,011		2	28,982	0	28,984	5	849	0	854	478	2,198	0	2,676	485	32,029	0	32,514	0	100	0	100	191	560	0	751	676	32,689	0	33,365
Archery Only (AO)	7,953	7,953		General/Archery Season ESTIMATED KILL				Archery Only ESTIMATED KILL				Additional Hunt ESTIMATED KILL				Statewide ESTIMATED KILL w/o PLM				Section 554-Landowner Program ESTIMATED KILL				Statewide PLM KILL				STATEWIDE ESTIMATED KILL			
Add'l Hunt	11,260	11,228																													
Total	216,278	176,192																													

1) Data are derived from TABLE 2-3 Reported Kill with zone/hunt specific correction factors applied for non-reporting rates. 2) The Estimated Fundraising tag deer kill is included in TABLE 2-1 and under "Estimated Additional Hunt Deer Kill" in this table. No correction factors are applied for non-reporting rates. 3) The Estimated Additional Hunt kill is detailed individually in TABLE 2-1 and is categorized by zone in this table. 4) The Estimated Section 554-Landowner Program is summarized by zone in the appropriate column. No correction factors are applied for non-reporting rates. 5) PLM kill is derived directly from PLM operator harvest reports and ALDS harvest analysis and detailed in TABLE 2-2. No correction factors are applied.

2016 DEER HARVEST SUMMARY

TABLE 2-5. Summary of 2016 Big Game Drawing for Deer Hunt Tags.

Hunt Category	Hunt Code	Hunt Tag Description	Quota Information			Applicant Information		Preference Point Drawing			Random Drawing			
			Quota	Preference Point Quota	Random Quota Quantity	Total 1st Choice Applicants	1st Choice Max Point (14) Applicants	Total Tags Awarded by Preference Drawing	Highest Point Value Awarded Tag in Preference Drawing	Lowest Point Value Awarded Tag in Preference Drawing	Total Tags Awarded by Random Drawing	Random Tags Awarded to 1st Choice Applicants	Random Tags Awarded to 2nd Choice Applicants	Random Tags Awarded to 3rd Choice Applicants
Zone Hunts	C	C Zones General Seasons - Buck	8,150	7,335	815	6,321	-	6,321	12	-	1,829	-	1,829	-
	D9	Zone D9 Archery And General Seasons - Buck	2,000	1,800	200	742	-	742	6	-	1,187	-	850	337
	D12	Zone D12 Archery And General Seasons - Buck	950	855	95	1,202	-	855	12	-	95	95	-	-
	D17	Zone D17 Archery And General Seasons - Buck	500	450	50	852	-	450	6	-	50	50	-	-
	X1	Zone X1 General Season - Buck	760	684	76	3,268	-	684	10	2	76	76	-	-
	X2	Zone X2 General Season - Buck	174	157	17	1,730	2	157	14	6	17	17	-	-
	X3A	Zone X3a General Season - Buck	354	319	35	1,785	2	319	14	4	35	35	-	-
	X3B	Zone X3b General Season - Buck	794	715	79	3,289	-	715	12	3	79	79	-	-
	X4	Zone X4 General Season - Buck	459	414	45	1,731	-	414	12	2	45	45	-	-
	X5A	Zone X5a General Season - Buck	75	68	7	640	-	68	10	7	7	7	-	-
	X5B	Zone X5b General Season - Buck	50	45	5	2,384	9	45	14	12	5	5	-	-
	X6A	Zone X6a General Season - Buck	329	297	32	2,284	-	297	12	4	32	32	-	-
	X6B	Zone X6b General Season - Buck	309	279	30	1,462	-	279	10	3	30	30	-	-
	X7A	Zone X7a General Season - Buck	229	207	22	1,990	-	207	9	4	22	22	-	-
	X7B	Zone X7b General Season - Buck	134	121	13	969	-	121	8	4	13	13	-	-
	X8	Zone X8 General Season - Buck	210	189	21	862	-	189	9	2	21	21	-	-
Area-Specific Archery Hunts	X9A	Zone X9a General Season - Buck	649	585	64	4,696	1	585	14	4	64	64	-	-
	X9B	Zone X9b General Season - Buck	325	293	32	877	-	293	6	1	32	32	-	-
	X9C	Zone X9c General Season - Buck	325	293	32	671	1	293	14	-	32	32	-	-
	X10	Zone X10 General Season - Buck	400	360	40	346	-	346	6	-	54	-	54	-
	X12	Zone X12 General Season - Buck	679	612	67	4,716	-	612	12	4	67	67	-	-
	A1	Archery Hunt In C Zones - Buck	1,945	1,751	194	617	-	617	10	-	1,328	-	1,328	-
	A3	Archery Hunt In Zone X1 - Buck	100	90	10	345	-	90	6	1	10	10	-	-
	A4	Archery Hunt In Zone X2 - Buck	10	9	1	52	-	9	13	3	1	1	-	-
	A5	Archery Hunt In Zone X3a - Buck	40	36	4	136	-	36	5	2	4	4	-	-
	A6	Archery Hunt In Zone X3b - Buck	70	63	7	184	-	63	5	1	7	7	-	-
	A7	Archery Hunt In Zone X4 - Buck	120	108	12	343	-	108	4	1	12	12	-	-
	A8	Archery Hunt In Zone X5a - Buck	10	9	1	36	-	9	4	2	1	1	-	-
	A9	Archery Hunt In Zone X5b - Buck	5	4	1	62	-	4	10	10	1	1	-	-
	A11	Archery Hunt In Zone X6a - Buck	50	45	5	441	-	45	6	4	5	5	-	-
	A12	Archery Hunt In Zone X6b - Buck	90	81	9	379	-	81	4	2	9	9	-	-
	A13	Archery Hunt In Zone X7a - Buck	45	41	4	174	-	41	4	2	4	4	-	-
	A14	Archery Hunt In Zone X7b - Buck	25	23	2	157	-	23	7	4	2	2	-	-
	A15	Archery Hunt In Zone X8 - Buck	40	36	4	54	-	36	4	-	4	4	-	-
	A16	Archery Hunt In Zone X9a - Buck	140	126	14	480	-	126	10	2	14	14	-	-
	A17	Archery Hunt In Zone X9b - Buck	300	270	30	44	-	44	4	-	256	-	256	-
	A20	Archery Hunt In Zone X12 - Buck	100	90	10	374	-	90	5	2	10	10	-	-
Additional Hunts - Archery Methods	A21	Anderson Flat Archery Buck	25	23	2	303	-	23	13	6	2	2	-	-
	A24	Monterey Archery Either-Sex	100	90	10	221	-	90	7	1	10	10	-	-
	A25	Lake Sonoma Archery Either-Sex	35	32	3	164	-	32	5	2	3	3	-	-
	A26	Bass Hill Archery Buck	30	27	3	520	1	27	14	10	3	3	-	-
	A27	Devil'S Garden Archery Buck	5	4	1	195	-	4	11	11	1	1	-	-
	A30	Covelo Archery Buck	40	36	4	288	-	36	10	5	4	4	-	-
	A31	Los Angeles Archery Either-Sex	1,000	900	100	491	-	491	10	-	509	-	421	88
	A33	Fort Hunter Liggett Late Season Archery Either-Sex	25	23	2	66	-	23	4	1	2	2	-	-

2016 DEER HARVEST SUMMARY

TABLE 2-5. Summary of 2016 Big Game Drawing for Deer Hunt Tags.

Hunt Category	Hunt Code	Hunt Tag Description	Quota Information			Applicant Information		Preference Point Drawing			Random Drawing			
			Quota	Preference Point Quota	Random Quota Quantity	Total 1st Choice Applicants	1st Choice Max Point (14) Applicants	Total Tags Awarded by Preference Drawing	Highest Point Value Awarded Tag in Preference Drawing	Lowest Point Value Awarded Tag in Preference Drawing	Total Tags Awarded by Random Drawing	Random Tags Awarded to 1st Choice Applicants	Random Tags Awarded to 2nd Choice Applicants	Random Tags Awarded to 3rd Choice Applicants
Additional Hunts - General Methods	G1	Late Season Buck Hunt In Zone C4 - General Methods	2,710	2,439	271	3,404	-	2,439	11	-	271	271	-	-
	G3	Goodale Buck - General Methods	35	32	3	4,389	488	32	14	14	3	3	-	-
	G6	Kern River Deer Herd Buck - General Methods	50	45	5	1,038	4	45	14	11	5	5	-	-
	G8	Fort Hunter Liggett Antlerless - General Methods	10	9	1	120	-	9	7	5	1	1	-	-
	G12	Gray Lodge Shotgun Either-Sex	30	27	3	128	-	27	9	2	3	3	-	-
	G13	San Diego Antlerless - General Methods	300	270	30	747	-	270	4	-	30	30	-	-
	G19	Sutter-Yuba Wildlife Areas Either-Sex - Shotgun/Archery/Crossbow	25	23	2	285	-	23	11	4	2	2	-	-
	G21	Ventana Wilderness Buck - General Methods	25	23	2	118	-	23	4	2	2	2	-	-
	G37	Anderson Flat Buck - General Methods	25	23	2	2,080	95	23	14	14	2	2	-	-
	G38	X-10 Late Season Buck - General Methods	300	270	30	352	-	270	8	-	30	30	-	-
	G39	Round Valley Late Season Buck - General Methods	5	4	1	758	71	4	14	14	1	1	-	-
Additional Hunts - Apprentice Hunts	J1	Lake Sonoma Apprentice Either-Sex - General Methods	25	13	12	96	-	13	4	2	12	12	-	-
	J3	Tehama Wildlife Area Apprentice Buck - General Methods	15	8	7	402	-	8	5	5	7	7	-	-
	J4	Shasta-Trinity Apprentice Buck - General Methods	15	8	7	430	-	8	5	4	7	7	-	-
	J8	Daugherty Hill Wildlife Area Apprentice Either-Sex - General Methods	15	8	7	96	-	8	4	3	7	7	-	-
	J9	Little Dry Creek Apprentice Shotgun Either-Sex	5	3	2	23	-	3	2	2	2	2	-	-
	J10	Fort Hunter Liggett Apprentice Either-Sex - General Methods	60	30	30	264	-	30	5	2	30	30	-	-
	J11	San Bernardino Apprentice Either-Sex - General Methods	40	20	20	126	-	20	3	1	20	20	-	-
	J12	Round Valley Apprentice Buck - General Methods	10	5	5	1,164	-	5	5	5	5	5	-	-
	J13	Los Angeles Apprentice Either-Sex - General Methods	40	20	20	77	-	20	2	1	20	20	-	-
	J14	Riverside Apprentice Either-Sex - General Methods	30	15	15	73	-	15	2	1	15	15	-	-
	J15	Anderson Flat Apprentice Buck - General Methods	10	5	5	471	-	5	5	5	5	5	-	-
	J16	Bucks Mountain-Nevada City Apprentice Either-Sex - General Methods	75	38	37	150	-	38	2	1	37	37	-	-
	J17	Blue Canyon Apprentice Either-Sex - General Methods	25	13	12	38	-	13	3	1	12	12	-	-
	J18	Pacific - Grizzly Flat Apprentice Either-Sex - General Methods	75	38	37	176	-	38	3	1	37	37	-	-
	J19	Zone X7a Apprentice Either-Sex - General Methods	25	13	12	257	-	13	5	3	12	12	-	-
	J20	Zone X7b Apprentice Either-Sex - General Methods	20	10	10	140	-	10	4	3	10	10	-	-
	J21	East Tehama Apprentice Either-Sex - General Methods	50	25	25	268	-	25	4	2	25	25	-	-
Additional Hunts - Muzzleloading Rifle and Muzzleloading Rifle/Archery	M3	Doyle Muzzleloading Rifle Buck	20	18	2	868	63	18	14	14	2	2	-	-
	M4	Horse Lake Muzzleloading Rifle Buck	10	9	1	53	-	9	12	6	1	1	-	-
	M5	East Lassen Muzzleloading Rifle Buck	5	4	1	144	1	4	14	12	1	1	-	-
	M6	San Diego Muzzleloading Rifle Either-Sex	80	72	8	97	-	72	1	-	8	8	-	-
	M7	Ventura Muzzleloading Rifle Either-Sex	150	135	15	182	-	135	4	-	15	15	-	-
	M8	Bass Hill Muzzleloading Rifle Buck	20	18	2	73	-	18	12	4	2	2	-	-
	M9	Devil's Garden Muzzleloading Rifle Buck	15	14	1	746	44	14	14	14	1	1	-	-
	M11	Northwestern California Muzzleloading Rifle Buck	20	18	2	610	1	18	14	12	2	2	-	-
	MA1	San Luis Obispo Muzzleloading Rifle/Archery Either-Sex	150	135	15	148	-	135	6	-	15	13	2	-
	MA3	Santa Barbara Muzzleloading Rifle/Archery Buck	150	135	15	109	-	109	3	-	41	-	41	-
Point	PD	Preference Point Only - Deer	-	-	-	8,343	183	-	-	-	-	-	-	-

DEER POPULATION ANALYSIS

TABLE 3-1. Summary of the Estimated 2016 Hunter Kill, Area Buck Ratio Objectives, 2016 Post-Season Buck and Fawn Ratios, and 2017 Population Estimates (including 3-year average) by Zone or Hunt.

Area	Estimated 2015 Hunter Kill	Buck Ratio Objective	2016 Post-Season		Population Estimates	
			Fall Buck Ratio	Fall Fawn Ratio	Three-Year Average Population	Estimated 2017 Pre-Season Population
A	8,908	30	25	60	129,898	97,520
B-1	3,506	30	24	46	47,750	46,780
B-2	3,287	30	24	46	37,522	36,750
B-3	614	30	24	46	8,524	7,398
B-4	365	30	27	63	6,648	4,058
B-5	797	30	24	46	11,429	9,595
B-6	1,327	30	24	46	15,363	15,500
C-1	506	20	20	52	7,503	5,407
C-2	550	25	20	52	5,569	5,868
C-3	704	25	20	52	7,021	7,521
C-4	2,409	20	30	52	26,702	29,031
D-3	2,984	25	23	42	41,253	36,450
D-4	774	30	23	40	11,957	9,644
D-5	2,609	18	20	42	42,324	30,036
D-6	1,261	30	23	42	18,612	15,501
D-7	864	25	28	46	14,511	10,986
D-8	571	25	34	42	7,903	8,762
D-9	254	25	34	42	5,219	3,905
D-10	194	25	34	42	2,555	2,950
D-11	667	25	26	41	6,871	7,717
D-12	232	20	43	33	4,031	5,174
D-13	486	25	23	57	4,542	4,652
D-14	467	20	23	33	6,337	6,423
D-15	448	25	26	46	3,646	2,691
D-16	690	20	30	40	8,290	7,290
D-17	185	25	50	22	4,916	6,322
D-19	195	20	43	53	2,875	2,968
X-1	541	20	32	42	6,990	7,932
X-2	186	12	30	62	2,210	2,183
X-3a	258	15	28	41	3,503	3,481
X-3b	469	20	26	35	7,292	6,698
X-4	366	20	21	21	4,621	7,040
X-5a	68	25	28	41	972	942
X-5b	72	25	28	41	896	1,013
X-6a	374	25	18	29	3,729	5,450
X-6b	374	25	18	29	3,526	5,450
X-7a	264	20	42	48	2,782	4,414
X-7b	178	20	29	45	1,582	2,247
X-8	58	25	41	49	743	1,156
X-9a	372	20	22	23	10,216	6,810
X-9b	239	20	32	21	5,258	5,722
X-9c	138	20	49	40	2,936	3,060
X-10	146	25	38	31	2,498	3,037

DEER POPULATION ANALYSIS

TABLE 3-1. Summary of the Estimated 2016 Hunter Kill, Area Buck Ratio Objectives, 2016 Post-Season Buck and Fawn Ratios, and 2017 Population Estimates (including 3-year average) by Zone or Hunt.

Area	Estimated 2015 Hunter Kill	Buck Ratio Objective	2016 Post-Season		Population Estimates	
			Fall Buck Ratio	Fall Fawn Ratio	Three-Year Average Population	Estimated 2017 Pre-Season Population
X-12	338	20	24	20	8,795	6,880
A-1	466	Refer to Zones C-1, C-2, C-3 and C-4				
A-3	46	Refer to Zone X-1				
A-4	7	Refer to Zone X-2				
A-5	19	Refer to Zone X-3a				
A-6	25	Refer to Zone X-3b				
A-7	46	Refer to Zone X-4				
A-8	2	Refer to Zone X-5a				
A-9	2	Refer to Zone X-5b				
A-11	41	Refer to Zone X-6a				
A-12	52	Refer to Zone X-6b				
A-13	13	Refer to Zone X-7a				
A-14	14	Refer to Zone X-7b				
A-15	2	Refer to Zone X-8				
A-16	58	Refer to Zone X-9a				
A-17	54	Refer to Zone X-9b				
A-18	14	Refer to Zone X-9c				
A-19	5	Refer to Zone X-10				
A-20	34	Refer to Zone X-12				
A-21	8	Refer to Zone D-6				
A-22	98	Refer to Zone D-16				
A-24	13	Refer to Zone A				
A-25	5	Refer to Zone A				
A-26	28	Refer to Zone X-6a				
A-27	4	Refer to Zone X-2				
A-30	12	Refer to Zone B-1				
A-31	90	Refer to Zone D-11				
A-32	20	Refer to Zone A				
A-33	10	Refer to Zone A				
G-1	1,008	Refer to Zone C-4				
G-3	40	Refer to Zone X-9b				
G-6	38	Refer to Zone D-8				
G-7	12	Refer to Zone D-3				
G-8	18	Refer to Zone A				
G-9	0	Refer to Zone A				
G-10	78	Refer to Zone D-15				
G-11	84	Refer to Zone A				
G-12	17	Refer to Zone D-3				
G-13	88	Refer to Zone D-16				
G-19	20	Refer to Zone D-4				
G-21	1	Refer to Zone A				
G-37	29	Refer to Zone D-6				
G-38	61	Refer to Zone X-10				

DEER POPULATION ANALYSIS

TABLE 3-1. Summary of the Estimated 2016 Hunter Kill, Area Buck Ratio Objectives, 2016 Post-Season Buck and Fawn Ratios, and 2017 Population Estimates (including 3-year average) by Zone or Hunt.

Area	Estimated 2015 Hunter Kill	Buck Ratio Objective	2016 Post-Season		Population Estimates	
			Fall Buck Ratio	Fall Fawn Ratio	Three-Year Average Population	Estimated 2017 Pre-Season Population
G-39	6	Refer to Zone X-9a				
M-3	20	Refer to Zone X-6b				
M-4	6	Refer to Zone X-5a				
M-5	5	Refer to Zone X-5b				
M-6	11	Refer to Zone D-16				
M-7	40	Refer to Zone D-13				
M-8	16	Refer to Zone X-6a				
M-9	17	Refer to Zone X-2				
M-11	13	Refer to Zone B-1				
MA-1	19	Refer to Zone A				
MA-3	8	Refer to Zone A				
J-1	2	Refer to Zone A				
J-3	13	Refer to Zone C-4				
J-4	12	Refer to Zone B-2				
J-7	0	Refer to Zone X-8				
J-8	8	Refer to Zone D-3				
J-9	2	Refer to Zone D-3				
J-10	76	Refer to Zone A				
J-11	18	Refer to Zone D-14				
J-12	12	Refer to Zone X-9a				
J-13	17	Refer to Zone D-11				
J-14	13	Refer to Zone D-19				
J-15	12	Refer to Zone D-6				
J-16	48	Refer to Zone D-3				
J-17	13	Refer to Zone D-4				
J-18	40	Refer to Zone D-5				
J-19	24	Refer to Zone X-7a				
J-20	12	Refer to Zone X-7b				
J-21	36	Refer to Zone C-4				
* FRO	4	Valid in Any Zone or Hunt				
* FRG	4	Valid Statewide				
* AO	1,025	Valid in Zones A, B-1 through B-6, D-3 through D-19 and Hunt G-10				
*554	120	Valid to qualifying landowners in deer quota zones where tags are distributed by public drawing (Section 554, Title 14, CCR)				
* PLM	751	Valid to licensed Private Lands Management Areas (Section 601, Title 14, CCR)				

DEER POPULATION ANALYSIS

TABLE 3-2. Statewide Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	621,082	45,983	868	N/A	N/A
Proposed Project	28	42	532,621	39,224	811	4,850	31,250

TABLE 3-3. Zone A Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	129,750	11,660	184	N/A	N/A
Proposed Project	25	60	97,520	8,764	144	441	5,257

TABLE 3-4. Zone B-1 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	38,950	3,518	23	N/A	N/A
Proposed Project	24	46	46,780	3,492	14	311	1750

TABLE 3-5. Zone B-2 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	33,714	2,975	0	N/A	N/A
Proposed Project	24	46	36,750	3,287	0	190	2,162

DEER POPULATION ANALYSIS

TABLE 3-6. Zone B-3 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	8,284	722	0	N/A	N/A
Proposed Project	24	46	7,398	614	0	43	435

TABLE 3-7. Zone B-4 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	6,034	542	0	N/A	N/A
Proposed Project	27	63	4,058	365	0	21	214

TABLE 3-8. Zone B-5 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	11,585	1,009	1	N/A	N/A
Proposed Project	24	46	9,595	797	0	56	564

TABLE 3-9. Zone B-6 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	14,021	1,223	0	N/A	N/A
Proposed Project	24	46	15,500	1,327	0	86	912

DEER POPULATION ANALYSIS

TABLE 3-10. Zone C-1 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	19,862	642	0	N/A	N/A
Proposed Project	20	52	5,407	506	0	12	314

TABLE 3-11. Zone C-2 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	7,887	580	0	N/A	N/A
Proposed Project	20	52	5,868	550	0	13	341

TABLE 3-12. Zone C-3 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	9,241	707	1	N/A	N/A
Proposed Project	20	52	7,521	704	1	17	437

TABLE 3-13. Zone C-4 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	29,824	2,431	66	N/A	N/A
Proposed Project	30	52	29,031	2,356	53	243	1,590

DEER POPULATION ANALYSIS

TABLE 3-14. Zone D-3 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	35,156	3,280	78	N/A	N/A
Proposed Project	23	42	36,450	2,922	62	216	2,203

TABLE 3-15. Zone D-4 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	10,740	959	16	N/A	N/A
Proposed Project	23	40	9,644	761	13	60	590

TABLE 3-16. Zone D-5 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	30,565	2,737	30	N/A	N/A
Proposed Project	20	42	30,036	2,572	37	114	1,850

TABLE 3-17. Zone D-6 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	20,062	1,738	0	N/A	N/A
Proposed Project	23	42	15,501	1,261	0	90	939

DEER POPULATION ANALYSIS

TABLE 3-18. Zone D-7 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	13,155	1,211	0	N/A	N/A
Proposed Project	28	46	10,986	864	0	90	631

TABLE 3-19. Zone D-8 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	10,823	919	0	N/A	N/A
Proposed Project	34	42	8,762	571	0	112	498

TABLE 3-20. Zone D-9 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	7,389	398	0	N/A	N/A
Proposed Project	34	42	3,905	254	0	50	222

TABLE 3-21. Zone D-10 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	3,215	270	5	N/A	N/A
Proposed Project	34	42	2,950	194	6	38	167

DEER POPULATION ANALYSIS

TABLE 3-22. Zone D-11 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	11,199	881	92	N/A	N/A
Proposed Project	26	41	7,717	594	73	61	455

TABLE 3-23. Zone D-12 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	6,595	295	0	N/A	N/A
Proposed Project	43	33	5,174	232	0	103	294

TABLE 3-24. Zone D-13 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	6,595	295	0	N/A	N/A
Proposed Project	43	33	5,174	232	0	103	294

TABLE 3-25. Zone D-14 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	8,148	588	10	N/A	N/A
Proposed Project	23	33	6,423	457	10	49	411

DEER POPULATION ANALYSIS

TABLE 3-26. Zone D-15 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	3,512	313	174	N/A	N/A
Proposed Project	26	46	2,691	240	208	17	136

TABLE 3-27. Zone D-16 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	12,210	877	148	N/A	N/A
Proposed Project	30	40	7,290	556	134	73	415

TABLE 3-28. Zone D-17 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	5,380	157	0	N/A	N/A
Proposed Project	50	22	6,322	185	0	165	368

TABLE 3-29. Zone D-19 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	3,956	245	6	N/A	N/A
Proposed Project	43	53	2,968	184	11	47	150

DEER POPULATION ANALYSIS

TABLE 3-30. Zone X-1 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	7,226	593	0	N/A	N/A
Proposed Project	32	42	7,932	541	0	91	453

TABLE 3-31. Zone X-2 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	3,107	157	0	N/A	N/A
Proposed Project	30	62	2,183	186	0	16	114

TABLE 3-32. Zone X-3a Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	3,317	283	0	N/A	N/A
Proposed Project	28	41	3,481	258	0	32	206

TABLE 3-33. Zone X-3b Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	7,126	518	0	N/A	N/A
Proposed Project	26	35	6,698	469	0	61	416

DEER POPULATION ANALYSIS

TABLE 3-34. Zone X-4 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	3,837	328	0	N/A	N/A
Proposed Project	21	21	7,040	366	0	68	496

TABLE 3-35. Zone X-5a Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	745	64	0	N/A	N/A
Proposed Project	28	41	942	68	0	9	56

TABLE 3-36. Zone X-5b Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	787	67	0	N/A	N/A
Proposed Project	28	41	1,013	72	0	10	60

TABLE 3-37. Zone X-6a Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	4,490	332	0	N/A	N/A
Proposed Project	18	29	5,450	374	0	29	371

DEER POPULATION ANALYSIS

TABLE 3-38. Zone X-6b Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	4,901	270	0	N/A	N/A
Proposed Project	18	29	5,450	374	0	29	371

TABLE 3-39. Zone X-7a Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	3,302	175	7	N/A	N/A
Proposed Project	42	48	4,414	264	0	71	232

TABLE 3-40. Zone X-7b Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	1,496	122	7	N/A	N/A
Proposed Project	29	45	2,247	170	8	20	128

TABLE 3-41. Zone X-8 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	2,054	108	8	N/A	N/A
Proposed Project	41	49	1,156	58	0	18	61

DEER POPULATION ANALYSIS

TABLE 3-42. Zone X-9a Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	11,319	534	0	N/A	N/A
Proposed Project	22	23	6,810	372	0	66	470

TABLE 3-43. Zone X-9b Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	8,614	270	0	N/A	N/A
Proposed Project	32	21	5,722	239	0	96	374

TABLE 3-44. Zone X-9c Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	3,698	167	0	N/A	N/A
Proposed Project	49	40	3,060	138	0	66	162

TABLE 3-45. Zone X-10 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	2,987	144	0	N/A	N/A
Proposed Project	38	31	3,037	146	0	54	180

DEER POPULATION ANALYSIS

TABLE 3-46. Zone X-12 Population Analysis

2016 Estimated Population and Harvest and 2017 (Proposed Project) Estimated Post-Season Buck and Fawn Ratios, Population, Hunter Kill and Harvest Buffers.

	Estimated Post-Season Ratios		Estimated Pre-Season Population	Estimated Hunter Kill		Harvest Buffer	
	Bucks	Fawns		Bucks	Does	Bucks	Does
2016	N/A	N/A	7,711	379	0	N/A	N/A
Proposed Project	24	20	6,880	338	0	81	478

Data Supplement to the California Fish and Game Commission

Regarding:

**Proposed 2017 Desert Bighorn Sheep Tag
Allocations**



March 2017

**STATE OF CALIFORNIA
NATURAL RESOURCES AGENCY
DEPARTMENT OF FISH AND WILDLIFE**

Table 1. Data Supplement for desert bighorn sheep hunting tag recommendations.

	2016 Tag Quota	2016 Success Rate	Herd unit meets criteria of an effective population size	Population Size Class Estimate	2017 Proposed Tag Quota Range	2017 Proposed Tag Quota
Marble and Clipper Mountains	3	100%	Yes	250+	0-4	4
Kelso and Old Dad Peak*	1	100%	No	100-150	0-4	0
Clark, Kingston and Mesquite Ranges	2	100%	Yes	150-200	0-2	2
Orocopia Mountains	1	100%	Yes	50-100	0-2	1
San Gorgonio Wilderness	2	100%	Yes	Reviewing Survey Results	0-3	2
Sheep Hole Mountains	0	-	No	0-50	0-2	0
White Mountains	3	66%	Yes	150+	0-5	3
South Bristol Mountains	1	100%	Yes	50-100	0-3	1
Cady Mountains	4	100%	Yes	150-200	0-4	4
Open Zone Fund-raising Tag	1	100%	-		0-1	1
Marble/Clipper/South Bristol Mtns Fund-raising Tag	0	-	Yes	250+	0-1	1
Kelso Peak/Old Dad Mtns Fund-raising Tag*	1	100%	No	100-150	0-1	0

*In May 2013, pneumonia was detected in bighorn sheep in the Kelso Peak and Old Dad Peak herd units. Although the population seemed to be recovering in 2015, the October 2016 helicopter survey gave a lamb to ewe ratio of 5:100, and the ram to ewe ratio was 27:100. Despite our helicopter surveys having some bias against spotting rams, the extremely low recruitment in this herd is why we're recommend the postponement of hunts in this zone.

Data Supplement to the California Fish and Game Commission

Regarding:

Recommended 2017 Pronghorn Tag Allocations

**(Updated 2016 Antelope Harvest and Population
Estimates)**



April 2017

**STATE OF CALIFORNIA
NATURAL RESOURCES AGENCY
DEPARTMENT OF FISH AND WILDLIFE**

TABLE OF CONTENTS

Table 1	2017 Pronghorn Antelope Tag Allocation	Page 1
Table 2	2016 Pronghorn Antelope Hunt Statistics by Zone	Page 2
Table 3	2016 – 2017 Pronghorn Antelope Tag Allocation Comparison	Page 3
Figure 1	Pronghorn Antelope Population Estimates	Page 4

Table 1. 2017 Pronghorn Antelope Tag Allocations

Hunt Code	Hunt Name	2016 Tag Allocations	2017 Tag Proposal	2017 Tag Allocations
APPRENTICE HUNTS				
734	Apprentice Zone 3 - Likely Tables Period 1 Either-Sex	5	0-5	5
790	Apprentice Zone 4 - Lassen Period 1 Either-Sex	5	0-15	5
780	Apprentice Zone 5 - Big Valley Either-Sex	1	0-15	1
766	Apprentice Zone 6 - Surprise Valley	4	0-4	4
ZONE 1 - MOUNT DOME				
710	General Buck	2	0-60	2
712	Archery Buck	0	0-10	0
ZONE 2 - CLEAR LAKE				
720	General Buck	15	0-80	15
728	Archery Buck	1	0-10	1
ZONE 3 - LIKELY TABLES				
730	Period 1 General Buck	45	0-150	45
732	Period 2 General Buck	45	0-130	45
738	Archery Buck	15	0-20	15
ZONE 4 - LASSEN				
740	Period 1 General Buck	45	0-150	35
742	Period 2 General Buck	45	0-150	35
745	Archery Buck	10	0-20	5
ZONE 5 - BIG VALLEY				
750	General Buck	20	0-150	20
755	Archery Buck	1	0-15	1
ZONE 6 - SURPRISE VALLEY				
760	General Buck	10	0-25	10
765	Archery Buck	1	0-10	1
FUND RAISING ANTELOPE TAGS		2	0-10	2

Table 2. 2016 Pronghorn Antelope Hunt Statistics by Zone

Antelope Hunt Zone	2016 Applicants	Tags Issued	Tags Reported	Harvest	Success %	Hunt Zone	Sex
799	7,474					Preference Point Only	N/A
710	171	2	2	2	100%	ZONE 1 - MOUNT DOME	BUCK
720	947	15	15	13	87%	ZONE 2 - CLEAR LAKE	BUCK
728	88	1	1	0	0%	ZONE 2 - CLEAR LAKE - Archery	BUCK
730	2,989	45	44	32	71%	ZONE 3 - LIKELY TABLES PER 1	BUCK
732	2,067	45	45	39	87%	ZONE 3 - LIKELY TABLES PER 2	BUCK
738	329	15	14	8	53%	ZONE 3 - LIKELY TABLES - Archery	BUCK
740	3,660	45	45	44	98%	ZONE 4 - LASSEN PER 1	BUCK
742	2,980	45	45	43	96%	ZONE 4 - LASSEN PER 2	BUCK
745	466	10	10	4	40%	ZONE 4 - LASSEN - Archery	BUCK
750	1089	20	20	17	85%	ZONE 5 - BIG VALLEY	BUCK
755	65	1	1	0	0%	ZONE 5 - BIG VALLEY - Archery	BUCK
760	1060	10	10	9	90%	ZONE 6 - SURPRISE VALLEY	BUCK
765	89	1	1	1	100%	ZONE 6 - SURPRISE VALLEY - Archery	BUCK
766	189	4	4	4	100%	ZONE 6 - SURPRISE VALLEY APPRENTICE	EITHER SEX
780	146	1	1	1	100%	ZONE 5 - BIG VALLEY APPRENTICE	EITHER SEX
790	685	5	5	5	100%	ZONE 4 - LASSEN APPRENTICE	EITHER SEX
734	540	5	5	4	80%	ZONE 3 - LIKELY TABLES APPRENTICE	EITHER SEX
Total	25,034	270	268	226	84%		

Table 3. 2016 – 2017 Pronghorn Antelope Tag Allocation Comparison

Hunt	2016 Tags Issued			2017 Recommended Tags		
	General Method Buck	Archery Buck	Either-Sex Apprentice	General Method Buck	Archery Buck	Either-Sex Apprentice
Mt. Dome	2	0		2	0	
Clear Lake	15	1		15	1	
Likely Tables		15			15	
Period 1	45			45		
Period 2	45			45		
Apprentice			5			5
Lassen		10			5	
Period 1	45			35		
Period 2	45			35		
Apprentice			5			5
Big Valley	20	1		20	1	
Apprentice			1			1
Surprise Valley	10	1		10	1	
Apprentice			4			4
Fund Raising	2			2		

Figure 1. Pronghorn Antelope Population Estimate

<u>Year</u>	<u>Number Counted</u>	<u>Basic California Population</u>
1989	7,018	7,018
1990	7,493	7,493
1991	7,294	7,294
1992	7,908	7,908
1993	5,085	5,085
1994	5,160	5,160
1995	5,437	5,437
1996	4,681	4,681
1997	5,039	5,039
1998	4,696	4,786
1999	4,811	4,960**
2000	4,230	4,361**
2001	2,771	2,857**
2002	4,273	4,405**
2003	3,854	3,970**
2004	4,087	4,210**
2005	4,307	4,436**
2006	4,131	4,254**
2007	3,570	3,677**
2008	4,039	4,160**
2009	4,634	4,773**
2010	3,693	3,804**
2011	3,836	3,951**
2012	4,634	4,773**
2013	3,493	3,598**
2014	2,437	2,366***
2015	3,575	3,682**
2016	4,439	4,572**
2017	2,966	3,055**

**Population estimate based on adjustment. To obtain the population estimate, the numbers of antelope counted were adjusted by 3% to account for polygons not surveyed.

***Department suspects the drought reduced our ability to detect pronghorn because of their apparent absence from traditional winter ranges. The 2014 estimate is reduced because of our inability to find antelope during the 2013 survey of zone 5 polygons, some zone 2 pronghorn probably wintering in Oregon outside the survey polygons during the 2014 survey, and a large, though unknown percentage of zone 3 antelope wintering on the devil's garden outside of survey polygons during the 2014 survey. Survey totals in 2017 show a reduced number of animals and this is due to survey conditions and snow accumulation.

Since 1999, polygons (count blocks) have been stratified to count 18 of the 29 previously identified winter range polygons that had the highest number of antelope based on all surveys completed in 1953 through 1998. This stratification resulted in a set of polygons

that averaged 97% of the total population based on the earlier surveys. This reduction in survey effort was done to reduce flight time, reduce costs, and improve flight safety without significantly reducing survey accuracy and utility. Before 1999, an aerial survey using fixed wing aircraft was attempted of all known winter ranges in Lassen, Modoc, Shasta and Siskiyou counties.

Data Supplement to the California Fish and Game Commission



Recommended 2017 Elk Tag Allocations & 2017 Elk SHARE Tag Allocations (Updated 2016 Elk Harvest and Population Estimates)

April 2017



STATE OF CALIFORNIA
NATURAL RESOURCES AGENCY
DEPARTMENT OF FISH AND WILDLIFE

TABLE OF CONTENTS

Table 1	2016 & 2017 Elk Tag Allocations	Page 1 – 2
Table 2	2016 & 2017 SHARE Elk Tag Allocations	Page 3
Table 3	2016 General Elk Hunt Statistics	Page 4 – 5
Table 4	2016 SHARE Elk Tag Statistics	Page 6
Table 5	2016 & 2017 Elk Tag Allocation Differences	Page 7
Table 6	2016 & 2017 SHARE Elk Tag Allocation Differences	Page 8
Table 7	2017 Population Estimate for Elk Subspecies	Page 9
Figure 1	Elk Subspecies Distribution	Page 9

Table 1. 2016 & 2017 Elk Tag Allocations

Hunt Code	Hunt Name	2016 Tag Allocations	2017 Tag Proposal	2017 Tag Allocations
408	Marble Mountains either-sex (Apprentice Hunt)	2	0-4	2
409	Northeastern California either-sex (Apprentice Hunt)	2	0-4	2
484	Cache Creek Period 1 bull (Apprentice Hunt)	1	0-2	1
464	La Panza Period 1 antlerless (Apprentice Hunt)	1	0-2	1
466	Grizzly Island Period 1 antlerless (Apprentice Hunt)	2	0-4	3
467	Grizzly Island Period 1 spike bull (Apprentice Hunt)	0	0-4	0
469	Grizzly Island Period 2 spike bull (Apprentice Hunt)	2	0-4	2
353	Grizzly Island Period 3 antlerless (Apprentice Hunt)	2	0-4	3
354	Grizzly Island Period 4 spike bull (Apprentice Hunt)	2	0-4	2
471	Fort Hunter Liggett Period 1 antlerless (Apprentice Hunt)*	1	0-8	0
472	Fort Hunter Liggett Period 3 bull (Apprentice Hunt)*	1	0-2	0
411	Northeastern CA Archery either-sex	10	0-20	10
422	Owens Valley Multiple Zone Archery bull	3	0-10	3
312	Tinemaha Period 1 Archery bull	1	0-10	0
337	Lone Pine Period 1 Archery antlerless	0	0-30	1
449	Fort Hunter Liggett Archery only either-sex*	2	0-10	3
450	Fort Hunter Liggett Archery only antlerless*	4	0-10	4
303	Marble Mountains Muzzleloader/Archery either-sex	5	0-20	5
326	Fort Hunter Liggett Muzzleloader bull*	0	0-10	4
364	Goodale Period 1 Muzzleloader antlerless	N/A	0-10	1
308	Independence Period 1 Muzzleloader bull	1	0-10	1
401	Siskiyou antlerless	20	0-30	20
300	Siskiyou bull	20	0-30	20
355	Northwestern California bull	15	0-15	15
483	Northwestern California either-sex	0	0-10	3
301	Marble Mountain antlerless	10	0-30	10
302	Marble Mountain bull	35	0-70	35
328	Mendocino bull	2	0-4	2
304	Northeastern CA antlerless	10	0-10	10
305	Northeastern CA bull	15	0-30	15
406	Cache Creek Period 1 bull	2	0-4	2
416	Cache Creek Period 2 antlerless	2	0-4	2
417	La Panza Period 1 antlerless	5	0-10	5
419	La Panza Period 1 bull	6	0-12	6
418	La Panza Period 2 antlerless	6	0-12	6
420	La Panza Period 2 bull	6	0-12	6
365	Goodale Period 2 antlerless	0	0-30	1
366	Goodale Period 3 antlerless	0	0-30	1
339	Independence Period 2 antlerless	1	0-30	1
340	Independence Period 2 bull	1	0-10	1
336	Independence Period 3 antlerless	1	0-30	1
349	Independence Period 3 bull	0	0-10	1
309	Independence Period 4 antlerless	0	0-30	1
495	Lone Pine Period 2 antlerless	0	0-30	1
486	Lone Pine Period 2 bull	2	0-10	1
459	Lone Pine Period 3 antlerless	0	0-30	1
496	Lone Pine Period 3 bull	1	0-10	1
425	Lone Pine Period 4 antlerless	1	0-30	0
346	Whitney Period 2 antlerless	0	0-10	1

Hunt Code	Hunt Name	2016 Tag Allocations	2017 Tag Proposal	2017 Tag Allocations
433	Grizzly Island Period 1 antlerless	6	0-12	6
436	Grizzly Island Period 2 antlerless	2	0-12	2
437	Grizzly Island Period 2 spike bull	2	0-6	4
439	Grizzly Island Period 3 antlerless	6	0-12	6
442	Grizzly Island Period 4 antlerless	2	0-12	4
350	Grizzly Island Period 4 spike bull	2	0-6	2
443	Grizzly Island Period 5 antlerless	8	0-12	8
356	Grizzly Island Period 7 antlerless	8	0-12	8
357	Grizzly Island Period 8 spike bull	6	0-6	6
358	Grizzly Island Period 9 antlerless	8	0-12	8
359	Grizzly Island Period 10 bull	3	0-3	3
360	Grizzly Island Period 11 antlerless	8	0-12	8
361	Grizzly Island Period 12 spike bull	2	0-6	0
362	Grizzly Island Period 12 bull	2	0-3	3
363	Grizzly Island Period 13 antlerless	8	0-12	8
444	Fort Hunter Liggett Period 1 antlerless*	4	0-16	0
448	Fort Hunter Liggett Period 2 antlerless*	4	0-16	0
447	Fort Hunter Liggett Period 3 bull*	4	0-14	0
461	East Park Reservoir bull	2	0-4	2
463	East Park Reservoir antlerless	2	0-8	2
497	San Luis Reservoir either-sex	5	0-10	5
329	Bear Valley antlerless	1	0-2	1
330	Bear Valley bull	2	0-4	2
331	Lake Pillsbury antlerless	4	0-4	4
332	Lake Pillsbury bull	2	0-4	2
-	Multi-Zone Fund Raising bull	1	1	1
-	Grizzly Island Fund Raising bull	1	1	1
-	Owens Valley Fund Raising bull	1	1	1
**335	Fort Hunter Liggett Early Season bull*	2	0-2	0
**342	Fort Hunter Liggett Early Season antlerless*	1	0-2	0
**444	Fort Hunter Liggett Period 1 antlerless*	4	0-16	0
**448	Fort Hunter Liggett Period 2 antlerless*	4	0-14	0
**447	Fort Hunter Liggett Period 3 bull*	4	0-14	0
**326	Fort Hunter Liggett Muzzleloader bull*	0	0-10	4
**471	Fort Hunter Liggett Period 1 antlerless (Apprentice Hunt)*	1	0-8	0
**472	Fort Hunter Liggett Period 3 bull (Apprentice Hunt)*	1	0-2	0
**449	Fort Hunter Liggett Archery only either-sex*	2	0-6	3
**450	Fort Hunter Liggett Archery only antlerless*	4	0-10	4
	Total Tags Allocated	332		325

* 2016 Fort Hunter Liggett season cancelled due to military training.

** Military Tags Only

Table 2. 2016 & 2017 SHARE Elk Tag Allocations

Hunt Name	2016 Bull	2016 Antlerless	2017 Bull	2017 Antlerless
Siskiyou	2	2	2	2
Northwestern California	7	13	7	20
Marble Mountains	0	0	0	0
Northeastern California	0	0	0	0
Mendocino	2	4	2	4
Cache Creek	1	1	1	1
La Panza	5	10	5	10
Bishop	0	0	0	0
Independence	0	0	0	0
Lone Pine	0	0	0	0
Tinemaha	0	0	0	0
West Tinemaha	0	0	0	0
Tinemaha Mountain	0	-	0	-
Whitney	0	0	0	0
Grizzly Island	0	0	0	0
Fort Hunter Liggett	0	0	0	0
East Park Reservoir	2	4	1	1
San Luis Reservoir	2	3	2	3
Bear Valley	2	1	1	1
Lake Pillsbury	0	0	0	0
Santa Clara	0	-	0	-
Alameda	0	-	0	-

Table 3. 2016 General Elk Hunt Statistics

Hunt Name	Hunt Code	2016 Apps./Tags	2016 Hunter Success (%)
Preference Point Only - Elk	499	8,423	N/A
Marble Mountains either-sex (Apprentice Hunt)	408	276/2	50
Northeastern California either-sex (Apprentice Hunt)	409	514/2	100
Cache Creek Period 1 bull (Apprentice Hunt)	484	350/1	100
La Panza Period 1 antlerless (Apprentice Hunt)	464	111/1	100
Grizzly Island Period 1 antlerless (Apprentice Hunt)	466	218/2	100
Grizzly Island Period 2 spike bull (Apprentice Hunt)	469	272/2	100
Grizzly Island Period 3 antlerless (Apprentice)	353	54/2	100
Grizzly Island Period 4 spike bull (Apprentice)	354	112/2	100
Fort Hunter Liggett Period 1 antlerless (Apprentice Hunt)*	471	N/A	N/A
Fort Hunter Liggett Period 3 bull (Apprentice Hunt)*	472	N/A	N/A
Northeastern CA Archery either-sex	411	626/10	30
Owens Valley Multiple Zone Archery bull	422	916/3	100
Fort Hunter Liggett Archery only either-sex*	449	N/A	N/A
Fort Hunter Liggett Archery only antlerless*	450	N/A	N/A
Marble Mountains Muzzleloader/Archery either-sex	303	214/5	40
Independence Period 1 Muzzleloader bull	308	450/1	100
Siskiyou antlerless	401	268/20	20
Siskiyou bull	300	927/20	65
Northwestern California bull	355	1,333/15	80
Marble Mountain antlerless	301	225/10	70
Marble Mountain bull	302	1,798/35	66
Mendocino bull	328	346/2	2
Northeastern CA antlerless	304	430/10	50
Northeastern CA bull	305	3,873/15	67
Cache Creek Period 1 bull	406	785/2	100
Cache Creek Period 2 antlerless	416	129/2	100
La Panza Period 1 antlerless	417	140/5	100
La Panza Period 1 bull	419	609/6	83
La Panza Period 2 antlerless	418	165/6	100
La Panza Period 2 bull	420	568/6	100
Independence Period 2 antlerless	339	145/1	100
Independence Period 2 bull	340	835/1	100
Independence Period 3 antlerless	336	85/1	0
Lone Pine Period 2 bull	486	945/2	100
Lone Pine Period 3 bull	496	619/1	100
Grizzly Island Period 1 antlerless	433	388/6	83
Grizzly Island Period 2 antlerless	436	109/2	100
Grizzly Island Period 2 spike bull	437	289/2	100
Grizzly Island Period 3 antlerless	439	119/6	100
Grizzly Island Period 4 antlerless	442	70/2	100
Grizzly Island Period 4 spike bull	350	92/2	100
Grizzly Island Period 5 antlerless	443	346/8	100
Grizzly Island Period 7 antlerless	356	160/8	100
Grizzly Island Period 8 spike bull	357	148/6	100
Grizzly Island Period 9 antlerless	358	134/8	88

Hunt Name	Hunt Code	2016 Apps./Tags	2016 Hunter Success (%)
Grizzly Island Period 10 bull	359	2,736/3	100
Grizzly Island Period 11 antlerless	360	146/8	100
Grizzly Island Period 12 spike bull	361	44/2	100
Grizzly Island Period 12 bull	362	838/2	50
Grizzly Island Period 13 antlerless	363	213/8	100
Fort Hunter Liggett Period 1 antlerless*	444	N/A	N/A
Fort Hunter Liggett Period 2 antlerless*	448	N/A	N/A
Fort Hunter Liggett Period 3 bull*	447	N/A	N/A
East Park Reservoir bull	461	874/2	100
East Park Reservoir antlerless	463	105/2	50
San Luis Reservoir either-sex	497	941/5	100
Bear Valley antlerless	329	37/1	100
Bear Valley bull	330	244/2	100
Lake Pillsbury antlerless	331	286/4	100
Lake Pillsbury bull	332	801/2	100

* 2016 Fort Hunter Liggett Hunts were cancelled due to military training

Table 4. 2016 SHARE Elk Tag Statistics

2016 Authorized Tags			2016 Tags Issued		
Hunt Name	2016 Bull	2016 Antlerless	2016 Bull	2016 Antlerless	Success Rate%
Siskiyou	2	2	1	1	100
Northwestern	7	13	7	13	65
Mendocino	2	4	2	4	100
Cache Creek	1	1	0	0	-
La Panza	5	10	0	0	-
East Park Reservoir	2	4	1	1	100
San Luis Reservoir	2	3	0	0	-
Bear Valley	1	1	0	0	-
Totals	22	38	11	19	
Grand Total	60		30		77%

Table 5. 2016 & 2017 Elk Tag Allocation Differences

Hunt Code	Hunt Name	2016 Tag Allocations	2017 Tag Allocations	Difference
466	Grizzly Island Period 1 antlerless (Apprentice Hunt)	2	3	1
353	Grizzly Island Period 3 antlerless (Apprentice Hunt)	2	3	1
471	Fort Hunter Liggett Period 1 antlerless (Apprentice Hunt)*	1	0	-1
472	Fort Hunter Liggett Period 3 bull (Apprentice Hunt)*	1	0	-1
312	Tinemaha Period 1 Archery bull	1	0	-1
337	Lone Pine Period 1 Archery antlerless	0	1	1
449	Fort Hunter Liggett Archery only either-sex*	2	3	1
326	Fort Hunter Liggett Muzzleloader bull*	0	4	4
364	Goodale Period 1 Muzzleloader antlerless	0	1	1
483	Northwestern California either-sex	0	3	3
365	Goodale Period 2 antlerless	0	1	1
366	Goodale Period 3 antlerless	0	1	1
349	Independence Period 3 bull	0	1	1
309	Independence Period 4 antlerless	0	1	1
495	Lone Pine Period 2 antlerless	0	1	1
486	Lone Pine Period 2 bull	2	1	-1
459	Lone Pine Period 3 antlerless	0	1	1
425	Lone Pine Period 4 antlerless	1	0	-1
346	Whitney Period 2 antlerless	0	1	1
437	Grizzly Island Period 2 spike bull	2	4	2
442	Grizzly Island Period 4 antlerless	2	4	2
361	Grizzly Island Period 12 spike bull	2	0	-2
362	Grizzly Island Period 12 bull	2	3	1
444	Fort Hunter Liggett Period 1 antlerless*	4	0	-4
448	Fort Hunter Liggett Period 2 antlerless*	4	0	-4
447	Fort Hunter Liggett Period 3 bull*	4	0	-4
**335	Fort Hunter Liggett Early Season bull*	2	0	-2
**342	Fort Hunter Liggett Early Season antlerless*	1	0	-1
**444	Fort Hunter Liggett Period 1 antlerless*	4	0	-4
**448	Fort Hunter Liggett Period 2 antlerless*	4	0	-4
**447	Fort Hunter Liggett Period 3 bull*	4	0	-4
**326	Fort Hunter Liggett Muzzleloader bull*	0	4	4
**471	Fort Hunter Liggett Period 1 antlerless (Apprentice Hunt)*	1	0	-1
**472	Fort Hunter Liggett Period 3 bull (Apprentice Hunt)*	1	0	-1
**449	Fort Hunter Liggett Archery only either-sex*	2	3	1
	Total Tag Difference			-7

* 2016 Fort Hunter Liggett hunts cancelled due to military training

** Military tags only

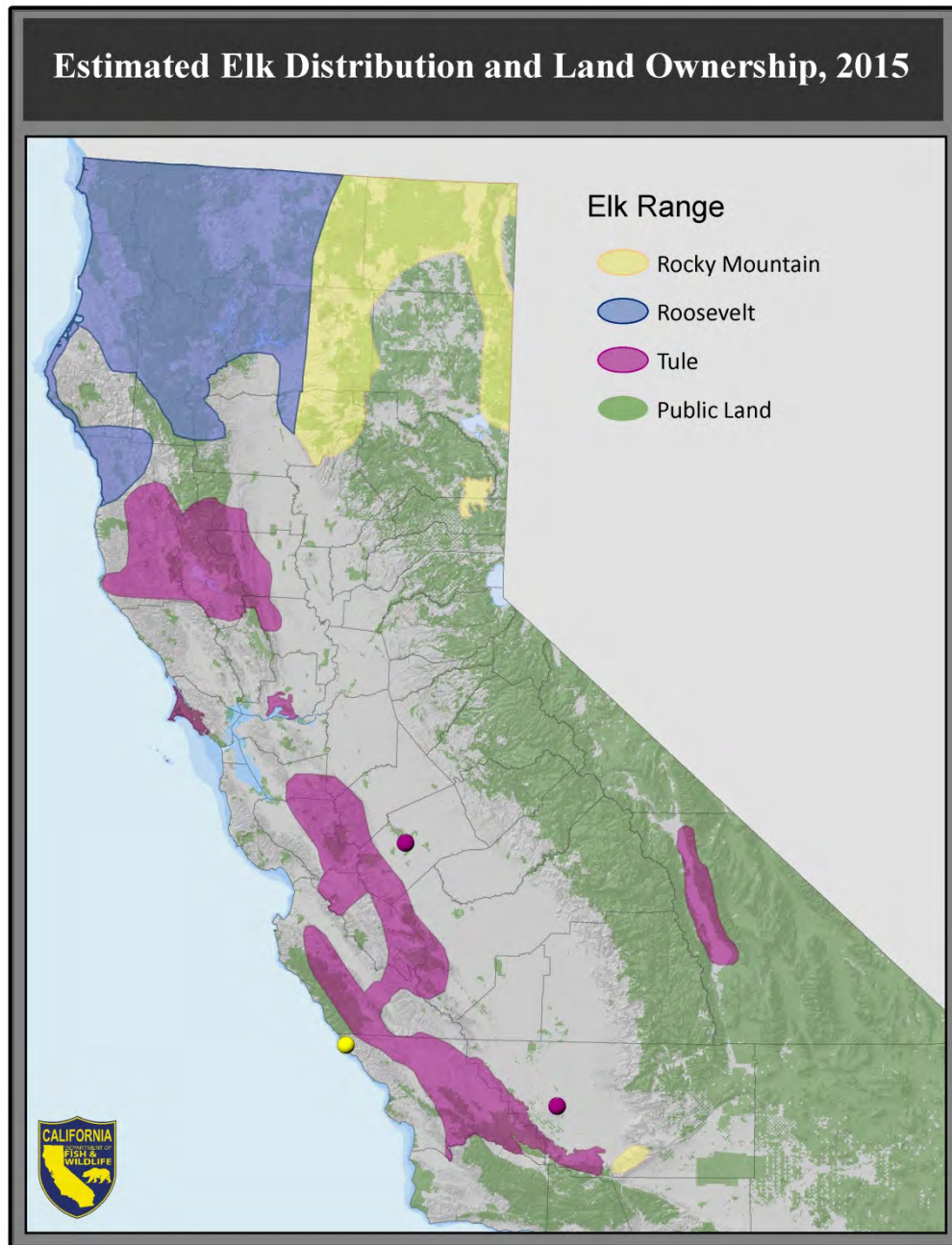
Table 6. 2016 & 2017 SHARE Elk Tag Allocation Differences

2016 and 2017 SHARE Elk Tag Allocation Differences Comparison					
Hunt Name	2016 Bull	2016 Antlerless	2017 Bull	2017 Antlerless	Difference
Siskiyou	2	2	2	2	0
Northwestern California	7	13	7	20	7
Mendocino	2	4	2	4	0
La Panza	5	10	5	10	0
East Park Reservoir	2	4	1	1	-4
San Luis Reservoir	2	3	2	3	0
Bear Valley	2	1	1	1	-1
Difference					3

Table 7. 2016 Population Estimate for Elk Subspecies

Subspecies	Population Estimate
Rocky Mountain Elk	1,500
Roosevelt Elk	5,500
Tule Elk	5,100

Figure 1. Elk Subspecies Distribution



From: Martin Fenn
Sent: Monday, February 20, 2017 11:39 AM
To: FGC
Subject: Deer Hunting D-17 Season extension of 1 extra week

Dear Commissioners,

I am proposing extending the D-17 deer hunting season by one week. The season as it exists ends near the Halloween time frame. I believe most parents opt to do halloween with their kids and omit the last bit of deer hunting of the short season. If we are to grow this sport for generations to come I believe it is paramount to maximize the opportunities for the youth for years to come. Eventually they will purchase hunting licenses for their kids which will help fund the CDFG in the future.

The D-17 zone is fairly remote and i don't believe it will result in a large population decline in game resources. It is also a good upland bird area which enables a deer and upland experience at the same time to help justify the expense associated with a remote hunting location. It is now a draw tag zone which further limits deer decline.

Furthermore our sister D-14 zone is extended a week longer than D-17 at this time.

I hope you will consider what I believe are valid points. Sincerely, Martin Fenn

From: Phoebe Lenhart
Sent: Fri 3/24/2017 4:36 PM
To: FGC
Subject: April 13, 2017 FGC meeting regarding 364 and 364.1

Dear FGC,

This letter is sent in regard to the recommendations that the CA FGC are making in reference to the 2017-2018 hunting season as it pertains to Roosevelt elk in Del Norte County, CA. The regulations are 364 and 364.1.

I appreciate the opportunity to comment on the fate of the Roosevelt elk in Del Norte County. It was only 100 years ago that the Roosevelt elk were thought to be extinct. By surprise, a few elk were found at Prairie Creek Redwoods State Park in Humboldt County. Please note that the near extinction of the Roosevelt elk occurred under the governance of the Department of Fish and Wildlife.

It appears that the DFW assumes that there are "thousands" of Roosevelt elk in Del Norte County as provided by statistics from obsolete software that the DFW uses. At a Town Hall meeting held in Crescent City on November 30, 2016, the DFW informed the public that there are approximately only 250-300 Roosevelt elk scattered in 3-4 small herds. The hunting tags that the FGC considers authorizing the DFW to sell for the 2017-2018 hunting season are based on erroneous population estimates and without an "elk management plan" (which is overdue) in place.

According to wildlife experts, there are approximately 40-50 bulls for every 100 cows in the wild. In hunted herds (like those in Del Norte County), the ratio of bulls to cows drops to 25 bulls for every 100 cows. So, if we were to use the figure of 250 Roosevelt elk counted in Del Norte County, then there are about 50 bulls for 200 cows scattered along the coastline. Under Section 364, the FGC proposes hunting tags for: 0-15 bulls, 0-10 antlerless, and 1-10 either-sex tags. Under 364.1 (SHARE) the FGC proposes hunting tags for: 0-10 bulls, 0-20 antlerless, and 0-5 either-sex tags. Please note that the PLM quotas are not available.

If you do the math on the figures given for the 2017-2018 hunting season above, the maximum number of hunting tags thus far proposed is a total of 70. Thus, hunting 70 elk from a population of 250 means that 28% of the Roosevelt elk in Del Norte County will be killed. Further, this is not the final count, because the PLM quotas have not been released. The PLM will increase the numbers of deaths beyond 28%. There are many who think that the above is not sustainable hunting and is not good stewardship.

In addition, the proposal is allowing for the hunting of 25 bulls (thus far, again, PLM numbers are missing). If you follow the math above, there are only 50 bulls in the population of Roosevelt elk. You are proposing to kill ONE-HALF of the population of bulls! Obviously, somebody in the FGC/DFW has not done the arithmetic and is patronizing the trophy hunters. Wildlife biologists will tell you that the bulls, especially the BIG bulls (7-9 points), are most important for the survival of the herd. They are the successful mates who carry the necessary genetic material. Does the FGC/DFW really think that by killing 50% of the bulls that you are practicing

sustainable hunting or good stewardship? Wildlife biologists I consulted disagree with this FGC proposal. Lastly, the FGC does not appear to factor in the loss of any elk due to poaching (which is active here).

As I have indicated in many letters to the FGC/DFW over the years, I object to your proposal to begin the hunting season in September. Wildlife biologists know that the rutting season (mid-August to mid-October) is the most stressful time for the elk and is a critical period for their survival. During this time the bulls lose a lot of weight. A few hunters say that the flesh of the bulls develops an unsavory taste due to the high levels of hormones. Meanwhile, the calves are still nursing at this time. I do not think it would cause any inconvenience for the FGC/DFW to postpone the hunting season until after the rut in mid-October. The FGC appears to be very inflexible about considering contemporary scientific studies on behalf of the welfare of the Roosevelt elk. Once again, FGC is not practicing sustainable hunting or good stewardship.

Given that the population of Roosevelt elk in Del Norte County is approximately 250 and are scattered in 3-4 coastal herds, it puts the population of the herds at great risk of extinction due to disease, fire, prolonged drought, and loss of habitat (to name a few possible disasters). One hundred years is not much time for the recovery of Roosevelt elk in Del Norte County. I would rather see the FGC and DFW promote a sustainable environment for the elk. It is estimated that 80% of the wildlife intersect with private property for food and/or shelter. The Roosevelt elk arrived on the North American Continent 35,000 years. Please do not expect the herds "to move out". The tourists love to see the elk and to photograph them. This is a wonderful industry to promote and does not involve "bloody" money from hunting dollars.

In addition, I think it is imperative that you stop all hunting of the Roosevelt elk in Del Norte County until you have an accurate count of the herds (how many bulls and cows are in each) and a sound elk management plan in place. I hope you will seriously consider the many deficiencies of the 2017-2018 hunting proposal that I have highlighted above. For the past 2 1/2 years I have done extensive research on the Roosevelt elk and consulted with many experts in the field. Thank you.

Sincerely,

Phoebe Lenhart
Supporters for Del Norte Roosevelt Elk

From: Phoebe Lenhart [mailto:]

Sent: Saturday, March 25, 2017 12:22 PM

To: FGC

Subject: Addendum to my letter send on April 24, 2017 from Phoebe Lenhart, Supporters for Del Norte Roosevelt Elk

Dear FGC,

This addendum is forwarded to you attention, because I wish to ask the FGC who and where the FGC receives your scientific data in order to establish hunting quotas? I believe that no reputable wildlife biologist would ever recommend that 50% of the population of bulls (in the Del Norte County Roosevelt elk herds) be hunted. Further, the 50% that the FGC proposes to be hunted does not include the bulls hunted under "either-sex" tags, the PLM, or poaching. Adding that, the percentage of bulls killed will increase. In contrast, only 15% of the population of cows are proposed to be hunted in the 2017-2018 regulations. It truly appears to me that the FGC is not using scientific data when calculating the hunting quotas and is instead is using some other sort of unsustainable source. As a member of the public, I am requesting information on who and/or where the FGC receives its hunting recommendations. The future and the fate of the Roosevelt elk in Del Norte County rest with you and I am very uncomfortable with the current hunting guidelines that the FGC have proposed for numerous reasons that I presented in my letter dated March 24, 2017 and including the above.

Sincerely,

Phoebe Lenhart

Supporters for Del Norte Roosevelt Elk

2017 MAR 30 PM 2:32

MLS

Supporters for Del Norte

Roosevelt Elk

Face book: Supporters for Del Norte Roosevelt Elk

Dear FGC,

This letter is sent in regard to the recommendations that the CA FGC are making in reference to the 2017-2018 hunting season as it pertains to Roosevelt elk in Del Norte County, CA. The regulations are 364 and 364.1.

I appreciate the opportunity to comment on the fate of the Roosevelt elk in Del Norte County. It was only 100 years ago that the Roosevelt elk were thought to be extinct. By surprise, a few elk were found at Prairie Creek Redwoods State Park in Humboldt County. Please note that the near extinction of the Roosevelt elk occurred under the governance of the Department of Fish and Wildlife.

It appears that the DFW assumes that there are "thousands" of Roosevelt elk in Del Norte County as provided by statistics from obsolete software that the DFW uses. At a Town Hall meeting held in Crescent City on November 30, 2016, the DFW informed the public that there are approximately only 250-300 Roosevelt elk scattered in 3-4 small herds. The hunting tags that the FGC considers authorizing the DFW to sell for the 2017-2018 hunting season are based on erroneous population estimates and without an "elk management plan" (which is overdue) in place.

According to wildlife experts, there are approximately 40-50 bulls for every 100 cows in the wild. In hunted herds (like those in Del Norte County), the ratio of bulls to cows drops to 25 bulls for every 100 cows. So, if we were to use the figure of 250 Roosevelt elk counted in Del Norte County, then there are about 50 bulls for 200 cows scattered along the coastline. Under Section 364, the FGC proposes hunting tags for: 0-15 bulls, 0-10 antlerless, and 1-10 either-sex tags. Under 364.1 (SHARE) the FGC proposes hunting tags for: 0-10 bulls, 0-20 antlerless, and 0-5 either-sex tags. Please note that the PLM quotas are not available.

If you do the math on the figures given for the 2017-2018 hunting season above, the maximum number of hunting tags thus far proposed is a total of 70. Thus, hunting 70 elk from a population of 250 means that 28% of the Roosevelt elk in Del Norte County will be killed. Further, this is not the final count, because the PLM quotas have not been released. The PLM will increase the numbers of deaths beyond 28%. There are many who think that the above is not sustainable hunting and is not good stewardship.

In addition, the proposal is allowing for the hunting of 25 bulls (thus far, again, PLM numbers are missing). If you follow the math above, there are only 50 bulls in the population of Roosevelt elk. You are proposing to kill ONE-HALF of the population of bulls! Obviously, somebody in the FGC/DFW has not done the arithmetic and is patronizing the trophy hunters. Wildlife biologists will tell you that the bulls, especially the BIG bulls (7-9 points), are most important for the survival of the herd. They are the successful mates who carry the necessary genetic material. Does the FGC/DFW really think that by killing 50% of the bulls that you are practicing sustainable hunting or good stewardship? Wildlife biologists I consulted disagree with this FGC proposal. Lastly, the FGC does not appear to factor in the loss of any elk due to poaching (which is active here).

As I have indicated in many letters to the FGC/DFW over the years, I object to your proposal to begin the hunting season in September. Wildlife biologists know that the rutting season (mid-August to mid-October) is the most stressful time for the elk and is a critical period for their survival. During this time the bulls lose a lot of weight. A few hunters say that the flesh of the bulls develops an unsavory taste due to the high levels of hormones. Meanwhile, the calves are still nursing at this time. I do not think it would cause any inconvenience for the FGC/DFW to postpone the hunting season until after the rut in mid-October. The FGC appears to be very inflexible about considering contemporary

scientific studies on behalf of the welfare of the Roosevelt elk. Once again, FGC is not practicing sustainable hunting or good stewardship.

Given that the population of Roosevelt elk in Del Norte County is approximately 250 and are scattered in 3-4 coastal herds, it puts the population of the herds at great risk of extinction due to disease, fire, prolonged drought, and loss of habitat (to name a few possible disasters). One hundred years is not much time for the recovery of Roosevelt elk in Del Norte County. I would rather see the FGC and DFW promote a sustainable environment for the elk. It is estimated that 80% of the wildlife intersect with private property for food and/or shelter. The Roosevelt elk arrived on the North American Continent 35,000 years. Please do not expect the herds "to move out". The tourists love to see the elk and to photograph them. This is a wonderful industry to promote and does not involve "bloody" money from hunting dollars.

In addition, I think it is imperative that you stop all hunting of the Roosevelt elk in Del Norte County until you have an accurate count of the herds (how many bulls and cows are in each) and a sound elk management plan in place. I hope you will seriously consider the many deficiencies of the 2017-2018 hunting proposal that I have highlighted above. For the past 2 1/2 years I have done extensive research on the Roosevelt elk and consulted with many experts in the field. Thank you.

Sincerely,

Phoebe Lenhart

Supporters for Del Norte Roosevelt Elk

Crescent City, CA

Dear FGC,

This addendum is forwarded to your attention, because I wish to ask the FGC who and where the FGC receives your scientific data in order to establish hunting quotas? I believe that no reputable wildlife biologist would ever recommend that 50% of the population of bulls (in the Del Norte County Roosevelt elk herds) be hunted. Further, the 50% that the FGC proposes to be hunted does not include the bulls hunted under "either-sex" tags, the PLM, or poaching. Adding that, the percentage of bulls killed will increase. In contrast, only 15% of the population of cows are proposed to be hunted in the 2017-2018 regulations. It truly appears to me that the FGC is not using scientific data when calculating the hunting quotas and is instead using some other sort of unsustainable source. As a member of the public, I am requesting information on who and/or where the FGC receives its hunting recommendations. The future and the fate of the Roosevelt elk in Del Norte County rest with you and I am very uncomfortable with the current hunting guidelines that the FGC have proposed for numerous reasons that I presented in my letter dated March 24, 2017 and including the above.

Sincerely,

Phoebe Lenhart

Supporters for Del Norte Roosevelt Elk



Friends of Del Norte

Committed to our environment since 1973

*A nonprofit, membership based conservation group
advocating sound environmental policies for our region.
PO Box 144, Crescent City, CA 95531*

April 3, 2017

ATT: Fish and Game Commission, Executive Director Valerie Termini, fgc@fgc.ca.gov

*Joe.Hobbs@wildlife.ca.gov; Eric.Loft@wildlife.ca.gov; Richard.Callas@wildlife.ca.gov;
Craig.Stowers@wildlife.ca.gov*

Comments Regarding Elk Hunt 2017, Del Norte County, and for submission to Commission hearing on this subject

Thank you for the opportunity to comment. Hopefully our concerns and suggestions will result in healthier and more sustainable herds for Del Norte.

The best survey information we currently have does not appear to justify the proposed take. We would appreciate more complete survey numbers, including proportion of bulls to cows, and we ask for a significant reduction in the percentage culled.

We request that the small herd at Rowdy Creek be off limits to hunting, so as to encourage natural expansion into historical ranges within Smith River National Recreation Area.

We also ask that priority be given to allow Native American Tribes a share of the total hunt.

We ask that Coastal Zones 1 and 5 be no lead hunts, as this area is targeted for substantial investment into a Condor restoration project by the Yuroks. As you well know, lead poisoning is an extinction threat to Condors, as well as other sensitive and threatened carnivorous species. We also do not want lead polluting our wild lands and salmon rich waterways.

Current survey results at this link:

http://geospatial.institute/wp-content/uploads/2017/01/Student-Sample-GSP-101-Final-Project_3-Fall-2016.pdf

Hunt information at these links

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=130441&inline>

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=97836&inline>

No lead zones map at the following link:

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=82946&inline>

Historical and biological background information:

<http://yournec.org/content/state-elk-and-wolf-management-under-review>

The above links give California Dept. of Fish and Wildlife information on General Elk Hunt, Share Hunt, and PLM Hunt for the coming season, as well as the current available population information about Elk in Del Norte County and Northern Humboldt County. Also a no lead zone hunting map for California is provided.

The population information is very limited. The survey maps state a maximum mean count of our three herd areas to be 133 (20 plus 44 plus 69). The mean 69 herd could be as much as 100, as mentioned in the text of the survey study, and the southern Elk Valley herd could be as much as 62 (personal daily observation, Eileen Cooper). Based on this most current and limited information, the maximum likely herd total would be approximately 200 Elk for Del Norte County.

The hunt for Del Norte County allows a killing of 18 from SHARE, plus 5 from PLM, and from the general hunt- approximately another 7 (half of Del Norte and Humboldt combined) or 30 total year take 2017 in Del Norte County alone. Poaching, natural loss, and natural depredation would add a significant number more, perhaps 10 (5%). It seems likely that in this one year alone we would be losing at least 20% of our Elk, and likely a higher percentage.

Is this a sustainable and prudent target? Our herds should be managed conservatively, as the genetics of our North Coastal Roosevelt Elk herds are uniquely pure, without hybridization. With only approximately 200 elk, we may deplete the gene pool, especially since the bull numbers are lower, and the take is likely to be proportionately greater for bulls. There is no count given for proportion of bulls to cows, but it is obvious that it is significantly lower. Depleting the gene pool can result in diseases and unhealthy herds that threaten sustainability.

If this ~200 elk number is **not** the number you are using as a basis, then please provide us with your data. Thank you.

The very small herd at Rowdy Creek is an encouraging sign that Elk are just now beginning to return to their historic range within our Smith River National Recreation Area. Historically, small herds existed throughout the forest (comment by U.S. Forest Service biologists, as submitted with our comments in 2016). This very small herd should be off limits to hunting, to encourage natural expansion.

Regarding data collection, we are concerned about statements made by elk study lead Carrington Knox on behalf of CDFW. She spoke at a Town Hall meeting in Crescent City on November 30, 2016, organized by State Senator McGuire. She stated in effect that field counts were not locating enough elk, and so consequently CDFW planned to remedy this situation by allowing the public to report elk numbers to a website or through some other electronic means.

Surely CDFW and your board can see that this methodology is wide open to abuse by the public, especially with an organized group of ranchers who are claiming elk impacts. In past years local "citizen

scientists” documented to U.S. Fish & Wildlife, that a local rancher was reporting inflated numbers of Aleutian cackling geese to be feeding on his ranch lands.

Surely you would wish to avoid such a situation by eliminating such methods from your tool kit. Otherwise your final data will be vulnerable to legal challenge. And thank you again for collecting field data, which we requested last year.

Regarding Native American elk hunting. we believe that the elk tags or hunts allocated to the Tolowa Dee-ni’ Nation, Elk Valley Rancheria and the Yurok Tribe should have the first and highest priority. Tribal requirements for subsistence, ceremony and culture, must always come first. These north coast pure strain Roosevelt elk have been an essential food for the Tribes of these lands since time immemorial, and it is our impression that historically elk meat was nearly equal to salmon in its importance. Elk stew is offered by the Tolowa Dee-ni’ Nation in their annual vigil to honor the lost Elders and Villages, and other ceremony. Yurok Klamath River salmon runs have been decimated by all of us who moved here in the last 150 years, and Tolowa Dee-ni’ Nation and Elk Valley Rancheria do not even have salmon fishing rights. Their requirement for these elk should come first.

The number of elk to be taken by the Tribes should be included in your discussion and totals. Currently we do not see such numbers broken out. Does this mean that the impacts of some of the elk hunting are being fragmented, and are not visible to the public?

The Dept of Fish and Wildlife web site states:

Elk Management Program

The goals of the CDFW Elk Management Program are to maintain healthy elk herds, reestablish elk in suitable historic range, provide public educational and recreational opportunities involving elk, and to alleviate conflicts involving elk on private property.

We hope that Fish and Wildlife continue to develop a management strategy that improves herd health and vitality, allows for expansion into Del Norte County’s historical range (including Smith River National Recreation Area), provides for Native American cultural traditions, incorporates strategies for maintaining Elk corridors, and reduces conflict. Please reference our previous comments on these subjects, attached here.

Thank you,

Eileen Cooper,

Vice President

Friends of Del Norte, on behalf of the Board.

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-Publication of Notice Statement)

Amend Section 708.5
Title 14, California Code of Regulations (CCR)
Re: Deer Tagging and Reporting Requirements

I. Date of Initial Statement of Reasons: September 28, 2016

II. Dates and Locations of Scheduled Hearings:

- | | | |
|-------------------------|-----------|------------------|
| (a) Notice Hearing: | Date: | December 8, 2016 |
| | Location: | San Diego, CA |
| (b) Discussion Hearing: | Date: | February 8, 2017 |
| | Location: | Rohnert Park, CA |
| (c) Adoption Hearing: | Date: | April 26, 2017 |
| | Location: | Van Nuys, CA |

III. Description of Regulatory Action:

- (a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

1. It is necessary to delete from subsection 708.5(c)(1) that deer tag holders may submit their deer harvest report card "in person" since this is not an available option.

Each year about 180,000 deer tags are purchased by California hunters. All tag holders are obligated under the current regulation to report the results of their hunting effort, whether successful or unsuccessful. Currently the regulation specifies that one of the methods of satisfying the reporting requirement is to do so "in person at the address specified." However, the address specified on the tag is a post office box and not a physical location; furthermore, none of the Department's regional offices are staffed to take and process walk-in reports. Reports may be made online or by mail.

The Department also notes that license sales agents (private parties that can sell licenses and tags) cannot receive report cards. The Department expects the reporting rate could climb to an estimated 80% (about 144,000 reports) due to the new fee that will be assessed on any tag holder not reporting their hunting result as required. In order to comply with the reporting requirement, hunters will be selecting the method most suitable to their circumstances. It is therefore important that the

regulations be amended to delete the “in-person” option since it is not actually available.

2. It is necessary to clarify that the tag holder is responsible for assuring that mailed-in deer report cards are received by the Department.

The Department will likely receive tens of thousands of report cards by mail annually, and there is a possibility of lost cards. However, it is not possible for the Department to track every mailed harvest report (and maintain a record of receipt) in the event reports are ‘lost in the mail.’ Tag holders may opt to use any certified delivery option, and have proof of receipt, but that is not required.

Ultimately, the responsibility for reporting is on the tag holder. By accessing their online account from any web enabled device, library, home, office, etc., it is easy to confirm that the mailed report has been received and entered in the system. Any mailed report card not entered into the ALDS system is considered not reported and the non-reporting fee will be assessed.

Background:

Hunters (tag holders) must purchase a deer tag before engaging in deer hunting in the current season. Attached to the tag is a “report card.” Under the current regulation in Section 708.5 (amended July 1, 2015) the successful hunter places the tag on the antler or ear, as required, and detaches the report card for submission to the Department. The report card must be submitted no more than 30 days from the date of harvest or by January 31, whichever date is first. Other tag holders, who were either unsuccessful or did not hunt, must submit their report card with the information (unsuccessful or did not hunt) by January 31.

Successful hunters have been required to report their harvest by submitting the report card to the Department by mail or online for many years. In previous years the average compliance (again noting that reporting was required of every successful hunter) was only about 30%. Non-compliance with the required reporting causes the Department to incur additional costs each year to complete its deer population surveys. Better reporting provides the Department with important deer population information critical for deer conservation.

With the Department’s outreach efforts (during the 2015-16 season) to inform hunters of this responsibility, the rate of reporting increased substantially to about 50% (approximately 90,000 tag holders). The Department has continued to issue press releases and email notifications to hunters regarding reporting requirements and the non-reporting fee, and will continue outreach efforts in order to achieve the highest possible rate of compliance.

Beginning with the 2016-17 season, in accordance with subsection 708.5(d), tag holders reporting late, or not reporting, will be assessed a non-reporting

fee of \$21.60 (subject to annual increases per Fish and Game Code (FGC) Section 713) with the purchase of a tag for the following season. The Department estimates that with the effort to inform hunters and the fee in place, the compliance rate may be as high as 80%. Hunters may submit their report either by mailing in the completed report card, or by accessing their account online. Once the report is placed in the Department's system, any hunter can access their account online and determine whether the reporting information has been updated.

However, past experience with annual reporting indicates: 1) some tag holders will lose their report card; they may still access their online account to report; and 2) some tag holders will assert that the report card was submitted on time by mail, but the report information will not be in the system. Unless the tag holder utilizes some method of confirming delivery (i.e., Certified Mail, etc.), there will be no proof of receipt by the Department and the non-reporting fee will be assessed to the hunter's future tag purchase. In order to avoid the potential for disputes over unreturned report cards, it is essential that the Department amend the regulations to make it clear that report cards mailed, but not received by the Department, will be considered not reported and subject to the non-reporting fee. The proposed amendments are also needed for consistency with Department requirements for other report cards in Section 1.74, Title 14, CCR.

The proposed amendments to Section 708.5 are intended to clarify the methods by which hunters may comply with mandatory deer harvest reporting. The amendments will: 1) eliminate "in person" delivery of report cards to the Department; and 2) add a provision stating "If a report card is submitted by mail and not received by the department, it is considered not reported."

(b) Authority and Reference for Regulation:

Authority: Sections 200, 202, 203, and 1050, Fish and Game Code.

Reference: Sections 1050 and 4336, Fish and Game Code.

(Note: Some current citations of Authority or Reference have been deleted from the regulatory text to more accurately identify the applicable Fish and Game Code statutes.)

(c) Specific Technology or Equipment Required by Regulatory Change: None

(d) Identification of Reports or Documents Supporting Regulation Change: None

(e) Public Discussions of Proposed Regulations Prior to Notice Publication:

Fish and Game Commission Wildlife Resources Committee meeting held in Woodland on September 21, 2016.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

There is no reasonable alternative to the proposed action.

(b) No Change Alternative:

The “No Change Alternative” was considered and found inadequate to attain the project objectives. The current reporting system is inefficient and needs to be changed. The Deer program is not equipped or staffed to manually enter large numbers of in-person harvest reports or respond to customer disputes over report cards lost in the mail.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

(d) Description of Reasonable Alternatives That Would Lessen Adverse Impact on Small Business: None.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made.

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed action clarifies the methods available to individuals, not businesses, for the required reporting of their deer hunting activity.

(b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State’s Environment:

The Commission anticipates benefits to the health and welfare of California residents and to the state’s environment. Hunting provides opportunities for multi-generational family activities and promotes respect for California’s environment by the future stewards of the State’s resources and the action

contributes to the sustainable management of natural resources. Improved deer tag reporting will also improve the Department's ability to sustainably manage deer populations in the state.

The proposed action will not have significant impacts on jobs or business within California because no significant changes in hunting activity levels are anticipated. The proposed action does not provide benefits to worker safety.

(c) Cost Impacts on Private Persons:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with this proposed action. Under the current regulation, hunters are required to report their deer hunting activity. The proposed action to amend the regulation clarifies the methods available to individuals for the required reporting and does not impose any additional cost to do so.

(d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None

(e) Other Nondiscretionary Costs/Savings to Local Agencies: None

(f) Programs Mandated on Local Agencies or School Districts: None

(g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed under Part 7 (commencing with Section 17500) of Division 4: None

(h) Effect on Housing Costs: None

VII. Economic Impact Assessment:

The proposed action will have no statewide economic or fiscal impact because the proposed action does not constitute any change in existing fees.

(a) Effects of the regulation on the creation or elimination of jobs within the State:

The regulation will not affect the creation or elimination of jobs because no significant changes in hunting activity levels are anticipated.

(b) Effects of the regulation on the creation of new businesses or the elimination of existing businesses within the State:

The regulation will not impact the creation of new businesses or the elimination of businesses because no significant changes in hunting activity levels are anticipated.

(c) Effects of the regulation on the expansion of businesses currently doing business within the State

The regulation will not affect the expansion of businesses currently doing business within the State because no significant changes in hunting activity levels are anticipated.

- (d) Benefits of the regulation to the health and welfare of California residents:

The proposed regulation will benefit the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California's environment by the future stewards of the State's resources and the proposed action contributes to the sustainable management of natural resources.

- (e) Benefits of the regulation to worker safety.

The proposed regulation will not affect worker safety.

- (f) Benefits of the regulation to the State's environment

It is the policy of the State to encourage the conservation, maintenance, and utilization of the State's living resources. The proposed action will further this core objective. The Commission anticipates benefits to the State's environment through improved management of deer populations made possible by increased reporting of deer hunting activity.

INFORMATIVE DIGEST (Policy Statement Overview)

The proposed amendments in Section 708.5 are intended to clarify the methods by which hunters may comply with mandatory deer harvest reporting. The amendments will: 1) eliminate “in person” delivery of report cards to the Department; and 2) add a provision stating “If a report card is submitted by mail and not received by the department, it is considered not reported.”

Benefits of the regulations

The proposed changes in reporting deer harvest will clarify that the Department cannot receive report cards “in person”; and that the responsibility for compliance, regardless of report cards lost in the mail, is on the hunter. This may provide an incentive for hunters to enter their own data online or to check their online accounts to assure compliance in a timely fashion. The report card contains important information which the Department uses to measure deer populations and other vital data essential to the exercise of its responsibilities.

Non-monetary benefits to the public

The Commission does not anticipate non-monetary benefits to the protection of public health and safety, worker safety, the prevention of discrimination, the promotion of fairness or social equity and the increase in openness and transparency in business and government.

Consistency and Compatibility with State Regulations

The Fish and Game Commission, pursuant to Fish and Game Code Sections 200, 202 and 203, has the sole authority to regulate deer hunting in California. Commission staff has searched the California Code of Regulations and has found the proposed changes pertaining to deer tag reporting are consistent with Sections 1.74, 361, 701, 702, 708.5 and 708.6 of Title 14. Therefore the Commission has determined that the proposed amendments are neither inconsistent nor incompatible with existing State regulations.

Proposed Regulatory Text

Subsection (c) of Section 708.5 is amended to read:

§708.5. Deer Tagging and Reporting Requirements.

. . . [*Subsections (a) and (b)*]

(c) Harvest Report Card Return and Reporting Mechanisms.

(1) By mail ~~or in person~~ at the address specified on the harvest report card. A harvest report card returned by mail shall be postmarked by the date applicable to that card as specified in this section. If a report card is submitted by mail and not received by the department, it is considered not reported.

(2) Online through the department's internet license sales service website by the date specified in the section. Tag holders reporting online will be provided a confirmation number upon successful submission. The tag holder must record the provided confirmation number in the space provided on the harvest report card and retain the harvest report card until March 1 annually. Tags reported online must be surrendered to the department upon demand.

. . . [*Subsection (d)*]

Note: Authority cited: Sections 200, 202, 203, and 215, 219, 220, 1050, 1572, 4336, 4340 and 10502, Fish and Game Code. Reference: Sections ~~200, 201, 202, 203, 203.1, 207, 210, 215, 219, 220, 1050 and 4336, 1570, 1571, 1572, 3950, 4336, 10500 and 10502~~, Fish and Game Code.

Memorandum

Date: November 3, 2016

To: Valerie Termini
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director



RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION
2016 NOV -1 AM 8:19

Subject: **Agenda Item for the December 7-8, 2016 Fish and Game Commission Meeting**
Re: Request for Notice Authorization to Amend Section 708.5, Title 14, CCR,
Deer Tagging and Reporting Requirements

Attached is the Department of Fish and Wildlife's (Department's) proposal to amend Section 708.5 concerning reporting requirements for deer tag holders. The proposed amendments clarify that tags returned by mail, but not received by the Department, are considered unreported and therefore subject to the non-reporting fee.

Additionally, this memorandum describes staff's analysis of the use of a categorical exemption under the California Environmental Quality Act (CEQA).

Categorical Exemptions to Protect Natural Resources and the Environment

The Commission's adoption of the proposed regulations is an action subject to CEQA. The review by Department staff pursuant to CEQA Guidelines section 15061 leads staff to conclude that adoption of the regulations would properly fall within the Class 7 and Class 8 categorical exemptions (CEQA Guidelines sections 15307, 15308). These two exemptions are related to agency actions authorized by statute to protect natural resources and the environment. Accurate reporting of hunting results is necessary in order for the Department to have the information it needs to adequately manage sustainable deer populations.

No Exceptions to Categorical Exemptions Apply

As to the exceptions to categorical exemptions set forth in CEQA Guidelines section 15300.2, including the prospect of unusual circumstances and related effects, staff has reviewed all of the available information possessed by the Department relevant to the issue and does not believe adoption of the regulations poses any unusual circumstances that would constitute an exception to the categorical exemptions set forth above. Compared to the activities that fall within Class 7 and Class 8 generally, which include the given example of activities to maintain and enhance wildlife such as the current proposal, there is nothing unusual about the proposed regulations. In addition, even if there were unusual circumstances, no potentially significant effects on either a project-specific or a cumulative base are expected.

Valerie Termini, Executive Director
Fish and Game Commission
November 3, 2016
Page 2

This regulation will not change the current level of hunting in the state, but will simply modify the methods by which hunters can report the results of their hunting activities to the Department. Therefore, staff does not believe that the Commission's reliance on the Class 7 and Class 8 categorical exemptions is precluded by the exceptions set forth in CEQA Guidelines section 15300.2.

If you have any questions or need additional information, please contact Acting Wildlife Branch Chief, Rick Mayfield at (916) 445-3555 or by email at Rick.Mayfield@wildlife.ca.gov. The public notice should identify Environmental Program Manager, Craig Stowers as the Department's primary contact for this rulemaking. Mr. Stowers can be reached at (916) 445-3553 or by email at Craig.Stowers@wildlife.ca.gov.

Attachment

cc: Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

Rick Mayfield, Acting Chief
Wildlife Branch
Rick.Mayfield@wildlife.ca.gov

Craig Stowers
Game Program Manager
Wildlife Branch
Craig.Stowers@wildlife.ca.gov

Stuart Itoga, Senior Environmental
Scientist Supervisor
Wildlife Branch
Stuart.Itoga@wildlife.ca.gov

David Bess, Chief
Law Enforcement Division
David.Bess@wildlife.ca.gov

Wendy Bogdan, Chief Counsel
Office of the General Counsel
Wendy.Bogdan@wildlife.ca.gov

Valerie Termini, Executive Director
Fish and Game Commission
November 3, 2016
Page 3

Maria Melchiorre, Assistant Chief
License and Revenue Branch
Maria.Melchiorre@wildlife.ca.gov

Richard Reyes, Program Manager
ALDS
Richard.Reyes@wildlife.ca.gov

Craig Martz, Program Manager
Regulations Unit
Wildlife and Fisheries Division
Craig.Martz@wildlife.ca.gov

Mike Randall, Analyst
Regulations Unit
Wildlife and Fisheries Division
Mike.Randall@wildlife.ca.gov

[REDACTED]

From: James P Maddox <[REDACTED]>
Sent: Monday, February 06, 2017 1:50 PM
To: "fgc@fgc.ca.gov"@mail83c25.carrierzone.com
Cc: Pedro, Craig; Peterson Liz; McClintock, California Senator Tom; Bigelow, California Assembly Member Frank
Subject: Deer Tagging and Reporting, Section 708.5, Title 14, CCR
Attachments: Sportsmen Letter To F&G Commission re Hunter Success Reporting_2-6-17_2.docx

California Fish and Game Commission
1416 Ninth Street, Suite 1320
Sacramento, CA 95814

Attn: Valerie Termini, Executive Director

Dear Valeri,

Attached please find an electronic copy of our comments to the Fish and Game Commission pertaining to the proposed revision to the Department of Fish and Wildlife's reporting procedure for deer harvest reporting.

Sincerely,

James P. Maddox, Secretary
Tuolumne County Sportsmen, Inc.



P.O. Box 4389 Sonoma, Ca. 95370

Valeri Termini, Executive Director
California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090

February 6, 2017

Dear Fish and Game Commissioners,

The Tuolumne County Sportsmen, Inc., is writing in response to OAL Notice Z2016-1213-12, pertaining to Deer Tagging and Reporting, Section 708.5, Title 14, CCR.

The Fish and Game Commission's proposal would modify the season-ending reporting procedure for holders of California deer tags.

Under the new proposal it would no longer be possible for a tag holder to report success, or lack thereof, to the Department of Fish and Wildlife by going to a Department of Fish and Wildlife office and providing a clerk with the information. Instead, responders would be required to either utilize the Department's web site or to send the results via the US Mail Service.

We do not believe elimination of the option of direct personal contact with centrally located Departmental personnel is appropriate for the following reasons:

- a.) Not all hunters have computers. Some hunters will be obligated to send their results by mail. The U.S. Post Office does not have a sterling reputation for 100% safe delivery of mail (in our opinion) and thus hunters are not guaranteed their results will reach their intended destination. The section under consideration for adoption states: "If a report card is submitted by mail and not received by the Department, it is considered not reported." It appears to us the Department is setting hunters up for failure!

The penalty for failing to report hunting season results by January 31st is \$21.00, which would be tacked onto the following seasons deer tag expense.



We believe the Department should continue to provide an opportunity for hunters to return success information in person, and to receive the Departments acknowledgement for receipt of that information. In short, a clerk responsible for recording success information should continue to be provided at specified locations, such as Departmental Headquarters, Regional Offices and perhaps even Fish Hatcheries.

- b.) The Department's website seems very difficult to navigate, especially for those that are electronically-challenged. For purposes of simplification, it would seem the Department could place an OBVIOUS link on its Homepage, which would direct those that wish to comply with online reporting for their mandatory reporting requirement.
- c.) If there is such a thing as a 'Report Card,' they need to be made available to the public; or at the very least, a link to a card that can be copied should be provided on the Department's website.

Benefits of the Regulation

It is quite understandable the Department would want good harvest information, in order to properly manage the state's deer resources; however, it seems as though the regulations, as proposed, mostly are intended to benefit the Department, not the hunters.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, reading 'James L. Phelan'.

James L. Phelan, President
Tuolumne County Sportsmen, Inc.

cc.: Tuolumne County Board of Supervisors
California Senator Tom Berryhill
California Assembly Member Frank Bigelow

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-Publication of Notice Statement)

Amend Section 265
Title 14, California Code of Regulations (CCR)
Re: Use of Dogs for Pursuit/Take of Mammals or for Dog Training

Date of Initial Statement of Reasons: October 7, 2016

II. Dates and Locations of Scheduled Hearings:

- | | | |
|-------------------------|-----------|------------------|
| (a) Notice Hearing: | Date: | October 20, 2016 |
| | Location: | Eureka, CA |
| (b) Discussion Hearing: | Date: | December 8, 2016 |
| | Location: | San Diego, CA |
| (c) Adoption Hearing: | Date: | February 8, 2017 |
| | Location: | Santa Rosa, CA |

III. Description of Regulatory Action:

- (a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

Add a new subsection 265(d)(1):

Insert a provision prohibiting the use of treeing switches on dog collars when dogs are used as an aid in hunting. Treeing switches, sometimes called activity switches, are devices on the collar of a dog that incorporate a mercury or electronic switch. This equipment indicates the position of the dog's head with one signal provided remotely to a hunter if the dog's head is down and another signal provided to a hunter if the dog's head is up; this often helps the hunter know if the dog is tracking a scent (with the dog's head down) or looking up (such as when the dog is at the base of a tree with an animal in the tree).

Add a new subsection 265(d)(2):

Insert a provision prohibiting the use of global positioning system (GPS) equipped dog collars when dogs are used as an aid in hunting. Certain dog tracking systems rely on GPS equipped dog collars to transmit the location of the dog to a hunter to track and retrieve hunting dogs in the field while assisting a hunter.

In April 2016, the Fish and Game Commission (Commission) adopted changes to Section 265 authorizing the use of GPS collars and treeing switches for dogs aiding a hunter. The Public Interest Coalition filed a petition in Superior Court in Sacramento County (Case No. 34-2016-80002350) seeking a Writ of Mandate invalidating the Commission's action; the petition alleges that the Commission failed to comply with the procedural requirements of the California Environmental Quality Act (CEQA). The Commission has determined that further rulemaking may be necessary to resolve that litigation. The rulemaking and the related CEQA analysis will also help to further inform the Commission about issues related to regulating the use of dogs as an aid in hunting and associated equipment for those dogs. The proposed amended language would be necessary for such purposes.

(b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority cited: Sections 200, 202, 203, 3960, 3960.2 and 3960.4, Fish and Game Code.

Reference: Sections 3960, 3960.2 and 3960.4, Fish and Game Code.

(c) Specific Technology or Equipment Required by Regulatory Change: None.

(d) Identification of Reports or Documents Supporting Regulation Change: None.

(e) Public Discussions of Proposed Regulations Prior to Notice Publication: None.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

No alternatives were identified.

(b) No Change Alternative:

The no change alternative was considered and rejected because it would not satisfy the allegations of the petition made by the Public Interest Coalition.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made.

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed regulations will affect a limited number of hunters who pursue mammals with dogs. These hunters may still use other, non-GPS radio collar technology to track and retrieve dogs during the hunt.

(b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The proposed action will not have significant impacts on the creation or elimination of jobs within the state, the creation of new businesses or the elimination of existing businesses, or the expansion of businesses in California. Sales of GPS collars are not anticipated to decrease as a result of the proposed regulation because GPS collars can still be used by dog owners in a wide variety of applications other than hunting. The Commission does not anticipate benefits to the health and welfare of California Residents, benefits to worker safety, nor to the State's environment.

(c) Cost Impacts on Representative Private Persons/Business:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

(d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None.

(e) Other Nondiscretionary Costs/Savings to Local Agencies: None.

(f) Programs Mandated on Local Agencies or School Districts: None.

(g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed under Part 7 (commencing with Section 17500) of Division 4: None.

(h) Effect on Housing Costs: None.

VII. Economic Impact Assessment

The proposed action will have no statewide economic or fiscal impact because the proposed action affects a relatively small number of individuals who hunt mammals with dogs. These hunters may still use radio collar technology to track and retrieve dogs during the hunt. There are no new costs necessarily incurred by a representative person or business to comply with this regulatory amendment, per APA (section 11342.535), wherein “cost impacts” are defined as those that a person “necessarily incurs in reasonable compliance with the proposed action.”

(a) Effects of the regulation on the creation or elimination of jobs within the State:

The regulation will not affect the creation or elimination of jobs because it is unlikely to cause an increase or decrease in hunting effort. Sales of GPS collars are not anticipated to decrease as a result of the proposed regulation because GPS collars can still be used by dog owners in a wide variety of applications other than hunting.

(b) Effects of the regulation on the creation of new businesses or the elimination of existing businesses within the State:

The regulation will not create new businesses or eliminate businesses within the State because it is unlikely to cause an increase or decrease in hunting effort or the manufacture and sale of GPS collars.

(c) Effects of the regulation on the expansion of businesses currently doing business within the State:

The regulation will not affect the expansion of businesses currently doing business in the State because it is unlikely to cause an increase or decrease in hunting effort or the manufacture and sale of GPS collars.

(d) Benefits of the regulation to the health and welfare of California residents:

The Commission anticipates benefits to the health and welfare of California residents. Hunting provides opportunities for multi-generational family activities and promotes respect for California’s environment by the future stewards of the State’s resources.

(e) Benefits of the regulation to worker safety.

The proposed regulation will not affect worker safety.

(f) Benefits of the regulation to the State's environment:

It is the policy of the State to encourage the conservation, maintenance, and utilization of the living resources of the State. The Commission anticipates benefits to the State's environment in the sustainable management of natural resources.

INFORMATIVE DIGEST (Policy Statement Overview)

In April 2016, the Fish and Game Commission adopted changes to Section 265, Title 14, California Code of Regulations authorizing the use of GPS collars and treeing switches for dogs aiding a hunter. The Public Interest Coalition filed a petition in Superior Court in Sacramento County (Case No. 34-2016-80002350) seeking a Writ of Mandate invalidating the Fish and Game Commission's action. That petition alleges that the Commission failed to comply with the procedural requirements of CEQA. The Commission has determined that further rulemaking may be necessary to resolve that litigation. The rulemaking and the related CEQA analysis will also help to further inform the Commission about the issues related to regulating the use of dogs as an aid in hunting and associated equipment for those dogs. The proposed amended language would be necessary for such purposes.

Amend Section 265, Title 14, CCR, by adding new subsections (d)(1) and (d)(2) to prohibit the use of treeing switches and GPS collar equipment for dogs used in the taking of mammals.

Benefits of the regulations

The regulation prohibits the use of treeing switches or GPS equipped collars on dogs used for the pursuit/take of mammals.

Non-monetary benefits to the public

The Commission does not anticipate non-monetary benefits to the protection of public health and safety, worker safety, the prevention of discrimination, the promotion of fairness or social equity and the increase in openness and transparency in business and government.

Consistency and Compatibility with State Regulations

The Fish and Game Commission, pursuant to Fish and Game Code Sections 200, 202 and 203, has the sole authority to regulate hunting in California. Commission staff has searched the California Code of Regulations and has found no other agency with the authority to regulate the use of dogs for hunting mammals. Therefore the Commission has determined that the proposed amendments are neither inconsistent nor incompatible with existing State regulations.

TITLE 14. Fish and Game Commission

Notice of Proposed Changes in Regulations

NOTICE IS HEREBY GIVEN that the Fish and Game Commission (Commission), pursuant to the authority vested by Sections: 200, 202, 203, 3960, 3960.2 and 3960.4 of the Fish and Game Code and to implement, interpret or make specific Sections 3960, 3960.2 and 3960.4 of said Code, proposes to amend Section 265, Title 14, California Code of Regulations, relating to Use of Dogs for Pursuit/Take of Mammals or for Dog Training

Informative Digest/Policy Statement Overview – Inland Fisheries

In April 2016, the Fish and Game Commission adopted changes to Section 265, Title 14, California Code of Regulations authorizing the use of GPS collars and treeing switches for dogs aiding a hunter. The Public Interest Coalition filed a petition in Superior Court in Sacramento County (Case No. 34-2016-80002350) seeking a Writ of Mandate invalidating the Fish and Game Commission's action. That petition alleges that the Commission failed to comply with the procedural requirements of CEQA. The Commission has determined that further rulemaking may be necessary to resolve that litigation. The rulemaking and the related CEQA analysis will also help to further inform the Commission about the issues related to regulating the use of dogs as an aid in hunting and associated equipment for those dogs. The proposed amended language would be necessary for such purposes.

Amend Section 265, Title 14, CCR, by adding new subsections (d)(1) and (d)(2) to prohibit the use of treeing switches and GPS collar equipment for dogs used in the taking of mammals.

Benefits of the regulations

The regulation prohibits the use of treeing switches or GPS equipped collars on dogs used for the pursuit/take of mammals.

Consistency and Compatibility with State Regulations

The Fish and Game Commission, pursuant to Fish and Game Code Sections 200, 202 and 203, has the sole authority to regulate hunting in California. Commission staff has searched the California Code of Regulations and has found no other agency with the authority to regulate the use of dogs for hunting mammals. Therefore the Commission has determined that the proposed amendments are neither inconsistent nor incompatible with existing State regulations.

NOTICE IS GIVEN that any person interested may present statements, orally or in writing, relevant to this action at a hearing to be held in the Hilton Garden Inn San Diego Mission Valley/Stadium, 3805 Murphy Canyon Road, San Diego, California, on Thursday, December 8, 2016 at 8:00 a.m.; or as soon thereafter as the matter may be heard.

NOTICE IS ALSO GIVEN that any person interested may present statements, orally or in writing, relevant to this action at a hearing to be held in Santa Rosa, California, on February 8, 2017, at 8:00 a.m., or as soon thereafter as the matter may be heard (a specific location will be determined and provided to interested and affected parties). It is requested, but not required, that written comments be submitted on or before 5:00 p.m. on January 19, 2017 at the address given below, or by email to FGC@fgc.ca.gov. Written comments mailed, or emailed to the Commission office, must be received before 12:00 noon on February 3, 2017. All comments must be received no later than February 8,

2017, at the hearing in Santa Rosa, California. If you would like copies of any modifications to this proposal, please include your name and mailing address.

Availability of Documents

The Initial Statement of Reasons, text of the regulations, as well as all related documents upon which the proposal is based (rulemaking file), are on file and available for public review from the agency representative, Valerie Termini, Executive Director, Fish and Game Commission, 1416 Ninth Street, Box 944209, Sacramento, California 94244-2090, phone (916) 653-4899. Please direct requests for the above mentioned documents and inquiries concerning the regulatory process to Valerie Termini or Jon Snellstrom at the preceding address or phone number. **Craig Stowers, Environmental Program Manager, Department of Fish and Wildlife, phone (916) 445-3553**, has been designated to respond to questions on the substance of the proposed Use of Dogs for Pursuit regulations. Copies of the Notice of Proposed Action, the Initial Statement of Reasons, and the text of the regulation in underline and strikeout can be accessed through our website at <http://www.fgc.ca.gov>.

Availability of Modified Text

If the regulations adopted by the Commission differ from but are sufficiently related to the action proposed, they will be available to the public for at least 15 days prior to the date of adoption. Circumstances beyond the control of the Commission (e.g., timing of Federal regulation adoption, timing of resource data collection, timelines do not allow, etc.) or changes made to be responsive to public recommendation and comments during the regulatory process may preclude full compliance with the 15-day comment period, and the Commission will exercise its powers under Section 202 of the Fish and Game Code. Regulations adopted pursuant to this section are not subject to the time periods for adoption, amendment or repeal of regulations prescribed in Sections 11343.4, 11346.4 and 11346.8 of the Government Code. Any person interested may obtain a copy of said regulations prior to the date of adoption by contacting the agency representative named herein.

If the regulatory proposal is adopted, the final statement of reasons may be obtained from the address above when it has been received from the agency program staff.

Impact of Regulatory Action/Results of the Economic Impact Assessment

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made:

- (a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed regulations will affect a limited number of hunters who pursue mammals with dogs. These hunters may still use other, non-GPS radio collar technology to track and retrieve dogs during the hunt.

- (b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The proposed action will not have significant impacts on the creation or elimination of jobs within the state, the creation of new businesses or the elimination of existing businesses, or the expansion of businesses in California. Sales of GPS collars are not anticipated to decrease as a result of the proposed regulation because GPS collars can still be used by dog owners in a wide variety of applications other than hunting. The Commission does not anticipate benefits to the health and welfare of California Residents, benefits to worker safety, nor to the State's environment.

(c) Cost Impacts on Representative Private Persons/Business:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

(d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None.

(e) Other Nondiscretionary Costs/Savings to Local Agencies: None.

(f) Programs Mandated on Local Agencies or School Districts: None.

(g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed under Part 7 (commencing with Section 17500) of Division 4: None.

(h) Effect on Housing Costs: None.

Effect on Small Business

It has been determined that the adoption of these regulations may affect small business. The Commission has drafted the regulations in Plain English pursuant to Government Code Sections 11342.580 and 11346.2(a)(1).

Consideration of Alternatives

The Commission must determine that no reasonable alternative considered by the Commission, or that has otherwise been identified and brought to the attention of the Commission, would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

FISH AND GAME COMMISSION

Dated: November 1, 2016

Valerie Termini
Executive Director

Commissioners
Eric Sklar, President
Saint Helena

Jacque Hostler-Carmesin, Vice President
McKinleyville

Anthony C. Williams, Member
Huntington Beach

Russell Burns, Member
Napa

Peter Silva, Member
Chula Vista

STATE OF CALIFORNIA
Edmund G. Brown Jr., Governor

Valerie Termini, Executive Director
1416 Ninth Street, Room 1320
Sacramento, CA 95814
(916) 653-4899
www.fgc.ca.gov

Fish and Game Commission



Wildlife Heritage and Conservation
Since 1870

February 14, 2017

TO ALL AFFECTED AND INTERESTED PARTIES:

Re: Use of Dogs for Pursuit/Take of Mammals, Section 265, Title 14, California Code of Regulations; published in California Notice Register, November 18, 2016, Notice File No. Z2016-1108-06, Register 2016, No. 47-Z.

Notice was given that any person interested may present statements, orally or in writing, relevant to this rulemaking at an adoption hearing which was originally scheduled on February 8, 2017, at 8:00 a.m. At this meeting the Commission voted to agendaize two additional public meetings.

NOTICE IS NOW GIVEN that any person interested may present statements, orally or in writing, relevant to this action at a hearing to be teleconference originating in the Fish and Game Commission conference room, 1416 Ninth Street, Suite 1320, Sacramento, California, on Wednesday, March 15, 2017, at 8:30 a.m., or as soon thereafter as the matter may be heard.

NOTICE IS ALSO GIVEN that any person interested may present statements, orally or in writing, relevant to this action at a hearing to be held in Airtel Plaza Hotel, 7277 Valjean Ave., Van Nuys, California, on Wednesday, April 26, 2017, at 8:00 a.m., or as soon thereafter as the matter may be heard. It is requested, but not required, that written comments be submitted on or before 5:00 p.m. on April 12, 2017 at the address given below, or by email to FGC@fgc.ca.gov. Written comments mailed, or emailed to the Commission office, must be received before 12:00 noon on April 21, 2017. All comments must be received no later than April 26, 2017, at the hearing in Van Nuys, California. If you would like copies of any modifications to this proposal, please include your name and mailing address.

Additional information and all associated documents may be found on the Fish and Game Commission website at http://www.fgc.ca.gov/regulations/2016/index.aspx#265_2.

Sincerely,



Jon D. Snellstrom

Associate Governmental Program Analyst

Commissioners
Eric Sklar, President
Saint Helena

Jacque Hostler-Carmesin, Vice President
McKinleyville

Anthony C. Williams, Member
Huntington Beach

Russell Burns, Member
Napa

Peter Silva, Member
El Cajon

STATE OF CALIFORNIA
Edmund G. Brown Jr., Governor

Valerie Termini, Executive Director
1416 Ninth Street, Room 1320
Sacramento, CA 95814
(916) 653-4899
www.fgc.ca.gov

Fish and Game Commission



Wildlife Heritage and Conservation
Since 1870

March 24, 2017

TO ALL AFFECTED AND INTERESTED PARTIES:

Re: Use of Dogs for Pursuit/Take of Mammals, Section 265, Title 14, California Code of Regulations; published in California Notice Register, November 18, 2016, Notice File No. Z2016-1108-06, Register 2016, No. 47-Z.

NOTICE IS NOW GIVEN that any person interested may present statements, orally or in writing, relevant to this action at an additional hearing to be teleconferenced, originating in the Fish and Game Commission conference room, 1416 Ninth Street, Suite 1320, Sacramento, California, on Thursday, April 13, 2017, at 8:30 a.m., or as soon thereafter as the matter may be heard.

As previously noticed, any person interested may present statements, orally or in writing, relevant to this action at a hearing to be held in Airtel Plaza Hotel, 7277 Valjean Ave., Van Nuys, California, on Wednesday, April 26, 2017, at 8:00 a.m., or as soon thereafter as the matter may be heard. It is requested, but not required, that written comments be submitted on or before 5:00 p.m. on April 12, 2017 at the address given below, or by email to FGC@fgc.ca.gov. Written comments mailed, or emailed to the Commission office, must be received before 12:00 noon on April 21, 2017. All comments must be received no later than April 26, 2017, at the hearing in Van Nuys, California. If you would like copies of any modifications to this proposal, please include your name and mailing address.

Additional information and all associated documents may be found on the Fish and Game Commission website at http://www.fgc.ca.gov/regulations/2016/index.aspx#265_2.

Sincerely,

Jon D. Snellstrom
Associate Governmental Program Analyst

State of California
Department of Fish and Wildlife

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION

2017 APR -5 PM 4:42

Memorandum

Date: March 27, 2017

To: Valerie Termini
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director



Subject: **Agenda Item for the April 15 Fish and Game Commission Teleconference Meeting Re: Proposed Changes to Regulations Concerning the Use of Dogs for the Pursuit and Take of Mammals (Section 265, Title 14, CCR)**

Attached is a briefing paper developed as an informational item for Fish and Game Commission (FGC) use during the public discussion regarding the use of GPS collars or dog collars equipped with "treeing switches" for the pursuit and take of mammals.

The FGC adopted a regulation change proposal eliminating the prohibition on the use of these types of dog collars for pursuing/taking mammals submitted by the Department at their April, 2016 meeting in Santa Rosa. CEQA issues raised following that decision led to the development of this briefing paper. It is intended to provide additional information to assist the FGC in making a decision to either reinstate the ban on this equipment or uphold the previous decision. This document is not intended to be a substitute for an environmental document; it is just additional information to inform the discussion on this topic.

If you have any questions or need additional information, please contact T.O. Smith at [Timothy\(TO\).Smith@wildlife.ca.gov](mailto:Timothy(TO).Smith@wildlife.ca.gov) or (916) 445-3555. The Department's point of contact for this rulemaking is Craig Stowers, Environmental Program Manager at (916) 445-3553 or by email at Craig.Stowers@wildlife.ca.gov.

Attachment

ec: Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

David Bess, Chief
Law Enforcement Division
David.Bess@wildlife.ca.gov

Wendy Bogdan, Chief Counsel
Office of the General Counsel
Wendy.Bogdan@wildlife.ca.gov

Valerie Termini, Executive Director
Fish and Game Commission
March 27, 2017
Page 2

T.O. Smith, Chief
Wildlife Branch
[Timothy\(TO\).Smith@Wildlife.ca.gov](mailto:Timothy(TO).Smith@Wildlife.ca.gov)

Craig Stowers,
Game Program Manager
Wildlife Branch
Craig.Stowers@wildlife.ca.gov

Craig Martz, Program Manager
Regulations Unit
Wildlife and Fisheries Division
Craig.Martz@wildlife.ca.gov

I. Introduction

A. Background on the regulation

The prohibition on the use of treeing (or activity) switches and Global Positioning System (GPS) collars on dogs for the pursuit of mammals was implemented in July, 1994. (§265(d), Title 14, California Code of Regulations).¹ Treeing switches and GPS collars had been primarily used by hunters pursuing species which typically “tree” such as bear, mountain lion, and bobcat. Proponents of the prohibition argued that the use of these collars on dogs pursuing mammals (primarily bears) violated the ethical concept of “fair-chase” by making it easier for hunters to find the animals they were pursuing.

As a result of discussions and recommendations made by the Fish and Game Commission’s (Commission) Wildlife Resources Committee (WRC) in 2015, the Commission proposed to eliminate §265(d) to simplify and make more understandable the regulations in question. Regulatory changes since 1994 – including the legislative ban on hunting mountain lions in the early 1990’s (§4800, FGC) and the more recent prohibition regarding the use of dogs to take bear, bobcat, elk, bighorn sheep and antelope (§265 (a)(2), T14, CCR) – appeared to have rendered the prohibitions contained in §265(d) largely unnecessary, therefore §265(d) was proposed for deletion.

With this deletion, dogs could only be used to pursue deer (one dog per hunter during the general season only) and wild pigs (no more than three dogs per hunter). Treeing switches are not used in the pursuit of these species because they are not treed. The use of GPS collars on dogs pursuing deer and/or pigs would allow the hunter to find and locate crippled game more efficiently, would allow the hunter to locate lost dogs, and would allow enforcement to track hunter trespass in a manner not available to them now (by using data from the dog’s GPS collar as evidence during hunter trespass investigations). These rationales were used to support the lifting of the ban.

The lifting of the ban has resulted in significant debate before the Commission. This briefing paper has been prepared to provide a brief general summary of the issues raised in that discussion about whether to allow or disallow the use of GPS collars for take of deer during the general deer season and wild pigs. The information contained herein may be supplemented or changed if additional information is developed or identified.

¹ Former section 265(d) stated: Prohibition on Treeing Switches and Use of Global Positioning System Equipment.

(1) Treeing Switches. Electronic dog retrieval collars containing functioning treeing switches (devices consisting of a switch mechanism that results in a change in the transmitted signals when the dog raises its head to a treed animal) are prohibited on dogs used for the pursuit/take of mammals.

(2) Global Positioning System Equipment. Electronic dog retrieval collars employing the use of global positioning system equipment (devices that utilize satellite transmissions) are prohibited on dogs used for the pursuit/take of mammals.

This paper is not intended to be a substitute for document prepared pursuant to the California Environmental Quality Act (CEQA); the Commission will fully comply with CEQA at the time it makes a final decision. Neither is it being used in support of a CEQA “approval”. An “approval” is a “decision by a public agency which commits the agency to a definite course of action.” CEQA Guideline section 15352. The Commission is not at that stage yet in its process to consider the regulation regarding GPS collars and treeing switches.

B. Procedural posture

On September 9, 2015, the WRC discussed eliminating the GPS collar and treeing switch prohibition. The WRC recommended this change to the full Commission. In November, 2015, CDFW prepared for the Commission’s consideration, a regulatory repeal of sections 265(d) (1) relating to treeing switches and (d) (2) relating to GPS collars. After hearings in both December, 2015, and February, 2016, the Commission approved the proposed repeal at its April 14, 2016 meeting. The regulation was approved by the Office of Administrative Law and became effective on July 27, 2016.

On May 16, 2016, however, the Public Interest Coalition (PIC) filed a petition in Superior Court in Sacramento County (Case No. 34-2016-80002350) seeking a Writ of Mandate invalidating FGC’s action. That petition alleges that FGC failed to comply with the procedural requirements of CEQA at the time it lifted the ban. As part of that case, the Commission entered into a stipulation with PIC that states:

(T)he Commission intends to notice consideration of further amendment to section 265 and to conduct further CEQA analysis; and...the Commission’s decision following further CEQA analysis could have a substantial impact on this litigation....(The) Commission will make a final decision on any noticed amendment to Section 265 not later than its regularly scheduled meeting in June, 21-22, 2017. (Stipulation and Order to Stay Proceedings, p. 2)

To accomplish the elements of the stipulation, the Commission went to notice at its October, 2016, meeting to consider reinstituting the prohibition on GPS collars and treeing switches. Discussion on this topic has taken place at the Commission’s December, 2016, and February, 2017, meetings. CDFW is asking for the Commission to provide some direction (not a decision) to it so it can assist the Commission with its compliance with the CEQA at the time it makes a final decision on possible new regulations.

II. Discussion

A. What are GPS collars?

GPS dog collars contain a transmitter that triangulates signals from a minimum of 3 satellites in order to provide an exact location to a receiver used by the hunter/dog handler. The receiver can identify individual way-points (individual locations the dog has been) as well as the track (a series of waypoints) of the dog through the environment in which it is hunting/tracking. GPS collars are usually more expensive than other types of collars. Collars typically used for hunting purposes range from \$179 (Smart Waterproof GPS Collar Tracker for Pets) to \$450 (Garmin Astro 320/T5 Bundle). Although more expensive, hunters purchase and use them as a “security system” to protect their dogs, both seen as valuable property and hunting companions.

Prior to GPS technology, many dog handlers used radio-telemetry collars to track their dogs. Radio-telemetry collars send a VHF signal to the dog handler’s receiver unit. Using a directional antenna (Yagi), the operator can determine the direction of the collar based on the strength of the signal as the antenna is moved. Fast, loud beeps indicate the handler is getting close to the dog. Radio-telemetry collars are fairly inexpensive, ranging from \$80 (Sportdog Beeper Dog Collar 400) to \$169 (Sportdog Hound Tracking Collar). The use of radio-telemetry dog collars for the pursuit/take of deer and wild pigs is currently legal and will remain so under any scenario currently considered in connection with the proposed change.

B. What are treeing switches?

A “treeing” or “activity” switch² is a device on a dog collar which sends different strength signals to a receiver depending upon the position of the dog’s head (a slow signal is sent when the dog’s head is down, a faster signal is sent when the dog’s head is raised indicating an animal has been “treed”). The hunter can use this signal to locate the dog, and presumably the treed animal, in much the same way as a GPS collar only without the precision a GPS collar provides. Without an electronic treeing switch, a hunter who is pursuing game must listen for hounds beginning to howl (referred to as baying) at a treed animal and follow the sound of the baying.

C. What is “fair-chase”?

“Fair Chase”³ is the ethical, sportsmanlike, and lawful pursuit and taking of any free-ranging wild, native North American big game animal in a manner that does not give the hunter an improper advantage over such animals. Fundamental to all hunting is the concept of conservation of natural resources. Hunting in today’s

² Definition located at wildlifematerials.com

³ Boone and Crockett Club, boone-crockett.org

world involves the regulated harvest of individual animals in a manner that conserves, protects, and perpetuates the hunted population. The hunter engages in a one-to-one relationship with the quarry and his or her hunting should be guided by a hierarchy of ethics related to hunting, which includes the following tenets:

1. Obey all applicable laws and regulations.
2. Respect the customs of the locale where the hunting occurs.
3. Exercise a personal code of behavior that reflects favorably on your abilities and sensibilities as a hunter.
4. Attain and maintain the skills necessary to make the kill as certain and quick as possible.
5. Behave in a way that will bring no dishonor to the hunter, the hunted, or the environment.
6. Recognize that these tenets are intended to enhance the hunter's experience of the relationship between predator and prey, which is one of the most fundamental relationships of humans and their environment.

Therefore, if an aspect of hunting is perceived as giving a hunter an unfair advantage over the target species, then it is said to violate the ethical concept of "fair chase". Any hunter who wishes to enter an animal in the Boone & Crockett and/or Pope & Young (animals taken by archery equipment) record books must first certify in writing that the animal was taken under the principles of fair chase. These principles have been adopted by hunting and wildlife conservation organizations such as the Rocky Mountain Elk Foundation, Mule Deer Foundation, California Deer Association, and the Wild Sheep Foundation.

1. How do collars/switches promote "fair-chase"?

Since the Fish and Game Commission banned the use of dogs for pursuing big-game species except for deer (during the general season only) and wild pigs, dogs fitted with GPS collars would be used primarily to find wounded animals. In the event of hunter-injured wildlife, dogs help locate the injured deer or pig thereby preventing the animal from going to waste. Avoiding waste is a component of hunting ethics and is prohibited under California law (§4304 Fish and Game Code). All hunters are expected to go to the fullest extent reasonable to recover any wounded game animal and a dog can be effective in this effort. Proponents for the use of this equipment advocate that the humane treatment of hunting dogs is they are not left in the field in the event they become lost. Dogs that have become separated from the hunter would be more easily found. The treeing switch regulation was not proposed for change because it promoted fair chase, but because it has become obsolete since neither deer nor pigs can be treed and the pursuit of those species that do climb trees has been otherwise legislatively prohibited.

2. How do collars/switches hinder “fair-chase”?

These devices could make it easier for hunters to locate animals to kill. Since dogs can track wildlife faster than humans, opponents of the devices claim the hunter has an unfair advantage when using GPS-collared dogs because dogs can keep up with the animal being pursued, and the hunter can follow along using the GPS markers at a slower pace to catch up with the hunted animal. Opponents of the use of these collars have also asserted hunters could stay in their campgrounds and release their GPS-collared dogs, only to catch up with them later when the dogs have located a target species. Opponents argue the same could be true for treeing switches.

It is unlikely and highly unusual for hunters to use these collars in the manner suggested by the opponents of the change due to an increased probability of losing their dogs. Opponents argue it is possible some poachers may use these collars to take species for which the use of dogs is entirely prohibited by existing law or regulation.

D. Other effects on hunting

1. Number of hunters

Over the period 2012-2016, California issued an average of 183,294 first and second deer tag applications per year⁴. After deducting the number of second deer tags sold, the Department estimates that there were approximately 103,402 individual deer hunters during that same time period. Unfortunately, it is impossible at this time to provide information regarding the use of dogs to take deer as that question is not asked of hunters reporting take. Using dogs to hunt deer is primarily an eastern method of hunting white-tailed deer and is not a common practice in California⁴. However, as more people relocate to California they are bringing their traditions with them and some deer hunters are currently using dogs to hunt deer.

Because the Department does not track the number of hunters using dogs to hunt deer, it cannot conclude that there is any impact on the number of hunters from either permitting or prohibiting GPS collars or treeing switches.

An average of 54,775 pig tags were sold from 2012-2016⁵. Assuming approximately 17-20% of successful pig hunters used dogs⁴, from 9,312 to 10,955 of these hunters used dogs to assist in the take of wild pigs. Private landowners are now able to kill depredating pigs under the “immediate

⁴ California Department of Fish and Game. 2004. Final Environmental Document for Wild Pig Hunting. 133pp.

⁵ California Department of Fish and Wildlife. 2017. License Sales Statistics. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=59821&inline>.

encounter” provision of the pig depredation regulation, and this has had a negative impact on the sales of pig tags. The trend is downward; in 2012 60,349 pig tags were sold but in 2016 only 40,361 pig tags were sold. This downward trend is expected to continue as more private landowners deal with the problem themselves and pig populations decline due to other population reduction efforts.

2. Hunter success

Estimated hunter success for deer hunters in 2014 was 21.6% (more accurate figures will be available for the 2016 season with the implementation of mandatory reporting for all deer hunters whether successful or not). Hunter success data for wild pig hunters is not tracked; mandatory reporting for wild pig hunters has not been implemented to date.

The use of dogs for deer hunting was evaluated in the 2004 Final Environmental Document Regarding Deer Hunting⁶. Studies conducted in 1986⁷ on white-tailed deer suggest hunters with dogs have a higher success rate than hunters without dogs. This study also indicates that in areas where hunters use dogs, deer experience more stress, but that no significant effects on fertilization, reproductive, and survival rates were found. The study concluded the use of dogs for hunting deer does not impact the reproductive potential of deer populations.

The use of dogs for wild pig hunting was evaluated in the 2004 Final Environmental Document for Wild Pig Hunting. This document determined the regulated use of dogs to hunt wild pigs (approximately 17-20% of wild pig hunters reported using dogs to hunt wild pigs) has not resulted in significant negative impacts on wild pigs, other wildlife, or their habitats in the past. However, public comments generated by the Draft Environmental Document for Wild Pig Hunting indicated some individuals are philosophically opposed to hunting pigs with dogs. They claimed it caused needless pain and suffering because the dog pursued the animal until it was caught and killed. It is important to remember the dogs are used to find and hold the pigs until the hunters kill them, not the dogs. This same document concludes hunters using dogs to hunt pigs have a higher success rate and lower wounding losses than hunters not using dogs.

Both Final Environmental Documents indicate an increase in hunter success may be expected when using dogs to locate downed or crippled game. If GPS-collared dogs are used to find target species, then it will likely increase hunter success. This hunter success is likely to be marginal because most

⁶ California Department of Fish and Game. 2004. *Final Environmental Document Regarding Deer Hunting*. 351 pp.

⁷ Spencer, G. 1986. *Hunting Deer with Dogs*. Special Staff Report, Wildlife Division, Texas Parks and Wildlife Department. 71 pp.

hunters who would use GPS collars are likely now using radio-telemetry collars on their dogs.

Again, because wounded animals can be located more easily with collared dogs, there is likely to be less waste of hunter shot deer and wild pigs.

3. Use of dogs generally

a. Hunting

In California dogs are now primarily used in hunting upland game and waterfowl species. Historically dogs were used to track and tree bears, bobcats, and mountain lions but other legislative and regulatory changes now prohibit the use of dogs for these species. Although dogs may still be used while hunting deer and pigs, the Department does not currently track that information. Deer hunters may use one dog while deer hunting during the general season; these dogs are most commonly used to work dense cover hunters can't access in order to flush deer and/or to trail wounded deer or find carcasses in heavily vegetated areas. Pig hunters are allowed to use up to three dogs; these dogs are used to locate pigs in dense cover and to hold them in the vicinity while a hunter approaches. While dog owners are expected to keep their dogs under control at all times the use of a leash for hunting purposes is not required in California.

b. Training

Dogs can roughly be categorized as follows: 1) retrievers are primarily used for waterfowl hunting; 2) flushing dogs which are primarily used on upland game species to find, flush, and retrieve game; 3) pointers which are almost exclusively used to find upland game species; 4) trackers/trailers which are primarily hounds which find, trail, and bring to bay the target animal.

With regard to the fourth category of dogs described above (trackers/trailers) California has identified four (4) "dog training zones" (§265(a) (4)(A-D)) and dog training seasons have been established in order to allow hunters to train their dogs without impacting other wildlife species during their normal reproductive/off-spring rearing seasons. These "no training" seasons typically run from April 1st to the opening day of general deer season in those areas.

GPS collars can assist during training periods when inexperienced dogs are more likely to get lost. If a dog is being trained, being able to locate it quickly is extremely important so the untrained dog doesn't harm the target individual. Its owner can track it down and call it off more quickly and more accurately with GPS.

c. Should the FGC consider welfare of dogs in hunting regulations?

Commenters in opposition to the lifting of the prohibition on GPS collars and treeing switches argue the welfare of hunting dogs is the responsibility of the dog owner/ handler, not the responsibility of the Commission. Presumably this suggests the welfare of lost dogs should not be a consideration in the Commission's regulation.

In this regard, the Commission's jurisdiction as to game mammals is contained in Fish and Game Code section 203. It provides any regulation of the Commission may do "any or all of the following as to any or all species or subspecies: ...prescribe the manner and the means of taking." And "take" pursuant to Fish and Game Code section 86 means "...hunt, pursue, catch, capture or kill" or attempt to do any of these things. Further, section 203.1 specifies that when adopting regulations pursuant to section 203, the Commission "shall consider...the welfare of individual animals...." It is not specified if this reference to individual animals includes only the target species being regulated or other animals that are used as a manner and means of the taking like hunting dogs.

d. Use of leashes

While dogs are required to be under control at all times while in the field, California law does not currently require dogs to be leashed while actively hunting. As dogs are commonly used to access terrain and/or vegetation is challenging if not impossible for the hunter to access, the use of a leash under those circumstances would be difficult. That said, for example, the State of Montana only allows dogs to be used to track wounded big-game species and the dog must be on a leash no longer than 50 feet while doing so.

4. Non-target species impacts

As the use of radio-telemetry collars is currently authorized for training and hunting purposes, impacts to non-target species from authorizing the use of GPS collars will not increase. Neither of the two previously identified Environmental Documents identified any significant impacts to non-target species through the use of dogs.

Dogs are typically trained to locate specific species of animals in order to maximize the hunter's opportunity to be successful for whatever they are hunting. For example, pointing dogs for upland game birds receive training to prevent them from locating and chasing after non-target species such as deer. Since not all dogs are trained to the same standards, it is likely that minimal impacts to non-target species will occur (as may happen under the current regulation). However, ethical hunters spend countless hours and

significant sums of money to have their dogs trained to locate certain species of wildlife primarily to maximize their opportunity and to minimize impacts to non-target species.

5. Use of technology in hunting

There is no doubt advances in technology have made some hunters more efficient. Technological advances in firearms, optics, ammunition, protective clothing and other gear occur every year to the benefit of the hunter. Dogs have been used to find game since humans started hunting, but collars have not. The proposed regulation relates to one type of collar used in hunting (radio-telemetry) versus another (GPS). Each time new technology emerges, the Commission works with the Department to determine if its use is appropriate. GPS technology provides the hunter with additional options regarding hunting locations, and it has also served to bring many people home from areas they may not be familiar with. The use of these collars is not expected to result in more efficient hunters but rather more dogs that return home.

E. Other states' regulations

Twenty-four states (largely Eastern and Southern states) have enacted regulations requiring a hunter to be specifically licensed for tracking and for dogs to be leashed while doing so. Several Eastern states have implemented a certification program for using dogs to trail wounded game (dogs are not allowed to pursue big-game species only trail them in these states). In these states, hunters are required to contact "certified trackers" in the event they wound and can't locate an animal. A list of certified trackers by area is maintained by the state, and hunters are responsible for contacting and paying the tracker to find the hunter's wounded animal. Some states (Oregon for example) do not allow the use of dogs for hunting most game mammals.

F. Enforcement considerations

Use of GPS collars could benefit California's wildlife officers who are conducting poaching or hunter trespass-related investigations. Wildlife officers could potentially use GPS collar data to prove where a dog has been and to find poaching-related crime scenes whether in semi-urban private properties or extremely remote areas. GPS collar data has proven to be excellent evidence the court can evaluate during legal proceedings. Radio telemetry collars do not provide this type of evidence.

The adoption or denial of this regulation is not expected to have any measureable economic impact. GPS collars are already authorized for use while hunting for other species (for example upland game and waterfowl), and the number of hunters who would use them while hunting game mammals is expected to be minimal.

From: terifa [mailto:[REDACTED]]
Sent: Wednesday, April 12, 2017 11:39 PM
To: FGC
Subject: PBH - Re: Use of Dogs for Mammal Hunting

Hi,

Attached is a missive regarding the use of dogs for mammal hunting.

All Good Things,

Teri Faulkner

Teri Faulkner

[REDACTED]

[REDACTED]

Magalia, CA 95954

10 April 2017

Email: FGC@fgc.ca.gov

California Fish & Game Commission

1416 Ninth Street, Suite 1320

Sacramento, CA. 95814

Re: Dog Mammal Hunting Regulations

Dear Commissioners:

We would like to comment on some of the factors surrounding the use of dogs for mammal hunting. We hope that we do not see the day where questioning the use of dogs for bird hunting ever arises.

We All Die

Our world exists as a closed environment where everything that is currently living must eat or use something else to survive. Carnivores eat prey. Herbivores eat plants. Plants deplete nutrients from the soil or other vegetation. And omnivores eat anything they can get their teeth into when they are hungry. This is a simplified illustration, but hopefully it works to show that nothing on this planet is guaranteed life without depleting other resources. In this case, resources are what an organism needs to consume to survive and flourish. This explanation definitely works better when discussing plants and animals. More esoteric life may use other methods, but they still need to consume to live.

Once it is acknowledged that nothing lives forever, quality of life versus quantity of life can be addressed. Each area of land, habitat, has a carrying capacity for the various species that inhabit that area. The carrying capacity tends to be fluid depending on environmental factors, land use designations and human population growth and expansion among other influences. What an area can support one day, may be unsupportable a month later. None of these forces are static.

When an animal lives within the carrying capacity of an area, the animal tends to be healthy with sufficient food, water and space to allow it to have enough energy to live naturally within its environment.

When the carrying capacity has been exceeded, it is likely that one or more of the animal's essential needs are deficient. Maybe the food sources have been exhausted so the animal is forced to try to survive on things that are nutritionally poor or suspect. Or maybe water has become hard to find. When space is limited, competition and aggression between critters tends to increase. An animal in this situation will not be as healthy as one who lives in an environment with plenty of resources. The likely result is that the animals will sicken and die, become easy prey for another critter or will move and try to follow the resources.

Hunting as a Wildlife Management Tool

We are very lucky to have dedicated CDFW professionals monitoring the various environments and trying to manage the wildlife that lives in each area so that they do not exceed the carrying capacity of the land and have the opportunity to thrive. Hunters are a part of the means of maintaining the balance between the carrying capacity of the area and its inhabitants.

As a wildlife resources management tool, hunting is one of the easiest ones to use. It is much easier to adjust hunting seasons and take than it is to modify their environment or human migration into less populated areas.

Hunters tend to use everything the carcass provides for them from the meat for food, to leather to whatever else the carcass can give. It is a hunter's way of honoring the animal. Hunting is much more than a recreational activity. It is a very real way of filling a freezer and providing sustenance for family and friends. Hunting allows people to eat while preventing wildlife from starving and having unintended encounters with people. This can be a win-win for both people and wildlife.

For hunting to be at its best as a wildlife management tool, CDFW should make it as easy for hunters to accomplish their mutual goals as possible. The goal in this case is to maintain the carrying capacity of an area by harvesting excess individual animals.

Hunting With Dogs & Without

Hunting with dogs has been a traditional means of hunting many mammals and birds. The purpose of the dogs is not to harm their prey, but to help locate potential prey so that the hunter can decide whether to take that particular animal. The dogs are also helpful in recovery game that has been shot so that it will be recovered, dressed and cooled as quickly as possible.

The use of dogs does not infringe on the amount of work that a hunter has to do to harvest game, but it may make being in the wildlands safer for the hunter and safer for nearby communities.

Dogs are part of our families. They have worked and played with humankind for millennia. Dogs have slept beside our beds and alerted us to the dangers in the night. They accompany us on treks and to find our next meals. Dogs are our partners not merely tools for the hunt. As a side benefit, when dogs are used for the hunt to find game, or are being trained to find game, they make our communities safer.

About a year ago I talked to our local CDFW game wardens after a Butte County Fish & Game commission meeting. I asked them what changes there had been in the number of bear killed since the 2012 decision to ban the hunting of bears with dogs. Their answer surprised me. They told me that the number of bears being killed remained about the same as it had been before the 2012 rule change. The difference was that fewer bears were being taken by hunting and more were being taken through depredation.

Since the 2012 anti-dog while bear hunting decision, our communities have become less safe because bears are no longer concerned about barking dogs. While dogs were being used to hunt bears, the

bears learned to run from barking dogs because barking dogs meant that they were going to have to work.

In a few short years, the bears have learned to ignore barking dogs, because it no longer meant that they had to work, and became much more of a presence in our communities. By that I mean that they are coming into yards, up to the front doors of houses, getting hit by vehicles and many more encounters that put both the people and the bears at risk.

For the safety of our communities, please re-instate the practice of using dogs to hunt bears. Your decisions have a greater impact than just ruling the lives of hunters and wildlife management practices.

Communities & Wildlife

Fish and wildlife do not exist in a vacuum. This is true of both the Department and the critters. The decisions you make have far-reaching ramifications on both human and wildlife populations. And the human world and its competing goals and regulations has an impact on both wildlife and where people can go to be in the wilderness.

Within the past few years most California counties have been having to create, revise and update their general plans. The general plans are guiding documents that governs change, development and growth for the next twenty or so years in each county. This is a state requirement. With much effort and hearings these plans can be modified. California has also insisted that these general plans identify areas for future growth, increasing populations and their attendant needs. These plans are the counties' and their citizens' attempt to predict and shape the future based on their knowledge and needs known at the time.

The important part of this discussion is that the state is anticipating future growth in the more rural areas. When that happens there will be more people and more people who are not used to agriculture, wilderness, open spaces or freely wandering wildlife. There will be a likely reduction in open spaces and the wildlife will have to exist in smaller areas and tighter quarters. When this happens the carrying capacity of the area will be reduced and it will no longer be able to support the amount of wildlife that it had previously.

Wildlife will not have had the chance to adapt to the tighter quarters as fast as humans can develop the land. The reduction in territories will likely make encounters with people are much more frequent. It won't be anyone's fault, but it will be an element of the new world we will be living in.

We may be able to mitigate some of the potential effects of this if hunters are allowed to use dogs to hunt bears and re-train the bears to avoid barking dogs and human habitations. It took less than four years for bears to lose their fear of barking dogs. How long will it take for them to regain it? How many kids, pets, families or livestock will suffer from such possible encounters in the meantime? How many bear will lose their lives through depredation, being hit by cars or because they come too close to human habitation or facilities, such as schools or stores, and they are killed because of safety concerns?

Please consider the following suggestions:

- ✚ Encourage all hunters, both archery and gun users, to use and have dogs with them when they go into the wilderness – this is a safety issue.
- ✚ Allow the use of GPS on dogs whose owners hunt as well as others – this is a safety and responsibility issue.
- ✚ Re-instate the use of dogs for bear hunting – this is a bear and community welfare issue.
- ✚ Include community-wildlife encounters in any exploration/discussion about hunting, predators and wildlife health and sustainability – this is a safety and practical issue.

I understand that this may sound like a lot. But please remember that your decisions affect more than just the Fish & Wildlife Department or the State's wildlife, it affects communities. Let the best available science guide your decisions.

What can you do to make the future safer, better and more sustainable for people and wildlife?

Thank you for your consideration

Sincerely,

Teri Faulkner

CBH/SAA

**PUBLIC INTEREST COALITION**
P.O. Box 671, Loomis, CA 95650

[sent via email: fgc@fgc.ca.gov]

March 29, 2017

California Fish and Game Commission

P.O. Box 944209

Sacramento, CA 94244

Ladies and Gentlemen:

**RE: April 13, 2017 Agenda Item 7--Discussion Proposed Reg Changes-Sec 265:
Implement GPS Ban as Originally Planned and Approved**

We urge the California Fish and Game Commission (FGC) to vote YES on the current proposal to ban the use of GPS collars and treeing switches for mammal hunting and training activities. From that point, the FGC can decide if it should go to Notice to allow GPS collars, or not. If affirmative, then that would be the proper time to do an in-depth environmental analysis of the impacts of GPS collars for use in mammal hunting and training. The current proposal, to ban GPS collars for mammal hunting, does not meet CEQA thresholds with any impacts that would require additional analysis to approve.

With the allowance of GPS collars along with other new technologies, houndsmen/women (hounders) have obtained an unfair advantage in the pursuit of wildlife, which also portends a not-so-subtle improper erosion of ethical hunting standards. Fair Chase definitions include, "...the ethical, sportsmanlike, and law and lawful taking of free-ranging wildlife that does **not** give a hunter improper or unfair advantage over such wildlife." With treeing switches, even the CA FGC stated its objection to them—keeping them illegal—and recognizing their use meant the hunter had

"...no need to follow the dogs on foot during the chase.... Without the use of a treeing switch device, the hunter is required to follow the dogs on foot and be with the dogs when an animal is treed or be close enough to hear the barking of the dogs to determine if an animal is treed. **The use of treeing switches on dog collars would limit the sporting aspect of fair chase.**"¹ [bold added]

Hounders claim that hound hunting is tradition or heritage, and have erroneously wrapped GPS collars in the mix. Traditionally, hunters went into the brush with the hounds, followed and kept up with them—that was part of the ethical sport of the hunt. Using tethered or leashed dogs was commonplace on untrained or unreliable dogs. Today, keeping track of dogs' location via a GPS digital screen is a counterfeit claim of heritage, tradition, fair chase, or ethical sportsmanship. With GPS collars, any incentive to vigorously train and release only reliable, solid dogs, that can be controlled and recalled on command, is reduced or nonexistent. GPS collars for mammal hunting and training are unacceptable expansions of technology to take or harass wildlife, and in the process increase unacceptable disruptions of wildlife activities, as well as risks of injury and/or death to both dogs and wildlife with altercations.

We and others have debunked the exaggerated claims by hounders that GPS collars will allow faster intervention (in altercations with protected or unlawful species resulting

¹ CA FGC ISOR, January 14, 2009, Amend Section 265, "Re: Use of Dogs for Pursuit/Take of Mammals or for Dog Training, page 5.

in injury or death; wildlife disturbances that impact migration patterns, nesting habits, mating, abandonment of young, etc.). This has been documented enough in both oral and written comments to the FGC. The reality is that in rough, roadless, heavily brush/wooded areas, hounders cannot physically reach critical locations in a timely manner when every second counts. GPS collars will not in any way increase hounder intervention with those types of wildlife encounters (nor with most public roadway crossing of hounds on a chase), yet those negative encounters and resultant injuries, death, or devastating disruptions, are likely to increase because of the opportunistic incentive to release not only more hounds but also hounds that are not solidly trained.

Another area that has not been examined and supports approval of the current proposal to **ban** GPS collars is the economic burden GPS collars, if allowed, imposes on law enforcement—which will be reduced if the ban is approved. GPS collars will tempt poaching scofflaws to claim they’re hound hunting a legal species (yet tree or hound-catch an illegal animal). It will also provide incentives and temptations to collaborate with hunters who hold proper tags for bears or bobcats that are illegal to hound hunt. We’ve already submitted comments as to how that works, as well as how GPS collars are disgustingly used in the only other U.S. mainland states (nine in the deep south) that allow deer-dog hunts. There, fair chase and ethics do not exist as hounders release dogs to chase deer and call or text where the exact direction the deer is headed so that the “stands” (hunters waiting at the end of the deer drive) can adjust their locations with new or changing GPS coordinates, and simply fire away as the completely exhausted deer (or other animal) emerges.

The Colorado Parks and Wildlife Commission’s Fair Chase Policy subscribes to the North American Model of Wildlife Conservation, deals with evolving technologies, and commits to carefully weighing technological benefits in the interests of preserving Fair Chase.² Their articulations of technologies and practices that may provide hunters with an **improper or unfair advantage** include:

1. A technology or practice that allows a hunter or angler to locate or take wildlife without acquiring necessary hunting and angling skills or competency.
2. A technology or practice that allows a hunter or angler to pursue or take wildlife without being physically present and pursuing wildlife in the field.
3. A technology or practice that makes harvesting wildlife almost certain when the technology or practice prevents wildlife from eluding take.³

Those three improper advantages are exactly what GPS collars will create if the GPS **ban** is not approved.

We incorporate by reference all of our oral and written comments submitted on this proposal, as well as our comments submitted from December 31, 2015 through May, 2016, by us and others who opposed the previous regulatory proposal that resulted in the current approved amendment to Section 265.

Thank you for considering our views.



Marilyn Jasper, Chair
Public Interest Coalition
Conservation Comm, Sierra Club Placer Group

² Colorado Parks and Wildlife Commission, “Hunting and Fishing Fair Chase Policy,” June 2016.

³ Ibid.

**PUBLIC INTEREST COALITION**
P.O. Box 671, Loomis, CA 95650

[Sent via email]

April 13, 2017

To: CA Fish and Game Commission (FGC)

Subj: Agenda Item 13, Section 265—GPS Ban

We appreciate the effort made to provide additional information to assist the FGC in their decision making via the “briefing paper.” The briefing paper was expected to present unbiased information, but with all due respect, we are deeply disappointed and concerned. Many of the issues are fraught with errors, omissions, and misleading or incomplete statements and conclusions. If our concerns are confirmed, the lack of credibility of the briefing paper potentially skews the FGC’s decision-making abilities.

Please accept the following comments and concerns as a good-faith effort to ensure transparency and accuracy. There may appear to be some duplication of specific topics, but our comments follow the same order as the briefing paper instead of prioritized according to importance. That said, of special concern are the misleading statements from apparent misinterpretations of FG Code Section 3008 (control of dogs) and Section 203 (game species welfare) below.

I. Introduction**A. Background on the regulation (page 1)**

Erroneous statement (1): “As a result of discussions...Wildlife Resources Committee (WRC) in 2015...the Commission proposed to eliminate §265(d) to simplify and make more understandable the regulations in question.”

Fact: The September 8, 2015, WRC meeting, where the proposal to eliminate 265d was initiated, was briefly discussed. The stated purpose, “...to simplify and make more understandable the regulations” is (a) not an accurate account of that meeting’s 265(d) discussion (per FGC audio), and it most assuredly, simplification and understandable was not the reason for the recommendations (dog retrieval was the focus); and (b) “easier for hunters to find the animals they were pursuing” is not the “fair chase” violation argument made by proponents of the ban. Rather the violation of the ethical concept of “fair chase” argument has included the facts (1) that hunters are not conducting the chase themselves if/when they are watching a digital screen from a vehicle, and (2) that using high tech GPS collar precision to conduct deer drives are the antithesis of fair chase ethics. (“Deer Drives” have been described in our previous comments.)

Erroneous conclusion: “Regulatory changes...appeared to have rendered the prohibition...largely unnecessary....proposed for deletion.”

Fact: The regulatory changes were approved to protect bears, bobcats, and mountain lions **from** the ravages of hound hunting advantages, which GPS collars will simply exacerbate and provide a loophole to enforcement of those very regulations. Instead of “appeared to have rendered the prohibitions...largely unnecessary...,” the GPS collar prohibition is even more necessary now to ensure compliance with the regulations. In none of the WRC discussion was an “unnecessary” argument ever suggested. To the contrary, early on our arguments pointed out that because hound hunting is banned for bears and bobcats that climb trees, that treeing switches must be banned both for enforcement purposes, misuse or abuse, and to deter the increase of treed bear/bobcat poaching opportunities. The briefing paper moves from the purpose of treeing switches

into GPS collar attributes (lost dogs, trespass enforcement), and does not present compelling arguments to support the allowance of treeing switches.

Misleading statement: “One dog per hunter during general season only” attempts to present a single hound image as an innocuous impact; but in a hound hunting group of licensed hunters, one dog is allowed for each licensed hunter. Thus, there may always be a “pack” of hounds released, depending upon the size of the participating hunters.

Rationales used to support lifting of GPS ban:

Misleading statements: “The use of GPS collars on dogs pursuing deer and/or pigs would allow the hunter to find and locate crippled game more efficiently, locate lost dogs, and...track hunter trespass...using GPS collar as evidence...”

Crippled game. If “crippled” game refers to animals crippled by an errant attempt to kill (wounding via firearm discharge), then the dog would not be released until AFTER the shot is taken. If “crippled” game means releasing dogs to find any game “crippled” by means other than the hunting party, then this is a disingenuous use of GPS and will create more mayhem and mauling of crippled animals when “found” by hounds. Unless the handler/hunter is closely following the dogs, which is less likely with GPS collars, then immediate intervention is impossible.

Lost Dogs. The current law requires dogs to be “under control.” If that one regulation was followed, there would most likely be no lost dogs. Reliable alternatives to GPS exist to find lost dogs, including, but not limited to microchipping, recall/training certification before releasing, handler certification, and requiring tethers/leads/leashes for dogs that are not trained or certified.

GPS trespassing evidence. Unless a property owner observes and reports trespassing, it is unlikely that any action will be taken. If a trespassing complaint is made to CDFW, in addition to valuable game warden’s time involved in searching GPS points on a track, wading through old track logs, and possibly requiring “probable cause,” this often becomes a civil matter or a local law enforcement issue. If a Search Warrant is required, it is reasonable and foreseeable to conclude that the cost to CDFW will prohibit such an investigation, will result in an infraction, or, more likely, no charges will be filed (no prosecution will ensue).

A most misleading statement made to exalt the use of GPS collars on dogs is the claim of using GPS collar data as evidence. As stated in oral testimony at today’s FGC Tele Conference meeting (April 18, Agenda item 7, public comment), it is a well-known fact that because GPS tracking device records can be deleted (units turned off, factory resets for permanent deletion, etc) if/when someone does not want tracking data saved, it renders the GPS dog tracking collar useless for trespassing, poaching, or any other type of investigation.

As a part of the CEQA functional equivalent analysis, a report of how many hound-hunting trespassing complaints have been received over the years and their final disposition might be germane to the trespassing evidence claim.

B. Procedural posture (page 2)

We understand the FGC’s desire and requirement to adhere to CEQA. However, at the October, 2016 FGC meeting, the approved motion was to Notice the ban in October 2016; discuss in December; and vote in February 2017. Instead of voting in February, the FGC voted to continue the discussion for environmental analysis of the ban and, if approved, to delay the implementation for 12 months.

We submit that because no compelling evidence was submitted for the administrative record (assuming such important evidence would not have been excluded by

staff in the meeting documents), and the Initial Statement of Reason (ISOR) fully complied with the functional equivalent of a CEQA Negative Declaration, that therefore, the only correct action was to vote on the ban proposal at the February, 2017 meeting. The stated rationale for the continuance action was not required by CEQA. Once the ban is approved, it should be implemented. If/when another proposal goes to Notice to allow GPS collars, only then might a CEQA analysis be required. It is highly unusual for a proposal that does not require CEQA analysis to have continued the discussion (The ISOR makes that clear, and nothing in the administrative record contradicts or compels preparation of an analysis).

II. Discussion

C. What is “fair-chase”?

We submit that GPS collars and treeing switches violate and are contrary to “fair chase” ethics. The Boone and Crockett Club’s (Club) “Fair Chase” definition cited in the briefing paper is accurate; however, the Club goes a step further in its “Position Statement” in disqualifying entries in its big game records section.¹ GPS collars certainly give hound hunters an improper advantage over animals; otherwise, they would use traditional hound-hunting practices of keeping up, on foot, with their dogs which would allow for greater compliance with the CDFW regulation (*Fish and Game Code Section 3008*) of always keeping their dogs under control.

In the briefing paper fair chase description, it states, “The hunter engages in a one-to-one relationship with the quarry....” It then lists a “hierarchy of ethical tenets related to hunting” with the last one being, “6. Recognize that these tenets are intended to enhance the hunter’s experience of the relationship between predator and prey, which is one of the most fundamental relationships of humans and their environment.” Other than drone hunting, we submit that using GPS collars on dogs so that dogs, not humans, can run down prey, creates no semblance of a “relationship between predator and prey.” Thus, GPS dog collars not only take hunters completely away from basic fair chase, ethical pursuits, but also further distances them from any fundamental relationship with their environment (other than their vehicle). GPS collars simply facilitate dog-prey hunting.

1. How do collars/switches promote “fair chase”? (page 4)

Erroneous statement: “Since the Fish and Game Commission banned the use of dogs for pursuing big-game species except for deer (during the general season only) and wild pigs, dogs fitted with GPS collars would be used primarily to find wounded animals.”

The use of dogs fitted with GPS collars would not and are not used **primarily** to “find wounded animals.” GPS dog collars are used primarily to hunt and pursue deer or other game for the hunter to take (aka “kill”). If GPS collar-fitted dogs were primarily used to **find wounded animals**, then it follows that hunters would seldom release any dogs

¹ III. Use of electronic communication devices (2-way radios, cell phones, etc.) to guide hunters to game, artificial lighting, electronic light intensifying devices (night vision optics), sights with built-in electronic range-finding capabilities (including smart scopes), drones/unmanned aerial vehicles (UAVs), thermal imaging equipment, electronic game calls or cameras/timers/motion tracking devices that transmit images and other information to the hunter; Technological advancement in hunting equipment is a natural progression of our desire to be successful and affective in ethically harvesting game. **At some point, these technologies can displace a hunter’s skills to the point of taking unfair advantage of the game** [bold added]. www.boone-crockett.org, Big Game Records, Fair Chase Position Statement.

until they had discharged their firearms. Only then would they know if they had a clean kill or a wounded animal that needed to be blood-trail tracked.²

We urge clarification to the FGC before final votes are taken.

The ban on treeing switches must continue because they are no longer needed. If treeing switches are allowed, a huge loophole will be provided for “accidentally” treeing species that are prohibited. We have already explained how communications with those who are hunting species that cannot be hunted with hounds, separate and apart from the hound hunters, will be able to facilitate finding those treed animals via sharing of coordinates. If hounds are prohibited in hunts for species that were treed, then there is no need to allow treeing switches, especially due to the reasonably foreseeable poaching opportunities that will be created if treeing switches are allowed. Contrary to the briefing paper, we submit that the treeing switch ban promotes compliance with the ban on hound hunting of specific species that climb trees. Fair chase was an issue when the legislation was passed, and it remains as such.

2. How do collars/switches hinder “fair-chase”? (page 5)

Incomplete and Misleading statement: “It is unlikely and highly unusual for hunters to use these collars in the manner suggested by the opponents of the change due to an increased probability of losing their dogs.” Contrary to what the briefing paper states (hunters staying in campgrounds), we have asserted in multiple comments that with GPS dog collars, many deer-dog hunters can and do stay in their vehicles and follow hounds via digital displays if/where there are roads to do so. We further assert that following GPS collared dogs from vehicles is a highly commonplace (“usual”) hunting practice as evidenced by hours of online commentary and video postings.

Omitted information: One of the most obvious unethical and lack of fair chase elements of GPS collars occurs when dogs are chasing wildlife, specifically deer, to exhaustion. Via GPS coordinates, hunters can determine where the deer will emerge. As we’ve stated in previous comments, in the only nine states in the United States that allow deer-dog hunting, GPS collars are used in “deer drives.” Deer hunters known as “stands” (aka “stills”) wait at the end of an area and communicate (cell phone, radio) with the hounder when the dogs are chasing a deer. As the deer-chase direction changes, the stands shift their locations to be able to shoot when the deer emerges. Thus, GPS creates not only an “UN-fair chase, but rather a NO-chase-at-all scenario, with dogs doing the chasing and not the hunters.

Omitted from the briefing paper is any mention of the potential for GPS dog collars use to increase poaching opportunities. When banned, if wildlife officers observe GPS dog collars, it is an obvious violation. However, GPS collar use will facilitate creation of poaching situations that can and will be easily masked, especially with high tech speed of communication via cell phones, radio, and other means, to share coordinates of treed animals that are not allowed to be hound hunted.

D. Other effects on hunting

Sections 1 and 2 do not seem to have a nexus to GPS, but because any negative impacts from hound hunting will be exacerbated with GPS dog collars, we welcome the briefing paper discussion and all analysis of hound hunting impacts.

² As an aside, hunting deer with dogs is illegal in Texas, but the number of handlers with trained small dogs to track wounded deer is increasing and legal in most Texas counties for blood-trail tracking purposes only. They are often “hired” and kept on leash. “Trained dogs lead hunters to wounded deer,” http://tpwmagazine.com/archive/2014/nov/ed_2_traineddogs/index.phtml

1. Number of hunters (page 5) The take away message from the briefing paper here is that CDFW and the FGC need to implement a tracking system to ascertain the number of hound hunters using dogs, which species they are pursuing (pigs, deer, or other mammals), types of tracking equipment used, training completed and certification obtained for both dogs and handler, registration/accountability of hounds via a required “lost dog” reporting, and due diligence steps taken to retrieve any lost dogs.

2. Hunter success (page 6):

Outdated and misleading information: From the cited 1986 Texas study, “...where hunters use dogs, deer experience more stress, but that no significant effects on fertilization, reproductive, and survival rates were found. The study concluded the use of dogs for hunting deer does not impact the reproductive potential of deer populations.” This is contradicted in many other studies--most notably in a 2010 study published in “Biological Conservation,” and cited in our comments submitted on January 26, 2017, Attachment A, for the February 8, 2017, FGC meeting.³ When deer are chased or dogs or other carnivores that are perceived as predators are present, those conditions do impact all aspects of deer behaviors, including reproduction and cumulatively.

The briefing paper states that the use of dogs for deer hunting was evaluated in the CA Dept of Fish and Game, “2004 Final Environmental Document Regarding Deer Hunting” (FED); however, instead of citing those studies, it jumps to the 1986 outdated study (see above) and references its conclusions only. The first referenced 2004 FED Regarding Deer Hunting could not be found on either the CDFW or FGC websites, but the “Draft Environmental Document Regarding Deer Hunting,” dated June 18, 2004, was available. It presents a different conclusion:

A pursued animal could experience some degree of distress. The distress could become more acute if the animal were cornered or otherwise became unable to successfully flee. If the stress-inducing stimuli are short-term, the animal's responses should not result in long-term harmful effects. Prolonged or excessive stress may result in harmful responses, such as abnormal feeding and social interaction behavior and lowered reproductive success. It has been reported that long-term distress in animals can result in pathologic conditions, such as gastric and intestinal lesions, hypertension, and immunosuppression (JAVMA 1987, p. 1,188).⁴

That DFG FED also states that of the types of stress imposed upon animals that are chased, the adverse impacts may not be long lasting because each chase presumably terminates with the animal's escape or death. Although the distress could produce long-

³ From “Effects of hunting with hounds on a non-target species living on the edge of a protected area,” Stephano Grignolio, et al, Italy March 2010: “.... On the contrary, hunting drives with hounds could last for a whole day. While ungulates may suffer no substantial fitness costs when disturbance rates are either low or moderate, several empirical studies suggested that high disturbance rates could reduce their reproductive success and possibly impact on population dynamics (Harrington and Veitch, 1992; Phillips and Alldredge, 2002; Yarmoloy et al., 1988). Bateson and Bradshaw (1997) showed that, by virtue of their evolutionary or individual history, red deer are not well adapted to cope with the level of activity imposed on them when hunted with dogs. Long hunts, with their physiological effects on deer (disruption of muscle tissue, depletion of carbohydrate resources, high levels of b-endorphin and cortisol) can also indirectly modify their survival rates and life history (Bateson and Bradshaw (1997).

⁴ “CHASE-RELATED EFFECTS,” FGC Draft Environmental Document, Sections 265, 460-467, and 472-480. Title 14 CA CR, “Furbearing and Nongame Mammal Hunting and Trapping,” June 18, 2004, pg 89. www.fgc.ca.gov/regulations/2015/478_EnvDoc.pdf

term adverse effects, it is not expected because hunting season is of limited duration making distress-inducing condition temporary.

However, most importantly, we submit that if GPS collars are allowed, it is reasonable and foreseeable to predict that dog training will increase also, and therefore the adverse impact of induced stress due to being chased in a terrorized “fight or flight” mode will no longer be “short-term”. Instead, it will occur almost year-round, with more dogs; therefore, being “long-term,” it will produce all the harmful responses listed in the FED. As stated in the briefing paper, “training” seasons typically run from April 1 to the opening day of general deer season in specific zones, which would qualify as “long-term.”

The briefing paper discusses dog-pig hunting, with claims that the dogs are used to find and hold pigs until hunters kill them. This an incomplete description of what may occur when hound hunting. Not all dogs will “hold the pigs” until the hunters arrive to kill—again, a problem of releasing insufficiently trained hounds. If smaller pigs or piglets are found, dogs may indeed attack, but they may be no match for enraged sows who will take on and attack dogs when their or other sows’ piglets are threatened and/or screaming. Dogs that face larger boars with tusks are at risk for severe bite and trampling injuries. Such risks to dogs with pig hunting are well established. Because one reason dog owners claim GPS collars should be allowed is for the dogs’ “welfare,” it is illogical for anyone who cares about their dogs to use them for wild pig hunting.⁵ GPS collars will not protect dogs from pig or any other species’ attacks, and intervention when handlers are miles away cannot be immediate, which is required to protect the dogs.

The cited FGC FED from 2004 indicates increased hunter success may be expected when GPS-collared dogs are used to locate downed or crippled game. This is a specious argument because whether dogs are GPS or radio telemetry collared, or not, one can assume that most crippled or wounded animals are not going to travel far or fast. More obviously, a wounded animal should have the hunter who made the errant shot relatively close or nearby. Radio telemetry should continue to suffice for recovering both dogs and wounded or crippled wildlife with less likelihood of waste.

3. Use of dogs generally (page 7)

a. Hunting One statement in this section of the briefing paper that is often used as a smokescreen to minimize potential dog-deer hound hunting adverse impacts and deflect concerns of “dog pack” attacks on vulnerable wildlife (fawns, nesting animals, etc.) is, “Deer hunters may use one dog while deer hunting during the general season;...” Why this is so disingenuous is the omission of the fact that in a hunting party, each hunter may have one dog. That is why so many videos, photos, observations, and reports include more than one dog (a “pack”) involved in the attack or treeing of the bear or bobcat, etc.

The last sentence in this section appears to be an attempt to deflect attention from rampant violations in hound hunting. Dog owners are not “expected” to keep their dogs under control at all times, but rather, CA FG Code section 3008 is quite clear: “The physical control of a dog by its owner while the dog is engaged in hunting in an area where the owner is otherwise authorized to hunt, **shall** be as required by this code or regulations made pursuant thereto.”⁶ [bold added] There is no “may” or “should”; “**shall**” is the legal, operative word. Attempts to continuously detract and deflate the unlawful seriousness of

⁵ “Hog hunting is dangerous business and injuries are not uncommon. It is therefore the responsibility of the hunter to make sure that their dogs are protected. Aside from giving proper training, the use of protective equipment is highly advised.” This would include neck guards and vests.
<http://dogsaholic.com/lifestyle/hog-hunting-with-dogs.html>

⁶ FGC § 3008-- <http://codes.findlaw.com/ca/fish-and-game-code/fgc-sect-3008.html>

this noncompliance are merely reinforced with such statements as this in the briefing report. Lack of control appears to be the foundation of almost all the complaints and unacceptable adverse impacts of hound hunting that will be exacerbated with GPS collars.

To make matters even worse, the added phrase, that “the use of a leash... is not required...” is irrelevant and seemingly tossed in the mix to further ignore the law, suggesting a bias instead of an impartial briefing paper that the FGC is to use in their decision making. The point of bringing up leashing or tethering in our comments is to provide tools—alternatives—for hound hunters to comply with the law, especially if their hounds are not solid on commands. We repeat: It is reasonable and foreseeable that if GPS dog collars are allowed to hunt mammals, the incentive to release untrained dogs will be increased. Such untrained hounds will then wreak havoc on both targeted and non-targeted wildlife. To think that they won’t is to deny reality when there is plenty of evidence to prove dogs do disturb wildlife and responsible training before being released may be reduced or completely lacking.

b. Training. The briefing paper states that training seasons and zones have been established to not impact “other wildlife species during their normal reproductive/off-spring rearing seasons—typically from April 1st to opening day of deer season in those areas. The “dog training zones” and dog training seasons ignore the cumulative adverse impacts that either deer or “other wildlife species” experience with many months of dog training, followed by actual hunting.

As with all wildlife, reproductive dates cannot be firmly set due to the myriad of variable influences—especially with climate change, migration pattern alterations due to forage availability, changing apex predator behaviors, and many more factors. Thus training alone is very likely to adversely impact wildlife. We are not debunking the value of GPS collars to locate an untrained dog, but no dog should be released without first being solid on commands. That is a legitimate concern: GPS collars may contribute to careless or negligent releasing of untrained hounds. Solid recall training and dog control must be the first requirement.

The briefing paper appears to acknowledge that inexperienced dogs are more likely to get lost. However, a more truthful statement would be that dogs not solidly trained to obey the type of commands used for recall/retrieval, ignoring non-targeted animals, and not attacking, will be much more beneficial—for dogs and wildlife.

The briefing document re-states one of the points that we have been trying to make for over a year: Being able to locate a dog “quickly is extremely important”—especially when it is, will, or may harm targeted (or non-targeted) animals. If the hounder/handler/trainer is a mile or more away, there can be no immediate intervention. With GPS collars, untrained dogs can roam many miles, according to collar manufacturers. Timely intervention simply is impossible, and GPS collars cannot remedy that fact.

c. Should the FGC consider welfare of dogs in hunting regulations? (page 8)

Inaccurate regulation interpretation. We appreciate any agency’s commitment and dedication to animal welfare, especially dogs. However, we submit that the reference to FG Code 203 is incorrect. The primary or over-arching section 203 reads:

“Any regulation of the commission pursuant to this article **relating to resident game birds, game mammals and furbearing mammals** [bold added] may apply to all or any areas, districts, or portions thereof, at the discretion of the commission, and may do any or all of the following as to any or all species or subspecies: (a) Establish, extend, shorten, or abolish open seasons and closed seasons. (b) Establish, change, or abolish bag limits and possession limits. (c)

Establish and change areas or territorial limits for their taking. (d) Prescribe the manner and the means of taking. (e) Establish, change, or abolish restrictions based upon sex, maturity, or other physical distinctions.”

As a subsection of 203, 203.1, reads:

“When adopting regulations **pursuant to Section 203**, [bold added] the commission shall consider populations, habitat, food supplies, the welfare of individual animals, and other pertinent facts and testimony.”

Beyond any doubt, 203.1 only pertains to what is listed in 203, which clearly spells out “resident game birds, game mammals and furbearing mammals” and refers to hunting regulations in that context. Section 203.1 is incorporated within the limits of 203 which does not include domestic dogs as resident “game.” Thus, 201.3’s reference to the “welfare of individual animals” is solely within the parameters of Section 203 and does not include hunting dogs. Because the briefing paper attempts to include dogs in this spurious manner, it simply further erodes the briefing paper’s credibility and raises distrust levels of all citizens who care about wildlife welfare. It may mislead the FGC in decision making.

d. Use of leashes. (Page 8)

Erroneous interpretation. GPS collars have absolutely no relationship to dogs being under control. “Under control” requires, and is dependent upon, adequate training, and leashing or tethering is one element of “control.” If reliably trained, dog control can be via voice, whistle, other sounds or alarms, arm motions. Within relatively short ranges, some dog owners or handler may resort to “buzz collars, electronic shock collars, and other such attention-getting devices.”⁷

The law or regulation clearly specifies “while the dog is engaged in hunting,” yet the briefing paper implies there is an exemption to the “shall” for the hunter who cannot access the terrain, or the vegetation is challenging. The law allows no such exemption from compliance. Because hound hunters may not take the time to adequately train their dogs, or care for the dogs enough to make certain they are solid before releasing, the attempts is to link GPS collars to dog control. When they release a dog that they know they cannot control (violation in progress), they are ignoring their own responsibilities when choosing to hound hunt. GPS collars will not increase control, but they will allow more untrained dogs to be released and run amuck. With this and other misinformation, the briefing paper may wrongly influence the FGC in their decision making.

Non-target species impacts (page 8)

We disagree with the conclusion in the briefing paper that impacts to non-target species will not increase with the use of GPS collars. It is well established that hound hunting has adverse impacts to both targeted and non-targeted species. (See Attachment A for some studies and excerpts—there are too many to list.) Allowing GPS collars with no proficiency certification requirements will permit more untrained dogs to be released, and thus increase the many existing known adverse impacts of loose dogs on wildlife. We have already cited studies and the FGC Draft Environmental Document (“Furbearing and Nongame Mammal Hunting and Trapping,” June 18, 2004) that contradicts the briefing paper’s references (neither agency reference—CDFW or FGC—could be found online).

The briefing paper recognizes that not all dogs are trained to the same standards, and then states the likelihood of “minimal impacts to non-target species.” Again, we

⁷ Many highly respected dog trainers condemn electronic shock collars as being cruel and having unintended consequences—some of which deal with well-adjusted dogs losing trust and confidence, creating “neurotic” behaviors, and taking on other associated negative imprinted responses to their normal surroundings.

submit that allowing GPS collars will increase not only the sheer number of dogs released, but also the number of untrained dogs and cumulatively create significant impacts to non-targeted species. If everyone could be trusted to be an ethical hunter, California probably would not need regulations or wildlife officers. The reality is that regulations are meant for scofflaws, to curtail activities that are known to be harmful or create health and safety risks, etc. Hounders who release only well-trained hounds, keep up with their dogs for maximum control, are appreciated; but even they create impacts to non-target species.

Use of Technology in hunting

The briefing statement states that GPS technology has served to bring many people home from areas they may not be familiar with. This is reasonable and desired, but dogs will not be lost in the first place if these same responsible hounders keep up with their dogs, microchip, train, etc. The fact is that GPS collars will encourage irresponsibility and recklessness by those who know their dogs are not solidly trained—either in tracking or obedience. There are too many instances that are readily viewed online that illustrate the disastrous impacts to wildlife. Surely, for the sake of wildlife welfare, hound hunters can use radio telemetry, release only well-trained dogs, and work harder and ethically to keep up with their dogs, in which case, the risk of losing a dog is minimized or eliminated.

E. Other states' regulations

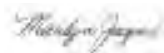
California would do well to not only follow the regulations of other states described in the briefing paper, but also join the 39 other states that prohibit deer-hound hunting, and make that number an even 40.

F. Enforcement considerations

As discussed earlier in this comment letter, GPS collar data can easily either be turned off or erased and would not provide compelling evidence. We believe poaching is a much bigger issue than wildlife agencies estimate. This was recently proven via a Wisconsin study of Gray Wolf Mortality Patterns.⁸ Thus, we submit that if GPS collars are allowed, they will facilitate poaching activities and that they will not play a major role in law enforcement apprehension of poachers if they are minimally technologically savvy.

We urge a yes vote to ban GPS collars and treeing switches, immediate implementation, and reconsideration of any re-noticing to allow GPS collars.

Thank you for considering our views.



Marilyn Jasper, Chair
Public Interest Coalition
Conservation Comm, Sierra Club Placer Group

cc Various FGC and CDFW staff

⁸ Treves, A., Langenberg, J. A., López-Bao, J. V. & Rabenhorst, M. F. (2017). **Gray Wolf Mortality Patterns in Wisconsin from 1979 To 2012**. *Journal of Mammalogy*, (February 6th embargo data). When the government did recover wolf carcasses, the agencies systematically under-estimated poaching by more than 5% and possibly more than 11%. Two forms of scientific bias explain the under-estimation. The first – sampling error – occurred when the government radio-collared wolves in core areas of the wolf range where wolves experience less mortality overall and especially less human-caused mortality. We also found measurement error when poaching was missed by the agency and assigned to another cause of death. For example, a subsample of radiographed wolf carcasses revealed that 37% of vehicular collisions also included metal consistent with gunshot wounds.

Attachment A—Studies of Dog Disturbance of Wildlife

There are hundreds if not thousands of studies related to the adverse disturbance impacts that dogs impose on wildlife. Below are just a few.

“In all known studies, the presence of dogs produced adverse responses in wildlife.... Any notion that hunting with dogs has no effect on non-target species is naïve and incorrect. Dogs can have a rather pronounced affect [sic] on numerous species including killing of young of black bears, bobcats and other species including cougar kittens. Off-leash and off-trail hounds are unpredictable and cause stress and flushing behavior in many wildlife species including deer, birds, and small mammals.” Live Oak Associates, Inc., an Ecological Consulting Firm, in letter to Governor Edmund G. Brown, re SB 1221, September 7, 2012, page 2. Included in HSUS letter to FGC dated 3/2/16

Corbett, R. L., L. Marchinto, and C. E. Hill. 1971. Preliminary study of the effects of dogs on radio-equipped deer in mountainous habitat. *Proceedings of the Southeastern Association of Game and Fish Commissioners* 25:69--77.

Grignolio, S., E. Merli, P. Bongi, S. Ciuti, M. Apollonio. 2010. Effects of hunting with hounds on a non-target species living on the edge of a protected area. *Biological Conservation*, 144(2011):641-649.

Koster, J. 2008. The impact of hunting with dogs on wildlife harvests in the Bosawas Reserve, Nicaragua. *Environmental Conservation*, 35(3):211:220.

<https://www.nps.gov/goga/learn/management/upload/-1680-Sime-1999.pdf>

Chpt 8, DOMESTIC DOGS IN WILDLIFE HABITATS – EFFECTS OF RECREATION ON ROCKY MOUNTAIN WILDLIFE, September 1999.

Corbett et al. (1971) conducted a similar study using hunting hounds in the mountainous terrain of western North Carolina. They recorded an average chase time of 54 minutes (range 4-165 minutes) and similar chase distances as Sweeney et al. (1971). In 70% of the cases, deer left their home ranges, resulting in longer chases than those in which the animal did not leave its home range. In about 50% of the cases in which deer left their home range, deer took longer than one day to return and, in some cases, considerably longer than that for white-tailed deer in coastal plain habitats. The authors noted that deer seemed to suffer physical injury more frequently while being chased in mountainous terrain because of the complex physiography. Dog-related mortality was documented. For one mortality incident, the deer appeared to suffer from parasitic damage to its lungs, rendering it “incapable of sustained running whereby it could have eluded dogs.” Corbett et al. (1971) speculated that in mountainous habitats, deer could have been under greater physical stress, on a poorer nutritional plane, or otherwise weakened and more susceptible to dog predation. They concluded that dogs “may have a significant impact on populations.”

http://www.dfw.state.or.us/wildlife/dog_training/docs/Wildlife_Disturbance.pdf

OREGON DEPARTMENT OF FISH AND WILDLIFE

Date: March 2, 2011

TO: Dog and Raptor Training Rules Revision ADVISORY GROUP

SUBJ: Literature on Wildlife Disturbance from Humans/Pets

“Dogs can be damaging to ground nesting birds, young ungulates, and ungulates on winter range (Neil et al. 1975). To prevent wildlife harassment, dogs must be under control at all times.

Neil, P. H., R. W. Hoffman, and R. B. Gill. 1975. Effects of harassment on wild animals—an annotated bibliography of selected references. *Colo. Div. Wildl. Spec. Rep.* 37, 21 p.

Lenth, Benjamin, Mark Brennan, and Richard L. Knight. 2006. The Effects of Dogs on Wildlife Communities. Final research report submitted to: City of Boulder Open Space and Mountain Parks. “We studied the effects of dogs on wildlife by comparing the activity levels of wildlife in areas that prohibit dogs, with areas that allow dogs off leash under “voice and sight” control.... The presence of dogs along recreational trails correlated with altered patterns of habitat utilization by several wildlife species. Mule deer (*Odocoileus hemionus*) activity was significantly lower in proximity to trails in areas that allow dogs, and this effect extended at least 100 m off-trail. Small mammals, including squirrels (*Sciurus* spp.), rabbits (*Sylvagus* spp.), chipmunks (*Eutamias* spp.), and mice (*Peromyscus* spp., *Reithrodontomys* spp., *Onychomys* spp., *Zapus* spp.), also exhibited reduced levels of activity in proximity to trails in areas with dogs, and this effect extended at least 50 m offtrail.

Dear Sirs.

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION

The last 3 years have been very difficult for me in many ways. I lost my father early in 2014. My father was my account and all around advisor. He had helped my get thru the renewal app for many years. After he passed in January of 2014 I was left to deal with the application on my own. I paid for everything in a timely manner and was sent a small refund indicating that I had made a mistake and over paid. There was no indication of where I overpaid. During the summer of 2014 my sister was diagnosed with lung cancer. by the end of 2014 she had beaten it into remission. A couple of months later my brother is diagnosed with prostate cancer which quickly moved into his bones and finally his brain. I lost my brother Rick mid May 2016. due to the demanding work schedule for me that time of year I was unable to see him before he passed away.

I retired in 2005 from my occupation as a machinist/welder. After a small lawsuit to close an escrow account I fell short on the funds I need to make a lifestyle out of fishing and raising cattle. So I have been forced to take a high demand high stress job delivering chemical fertilizers to the rice growers in Colusa county during the months of April and May. One of these is Aqua Amonia a very toxic and hazardous material.

I work 10-12hrs a day 7 days a week and have to keep a clear head for my safety and that of the public. When I received the reminder letter I was under a great deal of stress with work and my brothers condition. Because I had not yet received my 2016 license and permits. I assumed they had crossed in the mail and forgot all about the notice.

When it came time to fill out my 2015 app I was trying to figure out where I over paid in 2014. The only thing that made sense to me was the extra 50 dollar salmon stamp. It made no sense to have 3 commercial salmon stamps for one operation. I now understand it is one stamp for each commercial use. At some point in April or May I realized I did not get my commercial stamps that go on the boat. I called DFW and they sent me my commercial stamps for 2015. This led me to believe that I had filled everything out correctly was paid up and ready to commercial salmon fishing 2015. I filled everything out the same as I did in 2015 for the 2016 season. When I called DFW to find out what happened on 5/11 they told me My license had expired and I would have to file an appeal to get it back. This was quite a shock.

I have little faith in the socal security system and have built my own retirement plan that depends on my tacking advantage of the salmon fishing doing both charters and commercial landings. That along with the sales of some cattle should allow me to grow old comfortably.

So Please. I am begging you to accept my apologizes, my fine and reinstate my salmon license

Thank You For Your Consideration
Craig Alton



6/8/2016

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION
2016 JUN 21 PM 2:44

State of California
and Wildlife
M e m o r a n d u m

California Department of Fish

Date: March 21, 2017

To: Valerie Termini, Executive Director
California Fish and Game Commission

From: Charlton Bonham, Director
California Department of Fish and Wildlife

Subject: Commission Renewal of Craig Alton's Salmon Vessel Permit

The Department of Fish and Wildlife ("Department") is requesting that the Fish and Game Commission ("Commission"), at its April 26-27, 2017 meeting, consider the renewal of Craig Alton's Salmon Vessel Permit ("Permit"). The Department has agreed not to oppose Mr. Alton's renewal request.

Fish and Game Code section 7852.2 ("Section 7852.2"), subdivision (c), states that the Department shall "deny any application for renewal received after March 31 of the permit year following the year in which the applicant last held a valid permit for that fishery." Furthermore, Section 7852.2, subdivision (d), states that "The commission, upon consideration of the appeal, may grant renewal." The Permit expired on March 31, 2015. Mr. Alton submitted a request to renew the Permit on May 16, 2016. The Department denied his renewal request on May 25, 2016. Mr. Alton submitted a timely appeal request to the Commission on June 21, 2016. In lieu of an appeal hearing, the Department settled with Mr. Alton. The Department has agreed to not challenge Mr. Alton's request to renew the Permit. Mr. Alton has agreed to pay \$997.60 in fees specified in Section 7852.2, subdivision (a), in addition to fees owed for the 2017-2018 permit year, and not seek any further appeals. Department staff does not anticipate any problems resulting from the renewal. Pursuant to Section 7852.2(d), the Commission may approve Mr. Alton's renewal request.

SETTLEMENT AGREEMENT

This Settlement Agreement ("Agreement") is made between the Department of Fish and Wildlife ("DFW") and Craig Alton (individually, a "Party," and collectively, "Parties").

I. Recitals

The Parties execute this Agreement with reference to and in contemplation of the following facts:

- a. Mr. Alton possessed a Salmon Vessel Permit (Permit), Permit Number (SA0798).
- b. DFW license records indicate that the Permit was last valid during the 2014-15 permit year, making it eligible for renewal in 2015-2016, but not 2016-2017.
- c. On May 16, 2016, DFW received a request from Mr. Alton to renew the Permit. ("Renewal Request," Exhibit A.) In the Renewal Request, Mr. Alton explained he did not submit the Renewal Request by the March 31, 2016 deadline because he was confused about some of the permitting requirements.
- d. On May 25, 2016, DFW denied the Renewal Request pursuant to Fish and Game Code Section 7852.2 (Section 7852.2), subdivision (c). (Exhibit B.) Section 7852.2, subdivision (c) states "The department shall deny any application for renewal received after March 31 of the permit year following the year in which the applicant last held a valid permit for that fishery." For DFW to grant the Renewal Request, Mr. Alton would have had to submit the Renewal Request along with applicable fees by March 31, 2016.
- e. Section 7852.2, subdivision (d), states "An applicant who is denied renewal of a late application may submit a written appeal for renewal to the commission within 60 days of the date of the department's denial. The commission, upon consideration of the appeal, may grant renewal. If the commission grants renewal, it shall assess the applicable late fee pursuant to subdivision (a)." On June 21, 2016, Mr. Alton submitted to the California Fish and Game Commission ("Commission") a request for an appeal of DFW's denial of his Renewal Request. (Exhibit C.)
- f. Section 7852.2, subdivisions (a) and (b) state:
 - (a) In addition to the base fee for the license, stamp, permit, or other entitlement, the department shall assess a late fee for any renewal the application for which is received after the deadline, according to the following schedule:
 - (1) One to 30 days after the deadline, a fee of one hundred twenty-five dollars (\$125).
 - (2) Thirty-one to 60 days after the deadline, a fee of two hundred fifty dollars (\$250).
 - (3) Sixty-one days or more after the deadline, a fee of five hundred dollars (\$500).
 - (b) The department shall not waive the applicable late fee. The late fees specified in this section are applicable beginning in the 2008 license year, and shall be adjusted annually thereafter pursuant to Section 713."

- g. Pursuant to Section 7852.2, subdivisions (a) and (b), Mr. Alton would owe \$997.60 in fees if the Commission reinstates the PERMIT. He would also owe additional fees for the 2017-2018 permit year. (Exhibit D.)
- h. The Parties understand that this Agreement is solely between DFW and Mr. Alton and that the Commission is neither a signatory to it nor bound by it in any way. Furthermore, the Parties understand that pursuant to Section 7852.2, subdivision (d), the Commission, and not DFW, has the sole discretion to approve or deny the Renewal Request.
- i. For the purpose of saving time and costs associated with an appeal hearing, the Parties agree to compromise and settle these issues. In light of recent discussions between DFW and Mr. Alton, the Parties have come to an agreement on terms upon which they can resolve this matter.

II. Terms

The Parties hereby agree to the following:

- a. DFW agrees to not oppose the Renewal Request.
- b. If the Commission reinstates the PERMIT, Mr. Alton agrees to fully pay all fees owed pursuant Section 7852.2, subdivisions (a) and (b)--\$997.60--within 60 days of the Commission's decision. In addition, Mr. Alton agrees to fully pay the "Current Year Fees" for 2017-2018 (Exhibit D). DFW shall not issue the PERMIT until all fees listed in this paragraph are paid.
- c. The Parties agree that this Agreement, all documents attached to this Agreement, and documents previously submitted to the Commission related to the Renewal Request constitute Mr. Alton's written appeal pursuant to Section 7852.2, subdivision (d), provided that the Commission considers the Renewal Request at an upcoming Commission meeting. Each Party may, at its discretion, address the Commission at a Commission meeting regarding the Renewal Request, so long as the address is consistent with the terms of this Agreement. In addition, DFW or Mr. Alton may submit a memorandum or other documents to the Commission requesting that it take action on the Renewal Request, so long as these documents are consistent with the terms of this Agreement.
- d. This Agreement is intended to be a full and complete settlement of all disputes between the Parties pertaining to the Renewal Request. Provided that the Commission considers the Renewal Request at an upcoming Commission meeting, Mr. Alton agrees to waive any present and future administrative appeal related to this renewal of the PERMIT, the May 25, 2016 denial of the Renewal Request, and all future claims and/or causes of action against DFW related to renewing the PERMIT.

- e. This Agreement may be pleaded as a full and complete defense and may be used as the basis for an injunction against any action, suit or proceeding which may be prosecuted, instituted or attempted by any Party in breach thereof.
- f. This Agreement is only applicable to Mr. Alton's Renewal Request. This Agreement does not relate in any way to Mr. Alton's general Commercial Fishing License or any other DFW-issued entitlement held by Mr. Alton.
- g. Each party shall bear its own costs and attorneys' fees, and any other expenses, related to the Renewal Request subject to resolution by this Agreement.
- h. The obligations of this Agreement apply to and are binding on DFW or any successor agency or department and Mr. Alton and his respective heirs, executors, administrators, and permitted assigns.
- i. The Parties represent and warrant to each other that the execution of this Agreement and the performance of such Party's obligations hereunder have been duly authorized and that the Agreement is a valid and legal agreement binding on each Party and is enforceable in accordance with its terms.
- j. If any provision of this Agreement is found to be illegal or unenforceable, then any such provision shall be deemed stricken and the remaining provisions hereof shall remain in full force and effect.
- k. This Agreement constitutes the entire understanding between the Parties as to the Renewal Request and can only be amended or modified in writing, signed by duly authorized representatives of the Parties. This Agreement supersedes all prior representations and agreements, if any, between the Parties regarding the Renewal Request.
- l. This Agreement, when signed by all of the signatories, shall become effective as of the last signature date.
- m. This Agreement may be signed in counterparts, which together shall constitute one and the same Agreement. A facsimile or scanned signature shall be the same as an original.

IN WITNESS THEREOF, the Parties have executed this Agreement as of the date of the last signature below:

By: _____

Gabriel Tiffany
Deputy Director, Administration Division
Department of Fish and Wildlife

Craig Alton

Date: _____

3/21/17

3/16/17

Exhibit A

Craig Alton
Reinstatement
May 12, 2016 at 7:53 PM



To the Department of Fish and Wildlife

Attn: Ruth

Deer Ruth: I must apologize for my lack of understanding for the regulations as they pertain to commercial salmon licenses and permits. It only makes sense to me that one boat would only require one salmon stamp, but after your explanation, I understand that it is one salmon permit for each commercial use. I believe I checked all the same boxes last year and you sent me the salmon stickers for the boat. Right or wrong I failed to contact you before the April 30 deadline to get everything straightened out. I am now requesting that the department reinstate my commercial salmon permit. I am a small boat but this is an important part of my fishing business and my presence in the Alton harbor plays a key roll in the economy there as well. I also work with the salmon council in collecting data on the salmon population. Please reconsider your decision and reinstate my permit.

Thank You Craig Alton 5/12/2016

A handwritten signature in dark ink, appearing to be "Craig Alton", written over a horizontal line.

Exhibit B



State of California - The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
License and Revenue Branch
1740 N. Market Blvd
Sacramento, CA 95834
<http://www.wildlife.ca.gov>

EDMUND G. BROWN JR, Governor
CHARLTON H. BONHAM, Director



Certified Mail

May 25, 2016

Mr. Craig L. Alton
P.O. Box 111
Williams, California 95987

Subject: NOTICE OF DENIAL FOR REINSTATEMENT OF SALMON VESSEL PERMIT,
PERMIT NUMBER SA0798, FOR THE FV *Beatem N Eatem II* (FG29774)

Dear Mr. Alton:

This letter is in response to your request to reinstate the Salmon Vessel Permit (SVP), Permit Number SA0798, for the FV *Beatem N Eatem II* (FG29774).

Authority-Salmon Vessel Permit

Pursuant to Fish and Game Code (FGC) Section 8235(a), the owner of a permitted vessel, or that owner's agent, may apply for renewal of the permit annually on or before April 30, upon payment of the fees without penalty. Upon receipt of the application and fees, the Department of Fish and Wildlife (Department) shall issue the permit for use of the permitted vessel in the subsequent permit year only to the owner of the permitted vessel.

Authority-Late Renewal Applications

Effective April 1, 2008 pursuant to FGC Section 7852.2, a graduated late fee was established for any renewal application that is received after the deadline.

In addition, FGC Section 7852.2(b), states the Department shall not waive the applicable late fee. Pursuant to FGC Section 7852.2(c), the Department shall deny any application for renewal received after the March 31 if the permit year following the year in which the applicant last held a valid permit for that fishery.

Reason for Appeal to the Department

In your May 12, 2016 letter, received May 16, 2016, you are requesting reinstatement of the SVP for the FV *Beatem N Eatem II*. You explain that you lack the understanding of the regulations as they pertain to commercial salmon licenses and permits, and did not contact the Department before the deadline to get everything straightened out. You state that this is an important part of your fishing business and your presence in the Albion harbor plays a key role in the economy. You also work with the salmon council in collecting data on the salmon population.

Department Findings

Department license records show that the FV *Beatem N Eatem II* last held a valid 2014-2015 SVP, which made you eligible to renew the SVP for the 2015-2016 permit year.

Department of Fish and Wildlife's Determination

Based on the previously stated information, your request to reinstate the SVP for the FV *Beatem N Eatem II* is denied, because the FV *Beatem N Eatem II* last held a valid SVP during the 2014-2015 permit year. The Department received your request to renew the SVP for the FV *Beatem N Eatem II* on May 16, 2016. FGC Section 7852.2(c), states the Department shall deny any application for renewal received after March 31 of the permit year following the year in which the applicant last held a valid permit for that fishery.

Conserving California's Wildlife Since 1870

Mr. Craig L. Alton
May 25, 2016
Page 2

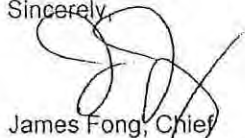
Deadline to File an Appeal to the Fish and Game Commission

If you wish to appeal the Department's decision, you must submit a written request to the Fish and Game Commission (Commission) at 1416 Ninth Street, Sacramento, California 95814 or you can request an appeal by e-mailing the Commission at fgc@fgc.ca.gov. Pursuant to FGC Section 8246.6, your appeal must be received within 60 days of this letter. The Commission, upon consideration of the appeal, may grant renewal. If the Commission grants renewal, it shall assess the applicable late fee.

The Commission will review the information you submit and will notify you in writing if your appeal will be scheduled before the Office of Administrative Hearings. If the Commission should recommend approval, full payment of \$997.60 would be due 60 days after receipt of the Commission's approval letter. A fee schedule is enclosed.

If you have any questions or require further assistance, please contact Ms. Ruth Flores, of my staff, at the letterhead address, by telephone at (916) 928-7470, or e-mail Ruth.Flores@wildlife.ca.gov.

Sincerely,



James Fong, Chief
License and Revenue Branch

Enclosure

cc: Ms. Valerie Termini
Fish and Game Commission
Sacramento, California

Ms. Ruth Flores
California Department of Fish and Wildlife
Sacramento, California



State of California -The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
License and Revenue Branch
1740 N. Market Blvd
Sacramento, CA 95834
<http://www.wildlife.ca.gov>

EDMUND G. BROWN JR, Governor
CHARLTON H. BONHAM, Director



Mr. Craig L. Alton
Fees Required for Reinstatement for a
Salmon Vessel Permit
Permit Number SA0798
FN Beatem N Eatem II (FG29774)

Year	Permit Fees
2015-2016 Commercial Fishing Salmon Stamp	\$ 87.55
SVP	\$ 43.00
Late Fee (61 days to March 31, 2014)	\$ <u>589.00</u>
	719.55
 Prior Year Fees Due	 \$ 719.55

Prior year permit fees must be paid before a 2016-2017 SVP can issued.

Current Year Fees	
2016-2017 Commercial Fishing Salmon Stamp	\$ 87.55
SVP	\$ 43.00
Late fee (one to 30 days)	\$ <u>147.50</u>
	278.05
 Total Current Permit Year Fees Due	 \$ 278.05
Total Fees Due	\$ 997.60

If the Fish and Game Commission should recommend approval, full payment of \$997.60 would be due within 60 days after receipt of the Commission's approval letter.

Exhibit C

Dear Sirs.

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION

The last 3 years have been very difficult for me in many ways. I lost my father early in 2014. My father was my account and all around advisor. He had helped me get thru the renewal app for many years. After he passed in January of 2014 I was left to deal with the application on my own. I paid for everything in a timely manner and was sent a small refund indicating that I had made a mistake and over paid. There was no indication of where I overpaid. During the summer of 2014 my sister was diagnosed with lung cancer. by the end of 2014 she had beaten it into remission. A couple of months later my brother is diagnosed with prostate cancer which quickly moved into his bones and finally his brain. I lost my brother Rick mid May 2016. due to the demanding work schedule for me that time of year I was unable to see him before he passed away.

I retired in 2005 from my occupation as a machinist/welder. After a small lawsuit to close an escrow account I fell short on the funds I need to make a lifestyle out of fishing and raising cattle. So I have been forced to take a high demand high stress job delivering chemical fertilizers to the rice growers in Colusa county during the months of April and May. One of these is Aqua Amonia a very toxic and hazardous material.

I work 10-12hrs a day 7 days a week and have to keep a clear head for my safety and that of the public. When I received the reminder letter I was under a great deal of stress with work and my brothers condition. Because I had not yet received my 2016 license and permits. I assumed they had crossed in the mail and forgot all about the notice.

When it came time to fill out my 2015 app I was trying to figure out where I over paid in 2014. The only thing that made sense to me was the extra 50 dollar salmon stamp. It made no sense to have 3 commercial salmon stamps for one operation. I now understand it is one stamp for each commercial use. At some point in April or May I realized I did not get my commercial stamps that go on the boat. I called DFW and they sent me my commercial stamps for 2015. This led me to believe that I had filled everything out correctly was paid up and ready to commercial salmon fishing 2015. I filled everything out the same as I did in 2015 for the 2016 season. When I called DFW to find out what happened on 5/11 they told me My license had expired and I would have to file an appeal to get it back. This was quite a shock.

I have little faith in the social security system and have built my own retirement plan that depends on my taking advantage of the salmon fishing doing both charters and commercial landings. That along with the sales of some cattle should allow me to grow old comfortably.

So Please. I am begging you to accept my apologizes, my fine and reinstate my salmon license

Thank You For Your Consideration
Craig Alton



6/8/2016

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION
2016 JUN 21 PM 2:44

Exhibit D



State of California -The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
License and Revenue Branch
1740 N. Market Blvd
Sacramento, CA 95834
<http://www.wildlife.ca.gov>

EDMUND G. BROWN JR, Governor
CHARLTON H. BONHAM, Director



Mr. Craig L. Alton
Fees Required for Reinstatement for a
Salmon Vessel Permit
Permit Number SA0798
F/V Beatem N Eatem II (FG29774)

Year	Permit Fees
2015-2016 Commercial Fishing Salmon Stamp	\$ 87.55
Salmon Vessel Permit	\$ 43.00
Late Fee (61 days to March 31, 2014)	\$ <u>589.00</u>
	719.55
2016-2017 Commercial Fishing Salmon Stamp	\$ 87.55
Salmon Vessel Permit	\$ 43.00
Late fee (one to 30 days)	\$ <u>147.50</u>
	278.05
Prior Year Fees Due	\$ 997.60
Current Year Fees	
2017-2018 Commercial Fishing Salmon Stamp	\$ 87.55
Salmon Vessel Permit	\$ <u>43.00</u>
	130.55

Prior year permit fees must be paid before a 2017-2018 SVP can be issued.

BEFORE THE FISH AND GAME COMMISSION
STATE OF CALIFORNIA

In the Matter of the Appeal of) Case No. 16ALJ04-FGC
Craig Alton,)
Appellant.)
_____)

DECISION

Pursuant to the terms of the attached Settlement Agreement between Craig Alton (“Appellant”) and the Department of Fish and Wildlife, dated March 21, 2017, and authority provided in Fish and Game Code section 7852.2, subdivision (d), and Government Code section 11415.60, the Fish and Game Commission hereby orders that:

1. The Commission grants renewal of Appellant’s Salmon Vessel Permit, Permit Number SA0798 (“permit”) and reinstates the permit;
2. Mr. Alton shall pay all fees consistent with the Settlement Agreement; and
3. The Department shall issue Appellant a renewed permit once all fees are paid pursuant to the Settlement Agreement.

IT IS SO ORDERED this _____ day of April 2017.

Eric Sklar, President

1 DAVID KIENE, STAFF COUNSEL
1416 9TH ST, 12TH FLOOR
2 SACRAMENTO, CA 95814
(916) 651-7646
3 (916) 654-3805 (fax)
e-mail: David.Kiene@wildlife.ca.gov
4 State Bar No. 215721
5

6 Attorney for the DEPARTMENT OF FISH AND WILDLIFE¹
7

8 OFFICE OF ADMINISTRATIVE HEARINGS
9 BEFORE THE FISH AND GAME COMMISSION

10 In the Matter of the Accusation Against)
11 Adam Crawford James,) ACCUSATION
12 Respondent.)
13)
14)
15)

16 **PARTIES**

17 1. David Bess (Complainant) is the Chief of the Law Enforcement Division for the
18 Department of Fish and Wildlife (Department) and brings this Accusation solely in his official
19 capacity.
20

21 2. On or about February 8, 2013, the Department issued a Commercial Fisherman's Retail
22 License, and on or about May 2, 2013, a Commercial Fishing License ("License"), to Adam
23 Crawford James ("Respondent"). Per a Superior Court of California, County of Los Angeles
24 court order issued on June 3, 2014, the Respondent's commercial fishing privileges have been
25

¹ Effective January 1 2013, the Department of Fish and Game became the Department of Fish and Wildlife.

1 suspended until June 3, 2017. This court order also effectively prohibits him from obtaining a
2 Commercial Fisherman's Retail License.

4 JURISDICTION

5 3. This Accusation is brought before the Fish and Game Commission ("Commission")
6 under the authority of the following laws.

7 4. Fish and Game Code, section 86, which states:

8 "Take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue,
9 catch, capture, or kill.

10 5. Fish and Game Code, section 2000 ("Section 2000"), which in 2013 (the date when the
11 Third Cause for Discipline occurred) stated:

12 It is unlawful to take any bird, mammal, fish, reptile, or amphibian except as
13 provided in this code or regulations made pursuant thereto. Possession of a bird,
14 mammal, fish, or reptile or parts thereof in or on the fields, forests, or waters of
15 this state, or while returning therefrom with fishing or hunting equipment is prima
16 facie evidence the possessor took the bird, mammal, fish or reptile or parts
17 thereof.

18 6. Fish and Game Code, section 7857, subdivision (b) ("Section 7857"), which
19 states:

20 The commission after notice and opportunity for hearing, may suspend, revoke, or
21 cancel commercial fishing privileges for a period of time to be determined by the
22 commission for the following reasons:

23 (1) The person was not lawfully entitled to be issued the license,
24 permit, or other entitlement.

25 (2) A violation of this code, the terms of the permit or other
entitlement, or the regulations adopted pursuant thereto, by the
licensee, permittee, person holding the entitlement, or his or her
agent, servant, employee, or person acting under the licensee's,
permittee's, or entitled person's direction or control.

(3) A violation of any federal law relating to the fishery for which the
license, permit, or other entitlement was issued by the licensee,
permittee, person holding the entitlement, or his or her agent,

1 servant, employee, or person acting under the licensee's,
2 permittee's or entitled person's direction or control.

3 7. Fish and Game Code, section 7920 ("Section 7920"), which states:

4 The owner of any boat or vessel who, for profit, permits any person to take fish,
5 shall procure a commercial passenger fishing boat license. This article applies
6 only to a boat or vessel whose owner or his or her employee or other
7 representative is with it when it is used for fishing.

8 8. Fish and Game Code, section 7923 ("Section 7923"), which states:

9 The holder of a license shall keep a true record in the English language of all fish
10 taken, and shall comply with such regulations as the commission may prescribe.
11 Such a record and the information contained in it shall be confidential, and the
12 record shall not be a public record.

13 9. Fish and Game Code, section 8032.5, subdivision (c) ("Section 8032.5"), which
14 states, in part:

15 The commission, after notice and opportunity for hearing, may
16 suspend, revoke, or cancel commercial fish business privileges for a
17 period of time to be determined by the commission for any of the
18 following reasons:

19 ...

- 20 (2) Any violation of this code, the regulations adopted pursuant
21 thereto, or the terms of the permit or other entitlement by the
22 licensee, permittee, person holding the entitlement, or his or her
23 agent, servant, employee, or person acting under the licensee's,
24 permittee's, or entitled person's direction or control.

25 10. Fish and Game Code, section 8033, subdivision (a) ("Section 8033(a)"), which
states:

 Except as provided in Section 8033.1 or 8033.5, or subdivision (c) of Section
8047, any person who purchases or receives fish for commercial purposes from a
fisherman who is required to be licensed under Section 7850, or any person who
removes fish from the point of the first landing that the person has caught for his
or her own processing or sale, shall obtain a fish receiver's license.

11. Fish and Game Code, section 8041, subdivision (a)(2) ("Section 8041(a)(2)"), which
states:

(a) The following persons shall pay the landing tax determined pursuant to Section 8042:

...

(3) Any commercial fisherman who sells fish to any person who is not a licensed fish receiver.

12. Fish and Game Code, section 9054 ("Section 9054"), which states:

Sea urchins shall not be taken for commercial purposes except under a valid sea urchin diving permit issued to that person that has not been suspended or revoked, subject to regulations adopted by the commission. Rakes, airlifts, or other handheld appliances may be used to take sea urchins. The commission may, whenever necessary to prevent overutilization or to ensure efficient and economic operation of the fishery, limit the number of permits that may be issued. The commission, as it determines appropriate to protect the resource, may limit the number of permits either on a statewide basis or within selected geographical areas.

13. Fish and Game Code, section 12158.5, which states:

For the purpose of invoking any provision of this code, or any rule, regulation, or order made or adopted under this code, relating to the suspension, revocation, or forfeiture of any license or permit, a plea of *nolo contendere* or "no contest" to, or forfeiture of bail from, a charge of a violation of any provision of this code, or any rule, regulation, or order made or adopted under this code, is a conviction of a violation thereof.

14. California Code of Regulations, Title 14 ("Title 14"), section 29.90, subdivision (c) ("Section 29.90(c)"), which states:

Minimum size: Three and one-fourth inches measured in a straight line on the mid-line of the back from the rear edge of the eye socket to the rear edge of the body shell. Any lobster may be brought to the surface of the water for the purpose of measuring, but no undersize lobster may be brought aboard any boat, placed in any type of receiver, kept on the person or retained in any person's possession or under his direct control; all lobsters shall be measured immediately upon being brought to the surface of the water, and any undersize lobster shall be released immediately into the water.

15. Title 14, section 29.90, subdivision (d) ("Section 29.90(d)"), which states:

Report Card Required: Any person fishing for or taking spiny lobster shall have in their possession a nontransferable Spiny Lobster Report Card issued by the

department and shall adhere to all reporting requirements for lobster defined in Sections 1.74 and 29.91, Title 14, CCR.

16. Title 14, section 29.91, subdivision (b) ("Section 29.91(b)"), which states:

Prior to beginning fishing activity, the [spiny lobster report card holder] must record the month, day, location, and gear code on the first available line on the report card.

17. Title 14, section 190, subdivision (c) ("Section 190(c)"), which states:

Fishing activity records shall be delivered to the department at 4665 Lampson Avenue, Suite C, Los Alamitos, CA 90720, or such other department office as may be specified in regulation on or before the 10th day of each month following the month to which the records pertain. Fishing activity records that are mailed shall be postmarked on or before the 10th day of each month following the month to which the records pertain.

18. Title 14 section 195 ("Section 195"), which in 2012 (the date when the Tenth Cause for Discipline occurred) stated in part:

(a) Records required by Sections 7923 and 8026 of the Fish and Game Code shall be made on a form provided by the department {Skipper's Log Book-Marine Sportfishing-Southern California F&G 656 and Skipper's Log Book-Marine Sportfishing Central and Northern California F&G 623, DFG 195, which is incorporated by reference, and hereafter referred to as logbook for purposes of this section). The logbook shall include the following information and be completed and available for inspection as specified in this section:

(1) A full and correct record of fish taken, including species or specified species group filled-out before the trip is completed, (see Section 190(b) of Title 14, CCR). The names used for designating the species of fish shall be those in common usage unless otherwise designated by the department.

(2) The owner/operator copy of the logbook shall be maintained and kept on the vessel for a period of one year, and upon request, shall be made available for inspection by any authorized representative of the Department.

(3) The numbered logbook shall be completed sequentially. A voided log shall have the word "Void" plainly and noticeably written on the face of the log.

...

- 1 (c) Both the vessel owner(s) and/or operators) shall be responsible for keeping
2 accurate records and insuring the vessel is in compliance with subsections
3 (a) and (b) above.

4 19. Title 14, section 746, which states in part:

5 Except where revocation, suspension, transfer, reinstatement or waiver of renewal
6 requirement procedures are specifically provided for by the Fish and Game Code or
7 regulations made pursuant thereto, the commission, pursuant to the provisions of
8 Section 309 of the Fish and Game Code, shall comply with the following minimum
9 safeguards to afford each applicant, licensee or permittee procedural and substantive
10 due process when the commission considers revocation, suspension, transfer,
11 reinstatement or waiver of renewal requirements for a license or permit including
12 hunting and sport fishing license or permit privileges.

- 13 (a) In the case where the applicant, licensee or permittee has already been
14 convicted of a violation of the Fish and Game Code or any regulation
15 pertaining to the activity licensed or permitted by said code, the commission
16 shall comply with the following:

- 17 (1) The commission's president may appoint a commissioner, the
18 commission's legal counsel, a former Executive Director of the
19 commission, or a member of the State Bar of California with at least
20 ten years' experience in the active practice of law and determined
21 qualified by the president, to serve as a hearing officer.
- 22 (2) The hearing shall be held at such time and location determined by the
23 hearing officer with due consideration for the convenience of the
24 parties and the ends of justice. The hearing officer may engage in
25 exparte communications with the parties for the purpose of setting a
time and place of hearing.
- (3) The commission shall notify the applicant, licensee or permittee, by
certified letter, of the commission's intent to consider the revocation or
suspension of his or her license or permit privileges. The certified
letter shall include the following information:
- (A) Name of applicant, licensee or permittee and last known address
the Department of Fish and Game has on file.
- (B) Date, time and place of scheduled hearing.
- (C) Reason for potential commission action, including a statement as
to the date and fact of conviction.
- (D) A copy of Section 746, Title 14, California Code of Regulations.

1
2 (E) A statement that the applicant, licensee or permittee has the right to
appear and to be represented by counsel.

3 (F) A statement that any continuance of the scheduled hearing date
4 may be obtained only through compliance with subsection (d) of
Section 746, Title 14, California Code of Regulations.

5 (4) The proceedings of the hearing shall be recorded by a court reporter or an
6 electronic tape recording system.

7 (5) The hearing shall be conducted by the hearing officer who shall control
8 the nature and order of the proceedings.

9 (6) At the hearing, the hearing officer shall read the conviction documents.
10 The department shall provide the hearing officer with the background
information regarding the violation and conviction and shall submit into
11 the record a copy of a document which includes the facts of the conviction
of a violation of regulation or statute.

12 (7) The applicant, licensee or permittee shall make his or her statement
13 regarding the violation and conviction, and may argue that extenuating
circumstances were such as to not warrant the loss of his or her license or
14 permit privileges.

15 (8) The hearing officer may examine any party or witness.

16 (9) Within 30 days of the conclusion of the hearing, the hearing officer shall
17 prepare and submit to the executive director a proposed decision which
shall include proposed findings or reasons for the commission's action.

18 (10) Upon receipt of the proposed decision, the commission shall provide
19 counsel or, if appearing pro se, the applicant, licensee or permittee, by
certified mail, a copy of the hearing officer's proposed decision.

20 (11) At a meeting of the commission, no later than 60 days following receipt of
21 the hearing officer's proposed decision, the commission shall consider
adoption of the proposed decision. The commission may by order adopt,
22 revise or reject the proposed decision. The commission shall serve counsel
or, if appearing pro se, the applicant, licensee or permittee, by certified
23 mail, a copy of the commission's order and decision. The order is final.

24 (12) The applicant, licensee or permittee may request judicial review by filing a
25 petition for writ of mandate in accordance with provisions of the Code of
Civil Procedure within 30 days from the date of service (postmark) of the
order. The record of the proceedings as designated by the petitioner shall

1 be prepared by the commission and delivered to petitioner's counsel or, if
2 appearing pro se, the petitioner within 30 days after petitioner's request
3 and upon payment of the fee specified in Section 69950 of the
4 Government Code.

- 5 (b) In the case where the applicant, licensee or permittee has not been
6 convicted of a violation of the Fish and Game Code or any regulation
7 pertaining to the activity licensed or permitted by said code, but has been
8 cited by the department, the commission shall comply with the following:
- 9 (1) The commission's president may appoint a commissioner, the
10 commission's legal counsel, a former Executive Director of the
11 commission, or a member of the State Bar of California with at least
12 ten years experience in the active practice of law and determined
13 qualified by the president, to serve as a hearing officer.
- 14 (4) The hearing shall be held at such time and location determined by
15 the hearing officer with due consideration for the convenience of
16 the parties and the ends of justice except that any hearing requested
17 by the holder of a commercial lobster permit, pursuant to Section
18 8254.7 of the Fish and Game Code, shall be held within the time
19 specified therein. The hearing officer may engage in exparte
20 communications with the parties for the purpose of setting a time
21 and place of hearing.
- 22 (5) The commission shall notify the applicant, licensee or permittee, by
23 certified letter, of the commission's intent to consider the revocation
24 or suspension of his or her license or permit privileges. The
25 certified letter shall include the following information:
- (A) Name of applicant, licensee or permittee and last known
address the Department of Fish and Game has on file.
- (B) Date, time and place of scheduled hearing.
- (C) Reason for potential commission action, including a concise
statement of the alleged acts or omissions of the applicant,
licensee or permittee which constitute a violation of the Fish
and Game Code and regulations made pursuant thereto with
specific citations of the code sections alleged to have been
violated.
- (D) A copy of Section 746, Title 14, California Code of
Regulations.

1 (E) A statement that the applicant, licensee or permittee has the
2 right to appear and to be represented by legal counsel.

3 (F) A statement that any continuance of the scheduled hearing
4 date may be obtained only through compliance with
5 subsection (d) of Section 746, Title 14, California Code of
6 Regulations.

7 (6) The proceedings of the hearing shall be recorded by a court reporter
8 or an electronic tape recording system.

9 (7) The hearing shall be conducted by the hearing officer who shall
10 control the nature and order of the proceedings.

11 (6) The applicant, licensee, permittee and the department have the right
12 to present evidence at the scheduled hearing as follows:

13 (A) Oral evidence shall be taken on oath or affirmation.

14 (B) The parties may submit affidavits by adhering to the
15 procedure set out for the submission of affidavits in lieu of
16 testimony in judicial arbitration proceedings, California
17 Rules of Court, Rule 1613, subdivision (b)(2), and may
18 submit transcripts of depositions by adhering to the
19 procedure set out for the submission of depositions in
20 judicial arbitration proceedings, California Rules of Court,
21 Rule 1613, subdivision (b)(3).

22 (C) Each party may call and examine witnesses, cross-examine
23 opposing witnesses on any relevant matter, may rebut
24 evidence against him or her, and may orally argue the
25 matter.

(D) The hearing need not be conducted according to the
technical rules relating to evidence and witnesses. Any
relevant evidence shall be admitted if it is the sort of
evidence on which responsible persons would rely in the
conduct of serious affairs.

(7) The hearing officer may examine any party or witness.

(8) Within 30 days of the conclusion of the hearing, the hearing officer
shall prepare and submit to the executive director a proposed
decision based on the evidence presented at the hearing. The
decision shall contain proposed findings and reasons for the
commission's action.

- 1 (9) Upon receipt of the proposed decision, the commission shall
2 provide counsel or, if appearing pro se, the applicant, licensee or
3 permittee, by certified mail, a copy of the hearing officer's proposed
4 decision.
- 5 (10) At a meeting of the commission, no later than 60 days following the
6 receipt of the hearing officer's proposed decision, the commission
7 shall consider adoption of the proposed decision. The commission
8 may by order adopt, revise or reject the proposed decision. The
9 commission shall serve counsel or, if appearing pro se, the
10 applicant, licensee or permittee, by certified mail, a copy of the
11 commission's order and decision. The order is final.
- 12 (11) The applicant, licensee or permittee may request judicial review by
13 filing a petition for writ of mandate in accordance with provisions
14 of the Code of Civil Procedure within 30 days from the date of
15 service (postmark) of the order. The record of the proceedings as
16 designated by the petitioner shall be prepared by the commission
17 and delivered to petitioner's counsel or, if appearing pro se, the
18 petitioner within 30 days after petitioner's request and upon
19 payment of the fee specified in Section 69950 of the Government
20 Code.

21 FIRST CAUSE FOR DISCIPLINE

22 20. Respondent is subject to disciplinary action under Sections 7857 and 8032.5 in that on or
23 about June 3, 2014, in a criminal proceeding titled *People v. Adam Crawford James* in the
24 Superior Court of California, County of Los Angeles, Case Number 3WA23601, Respondent
25 pled *nolo contendere* to a violation of Section 8033(A), Failure to procure a Receiver's license, a
violation for which the License and Commercial Fisherman's Retail License may be revoked.

The circumstances are as follows:

a. On or about February 18, 2012, Respondent illegally sold his catch in 20 different
transactions to a restaurant called "The Lobster" without procuring a Fish Receiver's license,
receiving a sum of \$7,546.26.

b. On or about June 3, 2014, Respondent was sentenced for this violation as follows:
ordered to pay \$3,145 in fines and fees or perform 394 hours of community service and placed

1 on probation for three years, during which time he is prohibited from fishing commercially in
2 California.

4 **SECOND CAUSE FOR DISCIPLINE**

5 21. Respondent is subject to disciplinary action under Sections 7857 and 8032.5 in that on or
6 about June 3, 2014, in a criminal proceeding titled *People v. Adam Crawford James* in the
7 Superior Court of California, County of Los Angeles, Case Number 3WA23601, Respondent
8 pled *nolo contendere* to a violation of Section 8041(a)(2), failure to pay landing tax on
9 commercial catch to the State of California, a violation for which the License and Commercial
10 Fisherman's Retail License may be revoked. The circumstances are as follows:

11 a. On or about February 18, 2012, Respondent illegally sold his catch in 20 different
12 transactions to a restaurant called "The Lobster" receiving a sum of \$7,546.26 without paying
13 taxes on any of his landings.

14 b. On or about June 3, 2014, Respondent was sentenced for this violation as follows:
15 ordered to pay \$3,145 in fines and fees or perform 394 hours of community service; placed on
16 probation for three years, during which time he is prohibited from fishing commercially in
17 California; and ordered to pay \$7,000 in restitution to the Fish and Game Preservation Fund.

19 **THIRD CAUSE FOR DISCIPLINE**

20 22. Respondent is subject to disciplinary action under Sections 7857 and 8032.5 in that on or
21 about June 3, 2014, in a criminal proceeding titled *People v. Adam Crawford James* in the
22 Superior Court of California, County of Los Angeles, Case Number 3WA23601, Respondent
23 pled *nolo contendere* to a violation of Section 2000, unlawful take of fish species, a violation for
24 which the License and Commercial Fisherman's Retail License may be revoked. The
25 circumstances are as follows:

a. In or around 2012 and 2013, Respondent violated Section 2000 by unlawfully taking lobster, cabezon, sheephead, and sea urchin by not possessing licenses and permits to take these species, and by taking cabezon, sheephead, lingcod, and white seabass out of season. He later sold these species to "The Lobster" restaurant.

b. On or about June 3, 2014, Respondent was sentenced for this violation as follows:
ordered to pay \$220 in fines and fees.

FOURTH CAUSE FOR DISCIPLINE

23. Respondent is subject to disciplinary action under Sections 7857 and 8032.5 in that on or about June 3, 2014, in a criminal proceeding titled *People v. Adam Crawford James* in the Superior Court of California, County of Los Angeles, Case Number 3WA23601, Respondent pled *nolo contendere* to a violation of Section 9054, take of sea urchin without a permit, a violation for which the License and Commercial Fisherman's Retail License may be revoked. The circumstances are as follows:

a. On or about February 18, 2013, Respondent unlawfully took and sold sea urchin on four separate occasions to a restaurant called "The Lobster" without a sea urchin permit required for taking sea urchin for commercial purposes.

b. On or about June 3, 2014, Respondent was sentenced for this violation as follows: fined \$220; placed on probation for three years, during which time he is prohibited from fishing commercially in California; and ordered to pay \$7,000 in restitution to the Fish and Game Preservation Fund.

FIFTH CAUSE FOR DISCIPLINE

25. Respondent is subject to disciplinary action under Sections 7857 and 8032.5 in that on or about August 29, 2013, in a criminal proceeding in the Superior Court of California, County

1 of Los Angeles, Case Number 2066660, Respondent was convicted of violating Section
2 29.90(d), failure to complete a spiny lobster report card, a violation for which the License and
3 Commercial Fisherman's Retail License may be revoked. The circumstances are as follows:

4 a. On or about January 26, 2013, Respondent possessed four lobsters and failed to
5 complete a spiny lobster report card, in violation Section 29.90(d).

6 b. On or about August 29, 2013, Respondent was sentenced for this violation as
7 follows: ordered to pay a bail amounting to \$197.
8

9 10 **SIXTH CAUSE FOR DISCIPLINE**

11 26. Respondent is subject to disciplinary action under Sections 7857 and 8032.5 in that on or
12 about December 10, 2013, in a criminal proceeding titled *People v. Adam Crawford James* in the
13 Superior Court of California, County of Ventura, Case Number 2013025311 M A, Respondent
14 pled guilty to a violation of Section 190(c), failure to complete Commercial Passenger Fishing
15 Vessel ("CPFV") logbooks (2 counts), violations for which the License and Commercial
16 Fisherman's Retail License may be revoked. The circumstances are as follows:

17 a. From on or about December 20, 2012 through sometime after January 19, 2013,
18 Respondent failed to complete CPFV logbooks.

19 b. On or about December 10, 2013, Respondent was sentenced for this violation, and others
20 described in this Accusation, as follows: ordered to pay \$240 in fines and fees.

21 22 **SEVENTH CAUSE FOR DISCIPLINE**

23 24. Respondent is subject to disciplinary action under Sections 7857 and 8032.5 in that on
24 or about March 9, 2012, in a criminal proceeding in the Superior Court, County of Los Angeles,
25 Citation Number 1859687, Respondent was convicted of violating Section 29.90(c), possessing a

1 lobster with a carapace less than 3 ¼ inches in length, a violation for which the License and
2 Commercial Fisherman's Retail License may be revoked. The circumstances are as follows:

3 a. On or about January 13, 2012, while diving, Respondent unlawfully possessed a
4 lobster less than 3 ¼ inches in length.

5 b. On or about March 9, 2012, Respondent was sentenced for this violation as
6 follows: convicted and ordered to pay \$270 for bail.

8 **EIGHTH CAUSE FOR DISCIPLINE**

9 27. Respondent is subject to disciplinary action under Sections 7857 and 8032.5 in that
10 Respondent violated Section 29.91(b), failure to complete a lobster report card, a violation for
11 which the License and Commercial Fisherman's Retail License may be revoked. The
12 circumstances are as follows:

13 a. On or about March 1, 2013 Respondent failed to complete a lobster report card,
14 despite possessing a lobster.

16 **NINTH CAUSE FOR DISCIPLINE**

17 27. Respondent is subject to disciplinary action under Sections 7857 and 8032.5 in that
18 Respondent violated Section 7920, failure to possess a CPFV License, a violation for which the
19 License and Commercial Fisherman's Retail License may be revoked. The circumstances are as
20 follows:

21 a. On or about December 9, 2012, Respondent operated a CPFV in the City of
22 Marina Del Rey without possessing a CPFV License.

1 **TENTH CAUSE FOR DISCIPLINE**

2 27. Respondent is subject to disciplinary action under Sections 7857 and 8032.5 in that
3 Respondent violated Section 7923 and Section 195, failure to submit CPFV logbooks, violations
4 for which the License and Commercial Fisherman's Retail License may be revoked. The
5 circumstances are as follows:

6 a. On or about December 9, 2012, while operating a CPFV, Respondent allowed the
7 take of six barred sandbass, one lobster, three California sheephead, two opaleye, and eight
8 scallops without having a logbook on his vessel and recording the take in a logbook.

9
10
11 **PRAYER**

12 WHEREFORE, Complainant prays that a hearing be held on the charges and that
13 thereafter the Fish and Game Commission issues a decision:

14 (1) Permanently revoking Respondent's Commercial Fisherman's Retail License and
15 Commercial Fishing License and all privileges associated with the Commercial Fisherman's
16 Retail License and Commercial Fishing License.

17 (2) Taking such other and further action as may be deemed just and proper.

18
19 Dated this 30 day of January, 2017

20 

21 _____
22 DAVID BESS, Complainant
23 CHIEF, LAW ENFORCEMENT DIVISION
24 Department of Fish and Wildlife
25

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

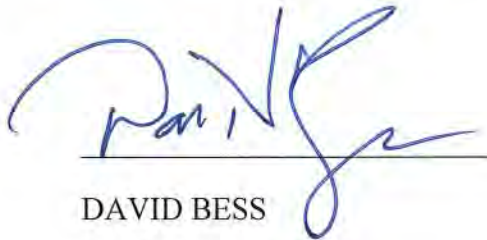
VERIFICATION

I, David Bess, the undersigned, say:

I am a party to this action; the above document is true of my own knowledge, except as to the matters that are stated in it on my information and belief, and as to those matters I believe it to be true.

I declare under penalty of perjury that the above is true and correct and that this declaration was executed on January 30, 2017, at 1416 Ninth St., Sacramento, CA 95814.

Date: 01/30/17



DAVID BESS

Declarant

1 DAVID KIENE, STAFF COUNSEL
1416 9TH ST, 12TH FLOOR
2 SACRAMENTO, CA 95814
(916) 651-7646
3 (916) 654-3805 (fax)
e-mail: David.Kiene@wildlife.ca.gov
4 State Bar No. 215721

5
6 Attorney for the DEPARTMENT OF FISH AND WILDLIFE

7
8 OFFICE OF ADMINISTRATIVE HEARINGS
BEFORE THE FISH AND GAME COMMISSION

9
10 In the Matter of the Accusation Against)
11 Adam Crawford James,) STATEMENT TO RESPONDENT
12 Respondent.)
13)
14)
15)

16 TO THE RESPONDENT ABOVE NAMED:

17
18 There is attached hereto a copy of the Accusation that has been filed with the office of the
19 Fish and Game Commission (Commission) and is hereby served on you.

20
21 Unless a written request for a hearing signed by you or on your behalf is delivered or
22 mailed to the Commission within 15 days after a copy of the Accusation was personally served
23 on you or mailed to you, you will be deemed to have waived your right to a hearing in this
24 matter, and the Commission may proceed on the Accusation without a hearing and may take
25 action on it as provided by law.

1 The request for hearing may be made by delivering or mailing one of the enclosed forms
2 entitled "Notice of Defense" or by delivering or mailing a Notice of Defense as provided in
3 Government Code section 11506 to:

4 Fish and Game Commission
5 1416 9th St., Room 1320
6 Sacramento, California 95814

7 You may but need not be represented by counsel at any or all stages of these proceedings.

8
9 The enclosed Notice of Defense, if signed and filed with the Commission, shall be
10 deemed a specific denial of all parts of the Accusation, but you will not be permitted to raise any
11 objection to the form of the Accusation unless you file a further Notice of Defense as provided in
12 Government Code section 11506 within 15 days after service of the Accusation on you.

13
14 If you file any Notice of Defense within the time permitted, a hearing will be had on the
15 charges made in the Accusation.

16
17 The hearing may be postponed for good cause. If you have good cause, you are obliged
18 to notify the agency or, if an administrative law judge has been assigned to the hearing, the
19 Office of Administrative Hearings, within ten working days after you discover the good cause.
20 Failure to give notice within ten days will deprive you of a postponement.

21
22 Copies of Government Code sections 11507.5, 11507.6 and 11507.7, are attached.

23
24 If you desire the names and addresses of witnesses or any opportunity to inspect and copy
25 the items mentioned in Government Code section 11507.6 in possession, custody, or control of
the Department of Fish and Wildlife, you may contact:

1 David Kiene
2 Department of Fish and Wildlife
3 Office of the General Counsel
4 1416 9th St., 12th Floor
5 Sacramento, California 95814
6 Telephone: (916) 654-3821

7 Attachments:

8 Accusation

9 Notice of Defense

10 Government Code sections 11507.5, 11507.6 and 11507.7
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

1 DAVID KIENE, STAFF COUNSEL
1416 9TH ST, 12TH FLOOR
2 SACRAMENTO, CA 95814
(916) 651-7646
3 (916) 654-3805 (fax)
e-mail: David.Kiene@wildlife.ca.gov
4 State Bar No. 215721

5
6 Attorney for the DEPARTMENT OF FISH AND WILDLIFE

7
8 OFFICE OF ADMINISTRATIVE HEARINGS
BEFORE THE FISH AND GAME COMMISSION
9

10 In the Matter of the Accusation Against)
11 Adam Crawford James,)
12 Respondent.) NOTICE OF DEFENSE
(Under Govt. Code § 11506)
13)
14)
15)

16 I, the undersigned, the respondent named in the above-entitled proceeding, hereby
17 acknowledge receipt of a copy of the Accusation, Statement to Respondent, Government Code
18 sections 11507.5, 11507.6, and 11507.7, and two copies of a Notice of Defense.

19
20 I hereby request a hearing in said proceeding to permit me to present a defense to the
21 charges contained in said Accusation.

22
23 Date: _____

24 ADAM JAMES,
Respondent

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

If you plan to be represented by counsel, please fill in the name, address, and telephone number below.

Name: _____
Address: _____

1 DAVID KIENE, STAFF COUNSEL
1416 9TH ST, 12TH FLOOR
2 SACRAMENTO, CA 95814
(916) 651-7646
3 (916) 654-3805 (fax)
e-mail: David.Kiene@wildlife.ca.gov
4 State Bar No. 215721

5 Attorney for the DEPARTMENT OF FISH AND WILDIFE

6
7
8 OFFICE OF ADMINISTRATIVE HEARINGS
BEFORE THE FISH AND GAME COMMISSION
9

10 In the Matter of the Accusation Against)
11 Adam Crawford James,) NOTICE OF DEFENSE
(Under Govt. Code § 11506)
12 Respondent.)
13)
14)
15)

16 I, the undersigned, the respondent named in the above-entitled proceeding, hereby
17 acknowledge receipt of a copy of the Accusation, Statement to Respondent, Government Code
18 sections 11507.5, 11507.6, and 11507.7, and two copies of a Notice of Defense.

19
20 I hereby request a hearing in said proceeding to permit me to present a defense to the
21 charges contained in said Accusation.

22
23 Date: _____

24 ADAM JAMES,
Respondent

1 If you plan to be represented by counsel, please fill in the name, address, and telephone
2 number below.
3

4 Name: _____

5 Address: _____
6 _____
7 _____
8 _____
9 _____
10 _____
11 _____
12 _____
13 _____
14 _____
15 _____
16 _____
17 _____
18 _____
19 _____
20 _____
21 _____
22 _____
23 _____
24 _____
25 _____

Government Code sections 11507.5-11507.7

11507.5. The provisions of Section 11507.6 provide the exclusive right to and method of discovery as to any proceeding governed by this chapter.

11507.6. After initiation of a proceeding in which a respondent or other party is entitled to a hearing on the merits, a party, upon written request made to another party, prior to the hearing and within 30 days after service by the agency of the initial pleading or within 15 days after the service of an additional pleading, is entitled to (1) obtain the names and addresses of witnesses to the extent known to the other party, including, but not limited to, those intended to be called to testify at the hearing, and (2) inspect and make a copy of any of the following in the possession or custody or under the control of the other party:

(a) A statement of a person, other than the respondent, named in the initial administrative pleading, or in any additional pleading, when it is claimed that the act or omission of the respondent as to this person is the basis for the administrative proceeding;

(b) A statement pertaining to the subject matter of the proceeding made by any party to another party or person;

(c) Statements of witnesses then proposed to be called by the party and of other persons having personal knowledge of the acts, omissions or events which are the basis for the proceeding, not included in (a) or (b) above;

(d) All writings, including, but not limited to, reports of mental, physical and blood examinations and things which the party then proposes to offer in evidence;

(e) Any other writing or thing which is relevant and which would be admissible in evidence;

(f) Investigative reports made by or on behalf of the agency or other party pertaining to the subject matter of the proceeding, to the extent that these reports (1) contain the names and addresses of witnesses or of persons having personal knowledge of the acts, omissions or events which are the basis for the proceeding, or (2) reflect matters perceived by the investigator in the course of his or her investigation, or (3) contain or include by attachment any statement or writing described in (a) to (e), inclusive, or summary thereof.

For the purpose of this section, "statements" include written statements by the person signed or otherwise authenticated by him or her, stenographic, mechanical, electrical or other recordings, or transcripts thereof, of oral statements by the person, and written reports or summaries of these oral statements.

Nothing in this section shall authorize the inspection or copying of any writing or thing which is privileged from disclosure by law or otherwise made confidential or protected as the attorney's work product.

11507.7. (a) Any party claiming the party's request for discovery pursuant to Section 11507.6 has not been complied with may serve and file with the administrative law judge a motion to compel discovery, naming as respondent the party refusing or failing to comply with Section 11507.6. The motion shall state facts showing the respondent party failed or refused to comply with Section 11507.6, a description of the matters sought to be discovered, the reason or reasons why the matter is discoverable under that section, that a reasonable and good faith attempt to contact the respondent for an informal resolution of the issue has been made, and the ground or grounds of respondent's refusal so far as known to the moving party.

(b) The motion shall be served upon respondent party and filed within 15 days after the respondent party first evidenced failure or refusal to comply with Section 11507.6 or within 30 days after request was made and the party has failed to reply to the request, or within another time provided by stipulation, whichever period is longer.

(c) The hearing on the motion to compel discovery shall be held within 15 days after the motion is made, or a later time that the administrative law judge may on the judge's own motion for good cause determine. The respondent party shall have the right to serve and file a written answer or other response to the motion before or at the time of the hearing.

(d) Where the matter sought to be discovered is under the custody or control of the respondent party and the respondent party asserts that the matter is not a discoverable matter under the provisions of Section 11507.6, or is privileged against disclosure under those provisions, the administrative law judge may order lodged with it matters provided in subdivision (b) of Section 915 of the Evidence Code and examine the matters in accordance with its provisions.

(e) The administrative law judge shall decide the case on the matters examined in camera, the papers filed by the parties, and such oral argument and additional evidence as the administrative law judge may allow.

(f) Unless otherwise stipulated by the parties, the administrative law judge shall no later than 15 days after the hearing make its order denying or granting the motion. The order shall be in writing setting forth the matters the moving party is entitled to discover under Section 11507.6. A copy of the order shall forthwith be served by mail by the administrative law judge upon the parties. Where the order grants the motion in whole or in part, the order shall not become effective until 10 days after the date the order is served. Where the order denies relief to the moving party, the order shall be effective on the date it is served.



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Law Enforcement Division
1416 Ninth Street, Room 1326
Sacramento, CA 95814
(916) 653-4094
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



March 22, 2017

California Fish and Game Commission
1416 Ninth Street, Room 1320
Sacramento, CA 95814

Subject: Revocation of Adam James' Commercial Fisherman's Retail License and
Commercial Fishing License privileges

Dear Commissioners:

This letter is in regards to an accusation submitted by the Department of Fish and Wildlife ("Department"), in which the Department is requests that the Fish and Game Commission ("Commission") permanently revoke Adam James' Commercial Fisherman's Retail License and Commercial Fishing License privileges (collectively, "Commercial Privileges"). Per a Superior Court of California, County of Los Angeles court order issued on June 3, 2014, Mr. James is prohibited from engaging in commercial fishing until June 3, 2017 (Exhibit 1). The Department is requesting that the Commission place the revocation of his Commercial Privileges on the agenda for its April 26-27, 2017 meeting, and issue a decision permanently revoking his Commercial Privileges at that meeting. Attached are exhibits offered as Department evidence in support of the accusation, including conviction documents and wildlife officer narratives describing the violations.

This revocation is before the Commission without a formal hearing because Mr. James has waived his right to a hearing. On February 2, 2017, the Department personally served Mr. James with the accusation (Exhibit 2). Mr. James declined to send a Notice of Defense requesting a hearing within 15 days of receiving the accusation, i.e., by February 17, 2017.¹ Mr. James has thus waived his right to a hearing, and the Commission may revoke his Commercial Privileges based upon evidence submitted by the Department.²

¹ Government Code, section 11506, subdivision (a), states, in part, "Within 15 days after service of the accusation or District Statement of Reduction in Force the respondent may file with the agency a notice of defense, or, as applicable, notice of participation, in which the respondent may: (1) Request a hearing."

² Government Code, section 11520, subdivision (a), states, in part, "If the respondent either fails to file a notice of defense, or, as applicable, notice of participation, or to appear at the hearing, the agency may take action based upon the respondent's express admissions or upon other evidence and affidavits may be used as evidence without any notice to respondent..."

As described in the accusation and the attached exhibits submitted as uncontroverted evidence of the violations, Mr. James has committed multiple violations of the Fish and Game Code and regulations adopted pursuant to the Fish and Game Code. These violations include:

- January 13, 2012, possessing a lobster less than 3 ¼ inches in length, in violation of California Code of Regulations, title 14 (“Title 14”), section 29.90 (“Section 29.90”), subdivision (c)³ (convicted on March 9, 2012—Exhibits 3 and 4).
- February 18, 2012, selling his commercial fishing catch in 20 different transactions to a restaurant without procuring a fish receiver’s license, in violation of Fish and Game Code, section 8033, subdivision (a),⁴ and failing to pay taxes on the fish that he landed, in violation of Fish and Game Code, section 8041(a)(2)⁵ (convicted of both violations on June 3, 2014—Exhibits 1 and 5).
- December 9, 2012, operating a commercial passenger fishing vessel (“CPFV”) without possessing a CPFV License, in violation of Fish and Game Code, section 7920⁶ (Exhibit 6).
- December 9, 2012, while operating a CPFV, allowing passengers to take six barred sandbass, one lobster, three California sheephead, two opaleye, and eight scallops

³ California Code of Regulations, Title 14 (“Title 14”), section 29.90, subdivision (c), states, “Minimum size: Three and one-fourth inches measured in a straight line on the mid-line of the back from the rear edge of the eye socket to the rear edge of the body shell. Any lobster may be brought to the surface of the water for the purpose of measuring, but no undersize lobster may be brought aboard any boat, placed in any type of receiver, kept on the person or retained in any person's possession or under his direct control; all lobsters shall be measured immediately upon being brought to the surface of the water, and any undersize lobster shall be released immediately into the water.”

⁴ Fish and Game Code Section 8033, subdivision (a), states, “Except as provided in Section 8033.1 or 8033.5, or subdivision (c) of Section 8047, any person who purchases or receives fish for commercial purposes from a fisherman who is required to be licensed under Section 7850, or any person who removes fish from the point of the first landing that the person has caught for his or her own processing or sale, shall obtain a fish receiver's license.”

⁵ Fish and Game Code, section 8041, subdivision (a)(2), states, “The following persons shall pay the landing tax determined pursuant to Section 8042...(2) Any commercial fisherman who sells fish to any person who is not a licensed fish receiver.”

⁶ Fish and Game Code, section 7920, states, “The owner of any boat or vessel who, for profit, permits any person to take fish, shall procure a commercial passenger fishing boat license. This article applies only to a boat or vessel whose owner or his or her employee or other representative is with it when it is used for fishing.”

without having a logbook on his vessel and recording the take in a logbook, in violation of Title 14, section 195⁷ (Exhibit 6).

- December 20, 2012 through sometime after January 19, 2013, failing to complete CPFV fishing activity records, in violation of Title 14, section 190, subdivision (c)⁸ (convicted on December 10, 2013—Exhibit 7).
- In 2012 and 2013, unlawfully taking lobster, cabezon, sheephead, and sea urchin by not possessing licenses and permits to take these species, and by taking cabezon, sheephead, lingcod, and white seabass out of season, in violation of Fish and Game Code, section 2000⁹ (convicted on June 3, 2014—Exhibits 1 and 5).
- January 26, 2013, possessing four lobsters and failing to complete a spiny lobster report card, in violation of Title 14, section 29.90, subdivision (d)¹⁰ (convicted on August 29, 2013—Exhibits 8 and 9). A Department Wildlife Officer had previously warned Mr. James on December 9, 2012 about his failure to complete a lobster report card, and she provided him with a booklet containing commercial fishing laws titled, “Commercial Digest: California Fishing Regulations” (Exhibit 5).

⁷ Title 14 section 195, which in 2012 (the date when the violation occurred) stated, in part, “(a) Records required by Sections 7923 and 8026 of the Fish and Game Code shall be made on a form provided by the department {Skipper’s Log Book-Marine Sportfishing-Southern California F&G 656 and Skipper’s Log Book-Marine Sportfishing Central and Northern California F&G 623, DFG 195, which is incorporated by reference, and hereafter referred to as logbook for purposes of this section). The logbook shall include the following information and be completed and available for inspection as specified in this section: (1) A full and correct record of fish taken, including species or specified species group filled-out before the trip is completed, (see Section 190(b) of Title 14, CCR). The names used for designating the species of fish shall be those in common usage unless otherwise designated by the department. (2) The owner/operator copy of the logbook shall be maintained and kept on the vessel for a period of one year, and upon request, shall be made available for inspection by any authorized representative of the Department. (3) The numbered logbook shall be completed sequentially. A voided log shall have the word “Void” plainly and noticeably written on the face of the log...(c) Both the vessel owner(s) and/or operators) shall be responsible for keeping accurate records and insuring the vessel is in compliance with subsections (a) and (b) above.

⁸ Title 14, section 190, subdivision (c), states, “Fishing activity records shall be delivered to the department at 4665 Lampson Avenue, Suite C, Los Alamitos, CA 90720, or such other department office as may be specified in regulation on or before the 10th day of each month following the month to which the records pertain. Fishing activity records that are mailed shall be postmarked on or before the 10th day of each month following the month to which the records pertain.”

⁹ Fish and Game Code, section 2000, which in 2013 (the date when the violation occurred), stated, “It is unlawful to take any bird, mammal, fish, reptile, or amphibian except as provided in this code or regulations made pursuant thereto. Possession of a bird, mammal, fish, or reptile or parts thereof in or on the fields, forests, or waters of this state, or while returning therefrom with fishing or hunting equipment is prima facie evidence the possessor took the bird, mammal, fish or reptile or parts thereof.”

¹⁰ Title 14, section 29.90, subdivision (d), states, “Report Card Required: Any person fishing for or taking spiny lobster shall have in their possession a nontransferable Spiny Lobster Report Card issued by the department and shall adhere to all reporting requirements for lobster defined in Sections 1.74 and 29.91, Title 14, CCR.”

- February 18, 2013, taking and then selling sea urchins on four separate occasions to a restaurant without possessing a permit required for taking sea urchins for commercial purposes, in violation of Fish and Game Code, section 9054¹¹ (convicted on June 3, 2014—Exhibits 1 and 5). A Department Wildlife Officer had informed Mr. James on January 26, 2013, that “there is a specific permit required to take tidal invertebrates and urchins” and spent 45 minutes talking to him about rules pertaining to commercial fishing and selling commercial catches (Exhibit 5).
- March 1, 2013, failing to complete a lobster report card, despite possessing a lobster, in violation of Title 14, section 29.91, subdivision (b)¹² (Exhibit 10).

Thus, Mr. James has shown that he cannot be trusted to follow commercial fishing laws. Warnings and repeated convictions have neither deterred Mr. James nor adequately protected fishery resources. Fish and Game Code, section 7857, subdivision (b)(2), states in part that the Commission may permanently revoke a commercial fishing entitlement for “A violation of this code, the terms of the permit or other entitlement, or the regulations adopted pursuant thereto.” Fish and Game Code, section 8032.5, subdivision (c), similarly allows the Commission to revoke a commercial fish business privilege, including a Commercial Fisherman’s Retail License, for “Any violation of this code, the regulations adopted pursuant thereto, or the terms of the permit or other entitlement.” To prevent further unlawful conduct and abuse of fishery resources, the Department respectfully requests that the Commission permanently revoke Mr. James’s Commercial Privileges.

If you have any questions, please do not hesitate to contact Senior Staff Counsel David Kiene by mail at 1416 9th St., 12th Floor, Sacramento, CA 95814, telephone number at (916) 651-7646, or e-mail at David.Kiene@wildlife.ca.gov.

Sincerely,



DAVID BESS
Chief, Law Enforcement Division

¹¹ Fish and Game Code, section 9054, states, “Sea urchins shall not be taken for commercial purposes except under a valid sea urchin diving permit issued to that person that has not been suspended or revoked, subject to regulations adopted by the commission. Rakes, airlifts, or other handheld appliances may be used to take sea urchins. The commission may, whenever necessary to prevent overutilization or to ensure efficient and economic operation of the fishery, limit the number of permits that may be issued. The commission, as it determines appropriate to protect the resource, may limit the number of permits either on a statewide basis or within selected geographical areas.”

¹² Title 14, section 29.91, subdivision (b), states, “Prior to beginning fishing activity, the [spiny lobster report card holder] must record the month, day, location, and gear code on the first available line on the report card.”

Cc: Adam James

Department Exhibit 1

SUPERIOR COURT OF CALIFORNIA
COUNTY OF LOS ANGELES

NO. 3WA23601

PAGE NO. 1

THE PEOPLE OF THE STATE OF CALIFORNIA VS.

CURRENT DATE 07/23/14

DEFENDANT 01: ADAM CRAWFORD JAMES

LAW ENFORCEMENT AGENCY EFFECTING ARREST: SANTA MONICA POLICE DEPT.

BAIL:	APPEARANCE	AMOUNT	DATE	RECEIPT OR	SURETY COMPANY	REGISTER
	DATE	OF BAIL	POSTED	BOND NO.		NUMBER

CASE FILED ON 10/24/13.

COMPLAINT FILED, DECLARED OR SWORN TO CHARGING DEFENDANT WITH HAVING
COMMITTED, ON OR ABOUT 04/01/13 IN THE COUNTY OF LOS ANGELES, THE FOLLOWING
OFFENSE(S) OF:

COUNT 01: 8033(A) F&G MISD
COUNT 02: 8041(A)(2) F&G MISD
COUNT 03: 2000 F&G MISD
COUNT 04: 2000 F&G MISD
COUNT 05: 2000 F&G MISD
COUNT 06: 2000 F&G MISD
COUNT 07: 9054 F&G MISD

COUNT 08: 2000 F&G MISD
COUNT 09: 2000 F&G MISD
COUNT 10: 2000 F&G MISD
COUNT 11: 2000 F&G MISD

NEXT SCHEDULED EVENT:

11/20/13 830 AM ARRAIGNMENT DIST AIRPORT COURTHOUSE DEPT 147

ON 11/20/13 AT 830 AM IN AIRPORT COURTHOUSE DEPT 147

CASE CALLED FOR ARRAIGNMENT

PARTIES: COMR JANE A GODFREY (JUDGE) LINDA ACRIE (CLERK)
BEVERLY NICHOLS (REP) TERRY L. WHITE (CA)

DEFENDANT IS NOT PRESENT IN COURT, BUT REPRESENTED BY THANE D. NORED PRIVATE
COUNSEL

DEFENDANT APPEARING BY COUNSEL PURSUANT TO PENAL CODE SECTION 977 ET SEQ, BY
THANE D. NORED PRIVATE COUNSEL

DEFENDANT ADVISED OF THE FOLLOWING RIGHTS ORALLY:

DEFENDANT ARRAIGNED AND ADVISED OF THE FOLLOWING RIGHTS AT MASS ADVISEMENT:
SPEEDY PUBLIC TRIAL, TRIAL WITHIN 30/45 DAYS, RIGHT TO REMAIN SILENT,

SUBPOENA POWER OF COURT, CONFRONTATION AND CROSS EXAMINATION, JURY TRIAL,
COURT TRIAL, RIGHT TO ATTORNEY, SELF-REPRESENTATION, REASONABLE BAIL,
CITIZENSHIP, EFFECT OF PRIORS, PLEAS AVAILABLE, PROBATION.

A COPY OF THE COMPLAINT AND THE ARREST REPORT GIVEN TO DEFENDANTS COUNSEL.

DEFENDANT WAIVES ARRAIGNMENT, READING OF COMPLAINT, AND STATEMENT OF
CONSTITUTIONAL AND STATUTORY RIGHTS.

DEFENDANT WAIVES FURTHER ARRAIGNMENT.

DEFENDANT PLEADS NOT GUILTY TO COUNT 01, 8033(A) F&G.
DEFENDANT PLEADS NOT GUILTY TO COUNT 02, 8041(A)(2) F&G.
DEFENDANT PLEADS NOT GUILTY TO COUNT 03, 2000 F&G.
DEFENDANT PLEADS NOT GUILTY TO COUNT 04, 2000 F&G.
DEFENDANT PLEADS NOT GUILTY TO COUNT 05, 2000 F&G.
DEFENDANT PLEADS NOT GUILTY TO COUNT 06, 2000 F&G.
DEFENDANT PLEADS NOT GUILTY TO COUNT 07, 9054 F&G.
DEFENDANT PLEADS NOT GUILTY TO COUNT 08, 2000 F&G.

CASE NO. 3WA23601
DEF NO. 01

PAGE NO. 2
DATE PRINTED 07/23/14

DEFENDANT PLEADS NOT GUILTY TO COUNT 09, 2000 F&G.
DEFENDANT PLEADS NOT GUILTY TO COUNT 10, 2000 F&G.
DEFENDANT PLEADS NOT GUILTY TO COUNT 11, 2000 F&G.

COURT ORDERS AND FINDINGS:

-THE COURT ORDERS THE DEFENDANT TO APPEAR ON THE NEXT COURT DATE.

WAIVES STATUTORY TIME.

NEXT SCHEDULED EVENT:

01/27/14 830 AM PRETRIAL HEARING DIST AIRPORT COURTHOUSE DEPT 147
DAY 00 OF 30

CUSTODY STATUS: RELEASED ON OWN RECOGNIZANCE

ON 01/27/14 AT 830 AM IN AIRPORT COURTHOUSE DEPT 147

CASE CALLED FOR PRETRIAL HEARING

PARTIES: COMR JANE A GODFREY (JUDGE) LINDA ACRIE (CLERK)
BEVERLY NICHOLS (REP) DAVID ARMSTRONG (CA)

DEFENDANT IS NOT PRESENT IN COURT, BUT REPRESENTED BY THANE D. NORED PRIVATE COUNSEL

DEFENDANT APPEARING BY COUNSEL PURSUANT TO PENAL CODE SECTION 977 ET SEQ, BY THANE D. NORED PRIVATE COUNSEL

COURT ORDERS AND FINDINGS:

-THE COURT ORDERS THE DEFENDANT TO APPEAR ON THE NEXT COURT DATE.

WAIVES STATUTORY TIME.

NEXT SCHEDULED EVENT:

02/19/14 830 AM PRETRIAL HEARING DIST AIRPORT COURTHOUSE DEPT 147
DAY 00 OF 30

ON 02/19/14 AT 830 AM IN AIRPORT COURTHOUSE DEPT 147

CASE CALLED FOR PRETRIAL HEARING

PARTIES: COMR JANE A GODFREY (JUDGE) LINDA ACRIE (CLERK)
BEVERLY NICHOLS (REP) TERRY L. WHITE (CA)

DEFENDANT IS NOT PRESENT IN COURT, BUT REPRESENTED BY THANE D. NORED PRIVATE COUNSEL

DEFENDANT APPEARING BY COUNSEL PURSUANT TO PENAL CODE SECTION 977 ET SEQ, BY

THANE D. NORED PRIVATE COUNSEL

COURT ORDERS AND FINDINGS:

-THE COURT ORDERS THE DEFENDANT TO APPEAR ON THE NEXT COURT DATE.

WAIVES STATUTORY TIME.

NEXT SCHEDULED EVENT:

04/09/14 830 AM PRETRIAL HEARING DIST AIRPORT COURTHOUSE DEPT 147
DAY 00 OF 30

ON 04/09/14 AT 830 AM IN AIRPORT COURTHOUSE DEPT 147

CASE CALLED FOR PRETRIAL HEARING

PARTIES: DEBORAH BRAZIL (JUDGE) LINDA ACRIE (CLERK)
BEVERLY NICHOLS (REP) MATTHEW W. POLIN (CA)

DEFENDANT IS NOT PRESENT IN COURT, BUT REPRESENTED BY JOSEPH WEIMORTZ, JR. PRIVATE COUNSEL

DEFENDANT APPEARING BY COUNSEL PURSUANT TO PENAL CODE SECTION 977 ET SEQ, BY JOSEPH WEIMORTZ, JR. PRIVATE COUNSEL

CASE NO. 3WA23601
DEF NO. 01

PAGE NO. 3
DATE PRINTED 07/23/14

WAIVES STATUTORY TIME.

NEXT SCHEDULED EVENT:

05/02/14 830 AM PRETRIAL HEARING DIST AIRPORT COURTHOUSE DEPT 147
DAY 00 OF 30

ON 05/02/14 AT 830 AM IN AIRPORT COURTHOUSE DEPT 147

CASE CALLED FOR PRETRIAL HEARING

PARTIES: COMR JANE A GODFREY (JUDGE) LINDA ACRIE (CLERK)
BEVERLY NICHOLS (REP) MELANIE L. SKEHAR (CA)

DEFENDANT IS NOT PRESENT IN COURT, BUT REPRESENTED BY JOSEPH WEIMORTZ, JR.
PRIVATE COUNSEL

DEFENDANT APPEARING BY COUNSEL PURSUANT TO PENAL CODE SECTION 977 ET SEQ, BY
JOSEPH WEIMORTZ, JR. PRIVATE COUNSEL

COURT ORDERS AND FINDINGS:

-THE COURT ORDERS THE DEFENDANT TO APPEAR ON THE NEXT COURT DATE.

WAIVES STATUTORY TIME.

NEXT SCHEDULED EVENT:

06/03/14 830 AM PRETRIAL HEARING DIST AIRPORT COURTHOUSE DEPT 147
DAY 00 OF 30

ON 06/03/14 AT 830 AM IN AIRPORT COURTHOUSE DEPT 147

CASE CALLED FOR PRETRIAL HEARING

PARTIES: COMR JANE A GODFREY (JUDGE) LINDA ACRIE (CLERK)
CARMEN J. GARROD (REP) TERRY L. WHITE (CA)

DEFENDANT IS PRESENT IN COURT, AND REPRESENTED BY JOSEPH WEIMORTZ, JR. PRIVATE
COUNSEL

DEFENDANT ADVISED OF AND PERSONALLY AND EXPLICITLY WAIVES THE FOLLOWING RIGHTS:

WRITTEN ADVISEMENT OF RIGHTS AND WAIVERS FILED, INCORPORATED BY REFERENCE
HEREIN

TRIAL BY COURT AND TRIAL BY JURY

CONFRONTATION AND CROSS-EXAMINATION OF WITNESSES;

SUBPOENA OF WITNESSES INTO COURT TO TESTIFY IN YOUR DEFENSE;

AGAINST SELF-INCRIMINATION;

DEFENDANT ADVISED OF THE FOLLOWING:

THE NATURE OF THE CHARGES AGAINST HIM, THE ELEMENTS OF THE OFFENSE IN THE
COMPLAINT, AND POSSIBLE DEFENSES TO SUCH CHARGES;

THE POSSIBLE CONSEQUENCES OF A PLEA OF GUILTY OR NOLO CONTENDERE, INCLUDING
THE MAXIMUM PENALTY AND ADMINISTRATIVE SANCTIONS AND THE POSSIBLE LEGAL
EFFECTS AND MAXIMUM PENALTIES INCIDENT TO SUBSEQUENT CONVICTIONS FOR THE
SAME OR SIMILAR OFFENSES;

THE EFFECTS OF PROBATION;

IF YOU ARE NOT A CITIZEN, YOU ARE HEREBY ADVISED THAT A CONVICTION OF THE
OFFENSE FOR WHICH YOU HAVE BEEN CHARGED WILL HAVE THE CONSEQUENCES OF
DEPORTATION, EXCLUSION FROM ADMISSION TO THE UNITED STATES, OR DENIAL OF
NATURALIZATION PURSUANT TO THE LAWS OF THE UNITED STATES.

THE COURT FINDS THAT EACH SUCH WAIVER IS KNOWINGLY, UNDERSTANDINGLY, AND
EXPLICITLY MADE; COUNSEL JOINS IN THE WAIVERS

THE DEFENDANT PERSONALLY WITHDRAWS PLEA OF NOT GUILTY TO COUNT 01 AND PLEADS

CASE NO. 3WA23601
DEF NO. 01

PAGE NO. 4
DATE PRINTED 07/23/14

NOLO CONTENDERE WITH THE APPROVAL OF THE COURT TO A VIOLATION OF SECTION 8033(A) F&G IN COUNT 01. THE COURT FINDS THE DEFENDANT GUILTY.
COUNT (01) : DISPOSITION: CONVICTED
THE DEFENDANT PERSONALLY WITHDRAWS PLEA OF NOT GUILTY TO COUNT 02 AND PLEADS NOLO CONTENDERE WITH THE APPROVAL OF THE COURT TO A VIOLATION OF SECTION 8041(A)(2) F&G IN COUNT 02. THE COURT FINDS THE DEFENDANT GUILTY.
COUNT (02) : DISPOSITION: CONVICTED
THE DEFENDANT PERSONALLY WITHDRAWS PLEA OF NOT GUILTY TO COUNT 06 AND PLEADS NOLO CONTENDERE WITH THE APPROVAL OF THE COURT TO A VIOLATION OF SECTION 2000 F&G IN COUNT 06. THE COURT FINDS THE DEFENDANT GUILTY.
COUNT (06) : DISPOSITION: CONVICTED
THE DEFENDANT PERSONALLY WITHDRAWS PLEA OF NOT GUILTY TO COUNT 07 AND PLEADS NOLO CONTENDERE WITH THE APPROVAL OF THE COURT TO A VIOLATION OF SECTION 9054 F&G IN COUNT 07. THE COURT FINDS THE DEFENDANT GUILTY.
COUNT (07) : DISPOSITION: CONVICTED
COURT FINDS THAT THERE IS A FACTUAL BASIS FOR DEFENDANT'S PLEA, AND COURT ACCEPTS PLEA.
NEXT SCHEDULED EVENT:

SENTENCING
DEFENDANT WAIVES ARRAIGNMENT FOR JUDGMENT AND STATES THERE IS NO LEGAL CAUSE WHY SENTENCE SHOULD NOT BE PRONOUNCED. THE COURT ORDERED THE FOLLOWING JUDGMENT:
AS TO COUNT (01):
IMPOSITION OF SENTENCE SUSPENDED
DEFENDANT PLACED ON SUMMARY PROBATION
FOR A PERIOD OF 036 MONTHS UNDER THE FOLLOWING TERMS AND CONDITIONS:
PAY A FINE OF \$750.00
PLUS A STATE PENALTY FUND ASSESSMENT OF \$2,175.00
PLUS \$150.00 CRIMINAL FINE SURCHARGE (PURSUANT TO 1465.7 P.C.)
\$40.00 COURT OPERATIONS ASSESSMENT (PURSUANT TO 1465.8(A)(1) P.C.)
\$30.00 CRIMINAL CONVICTION ASSESSMENT (PURSUANT TO 70373 G.C.)
OR SERVE 25 DAYS IN LOS ANGELES COUNTY JAIL
DEFENDANT TO PAY FINE TO THE COURT CLERK
IN LIEU OF FINE, DEFENDANT MAY:
PERFORM 394 HOURS OF COMMUNITY SERVICE
TOTAL DUE: \$3,145.00
COUNT (01): DISPOSITION: CONVICTED
DMV ABSTRACT NOT REQUIRED
NEXT SCHEDULED EVENT:

SENTENCING
DEFENDANT WAIVES ARRAIGNMENT FOR JUDGMENT AND STATES THERE IS NO LEGAL CAUSE WHY SENTENCE SHOULD NOT BE PRONOUNCED. THE COURT ORDERED THE FOLLOWING JUDGMENT:
AS TO COUNT (02):
IMPOSITION OF SENTENCE SUSPENDED
DEFENDANT PLACED ON SUMMARY PROBATION
FOR A PERIOD OF 036 MONTHS UNDER THE FOLLOWING TERMS AND CONDITIONS:
PAY A FINE OF \$750.00
PLUS A STATE PENALTY FUND ASSESSMENT OF \$2,175.00
LESS CREDIT OF \$750.00
PLUS \$150.00 CRIMINAL FINE SURCHARGE (PURSUANT TO 1465.7 P.C.)
\$40.00 COURT OPERATIONS ASSESSMENT (PURSUANT TO 1465.8(A)(1) P.C.)
\$30.00 CRIMINAL CONVICTION ASSESSMENT (PURSUANT TO 70373 G.C.)
OR SERVE 25 DAYS IN LOS ANGELES COUNTY JAIL

CASE NO. 3WA23601
DEF NO. 01

PAGE NO. 5
DATE PRINTED 07/23/14

DEFENDANT TO PAY FINE TO THE COURT CLERK
IN LIEU OF FINE, DEFENDANT MAY:-

PERFORM 394 HOURS OF COMMUNITY SERVICE

TOTAL DUE: \$3,145.00

COUNT (02): DISPOSITION: CONVICTED

DMV ABSTRACT NOT REQUIRED

NEXT SCHEDULED EVENT:

SENTENCING

DEFENDANT WAIVES ARRAIGNMENT FOR JUDGMENT AND STATES THERE IS NO LEGAL CAUSE
WHY SENTENCE SHOULD NOT BE PRONOUNCED. THE COURT ORDERED THE FOLLOWING
JUDGMENT:

AS TO COUNT (06):

IMPOSITION OF SENTENCE SUSPENDED

DEFENDANT PLACED ON SUMMARY PROBATION

FOR A PERIOD OF 036 MONTHS UNDER THE FOLLOWING TERMS AND CONDITIONS:

PLUS \$40.00 COURT OPERATIONS ASSESSMENT (PURSUANT TO 1465.8(A)(1) P.C.)

\$30.00 CRIMINAL CONVICTION ASSESSMENT (PURSUANT TO 70373 G.C.)

TOTAL DUE: \$70.00

COUNT (06): DISPOSITION: CONVICTED

DMV ABSTRACT NOT REQUIRED

NEXT SCHEDULED EVENT:

SENTENCING

DEFENDANT WAIVES ARRAIGNMENT FOR JUDGMENT AND STATES THERE IS NO LEGAL CAUSE
WHY SENTENCE SHOULD NOT BE PRONOUNCED. THE COURT ORDERED THE FOLLOWING
JUDGMENT:

AS TO COUNT (07):

IMPOSITION OF SENTENCE SUSPENDED

DEFENDANT PLACED ON SUMMARY PROBATION

FOR A PERIOD OF 036 MONTHS UNDER THE FOLLOWING TERMS AND CONDITIONS:

PLUS \$40.00 COURT OPERATIONS ASSESSMENT (PURSUANT TO 1465.8(A)(1) P.C.)

\$30.00 CRIMINAL CONVICTION ASSESSMENT (PURSUANT TO 70373 G.C.)

DEFENDANT SHALL PAY A RESTITUTION FINE IN THE AMOUNT OF \$150.00 TO THE COURT

TOTAL DUE: \$220.00

IN ADDITION:

-466

-OBEY ALL LAWS AND ORDERS OF THE COURT.

-DEFENDANT ACKNOWLEDGES TO THE COURT THAT THE DEFENDANT

UNDERSTANDS AND ACCEPTS ALL THE PROBATION CONDITIONS, AND

DEFENDANT AGREES TO ABIDE BY SAME.

DEFENDANT IS NOT TO ENGAGE IN ANY COMMERCIAL FISHING IN THE
STATE OF CALIFORNIA WHILE ON PROBATION.

DEFENDANT IS ORDERED TO MAKE A DONATION OF \$7000.00 TO FISH AND
GAME PREVENTION FUND FORTHWITH.

DEFENDANT IS ORDERED TO OBEY ALL TERMS AND CONDITIONS OF
PROBATION.

ENTERED BY L.LYLES, DISPO CLERK FOR DEPARTMENT 147 WITH INITIALS
IN FILE.

COUNT (07): DISPOSITION: CONVICTED

REMAINING COUNTS DISMISSED:

COUNT (03): DISMISSAL IN FURTH OF JUSTICE PER 1385 PC

COUNT (04): DISMISSAL IN FURTH OF JUSTICE PER 1385 PC

CASE NO. 3WA23601
DEF NO. 01

PAGE NO. 6
DATE PRINTED 07/23/14

COUNT (05): DISMISSAL IN FURTH OF JUSTICE PER 1385 PC
COUNT (08): DISMISSAL IN FURTH OF JUSTICE PER 1385 PC
COUNT (09): DISMISSAL IN FURTH OF JUSTICE PER 1385 PC
COUNT (10): DISMISSAL IN FURTH OF JUSTICE PER 1385 PC
COUNT (11): DISMISSAL IN FURTH OF JUSTICE PER 1385 PC

DMV ABSTRACT NOT REQUIRED

NEXT SCHEDULED EVENT:

03/03/15 900 AM FINES/FEES DIST AIRPORT COURTHOUSE DEPT C47

ON 07/01/14 AT 900 AM IN AIRPORT COURTHOUSE DEPT C47

CASE CALLED FOR FINES/FEES

PARTIES: NONE (JUDGE) NONE (CLERK)
NONE (REP) NONE (DDA)

DEFENDANT IS PRESENT IN COURT, AND NOT REPRESENTED BY COUNSEL

PAYMENT IN THE AMOUNT OF \$3,550.00 PAID ON 07/01/14 RECEIPT # LAX514851006

DEFENDANT PAID \$3550.00.

FINES/FEES PAID IN FULL.

ENTERED BY L.LYLES, DISPO CLERK FOR DEPARTMENT 147 WITH INITIALS
IN FILE.

NEXT SCHEDULED EVENT:

PROCEEDINGS TERMINATED



THE DOCUMENT TO WHICH THIS CERTIFICATE IS ATTACHED IS A FULL, TRUE AND CORRECT COPY OF THE ORIGINAL ON FILE AND OF RECORD IN MY OFFICE

ATTEST:

7-23-14
Sheri R. Carter, Executive Officer/Clerk
of the Superior Court of California, County of
Los Angeles

BY:

[Signature] DEPUTY

Department Exhibit 2


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25


PROOF OF SERVICE

I, Nelson Tucker, hereby declare as follows:


I am employed in the County of Los Angeles State of California. I am eighteen years of age or older and am not a party to the within entitled action. My business address is 21218 Merridy Street, Chatsworth, CA 91311.

On February 2, 2017, I caused to be served a Statement to Respondent, Accusation with Verification, two Notices of Defense, and two copies of Government Code sections 11507.5-11507.7, by placing a true copy thereof in the manner set forth below and addressed as follows:

Adam James


- ☒ By Personal Delivery  in a Sealed Envelope Addressed as Indicated.
- ☐ By Depositing in a Sealed Envelope Via United Parcel Service Overnight Mail with Postage Fully Paid Thereon and Addressed as Indicated.
- ☐ Via United States Postal Service **Certified/Registered** Mail by depositing it in the mail at my business address described above with the postage fully prepaid.
- ☐ Via Facsimile Transmission at the Facsimile Number(s) Indicated.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and this Declaration was executed in Chatsworth, CA California on February 3, 2017.


Signature

Nelson Tucker
Name

RECEIVED

FEB 08 2017

DFG
Office of the General Counsel

Department Exhibit 3



JOHN A. CLARKE
EXECUTIVE OFFICER / CLERK

www.lasuperiorcourt.org

Superior Court of California

County of Los Angeles

JAMES, ADAM CRAWFORD

DATE: March 9, 2012
CITATION: 1859687
LEA: 7204

As to your traffic citation:

1. ☒ Your case has been continued to May 16, 2012.
2. ☐ We have received your payment of _____, receipt number # _____, dated _____. This payment has been credited towards your citation.
3. ☐ We have not received your proof(s) of correction.
4. ☒ Other: You have been given an extension to May 16, 2012 on the enclosed ticket.

IT IS YOUR RESPONSIBILITY TO MEET THE INDICATED REQUIREMENT(S) BELOW BY May 16, 2016. IF YOU ARE UNABLE TO COMPLY WITH ANY ITEMS CHECKED, YOU MUST CONTACT THE COURT BY THIS DUE DATE.

5. ☒ Pay the ☒ bail amount of \$270.00, ☐ or an adjusted bail amount with valid correction(s) of _____, and/or ☐ a _____ dismissal fee.
6. ☐ Submit the proof(s) of correction* to the Court by mail or in person:
 - ☐ Valid Registration. ☐ Valid Driver's License.
 - ☐ Proof of insurance valid on citation issue date. Pay an adjusted amount of _____.
 - ☐ Either no proof of insurance, or your insurance was not valid on citation issue date. Pay an adjusted amount of _____.
 - ☐ Certificate of correction: brakes/lamps/smog devices and other mechanical defects.

***PROOF OF CORRECTION:** All registration, driver's license, and mechanical defects require a certificate of correction from a Sheriff inspection station, CHP office, or law enforcement agency. You **MUST** submit the certificate to the Court. Any station licensed by the California Bureau of Automotive Repair may also certify brake, smog devices, lamps, or muffler violations. Driver's license and registration may also be verified by the Court. Insurance **MUST** be verified by the Court.

7. ☐ CALL (213) 742-6648 OR APPEAR AT THE COURTHOUSE LISTED BELOW BETWEEN 8:00 AM AND 4:30 PM, MONDAY THROUGH FRIDAY to schedule a Court appearance to resolve this matter.
8. ☐ Other: _____.

THIS MATTER REQUIRES YOUR IMMEDIATE ATTENTION. FAILURE TO COMPLY WITH THE REQUESTED ITEMS MAY RESULT IN A WARRANT FOR YOUR ARREST. FAILURE TO COMPLY MAY ALSO RESULT IN A DMV HOLD AND/OR SUSPENSION OF YOUR DRIVER'S LICENSE. THE COURT MAY ALSO ORDER A \$300 CIVIL ASSESSMENT AND REFER YOUR CASE TO A COLLECTION AGENCY (Penal Code §1214.1).

PLEASE MAKE YOUR CHECK OR MONEY ORDER PAYABLE TO "LOS ANGELES SUPERIOR COURT." THIS IS THE ONLY NOTICE YOU WILL RECEIVE.

By C. Apavaltirut, Traffic Clerk

PLEASE RETURN THIS LETTER TO IDENTIFY YOUR CASE

DEPARTMENT OF FISH & GAME
NOTICE TO APPEAR FG-900

☐ MISDEMEANOR
☐ Traffic
☒ Non-traffic

AD1859687

Date of Violation 1/13/12 Time 3:15 ☐ AM ☒ PM Day of Week FRI Case No. —

Name (First, Middle, Last) ADAM CRAWFORD JAMES ☐ Owner's Responsibility (Veh. Code § 40001)

Address [REDACTED]

City [REDACTED] State [REDACTED] ZIP Code [REDACTED] Phone Number [REDACTED]

Driver Lic. No. [REDACTED] State [REDACTED] Class [REDACTED] Commercial [REDACTED] Age [REDACTED] Birth Date [REDACTED]

Sex [REDACTED] Hair [REDACTED] Eyes [REDACTED] Height [REDACTED] Weight [REDACTED] Race [REDACTED] Other Description [REDACTED]

Veh. Lic. No. or VIN [REDACTED] State [REDACTED]

Yr. of Veh. [REDACTED] Make [REDACTED] Model [REDACTED] Body Style [REDACTED] Color [REDACTED]

Evidence of Financial Responsibility [REDACTED] ☐ COMMERCIAL VEHICLE (Veh. Code §15210(b))

Registered Owner or Lessee [REDACTED] ☐ Same as Driver

Address [REDACTED] ☐ Same as Driver

City [REDACTED] State [REDACTED] ZIP Code [REDACTED]

Correctable Violation (Veh. Code §40610) ☐ Booking Required ☐ Misdemeanor or Infraction (Circle)

Yes	No	Code and Section	Description		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>CCP TIL 29.90(c)</u>	<u>LOBSTER</u>	<u>M</u>	<u>(1)</u>
<input type="checkbox"/>	<input type="checkbox"/>	<u>MUST BE 3 1/4"</u>	<u>CARAPACE</u>	<u>M</u>	<u>I</u>
<input type="checkbox"/>	<input type="checkbox"/>	<u>LENGTH</u>		<u>M</u>	<u>I</u>
<input type="checkbox"/>	<input type="checkbox"/>			<u>M</u>	<u>I</u>

Speed Approx. — P.F./Max Spd. — Veh. Lmt. — GPS Lat — Long —

Location of Violation(s) at NICHOLAS CANYON COUNTY BEACH MALIBU City/County of Occurrence MALIBU CalTIP: Yes ☒ No ☐

Evidence Seized (1) LOBSTER LESS THAN LEGAL LL

☐ Violations not committed in my presence, declared on information and belief.

I declare under penalty of perjury under the laws of the State of California the foregoing is true and correct.

IL COLLINS
Arresting or Citing Officer

721
Badge No.

Date 1/13/12 Name of Arresting Officer, if different from Citing Officer [REDACTED] Badge No. [REDACTED]

WITHOUT ADMITTING GUILT, I PROMISE TO APPEAR AT THE TIME AND PLACE INDICATED BELOW.
X Signature [Signature]

WHEN: ON OR BEFORE THIS DATE: 3/15/12 Time: 8:30 ☒ AM ☐ PM
WHAT TO DO: FOLLOW THE INSTRUCTIONS ON THE REVERSE.

WHERE: Name of Court MALIBU JUDICIAL CENTER
Section or Division, Room No. 23525 CIVIC CENTERWAY
Street Address MALIBU CA 90265

Phone Number 213-742-6648 Ext. — Court 19472
☐ Juvenile; ☐ To be notified; ☐ You may arrange with the clerk to appear at a night session of the court.



* A D 1 8 5 9 6 8 7 *

AD1859687

COURT COPY

ETRS CLOSED WORK FORM

CITATION / CASE DATA

Citation No.	1859687	FIRST NAME	ADAM
LEA No.	7204	MID. INIT.	C
DOC TYPE	ETRS	LAST NAME	JAMES

AUDIT TAPE DATA

ENTRY DATE	03/12/12	AMOUNT DUE	\$270.00
DISPO DATE		AMOUNT REC.	\$270.00
RECEIPT NO.	1120312A7985	BAIL	\$0.00

REASON FOR CLOSE: Bail Forfeiture - source: WEB



THE DOCUMENT TO WHICH THIS CERTIFICATE IS
ATTACHED IS A FULL, TRUE, AND CORRECT COPY
OF THE ORIGINAL ISSUED BY THIS OFFICE
ON FILE AND OF RECORD.

ATTEST: ON: 07-30-14

SHERRI R. CARTER, Executive Officer/Clerk of the
Superior Court of California, County of Los Angeles.

By [Signature], Deputy

Department Exhibit 4

ARREST/INVESTIGATION REPORT

WPD 6a (10-98)

Region # SED Page 1 of 2

DATE OF INCIDENT/OCCURRENCE January 13, 2012		TIME (2400) 1515	CITY/COUNTY/JUDICIAL Malibu/Los Angeles/ Malibu Superior	
"X" ONE	"X" ONE	TYPE OF REPORT ("X" APPLICABLE)		
<input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Formal Complaint	<input checked="" type="checkbox"/> Self Initiated <input type="checkbox"/> Complaint	<input type="checkbox"/> Commercial Fishing <input checked="" type="checkbox"/> Recreational Fishing	<input type="checkbox"/> Hunting <input type="checkbox"/> Trapping	<input type="checkbox"/> Inland Pollution <input type="checkbox"/> Marine Pollution <input type="checkbox"/> CalTIP <input type="checkbox"/> Other

Suspect Information

Name Suspect #1 (First, Middle, Last) Adam Crawford James		Sex [REDACTED]	Date of Birth (MM/DD/YY) [REDACTED]	Citation Number AD 1859687
Suspect Address (Street, Apt., City, State, Zip Code) [REDACTED]				Home Phone [REDACTED]
Business Address (Street, Apt., City, State, Zip Code) [REDACTED]				Business Phone [REDACTED]
Identification Type ("X" APPLICABLE) <input checked="" type="checkbox"/> CDL/CID <input type="checkbox"/> Other State DL/ID <input type="checkbox"/> Other ID: Number: [REDACTED]		Suspect Description ("X" APPLICABLE) GENERAL: [REDACTED] HAIR: [REDACTED] EYES: [REDACTED] ETHNICITY: [REDACTED] Height: [REDACTED] Weight: [REDACTED]		
Vehicle Type ("X" APPLICABLE) <input type="checkbox"/> Auto <input type="checkbox"/> Vessel <input type="checkbox"/> Other		Description (Make, Model, Year, Color) N/A		License Plate Number/VIN [REDACTED]

Offenses and Charges

<input type="checkbox"/> F&G <input checked="" type="checkbox"/> T-14 <input type="checkbox"/> Other: Section: 29.90(c) Description: Lobster must be 3 1/4 inch carapace length	<input type="checkbox"/> F&G <input type="checkbox"/> T-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:
<input type="checkbox"/> F&G <input type="checkbox"/> T-14 <input type="checkbox"/> Other: Section: Description:	<input type="checkbox"/> F&G <input type="checkbox"/> T-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description: N/A

Evidence Seized

Evidence Description (Amount, Type, Serial Number, etc.) "X" ONE <input type="checkbox"/> Held <input type="checkbox"/> Returned <input type="checkbox"/> Destroyed <input type="checkbox"/> Other (1) California Spiny Lobster less than legal length - RTW	Evidence Photographed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Evidence Description (Amount, Type, Serial Number, etc.) "X" ONE <input type="checkbox"/> Held <input type="checkbox"/> Returned <input type="checkbox"/> Destroyed <input type="checkbox"/> Other N/A	Evidence Photographed? <input type="checkbox"/> Yes <input type="checkbox"/> No
Evidence Description (Amount, Type, Serial Number, etc.) "X" ONE <input type="checkbox"/> Held <input type="checkbox"/> Returned <input type="checkbox"/> Destroyed <input type="checkbox"/> Other N/A	Evidence Photographed? <input type="checkbox"/> Yes <input type="checkbox"/> No

Case Synopsis

On January 13, 2012, I was patrolling the coast in Malibu. At approximately 1515 hours, I contacted a diver, later identified as Adam Crawford James, in the parking lot of Nicholas Canyon County Beach. I asked James if he had caught any fish or lobster. James told me that he had speared two lingcod and caught three lobsters. Upon measuring James' lobsters, I found one of them to be less than legal length. This is a violation of California Code of Regulations, Title 14 § 29.90(c) – lobsters must be 3 1/4 inch carapace length.

See WPD 6b For Additional Suspect and Witness Information "X" ONE ☐ Yes ☒ No

Preparer's Name and Badge Number K. Collins #771	Date 01/21/2012	Reviewer's Name M. Wall	Date
---	--------------------	----------------------------	------

NARRATIVE/SUPPLEMENTAL

WPD 6a p.2 (10-98)

Region # SED Page 2 of 2

DATE OF INCIDENT/OCCURRENCE January 13, 2012	TIME (2400) 1515	CITY/COUNTY/JUDICIAL JURISDICTION Malibu/Los Angeles/Malibu Superior
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Supplemental	"X" APPLICABLE <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Formal Complaint	TYPE OF REPORT ("X" APPLICABLE) <input type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input checked="" type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Nicholas Canyon/Adam James/CCR, T14 § 29.90(c)	Arresting/Case Officer K. Collins #771	Citation Number AD 1859687

1 On January 13, 2012, I was patrolling the coast in Malibu. At approximately 1515 hours, I observed two
2 subjects, one was later identified as Adam Crawford James, standing in the parking lot of Nicholas Canyon
3 County Beach. The two subjects were standing at the rear of a vehicle wearing and were wearing wetsuits. They
4 also had SCUBA gear, spear guns and an ice chest on the ground next to them. I identified myself as Fish and
5 Game and contacted the two.

6
7 When I contacted the two, I could see that inside of the ice chest there were numerous fish and three lobsters. I
8 asked James which of the fish and lobster he had caught. James told me that he had speared the two lingcod and
9 caught all three of lobsters. When I measured James' lobsters, I found one of them to be less than legal length.
10 This is a violation of California Code of Regulations, Title 14 § 29.90(c) – lobsters must be 3 ¼ inch carapace
11 length.

12
13 I seized James' lobster, photographed it, and returned it to the wild (see attached photo).

14
15 I cited James with:

16 California Code of Regulations, Title 14 § 29.90(c) – lobsters must be 3 ¼ inch carapace length

17
18 Related Regulations:

19
20 California Code of Regulations, Title 14 § 29.90 – California Spiny Lobster

21 (c) Minimum size: Three and one-fourth inches measured in a straight line on the mid-line of the back
22 from the rear edge of the eye socket to the rear edge of the body shell. Any lobster may be brought to the
23 surface of the water for the purpose of measuring, but no undersize lobster may be brought aboard any
24 boat, placed in any type of receiver, kept on the person or retained in any person's possession or under his
25 direct control; all lobsters shall be measured immediately upon being brought to the surface of the water,
26 and any undersize lobster shall be released immediately into the water.

27
28

Preparer's Name and Badge Number K. Collins #771	Date 01/21/2012	Reviewer's Name M. Wall	Date
---	--------------------	----------------------------	------

Department Exhibit 5



California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Law Enforcement Division
4665 Lampson Ave., Suite #C
Los Alamitos, CA 90720
<http://www.dfg.ca.gov>

EDMUND JERRY BROWN, Governor
JOHN McCAMMAN, Director



February 27, 2014

Adam Crawford James
[REDACTED]

Dear Mr. James,

You have been formally charged with the following violations:

FGC §8033(a), Failure to procure a Receiver's License
FGC §8043(a), Failure to complete landing receipts
FGC §8046(a), Failure to submit landing receipts to the Department
FGC §8047(c)(2), Failure to submit transportation receipts to the Department
FGC §8050(a)(1), Accounting records shall have species names
FGC §8050(a)(2), Accounting records shall have the number of pounds sold, distributed or taken
FGC §8050(a)(4), Accounting records shall have the name, address, and phone number of distributor or seller
FGC §8254, Failure to procure a lobster permit before taking lobster commercially
FGC §9054, Failure to procure a sea urchin permit before taking urchin commercially
FGC §8587, Failure to procure a nearshore fishery permit before nearshore fish species
FGC §8041, Failure to pay landing taxes
CCR T-14 § 189(a), Take of lingcod during the closed season
CCR T-14 § 150.06(c)(3), Take of nearshore fish during the closed season
CCR T-14 § 155(a), Take of white seabass during the closed season

Your appearance date is 11/20/2013, at 0830 hours. Airport Court is located at 11701 S. La Cienega Blvd., Los Angeles, CA 90045. The phone number to the City Attorney's office is 310-458-8336.

Failure to appear at the date and time listed above will result in a warrant being issued for your arrest

Sincerely,

M. Budish
Game Warden, SED

ARREST/INVESTIGATION REPORT

WPD 6a (10-98)

Region # SED Page 1 of 10

DATE OF INCIDENT/OCCURRENCE 09/08/13		TIME (2400) 1315 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Santa Monica/ Los Angeles/ Santa Monica	
"X" ONE <input type="checkbox"/> Arrest Report <input checked="" type="checkbox"/> Formal Complaint	"X" ONE <input checked="" type="checkbox"/> Self Initiated <input type="checkbox"/> Complaint	TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> CalTIP <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other		

Suspect Information

Name Suspect #1 (First, Middle, Last) Adam Crawford James		Sex [REDACTED]	Date of Birth (MM/DD/YY) [REDACTED]	Citation Number FORMAL COMP.
Suspect Address (Street, Apt., City, State, Zip Code) [REDACTED]				Home Phone [REDACTED]
Identification Type ("X" APPLICABLE) <input checked="" type="checkbox"/> CDL/CID <input type="checkbox"/> Other State DL/ID <input type="checkbox"/> Other ID: Number: [REDACTED]	Suspect Description ("X" APPLICABLE) GENERAL: [REDACTED] HAIR: [REDACTED] EYES: [REDACTED] ETHNICITY: [REDACTED] Height: [REDACTED] Weight: [REDACTED]			

Offenses and Charges

<input checked="" type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other <input checked="" type="checkbox"/> Section: FGC §8033(a) Description: Fish receiver license required	<input checked="" type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Section: FGC §8043(a) Description: Landing receipts must be completed upon landing fish
<input checked="" type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Section: FGC §8046(a) Description: Landing receipts shall be submitted to Department	<input checked="" type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Section: FGC §8047(c)(2) Description: Transportation receipts shall be submitted to the Department
<input checked="" type="checkbox"/> F&G <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Section: FGC §8050(a)(1) - 4 COUNTS Description: Accounting records shall have the names of the different species.	<input checked="" type="checkbox"/> F&G <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Section: FGC §8050(a)(4) - 20 COUNTS Description: Accounting records shall have name, address, and phone number of seller/distributor
<input checked="" type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input checked="" type="checkbox"/> Section: FGC §8050(a)(2) - 11 COUNTS Description: Accounting records shall have number of pounds sold, distributed, or taken of each species	<input checked="" type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Section: FGC §8254(a) Description: Lobsters shall not be taken for commercial purpose without a valid permit
<input checked="" type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input checked="" type="checkbox"/> Section: FGC §8587 - 8 COUNTS Description: Valid Nearshore Fishery Permit Required	<input checked="" type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input checked="" type="checkbox"/> Section: FGC §9054 - 4 COUNTS Description: Sea Urchin permit required for commercial take
<input type="checkbox"/> F&G <input checked="" type="checkbox"/> JT-14 <input checked="" type="checkbox"/> Section: CCR T-14 §189(a) - 4 COUNTS Description: Landing of Lingcod during closed season per Code of Federal Groundfish Regulations (CFR) Part 660 - Table 3 South	<input type="checkbox"/> F&G <input checked="" type="checkbox"/> JT-14 <input checked="" type="checkbox"/> Section: CCR T-14 §150.06(c)(3) Description: Landing of Cabezon during the closed season per CFR Part 660 - Table 3 South
<input type="checkbox"/> F&G <input checked="" type="checkbox"/> JT-14 <input checked="" type="checkbox"/> Section: CCR T-14 §155(a) - 2 COUNTS Description: White Seabass taken for commercial purpose during the closed season	<input type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Section: FGC §8041 - 20 COUNTS Description: Licensed receivers, or those required to be licensed receivers shall pay landing taxes

Evidence Seized

Evidence Description (Amount, Type, Serial Number, etc.) "X" ONE <input type="checkbox"/> Held <input type="checkbox"/> Returned <input type="checkbox"/> Destroyed <input type="checkbox"/> Other	Evidence Photographed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

See arrest report for more details. 80 COUNTS TOTAL

See WPD 6b For Additional Suspect and Witness Information "X" ONE ☒ Yes ☐ No

Preparer's Name and Badge Number M. Budish/ #729	Date 09/25/13	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 2 of 10

DATE OF INCIDENT/OCCURRENCE 09/08/13	TIME (2400) 1315 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Santa Monica/ Los Angeles/ Santa Monica
---	-------------------------	--

Witness Information

Name Witness #1 (First, Middle, Last) Warden Kory Collins	Sex [REDACTED]	Date of Birth (MM/DD/YY) N/A	Identification Number # 771
Witness Address (Street, Apt., City, State, Zip Code) 4665 Lampson Ave., Suite #C, Los Alamitos, CA 90720			Work Phone 562-342-7100
Name Witness #2 (First, Middle, Last) Jack Denicola	Sex [REDACTED]	Date of Birth (MM/DD/YY) N/A	Identification Number #N/A
Witness Address (Street, Apt., City, State, Zip Code) [REDACTED]			Work Phone [REDACTED]
Name Witness #3 (First, Middle, Last) Brent Segorski	Sex [REDACTED]	Date of Birth (MM/DD/YY) N/A	Identification Number N/A
Witness Address (Street, Apt., City, State, Zip Code) [REDACTED]			Work Phone [REDACTED]
Name Witness #4 (First, Middle, Last) Francesco Ferrario	Sex [REDACTED]	Date of Birth (MM/DD/YY) N/A	Identification Number N/A
Witness Address (Street, Apt., City, State, Zip Code) [REDACTED]			Work Phone [REDACTED]
Name Witness #5 (First, Middle, Last) Rick Moos	Sex [REDACTED]	Date of Birth (MM/DD/YY) N/A	ID Number N/A
Witness Address (Street, Apt., City, State, Zip Code) [REDACTED]			Work Phone [REDACTED]
Name Witness #6 (First, Middle, Last) N/A	Sex [REDACTED]	Date of Birth (MM/DD/YY)	Identification Number N/A
Witness Address (Street, Apt., City, State, Zip Code) N/A			Work Phone N/A

Preparer's Name and Badge Number M. Budish/ #729	Date 09/25/13	Reviewer's Name R. Hoffman	Date 10/04/13
---	------------------	-------------------------------	------------------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 3 of 10

DATE OF INCIDENT/OCCURRENCE 09/08/13	TIME (2400) 1315 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Santa Monica/ Los Angeles/ Santa Monica
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input checked="" type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Santa Monica Pier – "The Lobster" restaurant/ Adam Crawford James/ Illegal Commercial Fishing Activities (60 COUNTS)		Arresting/Case Officer Badge# 729 M. Budish Citation Number FORMAL COMPLAINT

1 Background: Commercial Fishing

2 Commercial fishermen partake in a variety of fisheries. Some fisheries such as lobster, sea urchin, or certain species of
3 rockfish, are "restricted access/limited entry fisheries". These types of fisheries only allow a certain number of people or
4 fishing vessels to participate in taking specified species of fish; this is limited by statute or regulation (**Fish and Game Code**
5 **Section (FGC) §8100**). These fisheries are managed very critically, and fluctuate based upon several biological factors
6 including but not limited to population size, and the amount of fish/invertebrates harvested annually. In addition to limiting
7 the number of participants in certain fisheries, there are also seasons, size limits, and limitations on the number of fish which
8 can be harvested monthly. These restrictions are based upon the minimum size requirements, and time of year in which the
9 species reproduce.

10

11 Commercial fishermen are required to have a commercial license, as well as any special permits that may be required to
12 partake in some of the fisheries (**FGC §7850** – see attached regs). When commercial fishermen purchase their commercial
13 fishing license, they are provided with a copy of the commercial fishing digest (or a link to which they can obtain a digital
14 copy). The commercial fishing digest contains all the rules and regulations for commercial fishing. Additionally, some
15 commercial fishermen partake in different business activities. For example, some sell their catch solely to the general public,
16 which requires a Fisherman's Retail License. Some sell their catch to restaurants, which may require a Receiver's License.
17 Some fishermen process their own fish, which requires a different type of license, etc. Depending on the type of fish
18 business the commercial fisherman is engaged in, different types of licensing are required (see attached regs.).

19

20 Any commercial fisherman, who takes his/her own fish, shall make a legible record in the form of a landing receipt, as
21 required by **FGC §8043 and §8043.1** at the time the fish are brought ashore (see regulations attached). The original signed
22 copy of the landing receipts are required to be submitted to the department as specified in the regulations. The purpose of the
23 landing receipt book is to provide for a sustainable fishery. The landing receipt data is used biologically to create the fishing
24 regulations, and manage the fishery based upon stock assessments. The take of fish or invertebrates commercially, impacts
25 the fishery on a much larger scale than the average, recreational angler. As a result of this large scale impact, compliance
26 with Department regulations is critical in the management of California's resources. Failure to follow the regulations,
27 established seasons, size limits, and participants, can cause the fishery to crash – potentially beyond the point of recovery.

28

29 Narrative:

30 On Sunday, December 9, 2012, after detailed surveillance, research and patrols, I contacted and cited Adam Crawford
31 James for operating a Commercial Passenger Fishing Vessel (CPFV) charter fishing operation without a license and for
32 failing to have and maintain a logbook to record take of fish. At this time, I warned James for not completing his lobster
33 report card before, and immediately after taking lobster.

34

35 On Thursday, December 13, 2012, James came into the California Department of Fish and Game Los Alamitos office,
36 with his father, to purchase the proper licensing to run a CPFV. On this day, I spoke with James and explained several
37 of the commercial fishing regulations to him. We discussed what he could legally do with his CPFV license. I provided

Preparer's Name and Badge Number M. Budish/ #729	Date 09/25/13	Reviewer's Name R. Hoffman	Date 10/04/13
---	------------------	-------------------------------	------------------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 4 of 10

DATE OF INCIDENT/OCCURRENCE 09/08/13	TIME (2400) 1315 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Santa Monica/ Los Angeles/ Santa Monica
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input checked="" type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Santa Monica Pier – "The Lobster" restaurant/ Adam Crawford James/ Illegal Commercial Fishing Activities (60 COUNTS)		Arresting/Case Officer M. Budish Badge# 729 Citation Number FORMAL COMPLAINT

38 him with a the commercial fishing law and regulation digest, my phone number, and email in case he had any future
39 questions.

40 On January 26, 2013, I contacted James at the Marina Del Rey public launch ramp. James had just returned from a fishing
41 trip. I inspected James CPFV logbook and lobster report card. James did not complete his lobster report card, and I found
42 him to be in violation of failing to submit his monthly logbook pages as required. I cited him for not completing his lobster
43 report card before and after retaining lobster – for which he received a warning from me a month earlier.

44
45 On this occasion, James asked me about taking and selling lobster and various fish. I told James he **could not sell lobster or**
46 **fish** since he did not have the proper permits to do so. I told James that he needed specific permits to take and sell certain
47 fish and invertebrates (lobster). I told James that in order to take fish for commercial purposes, he needed a commercial
48 fishing license and landing receipt book. James asked me what he would need to take his catch and sell it to another person.
49 I told James that if he wanted to sell his fish solely to the ultimate consumer (general public), that he needed a commercial
50 fisherman's retail license. I also told James that if he wanted to sell his catch, depending on the fishery he wanted to
51 participate in, he would need to do research on what permits he would need. I spent almost 45 minutes talking to James at the
52 launch ramp. I explained to James that the take of most groundfish require specific permits. I told James that lobster
53 trapping requires a specific permit, and there are very specific methods of take that are only allowed for commercial lobster. I
54 again reiterated to James that he could not commercially take and sell lobster. I told James that there is a specific permit
55 required to take tidal invertebrates and urchins. I told James that if he was considering commercial fishing, and sales, that he
56 should read the commercial regulations I gave him. I told him to review the law and call me afterwards if there was
57 something he did not understand.

58
59 On February 8, 2013, James purchased a Commercial Fishing License with our department, as well as a Commercial
60 Fisherman's Retail License (see exhibits A & B). The Commercial Fisherman's Retail License is based upon the calendar
61 year, regardless of when the license is purchased. The Commercial Fishing License is based upon the commercial fishing
62 season, which runs from April 1 to March 31 of the following year. At this time, James was issued a landing receipt book
63 (V44601) to record his catch and a transportation receipt book (see exhibit C).

64
65 On May 5, 2013, James purchased a new Commercial Fishing License for 2013, as his previous license had expired (see
66 exhibit D).

67
68 On July 11, 2013, I received a report that James was commercially fishing and selling to a restaurant called "The Lobster",
69 on the Santa Monica Pier (see exhibit E). I did a quick search in our licensing system and verified that James did have a
70 valid Commercial Fishing License. However, in order to catch and land fish from the waters of the state, and then take those
71 fish and sell them to a restaurant, a Receiver's License is required. James does not have, nor has he ever possessed a
72 Receiver's License.

73 In early August, I contacted James and his father at the Marina Del Rey Launch Ramp in Marina Del Rey. On this occasion,
74 James stated the following:

Preparer's Name and Badge Number M. Budish/ #729	Date 09/25/13	Reviewer's Name R. Hoffman	Date 10/04/13
---	------------------	-------------------------------	------------------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 5 of 10

DATE OF INCIDENT/OCCURRENCE 09/08/13	TIME (2400) 1315 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Santa Monica/ Los Angeles/ Santa Monica
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input checked="" type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Santa Monica Pier – "The Lobster" restaurant/ Adam Crawford James/ Illegal Commercial Fishing Activities (60 COUNTS)		Arresting/Case Officer M. Budish Badge# 729 Citation Number FORMAL COMPLAINT

75 • He was selling his catch to a restaurant called "The Lobster" at the Santa Monica Pier.
76 • He was selling rockfish, cabezon, lingcod, and a few other fish he may catch occasionally, such as sheephead.
77
78 I told James that what he was doing was illegal. I told James that sheephead and cabezon are part of the nearshore fishery,
79 and require a Nearshore Fishery Permit. I reminded James that I had given him a copy of the regulations, and showed him
80 how to properly navigate through the regulations to find information regarding the fisheries and permits. I told James that he
81 was not allowed to sell to a restaurant because he only had a Fisherman's Retail Permit, which only allows him to sell to the
82 "ultimate consumer". James stated, "Well, I am not selling fish to them anymore."
83
84 On August 15, 2013, James ordered and was sent two logbooks from our department, logbook numbers R252551 and
85 R252576 (see exhibit F).
86
87 On September 4, 2013, I researched the restaurant on the internet, as well as the menu. I noticed that they had an item on
88 their menu called "Adam's Catch", with a description of a type of fish. I noticed that different websites had different types
89 of fish items listed (see exhibits G & H).
90
91 On September 5, 2013, I conducted a fish business inspection at "The Lobster" restaurant, located at 1602 Ocean Avenue,
92 Santa Monica, CA, 90401. I identified myself as State Fish and Wildlife, Game Warden Michele Budish, and asked the host
93 if I could please speak with a manager. I was greeted by a gentleman who identified himself as Jack Denicola. Denicola
94 stated he was the general manager of the restaurant since it opened 14 years ago. Another gentleman identified himself as
95 Brent Segorski, the onsite manager of nine years. I told Denicola and Segorski that I was conducting a fish business
96 inspection of the restaurant (FGC §7702), and I had several questions to ask them about their menu. I asked them where
97 they purchase their fish from, both fresh and frozen. I also asked them who they purchased their local catch from, and if they
98 purchased any of their catch from local fisherman. Denicola stated that they purchase their local catch from two
99 fishermen/woman. Denicola stated that they purchase a majority of their sea urchin from a local fisherwoman named,
100 Stephanie Mutz. Denicola stated they occasionally purchase local fish, urchin and sometimes (but rarely) lobster, from a
101 local fisherman named Adam. I asked Denicola if the item on the menu titled "Adam's Catch" was based upon items they
102 purchased from the local fisherman named Adam; he stated, yes. I told Denicola and Segorski that I was investigating Adam
103 Crawford James fishing activities. Denicola stated that he had a copy of James' commercial fishing licenses, which James
104 provided to the restaurant per their request (see exhibit I).
105
106 Denicola showed me the copies they had of James commercial fishing license. Upon inspection of the commercial licenses, I
107 verified that the licenses belonged to the same subject I was investigating. I requested copies of all the invoices they had
108 from any and all catch they had ever purchased from James. I also asked them for one month's worth of invoices from Mutz.
109 Denicola stated it would take him several days to put all the copies together for me, and to return on Sunday, September 8.
110
111 On September 8, 2013, I returned to "The Lobster" restaurant to pick up the invoices. I met with a gentleman who identified

Preparer's Name and Badge Number M. Budish/ #729	Date 09/25/13	Reviewer's Name R. Hoffman	Date 10/04/13
---	------------------	-------------------------------	------------------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 6 of 10

DATE OF INCIDENT/OCCURRENCE 09/08/13	TIME (2400) 1315 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Santa Monica/ Los Angeles/ Santa Monica
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input checked="" type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Santa Monica Pier – "The Lobster" restaurant/ Adam Crawford James/ Illegal Commercial Fishing Activities (60 COUNTS)		Arresting/Case Officer M. Budish Badge# 729 Citation Number FORMAL COMPLAINT

112 himself as Francesco Ferrario, the onsite manager that day. He said he was expecting me, and knew I was there to pick up
113 some paperwork from them. Ferrario provided me with a manila folder containing James invoices.

114
115 Upon inspection of the invoices, I counted 20 invoices total (see exhibits J1 – J20). Fourteen of the invoices were in
116 consecutive order (invoices 10012-10025), and the other six invoices were not (invoices 10010, 1000098, 100006, 100003,
117 10001, invoice with no number dated 2/18/2012). James illegally sold his catch to the "The Lobster" restaurant without
118 procuring a Fish Receiver's license, making a total of \$7,546.25. This is a violation of FGC §8033(a), Receivers License
119 required.

120
121 FGC §8033(a) states, "Except as provided....any person who purchases or receives fish for commercial purposes from a
122 fisherman who is required to be licensed under Section 7850, or any person who removes fish from the point of the first
123 landing that the person has caught for his or her own processing or sale, shall obtain a fish receiver's license."

124 Upon inspection of James' invoices I discovered the following violations:

- 125 • Four of the invoices (10020-10019 and 10016-10015) did not contain the names of the species which were sold, as
126 required per FGC §8050(a)(1) (see attached regs). Some of the invoices were either left completely blank or stated
127 "Adam's catch".
- 128 • All 20 of the invoices did not have the name, address, or phone number of the seller/distributor as required per
129 FGC §8050(a)(4) (see attached regs). Only one of the invoices had James' home address listed, and one invoice had
130 James name listed.
- 131 • Eleven of the invoices did not have the number of pounds sold, distributed, or taken, as required per
132 FGC §8050(a)(2) (see attached regs). (10025-10018, 10016-10014, and 100006)
- 133 • On February 18, 2013, James took and sold lobster to the restaurant (invoice does not have number). This is a
134 violation of FGC §8254(a), lobsters shall not be taken for commercial purposes without a valid permit (see attached
135 regs). James also took and sold the lobsters after I had told him he could not sell or take lobster commercially, per
136 our conversation on January 26, 2013. James' invoice is dated 02/18/2012, but this date was incorrect. I obtained a
137 copy of the check that was paid to James, check #5660 (see exhibit K), which was dated February 26, 2013.
- 138 • James took and sold Cabezon and Sheephead without a valid nearshore fishery permit, as required per FGC §8587
139 (see attached regs.). James sold these fish solely or jointly on eight occasions (invoice #'s 100003, 100012, 10014,
140 10017, 10023-10025).
- 141 • James took and sold sea urchin on four separate occasions (invoice dated 02/18/13, and invoice #'s 100003, 100006,
142 and 10015). This is a violation of FGC §9054, urchin permit required to take urchin for commercial purposes (see
143 attached regs.)
- 144 • James took and sold Lingcod during the month of April, which is the closed season for commercial fishing of
145 Lingcod (invoices 100003, 100006, 1000098, and 10010). This is a violation of California Code of Regulations
146 (CCR) Title 14 (T-14) §189(a) to wit Code of Federal Regulations (CFR) §660 (see attached regs).
- 147 • James took and sold Cabezon and Sheephead during the month of April, which is the closed season for commercial
148 fishing of nearshore fish (invoice 100003). This is a violation of CCR T-14 §150.06(c)(3) to wit CFR §660 (see

Preparer's Name and Badge Number M. Budish/ #729	Date 09/25/13	Reviewer's Name R. Hoffman	Date 10/04/13
---	------------------	-------------------------------	------------------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 7 of 10

DATE OF INCIDENT/OCCURRENCE 09/08/13	TIME (2400) 1315 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Santa Monica/ Los Angeles/ Santa Monica
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input checked="" type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Santa Monica Pier – "The Lobster" restaurant/ Adam Crawford James/ Illegal Commercial Fishing Activities (60 COUNTS)		Arresting/Case Officer M. Budish Badge# 729 Citation Number FORMAL COMPLAINT

149 attached regs).

150 • James took and sold White Seabass during the month of April, which is the closed season for commercial fishing of
151 White Seabass (invoice #'s 100003 and 1000098). This is a violation of CCR T-14 §155(a) (see attached regs).
152 On September 11, 2013, I decided to investigate James' landing receipts at our marine region licensing branch, in Los
153 Alamitos. I met with Joann Eres, one of the supervisors for the marine region statistical fisheries data branch. Joann and I
154 tried to locate James' landing receipts and transportation receipts for the year of 2013. James never completed or submitted
155 to the Department, any landing receipts or transportation records for his commercial take (see exhibits L1-L4). This is a
156 violation of FGC §8043(a), landing receipts must be completed immediately at the time of landing fish; FGC §8046(a),
157 landing receipts shall be delivered to the department on or before the 16th or last day of the month in which the fish were
158 landed, whichever date occurs first after the landing; and FGC §8047(c)(2), the original signed copy of the transportation
159 receipt shall be delivered by the commercial fisherman to the department on or before the 16th day or the last day of the
160 month in which the fish were landed, whichever date occurs first after landing.

161
162 After discovering that James never turned in any landing receipts or transportation receipts I decided to contact him. I called
163 James on his cell phone at 1630 hours. James did not answer so I left him a voicemail to call me when he had the chance
164 because I needed to talk to him. James responded via text message (see exhibit M1).

165
166 At approximately 1705 hours, James called me on my cell phone. I told James that I was at the Los Alamitos office
167 researching landing receipt records, and I noticed he had not turned in any landing receipts for the entire year. I told him that
168 I also looked through the transportation receipt records and did not find any transportation receipts records submitted to our
169 Department by him. James stated the following:

- 170 • He turned in his landing receipt records, or so he thought.
171 • He was not at home during the time of our conversation, but would have his parents look for his books/records
172 and get back to me shortly.

173
174 At exactly 1715 hours, James sent me a series of text messages admitting that he never completed or sent in his copies of his
175 paperwork (see exhibits M2-M3). In these text messages, James also asked for my email and stated he wanted to come clean
176 about his illegal activity. I provided James with my email address.

177
178 At exactly 1943 hours, James sent me two emails stating that he never completed any landing receipts and he was illegally
179 spearfishing his commercial catch. James also stated how he teaches his customers to do the right thing (see exhibits N1 to
180 N2). James did not disclose any other violations at this time and stated he has not fished since June, which is not true as this
181 can be seen in the invoices of his sales to the restaurant. After investigating all of James' violations, I decided we needed to
182 meet to go over the laws so he does not continue to violate them. Additionally, I had several questions to ask him.

183
184 On September 21, at 1353 hours, I sent James a text message, asking him to meet me so we could conduct an interview
185 regarding his violations, as well as go over the regulations together (see exhibit M4-M5). I never received a reply from him.

Preparer's Name and Badge Number M. Budish/ #729	Date 09/25/13	Reviewer's Name R. Hoffman	Date 10/04/13
---	------------------	-------------------------------	------------------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 8 of 10

DATE OF INCIDENT/OCCURRENCE 09/08/13	TIME (2400) 1315 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Santa Monica/ Los Angles/ Santa Monica
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input checked="" type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Santa Monica Pier – "The Lobster" restaurant/ Adam Crawford James/ Illegal Commercial Fishing Activities (60 COUNTS)		Arresting/Case Officer M. Budish Badge# 729 Citation Number FORMAL COMPLAINT

186
187 On September 22, 2013, at 2114 hours, James sent me a text message asking if I could help him out with a class he was
188 teaching on September 26, 2013. I told James that I was not available that day, and asked if he received my message the day
189 prior, asking him if we could meet and talk about his violations. He said he never got my message. I told him that I needed
190 to inspect his logbooks, and per department regulations, his records have to be available for inspection (FGC §8047 (b) and
191 FGC §8050(c)- see attached regs). James stated he could not drive due to upcoming surgery, and it would be best if I came
192 to his house on the following Wednesday, September 25, 2013 at 1400 hours (see exhibits M6-M8). I told James I would
193 come to his house, and would also bring him some materials for the class he was teaching.

194
195 On September 25, 2013, at 1400 hours, Warden Kory Collins and I arrived at James' residence, located at 7014 Quakertown
196 St., in Winnetka, CA, to conduct an interview and inspect James' records. James was in possession of three landing receipt
197 books (V44601, R252551, and R252576), all of which were blank and did not contain any fish landing data. I inspected
198 James transportation receipt book, which was also blank and did not contain any fish transportation data.

199
200 James was asked the following questions:

- 201 • Are you currently taking or selling any fish or invertebrates commercially?
202 • How much fish and invertebrates did you commercially take, and sell to the restaurant?
203 • How do you weigh your fish?
204 • Do you have a transportation receipt book and do you know when to use it?
205 • Do you have any landing receipt books and a user guide which helps explain how to complete a landing receipt?
206 • Do you know how to properly fill out a landing receipt book?
207 • Do you know that you have to keep and retain copies of your invoices, landing receipts, logbook copies, and
208 transportation receipts?
209 • Do you know urchin have a size limit for commercial purposes too?
210 • How many sea urchins did you sell?
211 • When did you stop taking and selling fish commercially? When did you start?

212
213 James stated the following:

- 214 • He is aware that he does not have any specific permits to take all types of commercial fish, so he is currently not
215 taking any fish commercially.
216 • "I took lobster, maybe 60 total, and sea urchin twice, which I sold to the restaurant. As far as fish, I took bass, red's,
217 lingcod, cabezon, everything except Garibaldi honestly!"
218 • He weighs his fish with a "small little scale"
219 • "I have a transportation receipt book, and know I need to fill it out when I transport fish that I take"
220 • He has a user guide which explains how to properly complete landing receipt books, which he stated he did not get
221 until August. He received a landing receipt book in February but no transportation receipt books (although evidence
222 shows otherwise on both statements).

Preparer's Name and Badge Number M. Budish/ #729	Date 09/25/13	Reviewer's Name R. Hoffman	Date 10/04/13
---	------------------	-------------------------------	------------------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 9 of 10

DATE OF INCIDENT/OCCURRENCE 09/08/13	TIME (2400) 1315 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Santa Monica/ Los Angeles/ Santa Monica
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input checked="" type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Santa Monica Pier – "The Lobster" restaurant/ Adam Crawford James/ Illegal Commercial Fishing Activities (60 COUNTS)		Arresting/Case Officer M. Budish Badge# 729
Citation Number FORMAL COMPLAINT		

- 223 • Filling out landing receipts are "pretty basic and easy"
- 224 • He didn't know that he had to keep his copies of invoices, landing receipts, logbook copies, or transportation
- 225 receipts
- 226 • He acknowledged that I had told him in January he could not take any and all fish he wanted. He acknowledged that
- 227 I had told him he had to look into the fishery and see if he needed any special permits. He acknowledged that I told
- 228 him he could not take lobster in January 2012.
- 229 • "I didn't know that urchin had a size limit, but I know that they (urchin) were big enough to be definitely legal."
- 230 • He stopped taking and selling fish commercially in May or June of 2013. He sold fish commercially starting in
- 231 November of 2012. He has not commercially fished all summer, only recreationally.
- 232 • He knows what he did was very bad and his is willing to accept the tickets
- 233

234 I advised James of everything he was in violation of. I also went over some of the commercial regulations with him,

235 including all the regulations related to his violations.

236

237 On September 27, 2013, I sent one last text message to James, asking him about his catch and whether it was also sold fresh.

238 James stated that his catch was always fresh, never frozen. A few times he put it (his catch) on ice and would take it to the

239 restaurant the next day, but he never put them in the freezer. (see exhibit M9)

240

241 The violations committed by James are very egregious. The majority of the fisheries that James illegally engaged in are

242 highly restricted, limited entry fisheries (lobster, cabezon, sheephead, and sea urchin). One of the fisheries in particular, the

243 lobster fishery, has reached its maximum capacity of participants. Due to the current pressure on this fishery, permits are no

244 longer sold or distributed. Additionally, because James never completed any landing receipts, that biological data is lost; data

245 used to manage and sustain the fishery and resources of the state of California. James also never paid taxes on his landings

246 per FGC §8041 (see attached regulations).

247

248 Based on the findings of my investigation, it is my recommendation that the following charges are filed:

- 249 • FGC §8033, Failure to procure a Receivers License
- 250 • FGC §8043, Failure to complete Landing Receipts
- 251 • FGC §8046(a), Failure to submit Landing Receipts to the Department
- 252 • FGC §8047(c)(2), Failure to submit Transportation Receipts to the Department
- 253 • FGC §8050(a)(1) – 4 COUNTS, Failure to record names of species sold
- 254 • FGC §8050(a)(2) – 11 COUNTS, Failure to record number of pounds sold, distributed or taken
- 255 • FGC §8050(a)(4) – 20 COUNTS, Failure to record name, address, and phone number of distributor or seller
- 256 • FGC §8254(a), Illegal take of lobster without a valid permit
- 257 • FGC §9054 – 4 COUNTS, Illegal take of seas urchin without a valid permit
- 258 • FGC §8587 – 8 COUNTS, Illegal take of nearshore fish without a valid permit
- 259 • CCR T-14 §189(a) – 4 COUNTS, Illegal take of Lingcod during the closed commercial season
- 260 • CCR T-14 §150.06(c)(3) – Illegal take of nearshore fish during the close commercial season

Preparer's Name and Badge Number M. Budish/ #729	Date 09/25/13	Reviewer's Name R. Hoffman	Date 10/04/13
---	------------------	-------------------------------	------------------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 10 of 10

DATE OF INCIDENT/OCCURRENCE 09/08/13	TIME (2400) 1315 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Santa Monica/ Los Angeles/ Santa Monica
"X" APPLICABLE [X] Narrative [] Arrest Report [] Supplemental [X] Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) [X] Commercial Fishing [] Hunting [] Inland Pollution [] Incident Report [] Recreational Fishing [] Trapping [] Marine Pollution [] Other
Location/Subject/Incident Name Santa Monica Pier – "The Lobster" restaurant/ Adam Crawford James/ Illegal Commercial Fishing Activities (60 COUNTS)		Arresting/Case Officer M. Budish Badge# 729 Citation Number FORMAL COMPLAINT

- 256 • FGC §8254(a), Illegal take of lobster without a valid permit
- 257 • FGC §9054 – 4 COUNTS, Illegal take of seas urchin without a valid permit
- 258 • FGC §8587 – 8 COUNTS, Illegal take of nearshore fish without a valid permit
- 259 • CCR T-14 §189(a) – 4 COUNTS, Illegal take of Lingcod during the closed commercial season
- 260 • CCR T-14 §150.06(c)(3) – Illegal take of nearshore fish during the close commercial season
- 261 • CCR T-14 §155(a) 2 COUNTS – Illegal take of White Seabass during the closed commercial season
- 262 • FGC §8041 – 20 COUNTS – Failure to pay landing taxes on commercial catch to the State of California

264 **Attachments:**

266 **EXHIBITS:**

- 267 • Exhibit A – Copy of James' Commercial Fishing License purchased on February 8, 2013
- 268 • Exhibit B – Copy of James' Commercial Fisherman's Retail License purchased on February 8, 2013
- 269 • Exhibit C – Copy of Landing Receipt Book and Transportation Receipt Book order and verification of books
270 sent February 8, 2013
- 271 • Exhibit D – Copy of James Commercial Fishing License purchased on May 2, 2013
- 272 • Exhibit E – Copy of Cal-Tip report received through dispatch on July 11, 2013
- 273 • Exhibit F - Copy of Landing Receipt Book and Transportation Receipt Book order and verification of books
274 sent August 16, 2013
- 275 • Exhibit G – Zagat menu of "The Lobster" restaurant
- 276 • Exhibit H – "The Lobster" menu from their website
- 277 • Exhibit I – Copy of James' commercial paperwork which he provided to "The Lobster" restaurant
- 278 • Exhibit J1 to J20 – 20 invoices recovered from "The Lobster" restaurant, provided by James to the
279 restaurant
- 280 • Exhibit K – Copy of check#5660, payable to James' from the restaurant for lobster taken according to the
281 invoice incorrectly dated 02/18/12
- 282 • Exhibits L1 to L2 – Emails from our statistical department confirming that James never turned in any
283 landing receipts or transportation receipts
- 284 • Exhibits L3 to L4 - Two documents verifying no records of any landing receipt date from our statistical data
285 branch or data system
- 286 • Exhibit M1 to M9 – Text messages sent between James and I
- 287 • Exhibit N1 to N2 - Email from James

290 **Related Regulatory Sections**

Preparer's Name and Badge Number M. Budish/ #729	Date 09/25/13	Reviewer's Name R. Hoffman	Date 10/04/13
---	------------------	-------------------------------	------------------

Department Exhibit 6

ARREST/INVESTIGATION REPORT

WPD 6a (10-98)

Region # SED Page 1 of 11

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court
"X" ONE <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Formal Complaint	"X" ONE <input checked="" type="checkbox"/> Self Initiated <input type="checkbox"/> Complaint	TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> CalTIP <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other

Suspect Information

Name Suspect #1 (First, Middle, Last) Adam Crawford James	Sex [REDACTED]	Date of Birth (MM/DD/YY) [REDACTED]	Citation Number AD 2066659
Suspect Address (Street, Apt., City, State, Zip Code) [REDACTED]			Home Phone [REDACTED]
Identification Type ("X" APPLICABLE) <input checked="" type="checkbox"/> CDL/CID <input type="checkbox"/> Other State DL/ID <input type="checkbox"/> Other ID Number: [REDACTED]	Suspect Description ("X" APPLICABLE) GENERAL: [REDACTED] HAIR: [REDACTED] EYES: [REDACTED] ETHNICITY: [REDACTED] Height: [REDACTED] Weight: [REDACTED]		
Vehicle Type ("X" APPLICABLE) <input type="checkbox"/> Auto <input checked="" type="checkbox"/> Vessel <input type="checkbox"/> Other	Description (Make, Model, Year, Color) Zodiac, Achilles, 2002, Blk/Grey		License Plate Number/VIN [REDACTED]

Offenses and Charges

<input checked="" type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other <input checked="" type="checkbox"/> Section: FGC §7920 Description: CPFV License required to run a commercial fishing operat.	<input type="checkbox"/> F&G <input checked="" type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Section: CCR T-14 §195 Description: Logbook required to take fish for commercial purposes
<input type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:	<input type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:
<input type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:	<input type="checkbox"/> F&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:

Evidence Seized

Evidence Description (Amount, Type, Serial Number, etc.) "X" ONE <input type="checkbox"/> Held <input type="checkbox"/> Returned <input type="checkbox"/> Destroyed <input type="checkbox"/> Other Assorted Fish, Lobster and scallops – returned to customers	Evidence Photographed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	---

Case Synopsis

On December 4, 2012, I received a phone call from Warden A. Bagdasaryan, informing me of an illegal charter boat operation in Marina Del Rey. Bagdasaryan provided me with the vessel information, location of the vessels most frequent operation, the skippers name, and a website for the business (www.goby.net). The website offered dive trips for lobster and fish, amongst other types of recreational trips. The skipper, later identified as Adam Crawford James, was offering fishing trips for \$100.00 for a two person dive trip. Other pricing information was also available (see Exhibit D for website pricing guidelines).

On December 9, 2012, at approximately 1730 hours, Warden Wardlow and I were patrolling the Marina Del Rey Launch Ramp, in the city of Marina Del Rey. While inspecting anglers for compliance with regulations, I contacted James, business owner and skipper of the fishing vessel (F/V) "Goby". The Goby tied up to the middle dock at the launch ramp, and was equipped with five subjects, and several dive tanks on board.

I identified myself as State Fish and Game and asked the subjects to identify the skipper of the vessel. James identified himself as the skipper. I asked James if he had any fish or lobster on board. James stated that he was running a charter trip, and two of the anglers on board his vessel had taken lobster, fish, and scallops. James stated he also had a barred sandbass that he speared. I asked James for his Commercial Passenger Fishing Vessel License (CPFV), and logbook. James stated he did not have a CPFV license or logbook. This is a violation of Fish and Game Code Section (FGC) §7920, CPFV license is required to operate a vessel for hire when taking fish; and California Code of Regulations (CCR) Title 14 §195, logbook required to take fish.

See arrest report for more details.

See WPD 6b For Additional Suspect and Witness Information "X" ONE ☒ Yes ☐ No

Preparer's Name and Badge Number M. Budish/ #729	Date 12/14/12	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 2 of 11

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court
---	-------------------------	---

Witness Information

Name Witness #1 (First, Middle, Last) Warden A. Bagdasaryan	Sex [REDACTED]	Date of Birth (MM/DD/YY) N/A	Identification Number # 784
Witness Address (Street, Apt., City, State, Zip Code) 4665 Lampson Ave., Suite #C, Los Alamitos, CA 90720			Work Phone 562-342-7100
Name Witness #2 (First, Middle, Last) Warden R. Wardlow	Sex [REDACTED]	Date of Birth (MM/DD/YY) N/A	Identification Number #794
Witness Address (Street, Apt., City, State, Zip Code) 4665 Lampson Ave., Suite #C, Los Alamitos, CA 90720			Work Phone 562-342-7100
Name Witness #3 (First, Middle, Last) Lawrence Wayne Berlin	Sex [REDACTED]	Date of Birth (MM/DD/YY) [REDACTED]	Identification Number N/A
Witness Address (Street, Apt., City, State, Zip Code) [REDACTED]			Work Phone [REDACTED]
Name Witness #4 (First, Middle, Last) Daniel Ray Waring Jr.	Sex [REDACTED]	Date of Birth (MM/DD/YY) [REDACTED]	Identification Number N/A
Witness Address (Street, Apt., City, State, Zip Code) [REDACTED]			Work Phone [REDACTED]
Name Witness #5 (First, Middle, Last) Christopher A. Russello	Sex [REDACTED]	Date of Birth (MM/DD/YY) [REDACTED]	Identification Number N/A
Witness Address (Street, Apt., City, State, Zip Code) [REDACTED]			Work Phone N/A
Name Witness #6 (First, Middle, Last) Marcia Ann Ruff	Sex [REDACTED]	Date of Birth (MM/DD/YY) [REDACTED]	Identification Number N/A
Witness Address (Street, Apt., City, State, Zip Code) [REDACTED]			Work Phone N/A

Preparer's Name and Badge Number M. Budish/ #729	Date 12/09/12	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 3 of 11

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Marina Del Rey Launch Ramp/ Adam Crawford James/ Failure to procure Commercial Passenger Fishing Vessel License; Failure to obtain logbooks		Arresting/Case Officer M. Budish Badge# 729 Citation Number AD 2066659

1 Background: Commercial Fishing

2 Commercial Passenger Fishing Vessel's (CPFV) are boats for hire, which take anglers fishing for the day or night. The cost
3 of the fishing trip varies depending on the duration of the trip, as well as the location and clientele. CPFV's offer fishing
4 trips open to the public, and can be hired for private use as well. Vessels which are hired for private fishing trips are often
5 referred to as "Charter trips".

6
7 CPFV's are required to procure a license issued by the Department of Fish and Game (see attached regulations – FGC
8 §7290). CPFV's are also required to carry and maintain a logbook, which is used to document fishing activities. Logbooks
9 contain information such as the date of the fishing trip, the type of fish taken, location of fish taken, and crustaceans taken
10 (such as lobster, crabs or scallops). The skipper or owner of the CPFV is required to maintain the logbook, and submit the
11 monthly fishing activities to the Department no later than the 10th of each month. The skipper or owner of the CPFV is liable
12 for any violations which may occur on board the vessel. (see attached regulations – CCR T-14 §195)

13
14 The purpose of a logbook and CPFV license is to allow for a sustainable fishery. The logbook data is used biologically, to
15 create the fishing regulations and manage the fishery. The take of fish or lobster on a CPFV occurs on a much larger and
16 frequent scale, as opposed to the average recreational angler. As a result of this large scale fishery, compliance with
17 Department regulations is critical in the management of California's resources.

18 19 Narrative:

20 On December 4, 2012, I was contacted by Warden A. Bagdasaryan, with information about an unlicensed CPFV operating
21 out of Marina Del Rey. Bagdasaryan provided me with the website for the charter operation (www.thegoby.net), and had
22 contacted the skipper, later identified as Adam Crawford James, regarding his dive trips.

23
24 On December 7, 2012, Bagdasaryan, operating under the name of "Jack Davis", contacted the skipper via email (see Exhibits
25 A-C), inquiring about his dive trips. Bagdasaryan stated he was interested to go on one of James' dive trips for lobster.
26 Bagdasaryan asked for pricing and scheduling information. James replied that he runs charter trips every Wednesday night
27 for lobster, the cost is fifty dollars per person, with a "money back guarantee" if no lobster are caught. James' stated in the
28 email that he would be running trips that weekend Friday through Sunday (Dec 7th – 9th), if interested.

29
30 On Sunday, December 9, 2012, at approximately 1400 hours, Warden Wardlow and I arrived at the Marina Del Rey Launch
31 Ramp, in the city of Marina Del Rey. Based upon photos and blogs posted from several websites, including James' website,
32 it appeared that Marina Del Rey Launch Ramp was a frequent location for James' illegal charter trips (see Exhibits D-M).

33
34 At approximately 1730 hours, I contacted a small inflatable zodiac (CF 5010 TM) at the Marina Del Rey Launch Ramp, with
35 five people on board. The vessel was named the "Goby". The vessel was equipped with numerous dive tanks, and spear-
36 fishing guns. I identified myself as State Fish and Game, and asked all five subjects for their licenses, and any fish or lobster
37 they may have on board. Three of the five subjects stated they had catch, the remaining two subjects stated they were not
38 fishing, only diving. I asked all five subjects to identify who was the skipper of the boat. James identified himself as the

Preparer's Name and Badge Number M. Budish/ #729	Date 12/09/12	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 3 of 11

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Marina Del Rey Launch Ramp/ Adam Crawford James/ Failure to procure Commercial Passenger Fishing Vessel License; Failure to obtain logbooks		Arresting/Case Officer M. Budish Badge# 729 Citation Number AD 2066659

39 skipper of the boat. James stated he was operating a "6-pack, charter boat", and they were on a dive trip that evening. I
40 asked James for his CPFV license and logbook. James stated he did not have a CPFV license or logbook, and did not know
41 he needed one. This is a violation of **Fish and Game Code (FGC) §7920**, CPFV license required; and **California Code of**
42 **Regulations (CCR) Title 14 (T-14) §195**, logbook required for take of fish and must be completed and available for
43 inspection.

44
45 I asked James how long he had been a dive instructor, and a working a charter boat operation. James stated the following:

- 46 • He has been a dive instructor for almost two years
- 47 • He has been running a charter boat operation, for fishing, since September 29, 2012
- 48 • He had one employee on board the vessel that evening who was training
- 49 • He did not know he needed a license to take people out fishing for a fee

50
51 I interviewed all four passengers on board the fishing vessel, and inspected their catch. One of the divers, later identified as
52 Christopher A. Russello, was in possession of one lobster, five barred sandbass (four of which were filleted), three California
53 sheephead, and two opaleye. I interviewed Russello about his relationship with James. Russello stated the following:

- 54 • He has known James for several years
- 55 • Russello owns a dive shop in Canoga Park, called Aloha Dive
- 56 • Russello gives James free diving tanks for his dives, in exchange for a charter fishing trip
- 57 • Russello sometimes charts the boat for James customers, when James is unavailable

58
59 Another diver, later identified as Lawrence Wayne Berlin, was in possession of eight scallops. I interviewed Berlin about his
60 relationship with James. Berlin stated the following:

- 61 • He met James on a dive, which might have been paid for, he doesn't remember
- 62 • He has known James for seven or eight months

63
64 James was the third subject in possession of catch that evening, and had one sandbass. The other two divers on board the
65 vessel were not in possession of any catch.

66
67 I seized, photographed and returned all the anglers catch (see photos attached). I educated James about the laws and
68 regulations related to CPFV's, charter vessels, and fishing. I cited James for **FGC §7920** and **CCR T-14 195**, for failure to
69 procure a CPFV license and logbook.

70
71 On December 13, 2012, I met with James at our Fish and Game Office in Los Alamitos. I helped James understand some of
72 the basic regulations he needed to be aware of for his CPFV operation. I assisted James with the license he needed to
73 purchase, as well as his commercial boat registration. James was provided with a copy of the commercial and sport
74 regulations. James was cited earlier in the year for a lobster violation with our department. Due to the fact that is was James'
75 first violation encountered with our department; he was cited with an infraction, which does not show in his criminal history.

Preparer's Name and Badge Number M. Budish/ #729	Date 12/09/12	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 3 of 11

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court
"X" APPLICABLE [X] Narrative [X] Arrest Report [] Supplemental [] Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) [X] Commercial Fishing [] Hunting [] Inland Pollution [] Incident Report [] Recreational Fishing [] Trapping [] Marine Pollution [] Other
Location/Subject/Incident Name Marina Del Rey Launch Ramp/ Adam Crawford James/ Failure to procure Commercial Passenger Fishing Vessel License; Failure to obtain logbooks		Arresting/Case Officer M. Budish Badge# 729 Citation Number AD 2066659

76 **Attachments:**

- 77 • Exhibits A –C; emails from James
- 78 • Exhibit D –E; information posted on James website (www.thegoby.net)
- 79 • Exhibit F – M; photos from James' website, as well as email chains from other websites stating his fishing trips and
- 80 successes
- 81 • Photo evidence from December 9, 2012 (2 pages below)
- 82 • Related regulations (below)

84 **Related Regulatory Sections:**

86 **Fish and Game Code:**

87 **§7920. Commercial Passenger Fishing Vessel License Required**

88 The owner of any boat or vessel who, for profit, permits any person to take fish, shall procure a commercial passenger fishing
89 boat license.

90 This article applies only to a boat or vessel whose owner or his or her employee or other representative is with it when it is
91 used for fishing.

92 A person operating a guide boat, as defined in Section 46, is not required to obtain a commercial passenger fishing boat
93 license.

95 **§7923. Logbook required**

96 The holder of a license shall keep a true record in the English language of all fish taken, and shall comply with such
97 regulations as the commission may prescribe. Such a record and the information contained in it shall

99 **California Code of Regulations Title 14:**

100 **§ 195. Report of Fish Taken To Be Made by Owner of Barge or Vessel for Hire, and Boat Limits.**

101 (a) Records required by Sections 7923 and 8026 of the Fish and Game Code shall be made on a form provided by the
102 department (Skipper's Log Book-Marine Sportfishing - Southern California F&G 656 and Skipper's Log Book-Marine
103 Sportfishing Central and Northern California F&G 623, DFG 195, which is incorporated by reference, and hereafter
104 referred to as logbook for purposes of this section). The logbook shall include the following information and be
105 completed and available for inspection as specified in this section:

106 (1) A full and correct record of fish taken, including species or specified species groups, filled out before the trip is
107 completed (see Section 190(b) of Title 14, CCR). The names used for designating the species of fish shall be those in
108 common usage unless otherwise designated by the department.

109 (2) The owner/operator copy of the logbook shall be maintained and kept on the vessel for a period of one year, and
110 upon request, shall be made available for inspection by any authorized representative of the Department.

111 (3) The numbered logbook shall be completed sequentially. A voided log shall have the word "Void" plainly and
112 noticeably written on the face of the log.

Preparer's Name and Badge Number M. Budish/ #729	Date 12/09/12	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 3 of 11

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Marina Del Rey Launch Ramp/ Adam Crawford James/ Failure to procure Commercial Passenger Fishing Vessel License; Failure to obtain logbooks		Arresting/Case Officer Badge# 729 M. Budish Citation Number AD 2066659

- 113 (b) The owner(s) and/or operator(s) of each vessel required to obtain a license under Section 7920 of the Fish and Game
114 Code shall post a notice in a prominent place on the vessel giving information to fishermen on license requirements, bag
115 limits, and other pertinent information. This notice shall be furnished by the department.
- 116 (c) Both the vessel owner(s) and/or operator(s) shall be responsible for keeping accurate records and insuring the vessel
117 is in compliance with subsections (a) and (b) above.
- 118 (d) All fishing activity records are confidential pursuant to Fish and Game Code Sections 7923 and 8022 and
119 Government Code Sections 6276 and 6276.10.
- 120 e) Boat Limits: When two or more persons licensed or otherwise authorized to sport fish in ocean waters off California
121 or in the San Francisco Bay District, as defined in Section 27.00, are angling for finfish in these waters aboard a vessel
122 licensed under Section 7920, fishing by these persons (to include vessel operator(s) and crew members where licensed to
123 sportfish under their own individual limits) may continue until the passenger's boat limits of those finfish are taken and
124 possessed aboard the vessel as authorized under this section.
- 125 (1) For purposes of this section, the vessel operator(s) and crew members are not passengers and may not take fish
126 towards obtaining boat limits for passengers except for casting, setting trolling gear, gaffing or netting fish, but may take
127 fish during a fishing trip for their personal use only. Vessel operator(s) and crew members may assist passengers in other
128 activities including, but not limited to, obtaining bait, chumming, baiting and untangling hooks and lines, identifying,
129 dispatching, filleting, counting, bagging and otherwise handling fish taken by passengers. Upon completion of a fishing
130 trip, the vessel operator(s) and crew members may only possess fish that are part of the own personal bag limit not to
131 exceed authorized sportfishing daily bag and possession limits.
- 132 (2) Fish taken by operator(s) and crew members for personal use pursuant to (e)(1) above must be separated from fish
133 taken under a boat limit and labeled in a manner that they can be identified as an individual operator's or crew members
134 fish. Operator(s) and crew members are also prohibited from giving all or part of their individual limit to any passenger
135 during or after a trip.
- 136 (3) The authorization for boat limits aboard a vessel does not apply to fishing trips originating in California where fish
137 are taken in other jurisdictions.
- 138 (4) A boat limit for a species or species group is equal to the number of passengers aboard the vessel that are licensed or
139 otherwise authorized to sport fish in ocean waters off California or in the San Francisco Bay District multiplied by the
140 individual daily bag limit authorized for a species or species group. For purposes of this section, the number of
141 passengers shall not include the vessel operator(s) and crew members. It is unlawful to exceed the boat limit at any time.
- 142 (5) Prior to the departure on a fishing trip of a vessel that is operating under authority of a license issued pursuant to Fish
143 and Game Code Section 7920, the number of fishers, to include passengers, guests, operators and crew who will be
144 fishing, shall be recorded under "number of fishers" on the logbook for that trip. In addition, the number of vessel
145 operator(s) and crew members who will fish for that trip shall be recorded in the space to the right of the operator's
146 signature on the logbook.
- 147 (6) Upon completion of a sport fishing trip aboard a vessel reporting under this section, each licensed or otherwise
148 authorized angler may not possess more than the daily bag and possession limits. For the purposes of this section, a
149 fishing trip is completed at the time a person disembarks from the vessel and individual possession limits apply.
- 150 (7) Species for which no daily bag limit exists are not included in the boat limit.

Preparer's Name and Badge Number M. Budish/ #729	Date 12/09/12	Reviewer's Name	Date
---	------------------	-----------------	------

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court		
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other		
Location/Subject/Incident Name Marina Del Rey Launch Ramp/ Adam Crawford James/ Failure to procure Commercial Passenger Fishing Vessel License; Failure to obtain logbooks		Arresting/Case Officer M. Budish Badge# 729		Citation Number AD 2066659

151 (f) Where boat limits are provided for in this section, the vessel operator(s) and crew members may be cited for
152 violations occurring aboard the vessel, including but not limited to violations of the following:

- 153 (A) Overlimits
- 154 (B) Possession of prohibited species
- 155 (C) Minimum size limits
- 156 (D) Fish taken out of season or in closed areas

157 (g) Boat limits are not authorized for sturgeon fishing and shall not apply to the take, possession or retention of sturgeon
158
159

160 **Photo Evidence:**
161



Photo 1: James Identification

Preparer's Name and Badge Number M. Budish/ #729	Date 12/09/12	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 3 of 11

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court	
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other	
Location/Subject/Incident Name Marina Del Rey Launch Ramp/ Adam Crawford James/ Failure to procure Commercial Passenger Fishing Vessel License; Failure to obtain logbooks		Arresting/Case Officer M. Budish	Citation Number AD 2066659

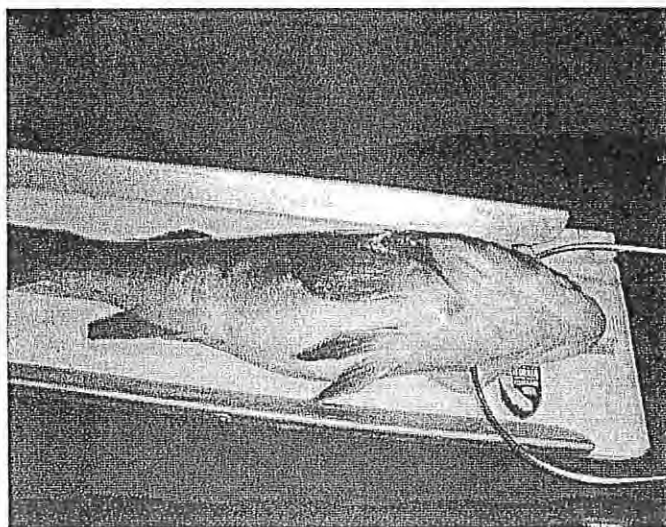


Photo 2: James barred sandbass taken on his charter trip

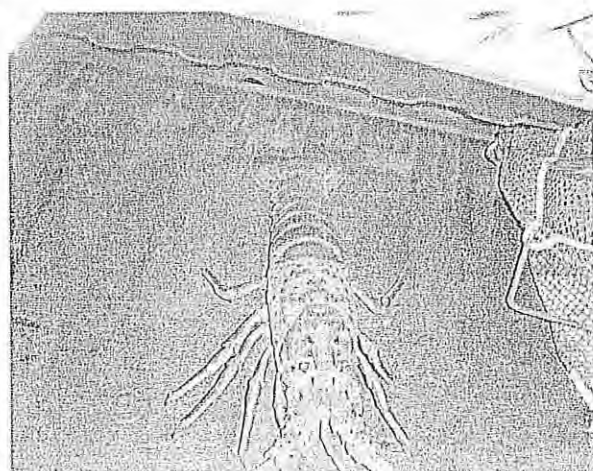


Photo 3: Photo of Russello's lobster taken on James' charter trip

Preparer's Name and Badge Number M. Budish/ #729	Date 12/09/12	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 3 of 11

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court	
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other	
Location/Subject/Incident Name Marina Del Rey Launch Ramp/ Adam Crawford James/ Failure to procure Commercial Passenger Fishing Vessel License; Failure to obtain logbooks		Arresting/Case Officer M. Budish Badge# 729	Citation Number AD 2066659

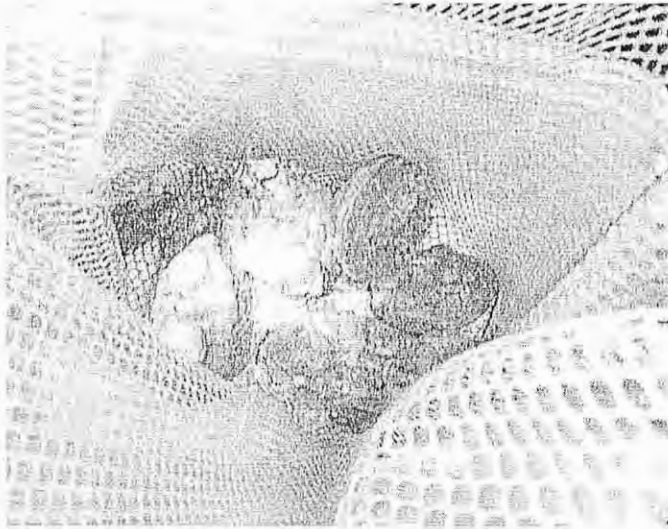


Photo 4: Berlin's scallops – taken on James' charter trip



Photo 5: Russello's Barred sandbass filets taken on James' charter

Preparer's Name and Badge Number M. Budish/ #729	Date 12/09/12	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 3 of 11

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court	
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other	
Location/Subject/Incident Name Marina Del Rey Launch Ramp/ Adam Crawford James/ Failure to procure Commercial Passenger Fishing Vessel License; Failure to obtain logbooks		Arresting/Case Officer M. Budish	Citation Number AD 2066659

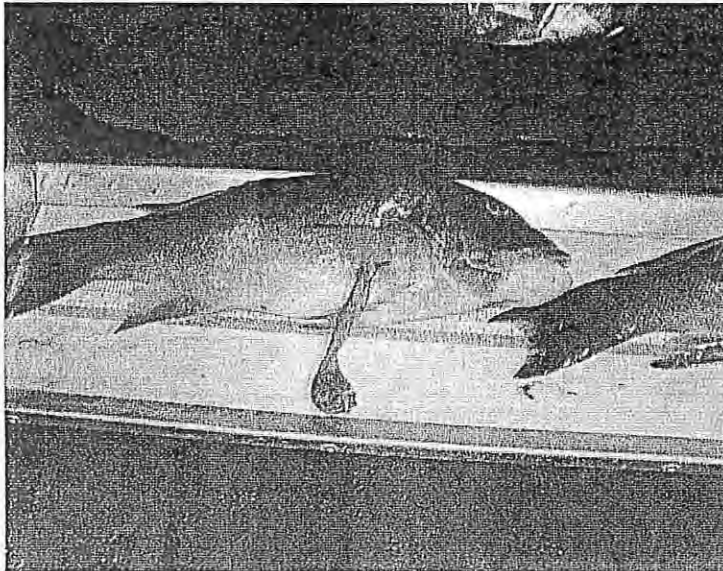


Photo 6: Russello's sheephead – taken on charter trip

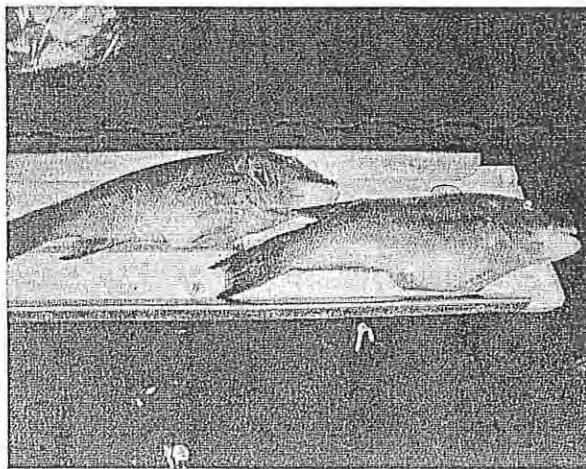


Photo 7: Russello's sheephead – taken on charter trip

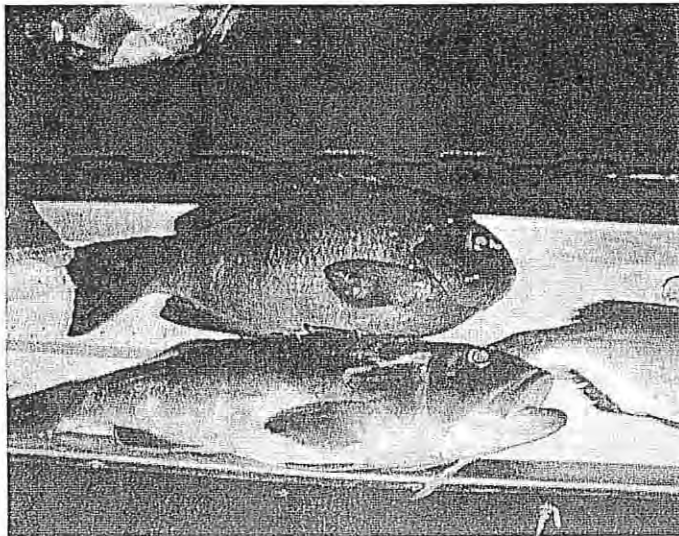
Preparer's Name and Badge Number M. Budish/ #729	Date 12/09/12	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 3 of 11

DATE OF INCIDENT/OCCURRENCE 12/09/12	TIME (2400) 1815 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ LAX Airport Court	
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other	
Location/Subject/Incident Name Marina Del Rey Launch Ramp/ Adam Crawford James/ Failure to procure Commercial Passenger Fishing Vessel License; Failure to obtain logbooks		Arresting/Case Officer M. Budish Badge# 729	Citation Number AD 2066659



192

Photo 8: Russello's bass and perch taken on charter trip

Preparer's Name and Badge Number M. Budish/ #729	Date 12/09/12	Reviewer's Name	Date
---	------------------	-----------------	------

Department Exhibit 7

MINUTE ORDER

Case Number 2013025311 M A

People Vs James, Adam

Name: James, Adam

Court Room: 13

For: 12/10/13 08:30 AM

Case #: 2013025311 M A

Atty Name: Thomas Hartnett, PD

Case Status: Convicted

Mand. App: Yes

Release Status: Released on Own Recognizance (O.R.)

Charging Document: Complaint

Bail Set Amt:

Last Date for Trial: 12/12/13

Defendant InformationBooking Information

BI Number:

DOJ Report #: AD1851442

DR #: AD1851442

Arrest Date:

Issuing Agency: F&G

Violation Location: County of Ventura

DOB: [REDACTED]

Sex: [REDACTED]

Hair: [REDACTED]

Eyes: [REDACTED]

Height: [REDACTED]

Weight: [REDACTED]

Race:

Violations

Cnt	S/A	Off Lvl	Plea	Dt Plea	Disposition	Dt Dispo	Bail Schedule
1		M 29.91(A) 14	Not Guilty	10/15/13	Dismissed	12/10/13	\$1,015.00
	03/01/13	Failure to Keep Lobster Report Card in Possession					
2		M 190(c) 14	Guilty	12/10/13	Pled guilty	12/10/13	\$1,015.00
	03/01/13	Failure to Submit Fishing Records					
3		M 190(c) 14	Guilty	12/10/13	Pled guilty	12/10/13	\$1,015.00
	03/01/13	Failure to Submit Fishing Records					
4		M 190(c) 14	Not Guilty	10/15/13	Dismissed	12/10/13	\$1,015.00
	03/01/13	Failure to Submit Fishing Records					
5		M 190(c) 14	Not Guilty	10/15/13	Dismissed	12/10/13	\$1,015.00
	03/01/13	Failure to Submit Fishing Records					

Sentence

Dt Sent	Sentence	Disposition
12/10/13	\$200.00 Dollars Fines	Active

Fiscal

Component	Due	Balance
Fine	\$71.46	\$0.00
PA	\$128.54	\$0.00
Fees	\$349.50	\$0.00
Case Total:	\$549.50	\$0.00

Docket DtSeqCodeText

12/10/2013 1 HHELD JURY TRIAL Heard in Courtroom 13 on Dec 10, 2013 at 08:30 AM.

2 OFJUD Judge - Coleman, Donald D.

MINUTE ORDER

Case Number 2013025311 M A

People Vs James, Adam

Name: James, Adam Court Room: 13 For: 12/10/13 08:30 AM
Case #: 2013025311 M A Atty Name: Thomas Hartnett, PD
Case Status: Convicted Mand. App: Yes
Release Status: Released on Own Recognizance (O.R.)
Charging Document: Complaint Bail Set Amt: Last Date for Trial: 12/12/13

<u>Docket Dt</u>	<u>Seg</u>	<u>Code</u>	<u>Text</u>
12/10/2013	3	OFJA	Judicial Assistant - Cassy, C .
	4	FCFTR	Digital recorder - 09:22 AM .
	5	PP	The defendant is present in court.
	6	PPD	Public Defender Hartnett is present in court.
	7	PPDA	Deputy District Attorney Sommers present.
	8	ADTAHL	The defendant was advised: "If you are not a citizen, you are hereby advised that conviction of the offense for which you have been charged may have the consequences of deportation, exclusion from admission to the United States, or denial of naturalization pursuant to the laws of the United States (1016.5 PC)". The defendant was advised of charge(s), rights, and consequences including maximum and minimum penalties. After inquiry the court found that the defendant understood the nature of the charge(s), the consequences of conviction and his/her rights, and that he/she expressly, voluntarily, intelligently and understandingly waived his/her rights.
	9	ADTRL	The defendant is advised of the right to trial by court or jury; right to confront and cross-examine witnesses against him/her; and privilege against self-incrimination
	10	PLG	A guilty plea is entered as to count(s) 2, 3 . Pursuant to Penal Code Section 1465.8, each violation resulting in a conviction will be assessed a \$40.00 security fee. Pursuant to Government Code Section 70373, a Criminal Conviction Assessment fee of \$35 on every conviction for infractions, and \$30.00 on every conviction for misdemeanors and felonies will be imposed. Pursuant to Government Code Section 76000.10, an Emergency Med Air Transport fee of \$4.00 will be added for each convicted vehicle code violation.
	11	DMR	The Court orders the remaining counts to be dismissed.
	12	FLW	Waiver of Constitutional Rights filed and incorporated in court's file.
	13	PADN	The Court denies the defendant probation.
	14	SNFI	Pay a total fine of \$200.00 . (If you have been convicted of a vehicle code violation, failure to pay this fine will result in a suspension of your driver's license).
	15	FE	You are to pay Public Defender fee of \$159.50 .

MINUTE ORDER

Case Number 2013025311 M A

People Vs James, Adam

Name: James, Adam

Court Room: 13

For: 12/10/13 08:30 AM

Case #: 2013025311 M A

Atty Name: Thomas Hartnett, PD

Case Status: Convicted

Mand. App: Yes

Release Status: Released on Own Recognizance (O.R.)

Charging Document: Complaint

Bail Set Amt:

Last Date for Trial: 12/12/13

Docket Dt	Seq	Code	Text
12/10/2013	16	PYFW	You are directed to pay your fine/fees now (forthwith) in Room 118 in Ventura or Criminal/Traffic office in Simi Valley -South Entry or in Room 122 at the Juvenile Court in Oxnard. After 3 p.m. walk-up windows are available in Ventura and in Simi Valley until 4:45 p.m. and in Oxnard, the Collections Window in Room 122 is open until 4:30pm.
	19	FEM	Your Security Fee fee is modified to \$40.00 .

I have received a copy of these conditions. I understand and agree to each of the conditions listed above.

Date
(Fecha)

Defendant's Signature
(Firma)

Defendant's Telephone #
(Telefono)

Defendant's Address
(Domicilio)

Explained/Translated By

Defendant's City, State and Zip Code
(Ciudad, Estado, yCodigo Postal)



IN WITNESS WHEREOF, I have hereunto set my hand and the seal of the Court at Ventura, California, this 10th day of December, 2013.

THOMAS G. HARTNETT, PD
Attorney for Defendant

12/10/2013

Department Exhibit 8

LOS ANGELES SUPERIOR COURT - SANTA MONICA COURTHOUSE
1725 MAIN STREET SANTA MONICA, CA 90401

Ref: CT005

CASE NO.: 2066660

LEA: 7204

TRIAL DOCKET

DEFENDANT: ADAM CRAWFORD JAMES

TRUE NAME: _____

CHARGE(S):

1) 2990

2)

3)

4)

\$

\$

\$

\$

Type of Bail: OR

DMV Abstractable: N

Priors: 0

Traffic School Eligible: N

Bail Amount: \$ 0.00

Receipt #:

Date Posted: //

Date Issued: January 26, 2013

DATE: August 29, 2013

TIME: 8:30am

DEPT: WEA

JUDGE/COMMISSIONER/JUDGE PRO TEM: James K Hahn

CLERK: Tina Jacquez

REPORTER

INTERPRETER

PROSECUTOR

☐ STIPULATION TO JUDGE PRO TEM FILED.

CAUSE CALLED FOR TRIAL

☐ DEFENDANT NOT IN COURT

☐ Bail forfeited. No further proceedings. Time _____ ☐ Bench warrant ordered. Bail \$ 197.00 ☐ Hold/Warrant to (re) issue

☐ DEFENDANT IN COURT ☐ Without counsel. ☐ Represented by counsel _____

☐ Defendant duly arraigned and informed of the charges against him. Defendant advised of the right to counsel of choice or public defender, to a speedy trial by court, confrontation and cross-examination of witnesses, process of the court to subpoena witnesses and own behalf and against self-incrimination.

☐ PURSUANT TO P.C. 17d2: The Court, with the consent of the defendant, determines that the offense is an infraction, in which event the case shall proceed as if the defendant had been arraigned on an infraction complaint.

☐ Defendant personally acknowledges understanding of the above. Defendant pleads not guilty, and demands trial forthwith.

☐ Defendant waives time for trial.

☒ Court accepts defendant's change of plea: ☒ guilty ☐ nolo contendere

☐ People not ready to proceed. Case dismissed pursuant to 1385 P.C.

☐ Dismissed - Officer not present to testify ☐ Dismissed - Officer has no recollection

☐ Dismissed - _____

☐ On motion of (COURT) (PEOPLE) (DEFENDANT) case reset for trial to _____ at _____ m. in Dept. _____

☐ Officer and Defendant sworn and examined.

☐ Additional witnesses sworn and examined for _____

☐ Both parties rest.

☒ DEFENDANT ADJUDGED GUILTY ☐ Defendant in Court and arraignment and time for judgement and sentence having been waived and there being no cause why judgement should not now be pronounced, it is adjudged and ordered by the Court that as a sentence for the violations charged, the defendant shall pay a fine in the sum of \$ 25 plus penalty assessment as to Court(s) _____ ☐ Cash Bail Applied.

As to remaining Counts _____: ☐ Sentence Suspended ☐ Not Guilty ☐ Dismissed

☐ DEFENDANT ADJUDGED NOT GUILTY ON ALL COUNTS

☐ Bail Ordered Exonerated

☐ Bail Refund Card Issued # _____

☐ DEFENDANT ORDERED TO ATTEND 8-HOUR TRAFFIC SCHOOL

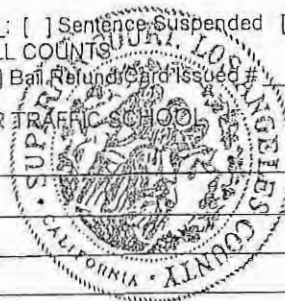
The document to which this case is attached is a full, true and correct copy of the original on file and of record.

Attest this 9th day of January, 2014.

John A. Clarke, Executive Officer/Clerk of the Superior Court of the State of California for the County of Los Angeles.

By _____, Deputy

Created: 08/21/13



RECEIPT # 5446347002
DATE PAID 03/19/13 09:28 AM
PAYMENT: \$177.00
RECEIVED: 140
CHECK: \$0.00
CASH: \$0.00
CHANGE: \$0.00
CERO: \$0.00

CIT/DOSE: 2066660
LEA/DEF#: 7204

EXPANDED TRAFFIC RECORD SYSTEM - NUMBER RESPONSE

CIT/CASE 2066660 LEA/COURT 7204 SM ABSTRACT N ID# 13241V001 VLN CF5010T
NAME ADAM CRAWFORD JAMES OLN B8505962 OLN ST CA
ADDRESS [REDACTED] DOB [REDACTED] T/S N
VIO-DATE APR-DATE ENT-DATE VIOL 1 VIOL 2 VIOL 3 VIOL 4 SPEED
012613 041613 082913 2990 02
RECPT NO. SM468402002 \$ \$ \$ \$ CONV
PR CNT 0 PP FINE 197.00 W/O PROOF 0.00 T/S AMT 0.00 COMHAZ
ST PR DSP PAID DATE 082913D AMT 197.00 JUD C DUE 0.00 RF
BAIL 0.00 BASE 0.00 PA 0.00 NC 0.00 WA 0 SB 0.00 P/C/WA 0.00

ACT ACT DATE SEQ DPT CASE/TD# RECEIPT# AMT PAID ENTRY DATE P CD/DATE
CT 082913 WEA 0830AM 061813
AR 060313 WEG 0130PM 041613

LOS ANGELES SUPERIOR COURT
SANTA MONICA COURTHOUSE
TRAFFIC DIVISION
1725 MAIN STREET
SANTA MONICA, CA 90401

** NO MORE INFORMATION AVAILABLE **

PF1-NAME PF2-OLND PF3-NMBR PF4-CITN PF5-DMVM PF6-RSRV
PF7-DSPO PF8-WRNT PF9-CONT PF10-CCAL PF11-TMEN PF12-ACME

* NMBR *

DEPARTMENT OF FISH AND GAME

NOTICE TO APPEAR FG-900

☐ MISDEMEANOR
☐ Traffic ☒ Non-traffic

AD2066660

Date of Violation

Time

☐ AM

Day of Week

Case No.

01/16/13

3:30

RPM

SAT

Name (First, Middle, Last)

☐ Owner's Responsibility (Veh. Code, § 40001)

ADAM CRAWFORD JAMES

Address

City

State

ZIP Code

Phone Number

Driver Lic. No.

State

Class

Commercial

Birth Date

Sex

Eyes

Height

Weight

Race

Other Description

Veh. Lic. No. or VIN

State

☐ COMMERCIAL VEHICLE
(Veh. Code, § 15210(b))

Yr. of Veh.

Make

Model

Body Style

Color

☐ HAZARDOUS MATERIAL
(Veh. Code, § 353)

Evidence of Financial Responsibility

Registered Owner or Lessee

☐ Same as Driver

Address

☐ Same as Driver

State

ZIP Code

Correctable Violation (Veh. Code, § 40610)

☐ Booking RequiredMisdemeanor or
Infraction (Circle)

Yes No

Code Section

Description

☐ CERT-149.9000-REPORT CARD M 0☐ NOT IN COMPLIANCE PRIOR TO OR M 1☐ AFTER TAKE OF LOBSTER M 1☐ M 1

Speed

P.F./Max

Veh.

GPS

Approx.

Spd.

Lmt.

Lat

Location of Violation(s)

City/County of

CalTIP:

at MANANA DEL REY LAUNCH RAMP-LOS ANGELES CA (No)

Evidence Seized

FOUR LOBSTERS (PETID)

Date

☐ Violations not committed in my presence, declared on information and belief.

I declare under penalty of perjury under the laws of the State of California the foregoing is true and correct.

M. BUDISH

Arresting or Citing Officer

1729

Badge No.

Date

Name of Arresting Officer, if different from Citing Officer

Badge No.

WITHOUT ADMITTING GUILT, I PROMISE TO APPEAR AT THE TIME AND PLACE
INDICATED BELOW.

X Signature

ad 2

WHEN:

ON OR BEFORE THIS DATE

04/16/13

Time:

8:30

AM PM

WHAT TO DO:

FOLLOW THE INSTRUCTIONS ON THE REVERSE.

Name of Court

SANTA MONICA SUPERIOR

WHERE:

Section or Division, Room No.

1725 MAIN ST

Street Address

SANTA MONICA CA 90401

Phone Number

310-260-3517 Ext

Court

19404

☐ Juvenile☐ To be notified☐ You may arrange with the clerk to appear at a night session of the court.

AD2066660

COURT COPY

SEE REVERSE TR-130

Department Exhibit 9

ARREST/INVESTIGATION REPORT

WPD 6a (10-98)

Region # SED Page 1 of 2

DATE OF INCIDENT/OCCURRENCE 01/26/13		TIME (2400) 1530 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ Santa Monica	
"X" ONE <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Formal Complaint	"X" ONE <input checked="" type="checkbox"/> Self Initiated <input type="checkbox"/> Complaint	TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> CalTIP <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other		

Suspect Information

Name Suspect #1 (First, Middle, Last) Adam Crawford James		Sex [REDACTED]	Date of Birth (MM/DD/YY) [REDACTED]	Citation Number AD 2066660
Suspect Address (Street, Apt., City, State, Zip Code) [REDACTED]				Home Phone [REDACTED]
Identification Type ("X" APPLICABLE) <input checked="" type="checkbox"/> CDL/CID <input type="checkbox"/> Other State DL/ID <input type="checkbox"/> Other ID: Number: [REDACTED]	Suspect Description ("X" APPLICABLE) GENERAL: [REDACTED] HAIR: [REDACTED] EYES: [REDACTED] ETHNICITY: [REDACTED] Height: [REDACTED] Weight: [REDACTED]			
Vehicle Type ("X" APPLICABLE) <input type="checkbox"/> Auto <input checked="" type="checkbox"/> Vessel <input type="checkbox"/> Other	Description (Make, Model, Year, Color) Zodiac, Achilles, 2002, Blk/Grey		License Plate Number/VIN [REDACTED]	

Offenses and Charges

<input type="checkbox"/> JF&G <input checked="" type="checkbox"/> JT-14 <input type="checkbox"/> Other <input checked="" type="checkbox"/> Section: CCR T-14 §29.90(d) Description: Failure to complete report card prior to and after take of lobster	<input type="checkbox"/> JF&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:
<input type="checkbox"/> JF&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:	<input type="checkbox"/> JF&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:

Evidence Seized

Evidence Description (Amount, Type, Serial Number, etc.) "X" ONE <input type="checkbox"/> Held <input checked="" type="checkbox"/> Returned <input type="checkbox"/> Destroyed <input type="checkbox"/> Other Four lobsters – returned to subject	Evidence Photographed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

Case Synopsis

On January 26, 2013, at approximately 1530 hours, I was patrolling Marina Del Rey Launch Ramp, in the city of Marina Del Rey. While inspecting anglers catch for compliance with regulations, I contacted a subject, later identified as Adam Crawford James. James' had four lobsters in his possession, in addition to dive gear. I asked James for his fishing license and report card. Upon inspection of James' report card, I found it was not filled out prior to, or after, the take of lobsters. This is a violation of California Code of Regulations (CCR) Title 14 (T-14) §29.90(d), report card must be completed prior to and after the take of lobster.
--

See WPD 6b For Additional Suspect and Witness Information "X" ONE ☒ Yes ☐ No

Preparer's Name and Badge Number M. Budish/ #729	Date 01/31/13	Reviewer's Name	Date
---	------------------	-----------------	------

SUPPLEMENTAL SUSPECT/WITNESS INFORMATION

WPD 6b (10-98)

Region # SED Page 2 of 2

DATE OF INCIDENT/OCCURRENCE 01/26/13	TIME (2400) 1530 HRS	CITY/COUNTY/JUDICIAL JURISDICTION Marina Del Rey/ Los Angeles/ Santa Monica
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Marina Del Rey Launch Ramp/ Adam Crawford James/ Failure to complete report card prior to and after take of lobsters		Arresting/Case Officer Badge# Citation Number M. Budish 729 AD 2066660

1 **Narrative:**

2 On January 26, 2013, I was patrolling the Marina Del Rey Launch Ramp, in the city of Marina Del Rey. At approximately
3 1530 hours, I contacted a small inflatable zodiac (CF 5010 TM) at the Marina Del Rey Launch Ramp, with five people on
4 board. The vessel was named the "Goby". The vessel was equipped with numerous dive tanks, and spear-fishing guns. I
5 identified myself as State Fish and Game, and asked all five subjects for their licenses, and any fish or lobster they may have
6 on board. James identified himself as the skipper of the boat. James stated he was in possession of four lobsters. Upon
7 inspection of James' report card, I saw that it was blank. This is a violation of **California Code of Regulations (CCR) Title**
8 **14 (T-14) §29.90(d)**, report card must be in possession when taking lobster and angler shall adhere to the reporting
9 requirements. (see regulations below)

10
11 In accordance with **CCR T-14 §29.91**, spiny lobster report cards must be completed prior to the take of lobster, as well as
12 after the take of lobster. James was cited for **CCR T-14 29.90(d)**; failure to adhere to lobster reporting requirements.

13
14
15
16
17
18
19
20

21 **Related Regulatory Sections:**

22

23 **California Code of Regulations Title 14:**

24 **§ 29.90. Spiny Lobsters.**

25 (d) Report Card Required: Any person fishing for or taking spiny lobster shall have in their possession a nontransferable
26 Spiny Lobster Report Card issued by the department and shall adhere to all reporting requirements for lobster defined in
27 Sections 1.74 and 29.91, Title 14, CCR.

28 **§29.91. Lobster Reporting Requirements**

29 (a) Spiny lobster report card required. All individuals must have a spiny lobster report card in their possession while
30 fishing for or taking lobster. In the case of a person diving from a boat, the report card may be kept in the boat, or in the
31 case of a person diving from the shore, the report card may be kept within 500 yards from the point of entry. Individuals
32 must complete and return their card pursuant to regulations in this section and in section 1.74.

33 (b) Prior to beginning fishing activity, the cardholder must record the month, day, location, and gear code on the first
34 available line on the report card.

35 (c) When the cardholder moves to another location code, or finishes fishing for the day, he or she must immediately
36 record on the card the number of lobster kept from that location.

37 (d) In the event an individual fills in all lines and returns a spiny lobster report card, an additional card may be
38 purchased. See section 1.74.

See WPD 6b For Additional Suspect and Witness Information "X" ONE ☒ Yes ☐ No

Preparer's Name and Badge Number M. Budish/ #729	Date 01/31/13	Reviewer's Name	Date
---	------------------	-----------------	------

Department Exhibit 10

ARREST/INVESTIGATION REPORT

ENF 6a (1/2013)

Region # 5

Page 1

DATE OF INCIDENT/OCCURRENCE 3/1/13	TIME (2400) 2300	CITY/COUNTY/JUDICIAL JURISDICTION Ventura County/ Ventura Superior Court
AX@ ONE <input type="checkbox"/> Arrest Report <input type="checkbox"/> Formal Complaint	AX@ ONE <input type="checkbox"/> Self-Initiated <input type="checkbox"/> Complaint	TYPE OF REPORT (AX@ APPLICABLE) <input type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> CalTIP <input checked="" type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other

Suspect Information

Name Suspect #1 (First, Middle, Last) Adam Crawford James	Sex [REDACTED]	Date of Birth (MM/DD/YY) [REDACTED]	Citation Number AD1851442 RTN: 7/24/13
Suspect Address (Street, Apt., City, State, Zip Code) [REDACTED]			Home Phone [REDACTED]
Business Address (Street, Apt., City, State, Zip Code)			Business Phone
Identification Type (AX@APPLICABLE) <input checked="" type="checkbox"/> CDL/CID <input type="checkbox"/> Other State DL/ID <input type="checkbox"/> Other ID: Number [REDACTED]	Suspect Description (AX@ APPLICABLE) GENERAL: <u>HAIR:</u> <u>EYES:</u> <u>ETHNICITY:</u> Height: [REDACTED] Weight: [REDACTED]		
Vehicle Type (AX@ APPLICABLE) <input type="checkbox"/> Auto <input checked="" type="checkbox"/> Vessel <input type="checkbox"/> Other	Description (Make, Model, Year, Color) Achilles, 18 Ft., 1995, Grey (RHI)	License Plate Number/VIN [REDACTED]	

Offenses and Charges

<input type="checkbox"/> JF&G <input checked="" type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Section: 29.91(b) Description: Failure to fill out lobster report card	<input type="checkbox"/> JF&G <input checked="" type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input checked="" type="checkbox"/> Section: 190(c) Description: Failure to submit logs by the tenth of the following month
<input type="checkbox"/> JF&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:	<input type="checkbox"/> JF&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:
<input type="checkbox"/> JF&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:	<input type="checkbox"/> JF&G <input type="checkbox"/> JT-14 <input type="checkbox"/> Other: <input type="checkbox"/> Section: Description:

Evidence Seized

Evidence Description (Amount, Type, Serial Number, etc.) <input type="checkbox"/> Held <input checked="" type="checkbox"/> Returned <input type="checkbox"/> Destroyed <input type="checkbox"/> Other Adam's lobster report card [REDACTED] Adam's sport fishing license [REDACTED], and (1) lobster (RTW)	Evidence Photographed? <input type="checkbox"/> Yes <input type="checkbox"/> No
Evidence Description (Amount, Type, Serial Number, etc.) <input checked="" type="checkbox"/> Held <input checked="" type="checkbox"/> Returned <input type="checkbox"/> Destroyed <input type="checkbox"/> Other Adam's CPFV license [REDACTED] and CPFV Logs (S756851, S756852, S756853, S756854, and S756855)	Evidence Photographed? <input type="checkbox"/> Yes <input type="checkbox"/> No

Case Synopsis

<p>On 3/1/13 at approximately 2300 hours, Adam James returned from a lobster fishing trip and docked his vessel ([REDACTED]) at the Channel Islands Harbor launch ramp. Adam James was in possession of dive gear, including but not limited to dive tanks other associated scuba gear, and one legal sized lobster. On that date and time, I (Warden J. Coombs) was in uniform and on foot patrol at the Channel Islands Harbor launch ramp. I contacted James and identified myself. While talking to James, I saw the number [REDACTED] displayed on the starboard side of his vessel. James indicated he operated commercial passenger fishing vessel (CPFV) charter trips for lobster divers. James also indicated he had a CPFV license ([REDACTED]). James also admitted he had just returned from a non-commercial lobster fishing trip and was in possession of one lobster. I inspected James lobster and determined it to be of legal size. I asked James for his fishing license and lobster report card. James complied with my request. Upon further investigation, James was in violation of failure to fill out his lobster report card and upon inspection was also in violation of failure to fill out and submit several of his CPFV logs by the 10th of the following month. I issued Adam James citation AD1851442 for failure to fill out his lobster report card as required by law (T-14 29.91(b)) and for failure to submit his CPFV logs to the department by the tenth of the following month. Adam James was released on his written promise to appear.</p>			
Preparer's Name and Badge Number J. Coombs #685	Date 6-13-13	Reviewer's Name	Date

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE
NARRATIVE/SUPPLEMENTAL

ENF 6a p.2 (1/2013)

Region # 5

Page

DATE OF INCIDENT/OCCURRENCE 3/1/13	TIME (2400) 2300	CITY/COUNTY/JUDICIAL JURISDICTION Ventura County/ Ventura Superior Court
"X" APPLICABLE [x] Narrative [x] Arrest Report [] Supplemental [] Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) [x] Commercial Fishing [] Hunting [] Inland Pollution [] Incident Report [x] Recreational Fishing [] Trapping [] Marine Pollution [] Other
Location/Subject/Incident Name Channel Islands Harbor/ James/ T-14 29.91(b) and T-14 190(c)		Arresting/Case Officer J. Coombs #685 Citation Number AD1851442

1 On 3/1/13 at approximately 2300 hours, I (Warden J. Coombs #685) was in uniform on foot patrol at the Channel
2 Islands Harbor launch ramp. On that date and approximate time, I saw a subject later identified as Adam James
3 [REDACTED] drive his vessel ([REDACTED] TM; 1995, 18 ft. Achilles rigid haul inflatable) from the harbor's
4 eastern channel to the Channel Islands Harbor launch ramp docks.
5
6 Once James docked his vessel at the launch ramp docks, I walked to James location. I contacted James and
7 identified myself. I asked James if he was returning from a fishing trip. James said yes and further stated he
8 was returning from a lobster fishing trip. While talking to James, I saw commercial fishing numbers FG
9 [REDACTED] displayed on the starboard side of his vessel indicating the vessel is involved in a commercial fishing
10 fishery.
11
12 I asked James if he was a commercial fisherman. James said yes. I asked James what his fishery was. James
13 explained he runs a commercial passenger fishing vessel (CPFV) charter for lobster divers. I asked James if
14 he used this vessel as the vessel for the CPFV fishing trips. James said yes. I asked James if he was returning
15 from a sport or a commercial fishing trip. James said he was returning from a sport fishing trip.
16
17 I asked James if he had any lobsters or fish onboard his vessel. James said yes and further stated he caught one
18 lobster. I asked James if I may inspect his lobster. James said yes and handed me his lobster which was located
19 inside his game bag found onboard his vessel. After I received consent and per my inspection authority under
20 FGC 1006, I inspected and measured his lobster where I determined the lobster to be of legal size.
21
22 I asked James if he had a lobster report card. James said yes and voluntarily handed me his lobster report card (D-
23 0006629410-8). I inspected James' report card and determined it to not be filled out correctly as required by law.
24 James' report card did not have any of his fishing activity recorded for 3/1/13.
25
26 The following information is listed as instruction for filling out the lobster report card on the fisherman's
27 individual lobster report card: Per T-14 29.91(b) the law requires fisherman prior to beginning fishing activity to
28 record the month, day, gear code, and closest location code. Per T-14 29.91(c) once the fisherman has concluded
29 fishing in a certain location, the fisherman is required to record how many lobsters were retained from that
30 location. James had not recorded any of the above information for his fishing activity on 3/1/13 and was in
31 violation of T-14 29.91(b) and T-14 29.91(c).
32
33 I asked James if he ran any CPFV lobster trips recently. James said yes and voluntarily handed me his CPFV
34 license and vessel registration ([REDACTED]) I asked James if he had his CPFV log book onboard his vessel.

Preparers Name and Badge Number J. Coombs #685	Date 3-7-13	Reviewers Name	Date
---	----------------	----------------	------

NARRATIVE/SUPPLEMENTAL

ENF 6a p.2 (1/2013)

Region # 5

Page

DATE OF INCIDENT/OCCURRENCE 3/1/13	TIME (2400) 2300	CITY/COUNTY/JUDICIAL JURISDICTION Ventura County/ Ventura Superior Court
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input checked="" type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Channel Islands Harbor/ James/ T-14 29.91(b) and T-14 190(c)		Arresting/Case Officer J. Coombs #685
		Citation Number AD1851442

1 James said yes and voluntarily handed me his CPFV log books. Per my authority under FGC 2012, I inspected
2 James' CPFV logs and determined several of his logs to be incomplete or not filled out at all. I inspected the
3 following logs.
4
5 Log S756851 documented the vessel name (The Goby), the date Friday, 12/20/12, the departure time of 2000
6 hours, the trip was a single day trip, the port of landing was Marina Del Rey, the number of fishers which was
7 five, and the type of fishers which were divers. None of the fish caught, released or lost to sea lions was recorded.
8 Neither was the trip return time, hours and minutes fished, block where most fish were caught, depth, target
9 species, bird interaction, vessel identification number and port code were recorded. This log was not submitted to
10 the California Department of Fish and Wildlife as required by law (T-14 190(c)) by 1/10/13.
11
12 Log S756852 documented the vessel name (The Goby), the date Saturday, 01/05/13 (verbally corrected from
13 2012 to 2013 by James), the departure time of 1100 hours, the trip was a single day trip, the vessel identification
14 number, the type of fishers which were divers, and the target species was Lingcod. None of the fish caught,
15 released or lost to sea lions was recorded. Neither was the number of fishers, trip return time, hours and minutes
16 fished, block where most fish were caught, depth, sea surface temperature, and port code recorded. This log was
17 not submitted to the California Department of Fish and Wildlife as required by law (T-14 190(c)) by 2/10/13.
18
19 Log S756853 documented the proper information except for the following: the vessel identification number, port
20 of landing, port code, and target species. This log was not submitted to the California Department of Fish and
21 Wildlife as required by law (T-14 190(c)) by 2/10/13.
22
23 Log S756854 documented the vessel identification number, the port code, the departure time of 0800 hours, the
24 trip was a single day trip, the target species, fishing method, the fishers were divers, and bait used. The following
25 information was not recorded: the name of the vessel, the port of landing, the date of the trip, trip return time, the
26 number of fishers, hours and minutes fished, the block where most fish were caught, depth, and sea surface
27 temperature. In addition, none of the fish caught, released or lost to sea lions was recorded.
28
29 I asked James what was the date of this CPFV trip represented on log S756853. James said he wasn't sure, but
30 based on the next recorded log he assumed it was some time in the beginning of February. Based on James'
31 statement on the assumed date of this trip, the log was not yet required to be submitted to the department.
32
33 Log S756855 was filled out and documented correctly and was not yet required to be submitted to the
34 department.

Preparers Name and Badge Number J. Coombs #685	Date 3-7-13	Reviewers Name	Date
---	----------------	----------------	------

NARRATIVE/SUPPLEMENTAL

ENF 6a p.2 (1/2013)

Region # 5

Page

DATE OF INCIDENT/OCCURRENCE 3/1/13	TIME (2400) 2300	CITY/COUNTY/JUDICIAL JURISDICTION Ventura County/ Ventura Superior Court
"X" APPLICABLE [x] Narrative [x] Arrest Report [] Supplemental [] Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) [x] Commercial Fishing [] Hunting [] Inland Pollution [] Incident Report [x] Recreational Fishing [] Trapping [] Marine Pollution [] Other
Location/Subject/Incident Name Channel Islands Harbor/ James/ T-14 29.91(b) and T-14 190(c)		Arresting/Case Officer J. Coombs #685 Citation Number AD1851442

1 I asked James why he did not completely fill out several of his logs or submit them to the department in the
2 manner as required by the department. James said he did not know. I asked James if he knew he needed to fill
3 out his log book after the completion of each trip and submit each log by the tenth day of the following
4 month. James said yes and further stated the instructions for filling out his logs were on the inside of his log
5 book cover. James also stated he had been warned for this same violation before by Warden Budish.
6
7 I seized James' incomplete and un-submitted logs and closed his log book. After I closed the log book, I
8 observed a notation in the upper right corner stating Warden Budish warned James for a log book violation. I
9 contacted Warden Budish by telephone to inquire further about the issued warning.
10
11 During the course of our conversation, Warden Budish said she had several prior contacts with Adam James.
12 On 12/9/12, Warden Budish said she cited Adam James for illegally operating a charter business without first
13 procuring a CPFV license, and for failing to procure a logbook to record his operation. She also issued him a
14 warning for not completing his lobster report card immediately and he had both fish, scallops, and one lobster
15 on this occasion.
16
17 Warden Budish further stated on 12/12/ 2012 (approximately or during that same week), James came into the
18 Los Alamitos office, with his dad, to purchase his CPFV license. She happened to be in the office at this
19 time, and went over all the regulations he needed to know for a CPFV operation; which licenses he did and
20 did not need; how to properly ID his vessel with F&G numbers. She emphatically told him he needed to
21 complete his log book at the end of his fishing trip, or before he took his boat out of the water. She further
22 showed him where the instructions were printed for completing his logbook, on the inside cover of the CPFV
23 logbook, in case he forgot. She also showed him what information needed to be filled out prior to fishing
24 and provided him with her email to contact her with any questions.
25
26 On 1/26/13, Warden Budish contacted James (again) at the Marina Del Rey launch ramp. This time he did not
27 complete his logbook prior to or after his CPFV charter, he did not have his F&G numbers displayed, and he also
28 did not complete his lobster report card before or after taking lobster. She warned him on the logbook and F&G
29 numbers, and wrote the logbook warning, on the logbook, so the next Warden would know. She issued him a
30 citation for the report card violation.
31
32 I asked Warden Budish to email me her reports from the citations she issued to Adam James. Warden Budish
33 submitted her reports (see attachments).
34

Preparers Name and Badge Number J. Coombs #685	Date 3-7-13	Reviewers Name	Date
---	----------------	----------------	------

NARRATIVE/SUPPLEMENTAL

ENF 6a p.2 (1/2013)

Region # 5

Page

DATE OF INCIDENT/OCCURRENCE 3/1/13	TIME (2400) 2300	CITY/COUNTY/JUDICIAL JURISDICTION Ventura County/ Ventura Superior Court
"X" APPLICABLE [x] Narrative [x] Arrest Report [] Supplemental [] Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) [x] Commercial Fishing [] Hunting [] Inland Pollution [] Incident Report [x] Recreational Fishing [] Trapping [] Marine Pollution [] Other
Location/Subject/Incident Name Channel Islands Harbor/ James/ T-14 29.91(b) and T-14 190(c)		Arresting/Case Officer J. Coombs #685
		Citation Number AD1851442

1 Based on evidence at the scene, Warden Budish's statements, the suspect statements and his history with the
2 Department of Fish and Wildlife, I issued Adam James a citation (AD1851442) for failure to record his lobster
3 fishing activity on his lobster report card as required by law (T-14 29.91(b)) and for failure to submit his CPFV
4 logs to the department by the tenth of the following month (T-14 190(c)). I photographed the evidence at the
5 scene and released Adam James on his written promise to appear.

6
7 **Evidence seized, photographed, and returned:**

- 8 1) One CA Spiny Lobster – returned
9 2) Adam James' sport fishing license [REDACTED] – returned
10 3) Adam James CPFV license and vessel registration ([REDACTED]) – returned
11 4) Adam James CPFV logs [REDACTED] seized and submitted to the department
12

13 **Conclusion:**

14 On behalf of the people of the State of California, property owner of California's wildlife, the California
15 Department of Fish & Wildlife, trustee for the management and protection of California's wildlife, submits the
16 above investigation report and evidence to the Ventura County District Attorney's Office for review and
17 appropriate action.
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34

Preparers Name and Badge Number J. Coombs #685	Date 3-7-13	Reviewers Name	Date
---	----------------	----------------	------

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE
NARRATIVE/SUPPLEMENTAL

ENF 6a p.2 (1/2013)

Region # 5

Page

DATE OF INCIDENT/OCCURRENCE 3/1/13	TIME (2400) 2300	CITY/COUNTY/JUDICIAL JURISDICTION Ventura County/ Ventura Superior Court
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input checked="" type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Channel Islands Harbor/ James/ T-14 29.91(b) and T-14 190(c)		Arresting/Case Officer J. Coombs #685 Citation Number AD1851442

1

An example of the inside of a CPFV log book



SKIPPER'S LOG BOOK

ATTENTION

California laws and regulations state that the owner and license holder of a commercial passenger fishing vessel shall keep and submit a complete and accurate record of fishing activities on catch logs provided by the Department of Fish and Game. Catch logs shall be filled out before the end of each fishing trip, and original copies sent to the Department in postpaid envelopes provided with the catch logs. If no fishing is done during a month, the "I Did Not Fish During the Month of" block on the back of the postpaid envelope must be filled out and sent in. The logs or record of no fishing activity shall be forwarded to the Department on or before the 10th day of each month following the month to which the catch logs or record of no fishing pertain. (California Code of Regulations, Title 14, Section 190)



MARINE SPORT FISHING SOUTHERN CALIFORNIA

NOTICE

1. Commercial Passenger Fishing Vessel catch information is collected by the California Department of Fish and Game pursuant to Fish and Game Code Section 7923 and CAC, Title 14 Section 190.4.
2. The maximum punishment for failure to comply with the above code sections is a fine of \$500 or six months in county jail or both (Fish and Game Code Section 12002).
3. Commercial Passenger Fishing Vessel catch information is used for resource analysis, resource management, and is disseminated monthly and annually in a summarized form.
4. Commercial Passenger Fishing Vessel catch information is held in confidence in accordance with Fish and Game Code Section 8022.
5. Every individual has the right of access to his or her own information (Information Practices Act 1977 California Civil Code).
6. The information collected, processed, and filed pursuant to the above Fish and Game Code and CAC, Title 14 Sections is under the supervision of the Marine Fisheries Statistical Unit, telephone (408) 343-7130, located at:

CALIFORNIA DEPARTMENT OF FISH AND GAME
MARINE FISHERIES STATISTICAL UNIT
4668 Lampson Avenue, Suite C
Los Alamitos, California 90720

Rev. 7/02

2
3

Preparers Name and Badge Number J. Coombs #685	Date 3-7-13	Reviewers Name	Date
---	----------------	----------------	------

NARRATIVE/SUPPLEMENTAL

ENF 6a p.2 (1/2013)

Region # 5

Page

DATE OF INCIDENT/OCCURRENCE 3/1/13	TIME (2400) 2300	CITY/COUNTY/JUDICIAL JURISDICTION Ventura County/ Ventura Superior Court
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input checked="" type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Channel Islands Harbor/ James/ T-14 29.91(b) and T-14 190(c)		Arresting/Case Officer J. Coombs #685 Citation Number AD1851442

IMPORTANT INSTRUCTIONS

1. This log is to be completed on each trip by the operator each day of the trip. It is to be kept on the boat at all times.
2. Please print clearly. Do not use ink that is too light or too dark. **CAPITAL LETTERS ONLY.** Please use pencil marks to correct errors. Do not use ink to correct errors. entirely write in the boxes of the log. Do not use black ink.
3. Provide departure times and the total number of crew members (including the operator) on the trip. The departure time is the time when the log is started and the vessel is signed on.
4. Check the appropriate boxes for Target Species, Fishing Method, Trip Type, and Grid Interactions. Grid interactions consist of birds coming aboard, over a net, or the hooked fish.
5. Departure and return times should be in military time (e.g. 0620 hours = 2:40 p.m.). The time of the trip should be the day you departed the dock.
6. On multi-day trips, fill out a log for each day of the trip. Enter the appropriate date on each log. Record departure time only on the day of departure and enter a 2500 in the return time box unless an unscheduled return is made the same day. On the day of return, record return time only and enter a 2500 in the departure time box. Between the day of departure and the day of return, enter a 2500 in both the departure and return time boxes. Enter hour and minutes fished only on those days that fishing occurs.
7. Record the total number of fishers who will fish on the trip. This shall include passengers, operators, crew, and non-paying guests who will fish.
8. Record the Origin Block number, Depth in feet, and Sea Surface Temperature in degrees Fahrenheit (°F) where most of the fish are caught or if no catch is made, where most of the fishing takes place.
9. Record the total number of each species of fish taken, thrown back or lost to sea both on each log item, regardless of who landed or released the fish.
10. Print the names and number of any miscellaneous species kept, thrown back or lost to sea from.
11. Upon completion of the trip, the total number of fish caught and retained by the operator and crew must be recorded in the second space provided following the operator's signature. The crew do not need to be identified by species; all that is needed is the total number of fish taken by operator and crew.

THANK YOU FOR YOUR COOPERATION

PORT CODES
Southern California

Agate	700	Marina del Rey	700	San Juan Capistrano	700
Alhambra	700	Malibu	700	San Juan Capistrano	700
Alhambra	700	Malibu	700	San Juan Capistrano	700
Alhambra	700	Malibu	700	San Juan Capistrano	700
Alhambra	700	Malibu	700	San Juan Capistrano	700
Alhambra	700	Malibu	700	San Juan Capistrano	700
Alhambra	700	Malibu	700	San Juan Capistrano	700
Alhambra	700	Malibu	700	San Juan Capistrano	700
Alhambra	700	Malibu	700	San Juan Capistrano	700
Alhambra	700	Malibu	700	San Juan Capistrano	700

Preparer's Name and Badge Number J. Coombs #685	Date 3-7-13	Reviewer's Name	Date
--	----------------	-----------------	------

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE
NARRATIVE/SUPPLEMENTAL

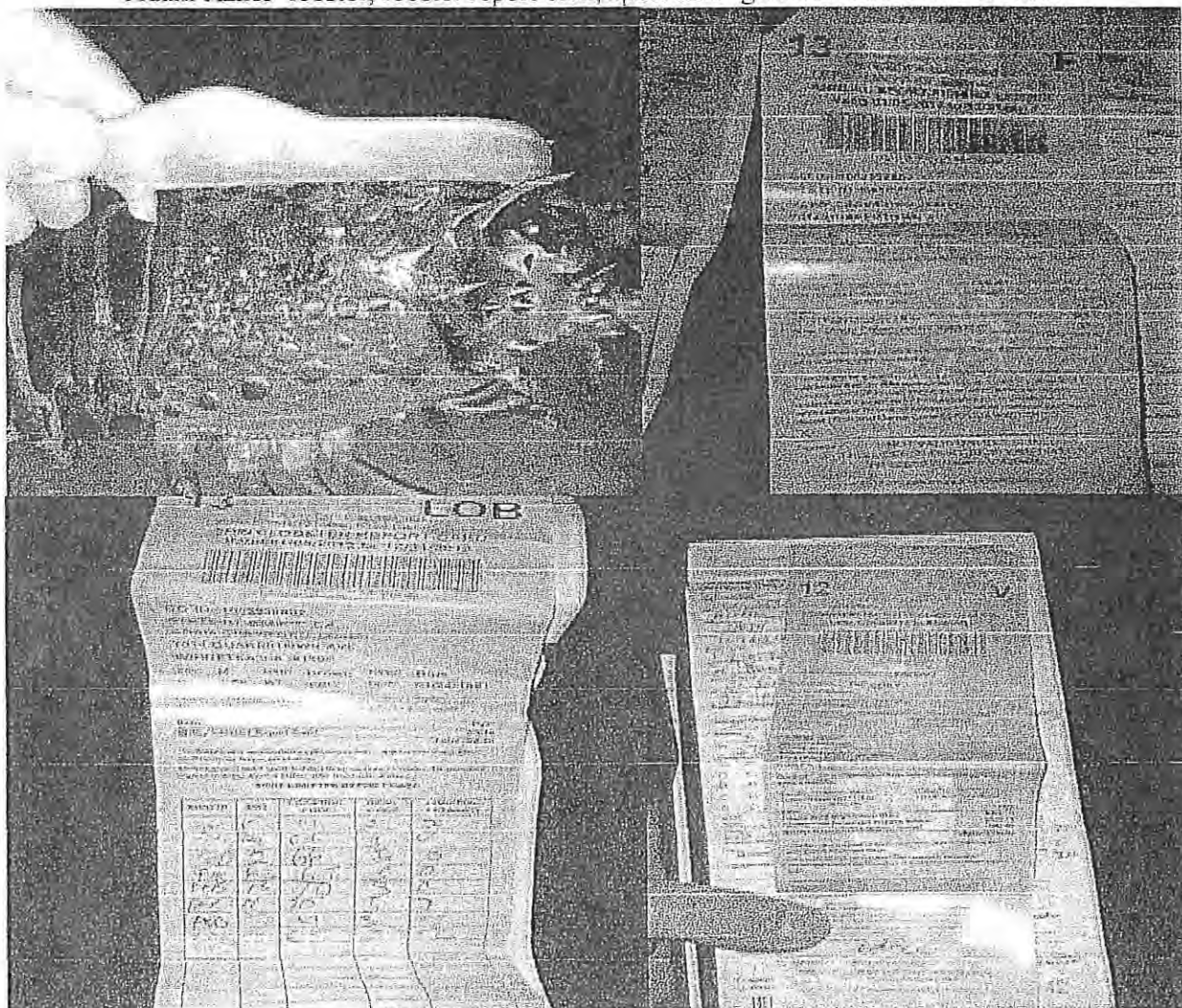
ENF 6a p.2 (1/2013)

Region # 5

Page

DATE OF INCIDENT/OCCURRENCE 3/1/13	TIME (2400) 2300	CITY/COUNTY/JUDICIAL JURISDICTION Ventura County/ Ventura Superior Court
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input checked="" type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Channel Islands Harbor/ James/ T-14 29.91(b) and T-14 190(c)		Arresting/Case Officer J. Coombs #685
		Citation Number AD1851442

1 Adam James' lobster, lobster report card, sport fishing license and CPFV license



Citation# AD1851442 photo (taken by Warden J. Coombs #685)
Channel Islands Harbor, Ventura County

Preparers Name and Badge Number J. Coombs #685	Date 3-7-13	Reviewers Name	Date
---	----------------	----------------	------

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE
NARRATIVE/SUPPLEMENTAL

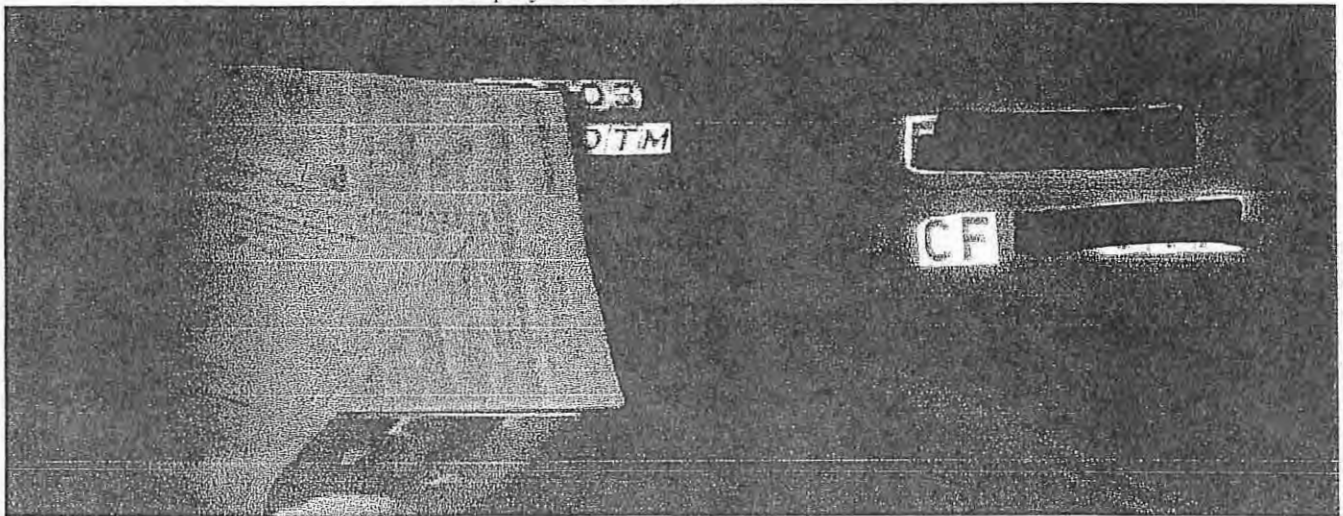
ENF 6a p.2 (1/2013)

Region # 5

Page

DATE OF INCIDENT/OCCURRENCE 3/1/13	TIME (2400) 2300	CITY/COUNTY/JUDICIAL JURISDICTION Ventura County/ Ventura Superior Court	
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input checked="" type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other	
Location/Subject/Incident Name Channel Islands Harbor/ James/ T-14 29.91(b) and T-14 190(c)		Arresting/Case Officer J. Coombs #685	Citation Number AD1851442

1 Adam James' log book cover with Warden Budish's warning written on the top right corner and the FG
2 numbers displayed on the starboard side of his vessel



Citation AD1851442 photo (taken by Warden J. Coombs)
Channel Islands Harbor, Ventura County

Preparers Name and Badge Number J. Coombs #685	Date 3-7-13	Reviewers Name	Date
---	----------------	----------------	------

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE
NARRATIVE/SUPPLEMENTAL
ENF 6a p.2 (1/2013)

Region # 5 Page

DATE OF INCIDENT/OCCURRENCE 3/1/13	TIME (2400) 2300	CITY/COUNTY/JUDICIAL JURISDICTION Ventura County/ Ventura Superior Court
"X" APPLICABLE <input checked="" type="checkbox"/> Narrative <input checked="" type="checkbox"/> Arrest Report <input type="checkbox"/> Supplemental <input type="checkbox"/> Formal Complaint		TYPE OF REPORT ("X" APPLICABLE) <input checked="" type="checkbox"/> Commercial Fishing <input type="checkbox"/> Hunting <input type="checkbox"/> Inland Pollution <input type="checkbox"/> Incident Report <input checked="" type="checkbox"/> Recreational Fishing <input type="checkbox"/> Trapping <input type="checkbox"/> Marine Pollution <input type="checkbox"/> Other
Location/Subject/Incident Name Channel Islands Harbor/ James/ T-14 29.91(b) and T-14 190(c)		Arresting/Case Officer J. Coombs #685
		Citation Number AD1851442

Adam James' seized logs (S756851-S756855)

1 SOUTHERN CALIFORNIA INCIDENT NAME: <i>James</i> INCIDENT DATE: <i>3/1/13</i> INCIDENT TIME: <i>2300</i> INCIDENT LOCATION: <i>Channel Islands Harbor</i> INCIDENT TYPE: <i>Commercial Fishing</i> INCIDENT STATUS: <i>Completed</i> INCIDENT OFFICER: <i>J. Coombs</i> INCIDENT CASE NUMBER: <i>S756851</i> INCIDENT DESCRIPTION: <i>Seized logs from Adam James' boat.</i> INCIDENT RESULTS: <i>Logs seized and evidence collected.</i> INCIDENT COMMENTS: <i>James was interviewed and logs were documented.</i>	SOUTHERN CALIFORNIA INCIDENT NAME: <i>James</i> INCIDENT DATE: <i>3/1/13</i> INCIDENT TIME: <i>2300</i> INCIDENT LOCATION: <i>Channel Islands Harbor</i> INCIDENT TYPE: <i>Commercial Fishing</i> INCIDENT STATUS: <i>Completed</i> INCIDENT OFFICER: <i>J. Coombs</i> INCIDENT CASE NUMBER: <i>S756852</i> INCIDENT DESCRIPTION: <i>Seized logs from Adam James' boat.</i> INCIDENT RESULTS: <i>Logs seized and evidence collected.</i> INCIDENT COMMENTS: <i>James was interviewed and logs were documented.</i>
2 SOUTHERN CALIFORNIA INCIDENT NAME: <i>James</i> INCIDENT DATE: <i>3/1/13</i> INCIDENT TIME: <i>2300</i> INCIDENT LOCATION: <i>Channel Islands Harbor</i> INCIDENT TYPE: <i>Commercial Fishing</i> INCIDENT STATUS: <i>Completed</i> INCIDENT OFFICER: <i>J. Coombs</i> INCIDENT CASE NUMBER: <i>S756853</i> INCIDENT DESCRIPTION: <i>Seized logs from Adam James' boat.</i> INCIDENT RESULTS: <i>Logs seized and evidence collected.</i> INCIDENT COMMENTS: <i>James was interviewed and logs were documented.</i>	SOUTHERN CALIFORNIA INCIDENT NAME: <i>James</i> INCIDENT DATE: <i>3/1/13</i> INCIDENT TIME: <i>2300</i> INCIDENT LOCATION: <i>Channel Islands Harbor</i> INCIDENT TYPE: <i>Commercial Fishing</i> INCIDENT STATUS: <i>Completed</i> INCIDENT OFFICER: <i>J. Coombs</i> INCIDENT CASE NUMBER: <i>S756854</i> INCIDENT DESCRIPTION: <i>Seized logs from Adam James' boat.</i> INCIDENT RESULTS: <i>Logs seized and evidence collected.</i> INCIDENT COMMENTS: <i>James was interviewed and logs were documented.</i>
3 SOUTHERN CALIFORNIA INCIDENT NAME: <i>James</i> INCIDENT DATE: <i>3/1/13</i> INCIDENT TIME: <i>2300</i> INCIDENT LOCATION: <i>Channel Islands Harbor</i> INCIDENT TYPE: <i>Commercial Fishing</i> INCIDENT STATUS: <i>Completed</i> INCIDENT OFFICER: <i>J. Coombs</i> INCIDENT CASE NUMBER: <i>S756855</i> INCIDENT DESCRIPTION: <i>Seized logs from Adam James' boat.</i> INCIDENT RESULTS: <i>Logs seized and evidence collected.</i> INCIDENT COMMENTS: <i>James was interviewed and logs were documented.</i>	

Preparers Name and Badge Number
J. Coombs #685

Date
3-7-13

Reviewers Name

Date

NARRATIVE/SUPPLEMENTAL

Page

[illegible]

Citation AD1851442 (scanned copies by Warden J. Coombs)

Preparers Name and Badge Number J. Coombs #685	Date 3-7-13	Reviewers Name	Date
---	----------------	----------------	------

BEFORE THE FISH AND GAME COMMISSION
STATE OF CALIFORNIA

In the Matter of the Accusation Against)

Adam Crawford James,)

Respondent.)

Case No. 17ALJ03-FGC

DECISION

This matter was initiated by the Department of Fish and Wildlife filing an Accusation with the Commission on January 31, 2017. The Department served that Accusation against Respondent on February 2, 2017.

This Decision is entered without a formal hearing because Respondent has waived his right to a hearing. Respondent did not submit a Notice of Defense requesting a hearing and so has waived his right to a hearing, and the Commission may revoke his Commercial Privileges based upon evidence submitted by the Department. Subsequent to the time for Respondent to file a Notice of Defense, the Department filed with the Commission, a letter with materials supporting the Accusation.

Based on the record before the Commission, it finds that the Respondent did violate the Fish and Game Code, the terms of permit or other entitlements, or the regulations adopted pursuant thereto justifying revocation of his fishing privileges.

Pursuant to Fish and Game Code, section 7857, subdivision (b)(2) and section 8032.5, subdivision (c), and Government Code, section 11520, subdivision (a), the Fish and Game

1 Commission hereby permanently revokes Adam James' Commercial Fisherman's Retail License
2 and Commercial Fishing License privileges.

3
4 IT IS SO ORDERED this _____ day of April 2017.

5
6 _____
7 Eric Sklar, President
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

BEFORE THE
FISH AND GAME COMMISSION
STATE OF CALIFORNIA

In the Matter of the Statement of Issues
Against:

GREGORY AMBIEL,

Respondent.

Case No. 16ALJ03-FGC

OAH No. 2016120944

PROPOSED DECISION

Administrative Law Judge Karen Reichmann, State of California, Office of Administrative Hearings, heard this matter on January 23, 2017, in Oakland, California.

Jeremy Valverde, Staff Counsel, represented the Department of Fish and Wildlife, State of California.

Respondent Gregory Ambiel was present at the hearing and represented himself.

The matter was submitted for decision on January 23, 2017.

FACTUAL FINDINGS

1. On April 1, 2016, respondent Gregory Ambiel submitted an application to the Department of Wildlife (Department) to transfer his salmon vessel permit from the F/V *Tasu* to the F/V *Maverick*. The application was received by the Department on April 18. Respondent noted on the application that the F/V *Tasu* was accidentally lost, stolen, or destroyed on October 13, 2011.

2. On May 2, 2016, the Department sent respondent a letter notifying him that the Department denied to consider his application. On May 23, 2016, respondent sent a letter requesting an appeal. In the letter, respondent wrote that due to financial hardship after the F/V *Tasu* was destroyed, he only had funds to renew the license. Respondent wrote, "I am requesting that the Department review the request for transfer once more or return my license fees for the last 5 (five) years."

3. Respondent's vessel, the F/V *Tasu* was destroyed when it ran aground near Stinson Beach on October 13, 2011. Respondent did not file his application to transfer his salmon vessel permit within one year. Prior to submitting his application, respondent did not make a request for an extension of time to complete the transfer, as is permitted by Fish and Game Code section 8239.1, subdivision (b). Respondent did not immediately notify the Department that the vessel had been destroyed, as is required by Fish and Game Code section 7881, subdivision (d).

4. Respondent explained that after the F/V *Tasu* was destroyed, the Department was on the scene and aware of what had happened. He added that he had communications with Department staff over the years and that they were aware that the vessel had been destroyed. Respondent suffered financially as a result of the loss of the F/V *Tasu* and did not have the funds available to replace the vessel until 2016. He paid his salmon vessel permit fees each year with the hope that he would eventually be able to replace the vessel. He noted that when he paid the salmon vessel permit fees, staff would look up his records before processing the payment. He does not think that it is fair that the fees were collected if the Department would later refuse to allow him to transfer the permit to another vessel. Respondent did not know the amount of fees that he has paid for the salmon vessel permit, but estimated that it was \$1,000 to \$2,000 each year. He thinks that the Department should have advised him to stop paying the fees if the time to file a transfer application had passed.

Respondent noted that there are salmon vessel permit holders who renew their permits for years without ever going out fishing and suggested that that situation is not significantly different from his situation.

5. In the May 2, 2016, letter denying consideration of the application, the Department noted that, "On April 2, 2013, the Department received a copy of a letter from Ruth Johnson, Documentation Officer, USCG, dated January 9, 2012, to you, stating that the National Vessel Documentation Center has found that the F/V *Tasu* is shown as being removed from service on November 17, 2011." The letter further stated that although the Department had received information from other sources, respondent had never provided documents to the Department to substantiate the loss of the F/V *Tasu*.

6. Respondent did not dispute the fact that he did not notify the Department about the loss of the F/V *Tasu* and that he did not file a request to transfer his salmon vessel permit within one year after the vessel was destroyed. Respondent explained that he thought he had "jumped through the hoops." Respondent added that at some time, he received a form from the Department advising him that he had to act by April 2016, but he did not have this form with him at the hearing.

LEGAL CONCLUSIONS

1. Fish and Game Code section 7881, subdivision (d), provides that the owner of a registered vessel that is lost or destroyed shall immediately report the loss or destruction of the vessel to the Department. Fish and Game Code section 8239.1, subdivision (a), provides that “unless otherwise prohibited, the department shall accept a transfer application within one year after the date that a permitted vessel was lost, stolen, or destroyed.” Subdivision (b) provides that the owner of a permit “may request an extension of time to complete a transfer under subdivision (a) if the application for extension is submitted before the end of the time to submit an application under subdivision (a), or before the end of any previous extensions granted under this subdivision, whichever date is later.” Upon showings of good cause, the department may grant six-month extensions, not to exceed a total time period of five years after the date the vessel was lost, stolen, or destroyed. (Fish & G. Code, § 8239.1, subd. (b)(2).) The applicant must establish that the vessel was lost, stolen, or destroyed by providing “a copy of the report filed with the United States Coast Guard or any other law enforcement agency or fire department investigating the loss.”

2. The uncontroverted evidence established that respondent failed to submit a transfer application or request for an extension of time within one year after the F/V *Tasu* was destroyed. Although the Department may have been aware from other sources that the vessel had been destroyed, respondent nonetheless had an obligation both to notify the Department that the vessel had been destroyed and to file a timely transfer application.

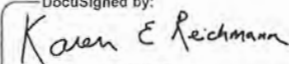
3. Respondent failed to apply to transfer his salmon vessel permit within one year after the F/V *Tasu* was destroyed, and did not request an extension of time for the filing of his application. Accordingly, the Department correctly declined to grant the application, pursuant to Fish and Game Code section 8239.1.

4. There is no legal authority for directing the Department to reimburse respondent for the permit fees already paid.

ORDER

The application of respondent Gregory Ambiel for transfer of his salmon vessel permit to the F/V *Maverick* is denied.

DATED: February 9, 2017

DocuSigned by:

213262228BA640F

KAREN REICHMANN
Administrative Law Judge
Office of Administrative Hearings

3-27-17

DEAR COMMISSIONERS,

IN REGARDS TO THE SALMON PERMIT
TRANSFER FROM THE F/V. "TASU" TO THE
F/V MAVERICK;

IF GREG AMBIEL HADNT HAD
THE MISFORTUNE OF LOSING THE V/F TASU
IN 2011, THE PERMIT WOULD BE ALIVE
AND FISHING TODAY. MR. AMBIEL WAS
NEVER TOLD TO ASK FOR AN EXTENSION.
SEEING AS HE PAID THE PERMIT FEES FOR
5 YEARS THE PERMIT SHOULD BE ALIVE,

THE NO. OF VESSELS THAT
LANDED SALMON IN CA, IN 2016 WAS 178.
IN 1980 THERE WAS 7500 CA. SALMON PERMITS,

IF THE TRANSFER IS DENIED, MR
AMBIEL WILL LOSE THE \$5000.00 THAT I WOULD
PAY HIM FOR THE PERMIT, PLUS THE PERMIT
FEES THAT HE PAID.

PLEASE DONT DENY THE TRANSFER
ON A TECHNICALITY, I HAVE 1 YEAR AND
500.00 INVESTED IN THIS.

SINCERLY HENRY OUTTEN
OWNER F/V MAVERICK

In the Matter of the Statement of Issues)	Case No. 16ALJ03-FGC
Against:)	
)	OAH No. 2016120944
GREGORY AMBIEL,)	
)	
)	
Respondent.)	
)	
)	
)	

The Commission received the following document at the April 26-27, 2017 regular meeting:

- The Commission includes this document as an addition to the administrative record.
- Notwithstanding the above addition to the administrative record, the attached Proposed Decision of the Administrative Law Judge is hereby adopted by the Fish & Game Commission as its Decision in the above- entitled matter.

Eric Sklar, President

**STATE OF CALIFORNIA
FISH AND GAME COMMISSION
and
DEPARTMENT OF FISH AND WILDLIFE
JOINT MEMORANDUM**

DATE: January 26, 2017

TO: President Sklar and Members
Fish and Game Commission

FROM: Mike Yaun (Legal Counsel, Commission)
Erin Chappell (Wildlife Advisor, Commission)
Kevin Shaffer (Chief, Fisheries Branch, Department)
Karen Mitchell (Senior Environmental Scientist, Fisheries Branch, Department)

SUBJECT: Importation of live American bullfrogs and non-native turtles

Commission and California Department of Fish and Wildlife (Department) staff drafted this memo to inform the Commission of regulatory options to address impacts on California's native wildlife resulting from the importation of American bullfrogs and non-native turtles.

Background

Approximately two million non-native American bullfrogs and 300,000 non-native turtles (mostly red-eared sliders and softshell turtles) are imported into California annually for the food and pet trade. Even though the species are not imported into California with the intention of being released, these species have established wild populations in California's wetlands and waterways. For instance, the American bullfrog (*Rana catesbeiana*) was introduced into California in the late 19th century and has since established wild populations throughout the state which threaten populations of native amphibians, fish, and wildlife by direct predation and competition for resources and habitat. Bullfrogs are gape-limited generalist predators that will consume anything they can catch and fit in their mouths.

The California red-legged frog (*Rana draytonii*) is an example of a native amphibian that has been severely impacted by the introduction and invasion of American bullfrog populations into California's waterways. Similarly, non-native turtles, in particular red-eared sliders (*Trachemys scripta elegans*) and softshell turtles (*Apalone* spp.), have also established wild populations in California and can out-compete native western pond turtles (*Emys marmorata*) for basking space and food. The western pond turtle is the only freshwater turtle species native to California. It is listed as a Species of Special Concern by the Department and is currently under review for listing under the federal Endangered Species Act. Western pond turtles in California evolved without any other turtles. As a result, interspecific competition and

disease may put them at greater risk from introduced turtles than other areas where sliders and softshell turtles are released. Studies in Europe that investigated the impact of sliders on European pond turtles (related to western pond turtles) found that sliders did out-compete pond turtles for basking spots and reduced their growth. Western pond turtles are documented to aggressively defend their basking space, and less time basking can result in lower metabolic rate, which can affect growth, reproduction, and survival in extreme cases.

Importation of these species also serves as a vector for the introduction of novel diseases into California. One such introduction is chytrid fungus (*Batrachochytrium dendrobatidis*), a waterborne fungus that leads to a potentially fatal amphibian disease Chytridiomycosis. Chytrid fungus has spread from ports of entry across California and into high elevation waters of the Sierra Nevada Mountains, where it has significantly impacted two species of native mountain yellow-legged frogs (*Rana sierrae* and *Rana muscosa*) that are listed under both the California and federal Endangered Species Acts. In the State of Washington, where western pond turtles are listed as endangered under the federal Endangered Species Act, one population declined by a third due to an upper respiratory tract disease that was suspected to have been introduced by sliders.

A ban on the importation of American bullfrogs would bring California in line with the States of Oregon and Washington, which do not allow the importation of American bullfrogs. Also, the State of Oregon does not allow the importation of *Apalone* (softshells) and *Trachemys* (slider) species of non-native turtles.

State regulations must comply with the protections for interstate commerce contained in the United States Constitution. When a state's regulation prohibits importation of an item, but allows continued commercial activity of an item, that regulation disproportionately impacts interstate commerce. To comply with the constitutional protections, such a regulation must be for a legitimate state purpose and the purpose cannot be satisfied by a non-discriminatory method. The U.S. Supreme Court has upheld state regulation prohibiting live importation of species to protect native fish and wildlife species from the consequences of the importation when the state could show harm that could not otherwise be avoided.

Currently the Department is issuing Importation Permits for American bullfrogs and non-native turtles in an effort to provide a level of control to protect the native resources of the state. The conditions for these permits are:

1. Long-term importation permits valid for one month (turtles)
2. Standard importation permits valid for one shipment (bullfrogs)
3. No stocking in waters of the state
4. Operators must retain copies of sales information for one year
5. All products must be killed before leaving the store
6. Operators must keep a distribution report

Recent Commission Actions

There is a long history related to this subject, and the Commission has received considerable testimony on this issue. Periodically since 1998, members of the public have spoken at Commission meetings in opposition to sales of frogs and turtles in the live animal market. On March 3, 2010, the Commission directed the Department to stop issuing importation permits for non-native frogs and turtles pursuant to Section 236, Title 14, CCR, citing potential threats to the state's natural resources as the result of live escapes or releases. The Commission then adopted a formal policy statement on the matter at its April 10, 2010 meeting. In September 2010, the Commission directed the Department to prepare an Initial Statement of Reasons that would ban the importation of live bullfrogs and turtles. At the February 2011 meeting, the Commission rescinded their direction to prepare the Initial Statement of Reasons but approved Department amendments to the permits. These amendments included shortening the permit period from annual to one month, including reporting and documentation provisions, and requiring that animals be killed prior to leaving the stores.

Based on public testimony received at Commission meetings over the last 20 years, there are diverse opinions on the importation and sale of American bullfrogs and non-native turtles with three primary conflicting interests. One segment of the public is involved in marketing bullfrogs and turtles for human consumption. California's Asian-American and Asian immigrant communities are the largest consumers of American bullfrogs and imported turtles in the state. Banning importation for the live animal food market could impact long-standing cultural practices and have financial impacts on the businesses and individuals that profit from importation and retail sale of these animals if the market declines or collapses. The second segment of the public is opposed to the importation and sale of American bullfrogs and non-native turtles due to potential threats to native amphibians from disease, hybridization, competition, and predation; a portion of this segment is also opposed due to animal welfare concerns. Finally, the third segment of the public is involved in marketing bullfrogs and turtles for the pet industry. Pet industry sales of non-native frogs and turtles are significant in California and occur with minimal disease monitoring or regulatory restrictions.

In February 2015, the Commission and Department revisited the issue again. The Department provided an overview of their report, *Implications of Importing American Bullfrog (*Lithobates catesbeianus* = *Rana catesbeiana*) into California*. The Department determined that American bullfrogs posed a significant risk to the fish and wildlife resources of the state. At the meeting, the Department notified the Commission of its decision to stop the issuance of long-term importation permits and to only issue short-term individual event permits, consistent with Section 236(c)(6)(I) of Title 14, CCR. At the meeting, the Commission directed staff to work with Department staff to identify a list of potential actions the Commission could take to further address the issues identified in the Department's report.

Since 2015, the Commission and the Department have received numerous requests via e-mail, letter, and public comment, to ban the importation of live bullfrogs and non-native turtles due to the potential threats to native amphibians from disease, hybridization, competition, and predation. Two petitions for regulatory change were submitted to the Commission with requests to add American bullfrogs to the list of restricted species (Section 671(c), Title 14, CCR) in 2016. The first petition (#2016-016) submitted by Save the Frogs was rejected during Commission staff review as incomplete. The second petition (#2016-030) was submitted jointly by the Center for Biological Diversity and Save the Frogs in December. This petition was reviewed and accepted by Commission staff and will be received by the Commission at the February 2017 Commission meeting (see Agenda Item 2 - Public Forum).

Options for Restricting Importation

Per Commission direction, Commission and Department staff evaluated four potential options to restrict the importation of live American bullfrogs and non-native turtles. All of these options will require compliance with California Environmental Quality Act (CEQA; Public Resources Code, Section 21000 et seq.) prior to final Commission action.

- *Option 1*

Ban the importation of live American bullfrogs and *Apalone* and *Trachemys* species of non-native turtles into California, except as allowed under Section 236(b)(2). This option would prohibit the importation of American bullfrogs and non-native turtles for the live food market but allow aquaculture facilities to continue to raise bullfrogs and non-native turtles for commercial purposes, including human consumption, and allow for their importation for personal, pet, or hobby purposes without an importation permit.

This option would require amendments to sections 236 and 41.7 Title 14, CCR. Section 236 regulates the importation of live aquatic plants and animals. Section 41.7 regulates the commercial take and use of frogs for human consumption.

- *Option 2*

Ban the importation of live American bullfrogs and *Apalone* and *Trachemys* species of non-native turtles into California with no exceptions. This option would prohibit the live importation of American bullfrogs and *Apalone* and *Trachemys* species of non-native turtles into California for any purpose but would still allow for them to be sold alive.

This option would require amendments to sections 236 and 41.7, Title 14, CCR and Fish and Game Code sections 2271 and 15300. Fish and Game Code Section 2271(b)(2) allows for the importation of live animals for personal, pet industry, or hobby purposes without an importation permit. Fish

and Game Section 15300 permits the importation of aquatic animals for aquaculture purposes. Therefore, this option would require the Legislature to amend these code sections prior to the Commission adopting regulations to implement it.

- *Option 3*

Ban the importation *and sale* of live American bullfrogs and *Apolone* and *Trachemys* species of non-native turtles in the State of California, with no exceptions. This option would affect businesses that import these animals into the state for use by educational and scientific institutions, the pet industry, and those that raise and/or sell bullfrogs and turtles for human consumption.

This option would require amendments to sections 236 and 41.7 Title 14, CCR and Fish and Game Code sections 2271(b)(2), 15300; 6851 and 6852. Fish and Game Code Section 6851 prohibits the taking or possession of frogs for commercial purposes but does not apply to aquaculture. Section 6852 authorizes possession of frogs, pursuant to the Fish and Game Code or regulations adopted by the Commission, by any person in the business of selling frogs. This section applies to the selling of frogs for food and to educational and scientific institutions. In addition to importation, Section 15300 also allows frogs to be obtained from “(a) A holder of a commercial fishing license (b) A registered aquaculturist or (c) The department.” This option would also require the Legislature to amend these sections of Fish and Game Code prior to the Commission adopting regulations to implement it.

- *Option 4*

Add American bullfrog and *Apalone* and *Trachemys* species of non-native turtles to the list of restricted species, making it unlawful to import, transport, or possess them without a permit issued by the Department.

This option would require amendments to sections 671 and 41.7 Title 14, CCR and Fish and Game Code sections 6881, 6883, and 6885. Fish and Game Code sections 6881, 6883, and 6885 apply to the acquisition, use, and possession of frogs for use in frog-jumping contests. They are found in Division 6, Chapter 7, Article 2 of the Fish and Game Code. Section 6881 allows frogs for use in frog-jumping contests to be taken at any time without a license or permit. Section 6883 allows any person to possess any number of live frogs to use in frog-jumping contests. Section 6885 specifies that the Commission has no power to modify the provisions of this article by any order, rule, or regulation. This option would require the Legislature to amend these sections of Fish and Game Code prior to the Commission adopting regulations to implement it.

Staff Recommendation

Based on the Department's finding that American bullfrogs and non-native turtles pose a significant risk to the fish and wildlife resources of the state, staff recommends Option 1, amending sections 236 and 41.7, Title 14, CCR, to prohibit the live importation of American bullfrogs and non-native turtles into California, except for as allowed under Section 236(a)(2). Option 1 would thereby reduce threats to California's native reptile and amphibian populations. Unlike Options 2-4, Option 1 would allow aquaculture facilities to continue to raise bullfrogs and non-native turtles for commercial purposes and allow the importation of live American bullfrogs and non-native turtles for personal, pet, or hobby purposes without an importation permit. However, because Option 1 is consistent with the Commission's current authority under the Fish and Game Code, the Commission would not have to ask the Legislature to amend any provision of the code to implement the option.

Justification for Staff Recommendation

An importation restriction on American bullfrogs and non-native turtles into California would help protect California's native fauna, especially state-listed species including California red-legged frog, western pond turtle, mountain yellow-legged frog, California tiger salamander, and the giant garter snake, from predation, competition, and disease. These stressors result in significant impacts and declines to native California fauna, particularly native amphibians and reptile species. Imported live American bullfrogs and non-native turtles have served as vectors for the introduction of novel wildlife diseases to California. In addition, ecological restoration efforts benefitting California's native amphibians often involve costly efforts to eradicate American bullfrogs. An importation restriction would reduce the potential for continued introduction of American bullfrogs into these restored habitats and benefit taxpayers from the reduction in costly bullfrog eradication programs implemented by federal, state, and local wildlife protection agencies.

An importation restriction may have cultural as well as fiscal impacts. Businesses and individuals that profit from importation and retail sale of American bullfrogs and non-native turtles for the live animal food market will suffer impacts as the market declines or collapses. It is also possible the market will move underground and will necessitate the use of law enforcement resources to maintain a ban. Therefore, additional funds and wildlife officers may be necessary to enforce the new law.

In addition, it was determined that changes to regulations in Title 14, CCR, would require CEQA compliance, potentially incurring significant cost to the Department in staff time or costs to contract with outside consulting services. The Department would lose about \$7,200 annually in permit fees from an importation ban on American bullfrogs and non-native turtles; however, staff time associated with permitting may then be spent on other issues.

IMPORTATION OF LIVE AMERICAN BULLFROGS AND NON-NATIVE TURTLES



**Presented to the
California Fish and Game Commission
by Commission Staff on April 26, 2017**



OVERVIEW

- **Commission authority**
- **Ecological concerns**
- **Additional information on Options 1 and 4**
- **Other potential options**





COMMISSION AUTHORITY

Limited authority to regulate fish or amphibians for commercial purposes

- **Commercial Fisheries**
- **Aquaculture**
- **Importation for human consumption**
- **Scientific/education**
- **Restricted species**



ECOLOGICAL CONCERNS

- Introduction and transmittal of disease
- Direct predation
- Competition for resources



Source: DFW/Margaret Mantor



Source: Gary Ruso



Source: NPS/Isaac Chellman



OPTION 1

Ban the importation except as allowed under Section 236(b)(2).

- **Prohibits importation for live food market**
- **Allows importation for aquaculture, personal, pet, or hobby purposes**
- **Regulations for transportation, possession, and sale remain unchanged**



OPTION 1

Proposed changes

- **Create new subsection to ban importation of live American bullfrogs and non-native turtles for human consumption**
- **Include an exception for aquaculture but require importation from domestic sources**



OPTION 1

Potential Benefits

- **Reduces ecological impacts**
 - **Introduction of new diseases from overseas markets**
 - **Maintains protections to prevent release**
- **Still allows for a commercial market**
- **New or expanded market for local aquaculture producers**



OPTION 1

Potential Impacts

- Possible economic impacts to importers and businesses as market transitions
- Cultural impacts
- Potential for increased take of native species from wild for food
- Increased enforcement costs if market moves underground



OPTION 4

Add to the list of restricted species.

- **Requires DFW permit for aquaculture, exhibiting, breeding, research, and shelter/care purposes**
- **Prohibits importation and sale for human consumption, pet trade, personal/hobby, and educational purposes**
- **With permit exemption, allows for transportation and possession**



OPTION 4

Proposed Changes

- Add new subsection for transportation and possession of American bullfrogs without a permit
- Add new subsection for possession and limited transport (medical care) of non-native turtles by current pet owners or allow without a permit
- Potentially modify permit conditions for non-native turtles owners (qualifications, inspections, fees, etc.)



RESTRICTED SPECIES

Overview

➤ Purpose

Protect public health and safety, agriculture, wildlife, and natural resources

➤ Background

➤ Exemptions

➤ Permits



RESTRICTED SPECIES PERMITS

- **Conditions (Section 671.1, CCR)**
 - **Types of permits, records, health certificates, fees, qualifications, etc.**
- **Humane care and treatment (671.2)**
- **Minimum facility/caging standards (671.3)**
- **Transportation for exhibition (671.4)**
- **Disposition of violations (671.5)**
- **Release into wild (671.6)**
- **Aquaculture and fish (671.7)**
- **Inspections (671.8)**



OPTION 4

Potential Benefits

- **Reduces ecological impacts**
 - **Introduction of new diseases from importation**
 - **Introduction of animals into the wild from intentional and accidental releases**
- **Most protective option**



OPTION 4

Potential Impacts

- **Ecological impacts if pets released**
- **Economic impacts**
 - **Pet trade**
 - **Live food market**
 - **Aquaculture**
 - **Turtle owners**
- **DFW administrative and enforcement costs**



OTHER CONSIDERATIONS

- Update Commission policy
- Education and outreach
- Staff outreach to Legislature to explore possible solutions



Source: Isaac Chellman



Source: NPS/Isaac Chellman



Source: DFW/Rhiana Lee



April 10, 2017

Fish and Game Commission
1416 Ninth Street, Room 1320
Sacramento, CA 95814
fgc@fgc.ca.gov

Re: Item 16(A) & Item 17(A)(I)

To the California Fish and Game Commission:

We, the 3,212 people undersigned, have a simple request: At your next meeting please move forward with adding exotic bullfrogs and turtles to the state's list of restricted species.

Invasive species are widely recognized threats to native wildlife -- and yet in California exotic bullfrogs, red-eared sliders and softshell turtles are still imported in massive numbers every year.

Bullfrogs eat and outcompete with California's native wildlife and have contributed to the decline of endangered species like California tiger salamanders and Sierra Nevada yellow-legged frogs. They can also play a role in the spread of new diseases like the deadly chytrid fungus, which has wiped out amphibian populations around the world.

Red-eared sliders and softshell turtles also outcompete native western pond turtles for basking space and food. These imported turtles may carry disease, such as the upper respiratory tract disease that has devastated western pond turtles in Washington.

Both Oregon and Washington have a ban on the import of bullfrogs, and Oregon bans the import of red-eared sliders and softshell turtles. California should follow their lead. I strongly urge you to add bullfrogs, red-eared sliders and softshell turtles to California's list of restricted species for the sake of our native wildlife.

Animae Chi, Beverly Hills CA
Joan Walker, Bishop CA
Bondarenko Sandrine, Gignac CA
John Pasqua, Escondido CA
Karina Utech, Berlin CA
Alice Neuhauser, Manhattan Beach CA
Richard Sheng, Kensington CA
Thomas Conroy, Manhattan Beach CA
Laura Leifer, Santa Ynez CA
Roger Hollander, Tarzana CA
Brian Florian, Beverly Hills CA
Nancy Georgini, Beverly Hills CA
Bridget Barron, San Anselmo CA
Laurie Eisler, Cotati CA
Bruce Baldwin, Berkeley CA
Jane Engelsiepen, Carpinteria CA
Mary Mcauliffe, Los Angeles CA

Laurie Schick, Beverly Hills CA
Colin Smith, Richmond CA
Lynne Long, Gilroy CA
Gregory Taylor, West Palm Beach CA
Joyce Campbell, Ph.D., P.T, Torrance CA
Kelly Dunn, Aliso CA
Michael Mansfield, Berkeley CA
Audrey Okubo, San Jose CA
Ray Bustos, Fullerton CA
Deborah King, La CA
Laura Mendoza, Palm Springs CA
Eleanor Comegys, West Hollywood CA
Gail Roberts, Tecate CA
Kelly Brannigan, Oceanside CA
Tony Boldetti, Santa Clarita CA
Carolyn Knoll, Orinda CA
Kaija Keel, Los Angeles CA

Gerald Shaia, Sun Valley CA
Elena Ennouri, Redwood City CA
Mary Ingraham, Oceanside CA
Helen Manning-Brown, Atascadero CA
Caryn Cowin, Palm Desert CA
Robin Reinhart, San Diego CA
Jo Young, Culver City CA
Diana Bohn, Berkeley CA
Kenneth Miller, Topanga CA
Judith Smith, Oakland CA
Jennifer Parker, Los Angeles CA
Alex Peterson, Stockton CA
Lynda Leigh, Santa Cruz CA
John Sefton, Trabuco Canyon CA
Jill Gaughan, South Lake Tahoe CA
Donna Thomas, Yucca Valley CA
Bev Kelly, Long Beach CA
Elizabeth Osborne, Oceanside CA
Christy Schilling, Glendale CA
Sandi Covell, San Francisco CA
Linda Tabor-Beck, San Diego CA
Marie Boulet, Palo Alto CA
D R Spencer, San Diego CA
Julie Sanford, Van Nuys CA
Arthur Gregorian, Oakland CA
Bianca Molgora, San Francisco CA
Hazel Holby, Willows CA
Linda Trevillian, Alhambra CA
Willy Aenlle, Altadena CA
Narayan Rajan, Los Altos CA
Jon Senour, San Diego CA
Jude Lotz, Burbank CA
Angela Russell, Goleta CA
Frank Lahorgue, San Rafael CA
Nancy Simon, Santa Barbara CA
Peggy Loe, Magalia CA
Phyllis Chavez, Santa Monica CA
Jude Lotz, Burbank CA
Shawn Johnson, Encinitas CA
Sally and Frank Richards, Redlands CA
Patricia Savage, Mammoth Lakes CA
Twyla Meyer, Pomona CA
Darlene Norwood, Fairfield CA
James Collier, Burbank CA
John Nyomarkay, N. Hollywood CA
Pam Moore, Grass Valley CA
Michael Bordenave, Fresno CA
Patricia Van Hartesveldt, Reseda CA
Nancy Walter, San Luis Obispo CA
Caryn Graves, Berkeley CA
Tom Nash, Rohnert Park CA

R. Zierikzee, San Francisco CA
Cheryl Parkins, Oakland CA
Barbara Dincau, Ventura CA
M Hempel, Redlands CA
Stephanie Larro, Woodland Hills CA
Cynthia Tawil, Whittier CA
Joanne Tenney, Escondido CA
Nancy Schlegel, Carmel Valley CA
Roger Sadler, Highland CA
Walter Erhorn, Spring Valley CA
Frances Heath, Boulevard CA
Antonio Martinez, Jr., Riverside CA
Bob Richardson, Huntington Beach CA
Peter Reardon, Mira Loma CA
Yves Decargouet, Lucerne CA
S. Chapek, San Francisco CA
Jeff Sheldon, Ph.D., Monrovia CA
Leslie Mackay, San Francisco CA
Erica Stanojevic, Santa Cruz CA
L. Piquett, Santa Cruz CA
Patricia Larkin, San Francisco CA
Mark Anisman, Yountville CA
Sam Butler, Los Angeles CA
Andrew Frey, Pasadena CA
James Patton, Los Altos CA
Sara Brandon, Oakland CA
Rosemary Vanslyke, Chatsworth CA
Judith Hogan, Santa Barbara CA
Tamara Bond, Vista San Diego County CA
Dan Mccoy, Carlsbad CA
Stephanie De Los Rios, Del Mar CA
Geeta Menon, Santa Rosa CA
John Clarke, San Francisco CA
Valerie Byrd, Santa Cruz CA
Sandra Schachter, Carmel Valley CA
Alexandria Luostari, Los Angeles CA
Erin Foret, Martinez CA
Joseph Yuhas, San Diego CA
Steven Flores, Los Angeles CA
Steve Cross, Redlands CA
Nancy Smith, San Diego CA
Spencer Adams, Los Angeles CA
Enrico Verga, Seal Beach CA
Louise Rangel, Santa Paula CA
Joan Borame, El Cerrito CA
Josette Maury, San Francisco CA
Stephen Markowski, San Diego CA
Miki Cannon, Chatsworth CA
Martha Schumacher, Sunnyvale CA
Penny Elia, Laguna Beach CA
Ben Cachola, Union City CA

Veronica Ray, Sherman Oaks CA
Carol Kuelper, Oakland CA
Michael Diaz, Walnut Creek CA
Jackie Medina, San Ramon CA
Johanna Woestijne, Los Altos Hills CA
Elizabeth Shen, Mountain View CA
Gail Christensen, Burbank CA
Elizabeth Tessier, Santa Rosa CA
Rebecca Swanson, Mariposa CA
Tatiana Tomacelli, Fallbrook CA
Margarite Olmos, Sebastopol CA
Uschi Schnell, Santa Rosa CA
Maggie Wineburgh-Freed, Los Angeles CA
David Ross, Santa Cruz CA
Jason Greenberg, Santa Cruz CA
Christina Smith, Folsom CA
Janet Heinle, Santa Monica CA
Jason Chinn, Cloverdale CA
Celeste Anacker, Santa Barbara CA
Ilya Turov, Moreno Valley CA
Shauna Hoffman, Santa Clarita CA
Raymond Plasse, West Hills CA
Bonnie Steiger, San Francisco CA
Signe Swenson, Walnut Creek CA
Pete Zerbato, Newark CA
Jill Adler, Manteca CA
Gina Pellizzon, Laguna Hills CA
Kate Ashley, Redwood City CA
Kimberly Jannarone, San Francisco CA
Heidi Perry, San Jose CA
Marilyn Levine, Mountain View CA
Susan Cossins, Burlingame CA
Jeanne Wolfe, Willits CA
Blaise Brockman, Arcadia CA
Ann Zald, Sherman Oaks CA
Celia Thilgen, Ontario CA
Stacy Hall, San Diego CA
Jessica Merrill, Goleta CA
Stuart Flashman, Oakland CA
Michael Pagano, San Mateo CA
Geoffrey Jewel, Santa Barbara CA
Catherine Macan, Eureka CA
Nancy Cohn, Atascadero CA
Aimee Wyatt, Redondo Beach CA
Julianne Dunkley, Cambria CA
Thomas Kendrick, El Sobrante CA
Margo Krindel, San Francisco CA
John Hawkins, Newbury Park CA
Anthony Giordano, Ventura CA
Doug Musick, Walnut Creek CA
Douglas Chorn, Pollock Pines CA

Louise Leff, Petaluma CA
Ernest Goitein, Atherton CA
Jessica Wolfe, Sebastopol CA
Cheryl Berry, Irvine CA
Christine Haden, San Diego CA
Gabriele Schnack, Marina Del Rey CA
Nadya Tichman, Oakland CA
Joan Raphael, San Diego CA
Tansy Woods, San Diego CA
Tonya Hough, Pacifica CA
Brent Riggs, Inglewood CA
Charles Hochberg, Philo CA
Daniel Bloxsom, Fairfield CA
Helen Garner, Anaheim CA
Cheri La Rocque, Santa Barbara CA
Indra Mungal, Oakland CA
Daniel Carrillo, San Bruno CA
Diana Kliche, Long Beach CA
Doris Kuhns, Santa Barbara CA
Elli Kimbauer, Crescent City CA
Cheryl Weiden, Los Altos CA
Stephen Fitch, Thousand Oaks CA
Kirk Casey, San Rafael CA
Robyn Class, Orange CA
Batsheva Kasdan, Los Angeles CA
Ka Rla Mejia, Los Angeles CA
Syd Rumford, Long Beach CA
Dan Gotch, Pacific Grove CA
Duke Van, La CA
Carolina Soler, Big Bend CA
Georgia Goldfarb, Malibu CA
Nina Utigaard, Richmond CA
Nadya Disend, Oakland CA
Carol Cenci, Sonoma CA
Dora Jean Rudd, Murrieta CA
Kat Stranger, San Rafael, Ca 94901 CA
Bo Kearns, Sonoma CA
Christopher Ware, Fremont CA
Dan Morgan, Rosamond CA
Il Sheehan, Downey CA
Cynthia Fernandez, Richmond CA
Julie Beer, Palo Alto CA
Michael Elkins, Oceanside CA
Linda Abbott, Torrance CA
Ann Kingsbury, Oakland CA
Warren Clark, Mammoth Lakes CA
Heidi Bean, Newport Beach CA
Holly Luban, Atascadero CA
Joan Zawaski, Oakland CA
Linda Greene, La Habra CA
Kurt Gross, San Diego CA

Jessica Suess, Los Gatos CA
Sudi McCollum, Glendale CA
Pamela McDonald, Riverside CA
Philip Tymon, Guerneville CA
Avila Lowrance, Grass Valley CA
Howard Higson, Sebastopol CA
Jan Schachter, Portola Valley CA
Fiona Priskich, Swan View CA
Melinda Whitaker, Red Bluff CA
Nancy Thorwaldson, Placerville CA
Charline Ratcliff, Walnut Creek CA
Alan Bosch, Petaluma CA
Jessica Carcamo, Granada Hills CA
Robert Miller, Imperial Beach CA
Mike Sheppard, Santa Cruz CA
Rod Moore, Los Angeles CA
Gerald Orcholski, Pasadena CA
Okiyo Ososaka, Oakland CA
Melissa Davis, Dublin CA
Kevin Diggs, Simi Valley CA
Amy Agzarian, Culver City CA
Robin Lande, Los Angeles CA
Nancy Polito, Orangevale CA
Nancy Kemper, San Diego CA
Robert Russo, Glendora CA
Joseph Rodriguez, San Jose CA
Maryann Bomarito, Marina CA
Monique Biglia, North Hollywood CA
Steve Tyler, Orange CA
Cathie Barrows, Orinda CA
Martin Snapp, Oakland CA
Susan Goldberg, Glendale CA
Lucilla Bellucci, Oakland CA
Marsha Keeling, Glendora CA
Craig Drizin, Santa Cruz CA
Shellie Vermeer, Laguna Hills CA
William Mason, Northridge CA
Wendy Hansen, Aromas CA
Lou Insprucker, La Canada CA
Bryan Ruff, Paradise CA
Kathy Silvey, Martinez CA
Jillian Vanluchem, Fremont CA
Rory Alden, Berkeley CA
J Angell, Rescue CA
Bradley Colden, Whittier CA
Lori Stayton, Sherman Oaks CA
Julian Siminski, Studio City CA
Dennis Trembly, Los Angeles CA
Ken Hedges, Lemon Grove CA
Jaime Taylor, San Diego CA
Mark Crane, Los Angeles CA

Ron Parsons, South San Francisco CA
Michael Terry, Santa Monica CA
Carol Bishop, South San Gabriel CA
Frances Goff, Pasadena CA
Diane Clement, Los Osos CA
Adam Trauger, Long Beach CA
Ken Koenigshofer, San Clemente CA
Jean Cheesman, Santa Barbara CA
Paula Adams, Pasadena CA
Cami Winikoff, Malibu CA
Melissa Mullin, San Francisco CA
Kathy Bilicke, Los Angeles CA
Tung Vu, San Jose CA
Wendy Leung, San Francisco CA
J Davis, San Francisco CA
Gopal Shanker, Napa CA
Sandra Cope, Irvine CA
Wm Laestadius, San Diego CA
Jennifer McCormick, Santa Rosa CA
Ken Gilliland, Tujunga CA
Jason Shepherd, Newbury Park CA
Candace Rocha, Los Angeles CA
David Perry, Palo Alto CA
Julie Adelson, Santa Monica CA
Phillip Cripps, Cathedral City CA
Tara Gonzales, Atascadero CA
Annika Miller, Mill Valley CA
Brian Appleton, San Jose CA
Jeremy Spencer, Pacifica CA
Don Martin, Nipomo CA
Patrice Catanio, San Francisco CA
David Zaccagnino, Upland CA
Florence Davis-Warner, Oakland CA
Joan Winchell, Del Mar CA
Thomas Milcarek, Santa Cruz CA
Edy G Soto, Sylmar CA
Shannon Montoya, Rohnert Park CA
Robert McDonnell, Westminster CA
Kris Liang, Moss Beach CA
Ryan Whittick, Glendale CA
Annie Carpenter, Oakland CA
Alan Shindel, Berkeley CA
Dean Weiss, Encino CA
Henning Bauer, San Francisco CA
Anne Huber, Los Gatos CA
Barbara Bills, Placerville CA
R. Thomas Griffith, Santa Barbara CA
Michael Brackney, San Diego CA
Corinna Robles, Los Angeles CA
John Etter, Monterey CA
Alice White, Los Angeles CA

Tracy Gilbert, Rialto CA
Keith Bein, Oakland CA
Stan Young, Oakland CA
Cheryl Demmon, Vallejo CA
Helen Prusiner, San Francisco CA
Dianna Sahhar, Corona Del Mar CA
Eugene Hinton, Porterville CA
Kendra Knight, Millbrae CA
Robin Bell, Sunnyvale CA
Theresa Rettinghouse, Alameda CA
Drew Irby, Mission Viejo CA
Barbara Whyman, Ventura CA
Nancy Riggelman, Tollhouse CA
Ron Melin, Trinidad CA
Mariadela Martin, Caracas CA
Elizabeth Ramsey, Davis CA
Bruce Richman, San Mateo CA
Lisa Ferreira, Oakland CA
Terry Dycus, San Marcos CA
Becky Evans, Atascadero CA
George Ball, Inglewood CA
Steve Gross, Ca CA
Becky Evans, Atascadero CA
Mary Stohr, Hemet CA
Dan and Paula Fogarty, Santa Rosa CA
Doris Telles, Mountain Center CA
Heidi Fielding, North Hollywood CA
Jolene Rogers, Martinez CA
Donna Forst, Santa Rosa CA
Jerami Prendiville, Camarillo CA
Kenny Carlstrom, Ramona CA
Dyllon Martini, Huntington Beach CA
Susan Richmond, San Francisco CA
Don Faia, Aptos CA
Marc Vezian, San Jose CA
Kathryn Donahue, Blue Lake CA
Rachel Makool, San Francisco CA
Charles Navigante, Napa CA
Margarette Woodard, Lake Arrowhead CA
Mary Proteau, Los Angeles CA
Kim O'Bryan, San Luis Obispo CA
John Cloonan, Ventura CA
Jennifer Toth, Santa Clarita CA
Sarah Cypher, Oakland CA
Jacqueline Machado, San Francisco CA
Tamara Matz, Los Angeles CA
Sepi Yagoobian, West Hollywood CA
Randy Nichols, Montrose CA
Joanne Doherty, Simi Valley CA
Michelle Palladine, Palm Springs CA
Samara H.V, Petaluma CA

Annamarta Dostourian, Berkeley CA
Aixa Fielder, Los Angeles CA
Jeanina Brewster, Pollock Pines CA
Jay Rice, Novato CA
Janet Rhodes, Cathedral City CA
Whitney Peterson, San Francisco CA
Tom Francis, Santa Monica CA
Suzy Hayes-Tripp, Placerville CA
Caren Rounthwaite, Granite Bay CA
Ojars Kratins, Walnut Creek CA
Megan Gnekow, Paicines CA
Deborah Adatto, Rancho Cucamonga CA
Marietta Smith, Santa Monica CA
Chanelle Black, Huntington Beach CA
Jane Biggins, Ukiah CA
Joseph Boone, San Luis Obispo, CA
Charlene Young, Hermosa Beach CA
Debra Banes, Sacramento CA
Rebecca Sanchez, Mill Valley CA
Nicola Krest, Cupertino CA
Robert Matlock, San Diego CA
Paolo Nugent, San Francisco CA
Jane Neufeld, San Jose CA
Michael Rifkind, Santa Cruz CA
Nasik Nancy Sagatelian II, Pasadena CA
Kat Russell, Mill Valley CA
Jim Leske, N Hollywood CA
Jerry Ewen, Sacramento CA
Marcia Scott, San Francisco CA
Anne Irving, Berkeley CA
Saroyan Humphrey, San Francisco CA
Anne Wolf, Santa Rosa CA
Michael Tomlinson, Sacramento CA
Sharon Brown, Mountain View CA
James Gonsman, Occidental CA
Luci Evanston, San Bruno CA
Janet McLaughlin, Rancho Santa Fe CA
Sherry Kritzer, Moss Beach CA
Nicolette Pavlovics, San Francisco CA
Anna Acosta, South Gate CA
Jan Oldham, Santa Barbara CA
Pat Frankenfield, Palo Alto CA
Sheryl Schroeder, Santa Barbara CA
Percy Hicks-Severn, Newbury Park CA
Silver Hartman, Tahoma CA
S Geller, Los Angeles CA
Joseph Melvin, Redding CA
Nancy Moll, Hemet CA
Penny Heintz, Cedar Ridge CA
Valerie Baldwin, Portola Valley CA
John Van Straalen, Petaluma CA

Joseph Porterfield, Carmichael CA
Greg Kareofelas, Davis CA
Tamsin Kelly, La Jolla CA
Farideh Dormishian, San Jose CA
Cg Sheng, San Jose CA
Jill Wojcik, Wildomar CA
Paula Cavagnaro, Livermore CA
Melissa Polick, Mill Valley CA
Peter Corkey, San Carlos CA
Loring Dales, Berkeley CA
Gwen Weil, Oakland CA
Katherine L, Castro Valley CA
Thomas Patterson, Palo Alto CA
Jane Carroll, Chatsworth CA
Linda Araujo, El Monte CA
Clara Levy, Los Angeles CA
Dorothy Freeman, Alameda CA
Beatriz Pallanes, Santa Ana CA
Leah Snell, Altadena CA
Dan Hampshire, San Francisco CA
Linda Brown, San Jose CA
Afrooz Navid, Berkeley CA
Mahna Freeborn, Penn Valley CA
Astrid Giese-Zimmer, Berkeley CA
Kenneth Nahigian, Sacramento CA
Timothy Larkin, San Francisco CA
Leah Roschke, Encinitas CA
Anna Hamre, Auberry CA
Bob Freeborn, Penn Valley CA
Susan Chapman, Los Angeles CA
Herman Chaney, Oakland CA
Michael McLaughlin, Eureka CA
Sherrie Lee, Covelo CA
Sue Petteway, Los Angeles CA
Cynthia Ratliff, Santa Cruz CA
Christine Harris, San Francisco CA
Robert Husbands, San Diego CA
Chandra Stephens, Sebastopol CA
Joseph Mayer, San Diego CA
Perry Gx, Tustin CA
Lynne Coulson, San Francisco CA
Flin Sheffield, Sacramento CA
Nina Berry, Van Nuys CA
Julien Jegou, San Mateo CA
Ernie Looney, Santa Clarita CA
Melanie Jones, San Pedro CA
Mikayla Pratt, San Jose CA
Erlinda Cortez, Long Beach CA
Robert Ortiz, Novato CA
Chris Dawson, Playa Del Rey CA
Jennifer Olvera, Aliso Biejo CA

Nancy Pointer, San Jose CA
Beth Goode, Topanga CA
Nancy Haiston, Forestville CA
Michael Harrington, Granite Bay CA
Lori Cockerill, San Francisco CA
Gretchen Cooper, San Diego CA
Eric Hirshik, Fairfield CA
David Coleman, Cobb CA
Chris Baldwin, Redwood City CA
Sharon Latta, Lincoln CA
Nicole Bell, Davis CA
Dan Melius, Grass Valley CA
Robert Ortiz, Novato CA
Gabriela Till, Escondido CA
Nancy Hanson, Santa Cruz CA
Steven Sugarman, Malibu CA
Mark Luiso, San Jose CA
Claudia Saporiti, Hawthorne CA
Marco Cimmino, San Francisco CA
Camaray Davalos, Temecula CA
Kelly Logan, Hollywood CA
Donald Wolf DDS, Santa Rosa CA
Scott Kaminski, San Leandro CA
Michael R. Watson, Sonoma CA
Lori White, Kelseyville CA
George Chadderton, San Ramon CA
Steven Netkin, Sun City CA
Harriet Eckstein, Santa Barbara CA
Nigel Jay, Irvine CA
Justus Jorai, Sacramento CA
Ann Thryft, Boulder Creek CA
Barbara Frazer, Sacramento CA
Deborah Wood, Fairfield CA
Susan Lilly, Winnetka CA
Juanita Gama, Palm Desert CA
Rob Bortolin, El Segundo CA
Chad Johnson, Long Beach CA
Michael and Jeanine Clarke, Salida CA
Victoria Shankling, Aliso Viejo CA
Tim Sunderman, Walnut Creek CA
Debra Cassiero, Sonoma CA
Annette Cadosi Wilson, Healdsburg CA
Kayna Smith, Rialto CA
Karla Everett, San Jose CA
Kathy Kelehan, Los Angeles CA
Vincent Milan, Los Angeles CA
Carol Heermance, Palo Alto CA
Sarah Luth, San Diego CA
Jean Merritt, North Hollywood CA
Beverly Leifer, Long Beach CA
Melissa McKnight, Fallbrook CA

Richard Voss, San Jose CA
Janet Jacobson, El Cerrito CA
Jade English, Sacramento CA
Erin Howard, Oakland CA
Robert Chirpin, Northridge CA
Frank Cannon, So. Lake Tahoe CA
Jerry Hudgins, Point Reyes Station CA
Kristen Renton, Valencia CA
Judy Ecklund, La Jolla CA
Connie Gomez, Palmdale CA
Stacy Rouse, Malibu CA
Jon Grutman, Los Angeles CA
Mikal Baker, Arcata CA
Esther Ramer, Albany CA
Tess Husbands, San Diego CA
Corinne Creager, Richmond CA
Joelle Porter, Susanville CA
Peggy Shippen, Menlo Park CA
James Masi, San Francisco CA
Patricia Blevins, S CA
Lee Rudin, Daly City CA
Elisabeth Armendarez, Santa Ana CA
Cressie Patterson, Chino CA
Julie Towery, San Luis Obispo CA
Kevin Toney, Richmond CA
Diane Pearl, South San Francisco CA
Rob Harding, Livermore CA
Randy Newlin, San Jose CA
Jon Spitz, Laytonville CA
Leo Ashton, San Jose CA
Elizabeth Strph-Coughlin, Los Gattos CA
Arthur Connor, Idyllwild CA
Dianna Linden, Santa Monica CA
Mark Hurst, Orinda CA
Steve Robey, Berkeley CA
Joel Masser, San Jose CA
Daniel Moore, Ca CA
Karen Winnisk, Los Angeles CA
Karin Peck, Carmichael CA
Mary and Max Herink, Tustin CA
Mary Berrettini, Fort Bragg CA
Edy Rayfield, Santa Cruz CA
James Rego, Fairfield CA
Lindsay Mugglestone, Berkeley CA
Judith Commons, Sacramento CA
Karen And Allen Perry, Yucca Valley CA
Dr. Verla D. Walker, West Covina CA
Rev. Maria Riter Wilson, San Dimas CA
Terry Oneal-O'Rourke, Ferndale CA
Valerie Henderson, Los Angeles CA
Susi Higgins, Glendale CA

Tim Barrington, San Jose CA
Janis Hug, Santa Rosa CA
George Jackson, Santa Rosa CA
Bernard Hochendoner, Patterson CA
Rose Cohen, Sebastopol CA
Dan Silver, Los Angeles CA
Caitlin Wylde, Los Angeles CA
Carla Thompson, Ventura CA
Drew Panico, Los Angeles CA
Catherine Rusoff O'Neill, Santa Monica CA
Nancy Robinson, Ridgecrest CA
Jill Bishop, Long Beach CA
Brian Kirk, Orange CA
Nan Singh-Bowman, Ben Lomond CA
Dale Matlock, Santa Cruz CA
Kaylah Sterling, Emeryville CA
Karoli Clever, San Jose CA
Ted Fishman, San Jose CA
Valjean Oneill, San Diego CA
Bertha Mckinley, El Cerrito CA
Thomas Filip, Moorpark CA
Carly Molstad, Los Angeles CA
Christopher Boone, San Francisco CA
Marion Payet, Oakland CA
P Mar, Walnut CA
Annabel Ayres, Santa Rosa CA
Dee Manning, Los Angeles CA
Ann Livingston, Oakland CA
Alexandra Lamb, Eureka CA
Virginia Demoss, Long Beach CA
Elva Conlon, Moorpark CA
Noel Park, Rancho Palos Verdes CA
David Levy, San Francisco CA
Stephanie Charles, Petaluma CA
Elwood Youman, Vacaville CA
Dylan Nguyen, Milpitas CA
Julie Benson, Oakland CA
Jack Mcallister, Grass Valley CA
Mary Rojeski, Santa Monica CA
Norm Ellis, Laguna Hills CA
Candy Frantz-Crafton, Santa Cruz CA
Vic Bostock, Altadena CA
Sheila Harkrider, Thousand Oaks CA
Clara Beard, Los Angeles CA
Bunny Firebaugh, Arnold CA
Crista Birgy, Oxnard CA
Mary Yang, Solana Beach CA
Randy Mills, Culver City CA
Mark Singleton, Oroville CA
Cathy Grovenburg, San Jose CA
Gretchen Gehres, San Mateo CA

Mary Maher, Milpitas CA
Cyndee Newick, Campbell CA
John Martinez, Lomita CA
Jeannie Pollak, Oxnard CA
Kerri McGoldrick, Castro Valley CA
Pam Patek, La Honda CA
Sally & Don Webb, Santa Barbara CA
Ashley Holecek, Long Beach CA
Nina MacDonald, Irvine CA
Michelle Briseno, Long Beach Ca CA
Diane Neophytou, Oakland CA
Courtney Christoffer, Campbell CA
Elisabeth Bersin, Santa Monica CA
Karen Gibb, Arcata CA
Nadine Hatcher, Camarillo CA
Hayley Garibaldi, Bodega Bay CA
Elizabeth Milliken, St. Helena CA
Gloria Hollahan, Lompoc CA
Paula Harvey, Frazier Park CA
Ames Gilbert, Grass Valley CA
Wendy Berk, El Granada CA
Sonya Aamodt, Vista CA
Patrice Sena, Pasadena CA
Pamela Dougherty, San Jose CA
Allison Brooker, Los Angeles CA
Ralph Lopez, Los Angeles CA
Gordon Reed, Newport Beach CA
Kathryn Carroll, Oakland CA
Joan Pool, Vacaville CA
Karen, Mayer, Eureka CA
Kristin Riggs, Sacramento CA
Toni Little, Fair Oaks CA
Joe Glaston, Desert Hot Springs CA
Julie Jolley, Laguna Beach CA
Melissa Ambrose, San Francisco CA
Janet Lambert, Mount Shasta CA
Mike Caetano, Fresno CA
Patti Koger, Cardiff By The Sea CA
Mariam Shah-Rais, Redondo Beach CA
Michael Dambrowski, Cotati CA
Terilynn Mitchell, Forestville CA
Christine Trumbly, Santa Rosa CA
Lorraine Lowry, Vacaville CA
L Spanski, Oceanside CA
Marguerite Shuster, Sierra Madre CA
Martin B Friedman, Berkeley CA
Marilyn Tiaven, Oakland CA
Candace Rocha, Los Angeles CA
Gail McMullen, Los Angeles CA
Jennifer Loda, Oakland CA
Hans Bertsch, Imperial Beach CA

Judith Anderson, Long Beach CA
Cecilia Brown, Oakland CA
Linda Howard, Vallejo CA
Shane Yellin, Carlsbad CA
Suzanne J Conlon, San Diego CA
Tawny Mclellan, Ojai CA
Sylvia Alm, Vista CA
Ian Nelson, Santa Rosa CA
Michele Coakley, Rancho Cordova CA
Rochelle La Frinere, San Diego CA
Lynn Shauinger, San Francisco CA
Martha Hernandez, Laverne CA
Rena Lewis, Ojai, CA
Ryan Birdsall, San Jose CA
George Budd, Los Angeles CA
Bruce Grobman, Santa Cruz CA
Lynne Weiske, Los Angeles CA
Chris Loo, Morgan Hill CA
Beth Levinson, Tiburon CA
Susan Davenport, Simi Valley CA
Jessica Ramirez, Westchester CA
Wayne Gibb, Forestville CA
Kristen Lowry, Vacaville CA
Marlene Tucay, Anaheim CA
Bk Doyra, Oakland CA
Maris Bennett, Antioch CA
Sharon Keller, El Cajon CA
Jeff Garner, Daly City CA
Suzanne Simpson, Arcata, CA
Elizabeth Ellwanger, Sunnyvale CA
Susan Smith, Pollock Pines CA
Rebecca Mills, Woodland CA
Rena Zaman-Zade, Escondido CA
Heather Lutz, Dana Point CA
Elizabeth Anthony, San Jacinto CA
Donna Duran, Northridge CA
Cory Anttila, El Dorado Hills CA
Christine Bassett, California CA
Shannon Schne Le, San Francisco CA
Eileen Daniels, Santa Clarita CA
Richard Heermance, Palo Alto CA
A Park, Chino CA
O. Bisogno Scotti, Los Angeles CA
Janice Reding, Roseville CA
Jared Goor, Sunnyvale CA
Mary-Lou Gillette, Fremont CA
Ann Oliver, Los Angeles CA
Suzanne Selby, Los Angeles CA
Caroline Krewson, Oakland CA
Ah Ho, Fos City CA
Laurence George, Nicasio CA

Michelle Gardner, Paso Robles CA
Mayumi Knox, San Marino CA
Janine Comrack, Ojai CA
Tim Zemba, N Hollywood CA
Joan Heron, Fort Bragg CA
Frances Emanuel, Simi Valley CA
Diana Solomon, Culver City CA
N Mascote, Bay Area CA
John Martinez, Lomita CA
Linda Smith, Carmel CA
Donna Carr, M.D., Encinitas CA
Gordon Cook, Bakersfield CA
Richard Van Heertum, North Hollywood CA
Patricia Liddy, Philo CA
Joan Andersson, Topanga CA
Charles Wilmoth, San Francisco CA
Haydee Felsovanyi, Pescadero CA
Alan Lambert, Los Altos CA
Linnier Easterling, Hemet CA
Carol Ray, Fontana CA
Marla Feierabend, Santa Barbara CA
Jack Silver, Sebastopol CA
Calvin French, Paso Robles CA
Michael White, Los Angeles CA
Faith Strailey, Quincy CA
Michael Bertrams, Sacramento CA
Jana Perinchief, Sacramento CA
Kelcey Poe, Oakland CA
Brian Gray, Fair Oaks CA
Greg Mitchell, South Lake Tahoe CA
Elisabeth Bersin, Santa Monica CA
Nawal Tamimi, Richmond CA
L. Olson, San Francisco CA
Kimberly Petree, Placerville CA
Joseph Klein, Benicia CA
Jana Lynne Webb Muhar, Santa Rosa CA
Blake Wu, Lafayette CA
C.K. Nuetzie Jasiorkowski, Goleta CA
Martin Horwitz, San Francisco CA
Laura Ghiron, Davis CA
Rene Pineda, Hollywood CA
Karen McChrystal, Santa Monica CA
Carrie Brummette, Fallbrook CA
Sandra Mcpherson, Davis CA
Molly Huddleston, Santa Rosa CA
Theo Saunders, Los Angeles CA
Harry Blumenthal, Eureka CA
Amy Malick, San Rafael CA
Casee Sabula, Riverside CA
Paula Hagins, Hollister CA
Jorge Velez, San Jose CA

Teresa Yrastorza, Berkeley CA
David Carlson, Los Angeles CA
Hillary Ostrow, Encino CA
Jeffrey Golden, Daly City CA
Shawnee Badger, Valencia CA
Anne Parzick, Corona Del Mar CA
Monica Soto, San Bernardino CA
Loy Zimmerman, Long Beach CA
Irene Kang, Los Angeles CA
Melanie Fisher, Calabasas CA
Louise Sanchez, Long Beach CA
Marry Dederer, Menlo Park CA
Kelly Frampton, San Diego CA
Dixie Patterson, Morro Bay CA
Michael Henderson, Huntington Beach CA
Christine Gallagher, Palm Springs CA
Jerry Wallerstein, Orinda CA
Deborah Knight, San Diego CA
Karen Scheuermann, Cottonwood CA
Monica Padilla, La Mesa CA
Carolyn Lord, Livermore CA
Patricia Andersen, Felton CA
Connie Day, Sacramento CA
Patricia Yoder, Ca CA
David Dorn, Livermore CA
Nancy Kenyon, Irvine CA
Malcolm Groome, Topanga CA
Eric Peterson, Woodland Hills CA
Arthur And Jean Manoogian, San Clemente CA
Kate Nyne, Oakland CA
Diane Pitzel, San Diego CA
Robert Mammon, Richmond CA
Maryann Haller, Escondido CA
Ronald Partridge, Simi Valley CA
John Lango, Berkeley CA
Philip Johnston, Scotts Valley CA
Heather Hutson, Napa CA
Dennis B, City CA
David Delagarza, Los Angeles CA
Bill Leikam, Palo Alto CA
Dana Bordegaray, Cayucos CA
Laura Larocca, Toluca Lake CA
Tawny Brunetta, Santa Rosa CA
Kevin Peck, Sacramento CA
Kathleen White, Jurupa Valley CA
Nikayla Spain, Fresno CA
Joan Normington, Folsom CA
Tawny Brunetta, Santa Rosa CA
Annelise Bazar, San Jose CA
Vicky Allen, Boulder Creek CA
Dennis Landi, Long Beach CA

Erinn Orcutt, Sacramento CA
Donna Campbell, Sonoma CA
Diane Cross, Nevada City CA
Jack Herman, Davenport CA
Alan Mackillop, San Diego CA
Francesca Suzio, Richmond CA
Donna Sharee, San Francisco CA
Roberta E. Newman, Mill Valley CA
C Branca, Mendocino CA
Melissa Atkinson, Los Angeles CA
Gerald Alexander, Windsor CA
Lynne Irvine, Pacific Palisades CA
Judith Baxter, Yorba Linda CA
Stephanie Colshan, Seaside CA
Jack Nounnan, Trinidad CA
Myra Toth, Ojai CA
Gary Reese, San Clemente CA
Jonathan Magasin, Santa Cruz CA
John Fowler, Santa Monica CA
Tomas Campbell, Guatay CA
Keefe Nghe, Ca CA
Tamara G, Carlsbad CA
Kimberly Kaspari, Agua Dulce CA
Michael Frey, Santa Barbara CA
Iris Lubitz, Mountain View CA
Kathleen King, Pasadena CA
Anushka Drescher, Berkeley CA
Cheryl Albert, Freedom, CA
James Schinnerer, Albany CA
Sheila Kothari, Palo Alto CA
J Lasahn, El Cerrito CA
Sandy Williams, Covina CA
Isaac Salazar, Los Angeles CA
Evelyn Trevethan, Napa CA
Kristy Rotermund, Nevada City CA
Marinell Daniel, El Sobrante CA
Howard Whitaker, Gold River CA
Randolph Smith, Los Angeles CA
Ruby Mitchell, Cupertino CA
Jane Biggins, Ukiah CA
Teri Yazdi, San Carlos CA
Merrie Converse, Concord CA
Samantha Irwin, San Diego CA
Kristen Renton, Valencia CA
Mark Ellinger, San Francisco CA
June Smith, San Pedro CA
James Kerr, Redwood Valley CA
Brett Dennison, Garden Grove CA
Audrey Doocy, Pacific Grove CA
Leslie Cozad, Cotati CA
Alice Hendrix, Orangevale CA

Reece Castellano, San Diego CA
Bill Saponaro, Morgan Hill CA
Margaret Von Schulze, Antioch CA
Joan Armer, San Mateo CA
L Vennero, Santa Clarita CA
Julian Orr, Pescadero CA
Karen Steele, Eureka CA
Joel Klayman, Md, Huntington Beach CA
Eric Von Brink, Los Angeles CA
Paula Hawkins, San Diego CA
Eunice Besser, Escondido CA
Francisco Koch, North Hills CA
Susan Mokolke, Portola Valley CA
J P, Oakland CA
Chris Cox, San Jose CA
Alwen Bauer, Palos Verdes Estates CA
Judith Smith, Oakland CA
David Maher, Los Angeles CA
Nancy Havassy, Oakland CA
Lori Dick, Claremont CA
Paul Nelson, Camarillo CA
Marilyn Jasper, Loomis CA
Marcia Flannery, Oakland CA
Raymond Marshall, Foresthill CA
Christine Hein, Huntington Beach CA
Cynthia Hellmuth, Benicia CA
Deborah Myers, Clearlake CA
Glen A Twombly, Arcata CA
J. Michael Henderson, San Luis Obispo CA
Mary Sue Ittner, Gualala CA
Adil Mehta, Chatsworth CA
Tim Thomas, Cool CA
Elaine Cefola, Oceanside CA
James Woods, Penn Valley CA
Carol Gold, Fairfax, CA
Julia Conklin, Pasadena CA
Lynne Colvig, Thousand Palms CA
Ann Lavin, Davis CA
Renee Fraser, Simi Valley CA
Mike Rolbeck, Placerville CA
Nancy Warren, Canoga Park CA
Jessica Fielden, Oakland CA
Donna Timlin, Chatsworth CA
Charmaine Breitengross, Los Angeles CA
Josh Hoopes, Eureka CA
Rosa Lucas, Palm Desert CA
Thomas Cahill, Santa Barbara CA
Jodi Selene, Grass Valley CA
Ralph Valencia, Monterey Park CA
Frances Clark, Needles CA
Jim Varnam, Bishop CA

Amy F, Los Angeles CA
Gisele Albertine, Arcata CA
Rena Warren, Riverside CA
Geoffrey Gallegos, San Francisco CA
Yvonne Quilenderino, Seaside CA
Em Levitt, Concord CA
Kathleen Sharum, Santa Maria CA
Karen Hildebrand, Santa Cruz CA
Aaron A. Kenna, San Diego CA
Samantha Stelzer, Roseville CA
Beth Merrill, Newbury Park CA
Julianne Lloyd, Claremont CA
Darienette Hetherman, Altadena CA
Melissa Liscomb, La Verne CA
Michael Levitt, Concord CA
David Berry, Los Angeles CA
Hilary Mulligan, Placerville CA
Darrell Clarke, Pasadena CA
Casee Maxfield, Los Angeles CA
Mark Clearwater, Oakland CA
Evan Jane Kriss, Sausalito CA
Sarah Lopez, Los Angeles CA
Olga Claros, Santa Rosa CA
Charlene Kerchevall, Oceanside CA
Dena Schwimmer, Los Angeles CA
Kari Akers, Sacramento CA
Marisa Strange, Long Beach CA
Enel Woods, Los Angeles CA
Kirk Nason, Huntington Beach CA
Rick Shreve, Weott CA
Cynthia Leeder, San Jose CA
Sirry Jonsdottir, Topanga CA
Philip Kane, Norco CA
Vera Brown, Redwood City CA
John Batten, Arcata CA
Sarah Diehl, Pacific Grove CA
Robert Quarrick, Besnicia CA
Lesley Meyer, La CA
Sandy Lansdale, Santa Cruz CA
Ronald Bogin, El Cerrito CA
Judith Uhart, Seaside CA
Darynne Jessler, Valley Village CA
Kathleen Gordon, Vista CA
Linda Weiner, San Francisco CA
Fred Granlund, North Hollywood CA
Paul Ripley, Santa Cruz CA
Larry Lapuyade, San Anselmo CA
Kermit Carraway, Auburn CA
Robert Burch, Nevada City CA
Heather Knight, Duarte CA
Steve Hanlon, Los Angeles CA

Tory Blue, Livermore CA
Terry Church, Petaluma CA
Elizabeth Butler, San Leandro CA
Katherine Patterson, Ukiah CA
Mark Feldman, Santa Rosa CA
Tim Dufka, San Francisco CA
James Lounsbury, Oakland CA
Ruth Gold, San Diego CA
Alana Kirby, Alameda CA
James R Monroe, Concord CA
Marilyn Quindo, Escondido CA
Liz Fowler, Richmond CA
Pamela Scott, Boulder Creek CA
Valerie Ranne, Sacramento CA
April Gustafsen, Glendale CA
Farkhondeh Kazemi, San Jose CA
Susan Barnett, Marysville CA
Erica Gill, Van Nuys CA
Marlies Wilson, Pacific Grove CA
Lollie Ragana, Santa Monica CA
Amit Shoham, Oakland CA
Linda Ronberg, Menlo Park CA
Leslie Robinson, Sacramento CA
Shana Mahaffey, San Francisco CA
Joan Combes, Ventura CA
Marlies Wilson, Pacific Grove CA
Cathy Crum, Agoura CA
Garrett Weinstein, West Hills CA
Gael Venn, Gilroy CA
Cathy Crum, Agoura CA
Bette Brockman, Danville CA
Eva Anda, Santa Barbara CA
Ed Elliott, Ben Lomond CA
Stuart Niebel, Ojai CA
Barbara Nagy, Torrance CA
Anthony Jammal, Roseville CA
Steven Morgan, Bodega Bay CA
Sylvia Vairo, Santa Cruz CA
Susan Grant-Lee, San Diego CA
Alexandra Davison, Middletown CA
Patty Kim, San Jose CA
Megan Gonzalez, Los Angeles CA
Patricia Rudner, Cypress CA
Suzanne Newman, Orinda CA
Paula Carrier, San Diego CA
Thomas Hernandez, Corona CA
Catherine Loudis, San Anselmo CA
Beth Anderson, Arroyo Grande CA
Dale Evilsizer, Quartz Hill CA
Linda Jacobs, Campbell CA
Michael Tuma, Beaumont CA

Milton Fisher, San Diego CA
Alex Vollmer, San Rafael CA
Joan Aebi, Pasadena CA
Luben Stoilov, San Rafael CA
Julie Stein, Burbank CA
Julia Haus, Solana Beach CA
Karen Paulsell, Oakland CA
David Burke, Santa Clara CA
D Marancik, Ca CA
Eva Hofberg, Anaheim CA
Elaine Berg, Simi Valley CA
Angelica Whitefeather, Los Angeles CA
K Krupinski, Salem CA
Larry Branson, Pomona CA
Ralph Sanchez, Capitola CA
Mr. Anje' Waters, Grass Valley CA
Nancy Cowan, Sacramento CA
Gregg Oelker, Altadena CA
Mike Mccoy, Imperial Beach CA
Deane Plaister, Santa Barbara CA
Cary Frazee, Eureka CA
Sharon Sullivan, South Lake Tahoe CA
Charles B., Tarzana CA
Kevin Schader, Pleasant Hill CA
Michelle Carter, San Francisco CA
Robert Jump, Ukiah CA
Keil Albert, Mountain View CA
Jeffrey Dickemann, Richmond CA
Judy Fukunaga, Arroyo Grande CA
Leigh Jewell, Santa Clarita CA
John Lewis, San Andreas CA
Siobhan Miura, Fair Oaks CA
Theresa Perry, Sunland CA
Mary Fedullo, San Jose CA
Brady Clay, Escondido CA
Lynn Howard, San Diego CA
Mary F Platter-Rieger, San Diego CA
Steve Sketo, Bakersfield CA
Robyn Krieger, Oakland CA
Christine Borje, Los Angeles CA
John Dutton, Santa Barbara CA
Cindi Lund, Danville CA
Antony Chapman, Camarillo CA
Kenneth Mundy, Los Angeles CA
Dale Drouin, Walnut Creek CA
Manmeet Toor, Los Angeles CA
Vanessa Farmer, Vista CA
Sarah Deering, Soquel CA
Jonathon Schumacher, Los Angeles CA
Staci Martin, Carlsbad CA
Therese Steinlauf, Marina Del Rey CA

Barbara Kennedy, Weott CA
Carole Shelton, Los Angeles CA
Darlene Goguen, Tujunga CA
Heidi Buech, Los Angeles CA
William Watkins, Vista CA
Todd Hoover, La Mess CA
Lori Pellizzari, Costa Mesa CA
Rachel Wolf, Santa Cruz CA
Elyse Defranco, Berkeley CA
Pam Den Hartog, San Pedro CA
Evelyn Ono Vineberg, San Diego CA
Patricia Wilson, San Jose CA
Edward Mainland, Novato CA
Elizabeth Spence, Willits CA
Jeffrey Stone, Yreka CA
Marie Brennan, Red Bluff CA
Christine Berger, Oakland CA
Sherry Macias, Sacramento CA
Marie Annette Burkart, Hayward CA
Terri Moon, Rohnert Park CA
Christina Burton, Apple Valley CA
Rita Davenport, Lake Elsinore CA
June Abner, San Diego CA
David Broadwater, Atascadero CA
A Corbet, Oakland CA
Stacey Degooyer, Petaluma CA
Ernie Walters, Union City CA
Charlotte Vardan, Los Angeles CA
Kathie Stemig, La CA
Kimberly Notary, Modesto CA
Sharon Ponsford, Glen Ellen CA
Christina Ciesla, Simi Valley CA
Orrin Cook, Novato CA
Rashid Patch, Oakland CA
Maggie Mceldowney, Los Angeles CA
Loralei Saylor, Arcata CA
Madeline Stacy, Oakland CA
Aislinn Mccarthy, Santa Rosa CA
Sarah Kupferberg, Berkeley CA
Mariko Saito, San Francisco CA
Davin Peterson, Eureka CA
Michele Halligan, Ukiah CA
Nicole Amador, Sacramento CA
Daniel Carroll, Palm Springs CA
Anne Dugaw, Costa Mesa CA
Michael Mccall, L CA
Judith Sloane, Valley Center CA
Billy Jones, El Cerrito CA
Jan Leath, Glendale CA
Linda Brophy, Santa Barbara CA
Ron Schmidt, San Francisco CA

Alexander Yeung, Clovis CA
Paul Sanchez, Sacramento CA
Robert Blomberg, Berkeley CA
Urmila Padmanabhan, Fremont CA
Therese Ryan, Palmdale CA
Vickie Chandler, San Jose CA
Faye Soares, Pollock Pines CA
Vanessa Chrisman, Huntington Beach CA
Maryann Khan, Oceanside CA
Hoda Tabet, Los Angeles CA
Laura Nardoza, San Francisco CA
Adam Kaplan, Laguna Beach CA
David Osterhoudt, Rancho Santa Margarita CA
Edith Ogella, Santa Barbara CA
Jamie Taylor, Arcata CA
Rick Hunt, Sacramento CA
Eric Lallana, San Diego CA
Andrew Philpot, Solvang CA
Sharon Rollins, Bellflower CA
Donna Jensen, Playa Vista CA
Robert Taylor, Thousand Oaks CA
Julie Brickell, Fullerton CA
John Gasperoni, Berkeley CA
Alan Schenck, Sunnyvale CA
Erica Hummel, Huntington Beach CA
Michelle Mackenzie, Menlo Park CA
Pat Brooks, Berkeley CA
Sheri Rollison, Novato CA
Bryna Schreier, Burbank CA
Henry Moreno, Valley Springs CA
Michael Mitsuda, Fremont CA
Carol Boyd, Escondido CA
Catherine Vidal, Oxnard CA
Laura Price, Sunnyvale CA
David Stout, Citrus Heights CA
Janice Bartlett, San Diego CA
Ronda Downey, Alameda CA
Daniel Carroll, Palm Springs CA
Linda Shadle, Anaheim CA
Ann White, Eureka CA
David Passmore, Cazadero CA
Tina Pirazzi, Long Beach CA
Susan McMullen, Lemon Grove CA
Dow Jarvis, Santa Barbara CA
Andrea Lee, Sherman Oaks CA
Natasha Kay-Hazou, Escondido CA
Janet Laur, Chatsworth CA
Kristeene Knopp, Oakland CA
Jay Falconer, Long Beach CA
Mary Joan Hardie, Aptos CA
Jennifer Herstein, Altadena CA

Herbert C. Ziegler, Yucaipa CA
Ann Bein, Los Angeles CA
Steve Shaker, Cathedral City CA
Sally Abrams, San Francisco CA
Charlotte Pirch, Fountain Valley CA
Angela Melia, Thousand Oaks CA
Rosanne Basu, Hermosa Beach CA
Holly Rosenblum, San Francisco CA
Brian Boortz, Los Gatos CA
Martin Kantor, San Diego CA
Ern Parrott, Campbell CA
Robert Fromer, Palmdale CA
Fred Ireland, San Leandro CA
James Talbot, Granada Hills CA
Skot McDaniel, Novato CA
Victoria Brandon, Northridge CA
Wendy Park, San Francisco CA
Jay-R Hipol, San Jose CA
Lisa Hoivik, Monterey CA
Carolyn Hinds, Fair Oaks CA
Erika Vargas, Castro Valley CA
Deb Nudelman, El Cerrito CA
Jim Wilson, Placerville CA
Michele Roma, Concord CA
Rebecca Clark-Leather, Santa Clarita CA
Paulette Heath, Eagle Rock CA
Cheryl Del Vecchio, Loomis CA
Sigal Tzoore, Portola Valley CA
George Foxworth, Fair Oaks CA
Theodore Bergmann, Los Angeles CA
Gary Blair, Costa Mesa CA
James Dawson, Davis CA
Joan Sitnick, Encino CA
Mary Meehan, La CA
Sharon Rubenstein, San Andreas CA
Waltraud Buckland, Berkeley CA
Carol Schloo-Wright, Julian CA
Tiia Mikkelsaar, Aliso Viejo CA
Kelley McDowell, Chico CA
Michele Smolen, Studio City CA
Scott Denny, Santa Ana CA
Peter Gaudette, Sunnyvale CA
Michael Stricker, Oakley CA
William Lawson, Calimesa CA
Brent Spencer, Long Beach CA
Jena Hallmark, Temecula CA
Lynne Preston, San Francisco CA
Robert Gondell, Woodacre CA
Martin Tripp, Santa Clarita CA
Irene Snavelly, Covina CA
Dirk Reed, Soquel CA

Kim Brink, Fremont CA
Janis Hashe, La Selva Beach CA
Jason Baskett, Orinda CA
Monique Sonoquie, Hoopa CA
John Bertaina, San Jose, CA
Leo Orionis, San Ysidro CA
Lily Sandoval, Pasadena CA
Tandi Cline, Sacramento CA
Lisa Hammermeister, Granada Hills CA
Amir Niknam, Northridge CA
Vincent Young, Upland CA
Mitchell Diamond, Sunnyvale CA
Kathryn Choudhury, Moraga CA
Annette Benton, Antioch CA
Edmund Jones, Sacramento CA
Natalie Aharonian, North Hollywood CA
B. Chan, San Diego CA
Rayline Dean, Ridgecrest CA
Wil Rodriguez, Campbell CA
Olivia Ann Silensky, Los Angeles CA
Jaime Lopez, San Jose CA
Paul Albright, Ojai CA
Dave Whipple, Pacific Grove CA
Alice Weigel, Watsonville CA
Gail Blank, Fresno CA
Rebecca Boyer, El Sobrante CA
Jackie Bryce, San Diego CA
Chris Fazio, San Mateo CA
M Goddard, Corona CA
Yefim Maizel, San Francisco CA
Susie Foot, McKinleyville CA
S Davies, Philo CA
Anaundda Elijah, San Luis Obispo CA
Michelle Davis, Vacaville CA
Veronica Michael, Fairfield CA
Paula Hollie, Laguna Woods CA
Donna Shaw, Simi Valley CA
Renate Dolin, Malibu CA
Anthony Condelli, Grover Beach CA
Frank Toriello, Montague CA
Wendy G., Glendale CA
K R, San Francisco CA
Sue Hall, Castro Valley CA
Joshua Essoe, Los Angeles CA
Leslie Hickcox, California CA
Judy Clayton, Orinda CA
Jamie Chen, Murrieta CA
Rob Seltzer, Malibu CA
Jill Bowers, Sacramento CA
Ernie Walters, Union City CA
Phyllis Krystal, Chico, CA

Esther Boyd, Oakland CA
Zero Nunez, Van Nuys CA
Barbara Burgess, Napanapa CA
Eric Almquist, Arcata CA
Rachel Oliver, Mariposa CA
Cheryl Nix, Lodi CA
Chuck Karp, Palm Desert CA
Martha Goldin, San Francisco CA
Andrea Golan, San Diego CA
David Aylward, Redwood City CA
Nancy Kingston, Mission Viejo CA
Joy Smith, Fresno CA
Linda Nguyen, Westminster CA
Jeri Pollock, Altadena CA
Nicole Echave, Ladera Ranch CA
Cleda Houmes, Salinas CA
Alison Taylor, Los Angeles CA
Sharon O'Hara, Paradise Butte County CA
Katie Spilo, Los Angeles CA
Edward Macan, Eureka CA
Maria Nowicki, San Francisco CA
Paul Statman, Culver City CA
Joseph Catania, Fresno CA
Patricia Cachopo, Santa Clara CA
Timothy Davis, Garden Grove CA
Mike Vitiello, Eureka CA
Gerda Rasker, Oakland CA
Joseph Razo, Camarillo CA
Lama Lane, Costa Mesa CA
Christopher Pincetich, Point Reyes Station CA
Mary Bartlett, Napa CA
Armando A. Garcia, Paramount CA
Janet McCalister, Paradise CA
Dorothy Lovato, Clayton CA
Eileen Gross, San Francisco CA
Martha Lowe, Ca CA
Lisa Warden, Belmont CA
Martin Riley, Corona CA
Rachel Goldman, San Diego CA
Amy Raasch, Venice CA
Nicole Fountain, Fremont CA
Meg Madden, San Francisco CA
Libby Parro, Huntington Beach CA
Christine Lin, Irvine CA
Barry Manheim, Tarzana CA
Richie Masino, Del Mar CA
Pat Gilbert, Carmichael CA
Mary Stark, Pasadena CA
Barbara Piszczek, Oxnard CA
Jill Miotke, Costa Mesa CA
Laura Redgrave, Encino CA

Alex S., San Jose CA
Nancy Peterson, Scotts Valley CA
Linda Whetstine, Poway CA
Kevin Slauson, Alameda CA
Josh Hunt, Los Angeles CA
Adam Levin, Calabasas CA
Watson Gooch, Los Osos CA
Joe Myers, Azusa CA
Michael Hundt, San Jose CA
Sarah Townsend, Sunnyvale CA
Carol Tao, Salinas CA
Miranda Everett, Lake Isabella CA
Maureen Noble, Laguna Niguel CA
Lori Kegler, San Pedro CA
Tj Politzer, Campbell CA
Randall Boltz, San Diego CA
Jean Crossley, Winters CA
Rebecca Welch, Oakland CA
Diane Mills, Riverside CA
Roberto Romo, San Francisco CA
Celeste Hammond, Pasadena CA
Bev Lips, San Francisco CA
Kim Floyd, Palm Desert CA
Margaret Adachi, Glendale CA
Deette Kearns, Los Angeles CA
John Witemberg, Sherman Oaks CA
Lena Nilsson, Laguna Beach CA
Donna Kieffer, Coarsegold CA
Fredrick Seil, Berkeley CA
Lois Keller, Studio City CA
Michael Welch, Vacaville CA
Sebastian Revels, El Cajon CA
Myrian Monnet, Pasadena CA
Annie Malone, Long Beach CA
Charesa Harper, Glen Ellen CA
Austin Fite, Pacific Palisades CA
Virginia Collins, San Leandro CA
Richard Ramirez, Kings Beach CA
Gabriella Turek, Pasadena CA
Timur Mukminov, Mountain View CA
Peter Harwood, Lemoore CA
Jim Curland, Moss Landing CA
Jeanne Hirshfield, Rancho Mirage CA
Susanna Khachatryan, Glendale CA
Elizabeth and Robert Fisher, Pacific Grove CA
Robert Burnett, Santa Barbara CA
Stacy Thompson, Alta Loma CA
Stephanie Clark, Concord CA
Larry Smith, Walnut Creek CA
Paula Tice, Turlock CA
Gene Golden, Rancho Santa Margarita CA

Lawrence Jensen, Oakland CA
Peggy Arevalos, San Diego CA
Maryanne Glazar, Berkeley CA
Judith Fruge, Alameda CA
Neil Lark, Stockton CA
Kathleen Cridge, Rough And Ready CA
Michael Garitty, Nevada City CA
Erika Hitchcock, Guerneville CA
David Marinsik, Santa Rosa CA
Connie Wilkinson, Pismo Beach CA
Ruby Pena, Victorville CA
Robin Hamlin, McKinleyville CA
Paul Hunrichs, Santee CA
Alice Kelly, Felton CA
Janine Bates, Santa Clara CA
Lois Cheesman, Sonoma CA
Joseph Volpe, Ventura CA
Tani Kaimana, Hayward CA
Janet Crist-Whitzel, Half Moon Bay CA
Kimberly Wright, San Diego CA
Caia Cupito, Redding CA
Gretchen Whisenand, Santa Rosa CA
Joseph Nowak, Temecula CA
Marguerite Dessornes, Pasadena CA
M Topping, Los Angeles CA
Patty Linder, San Jose CA
Malcolm Moore, Portola CA
Marlene Mills, Santa Barbara CA
Steve Walsh, Mill Valley CA
Bonnie Pannell, Crockett CA
Gretchen Cooper, San Diego CA
Debra Lichstein, Agoura Hills CA
Gretchen Cooper, San Diego CA
Giar-Ann Kung, Alhambra CA
Susan Sloan, M.Ed., Los Angeles CA
Chris Whalley, Topanga CA
Valeen Robertson, San Mateo CA
Thao Do, Granada Hills CA
Penny Hadfield, Santa Barbara CA
Jane Handel, Ojai CA
Kersti Evans, Sacramento CA
Cynthia McMath, Boonville CA
Loren Amelang, Philo CA
Shasta Pistey-Lyhne, San Francisco CA
Jan Migs, El Sobrante CA
Dianne Budd, Md, San Francisco CA
Kim Nero, Costa Mesa CA
Charles Binckley, Richmond CA
Emily Lee, Fresno CA
Jane Edwards, La Palma CA
Peggy Luna, Pleasant Hill CA

Carol Schaffer, San Pablo CA
Frederique Joly, Venice CA
Christina Berteau, Oakland CA
Audrey Jin, Palos Verdes Estates CA
Kathy Schiller, Los Angeles CA
Bea Cohen, Desert Hot Springs CA
Felicia Chase, Encino CA
Denise Redden, Auburn CA
Nancy Brodersen, Glendale CA
Connie Lyons, Saratoga CA
Carlos Townsend, Fountain Valley CA
Tanya Phillips, Pasadena CA
Reevyn Aronson, Redwood City CA
Bruce Sims, Escondido CA
William Dane, Alta Loma CA
Eugene Bunch, Alameda CA
Terry Slotnick, San Jose CA
Nancy Fleming, Ca CA
Rene Lambert, Berkeley CA
Joe Mueller, Inverness CA
Melia Barnum, Walnut Creek CA
Michael Dorer, Fremont CA
Tamara Cain, Sacramento CA
Erin Barca, San Ramon CA
Carol Ann Peterson, Ceres CA
David Soares, Pollock Pines CA
Daniel Troyo, Downey CA
Jude Lotz, Burbank CA
Linda Goetz, Mountain View CA
Mike Panza, Canoga Park CA
Kim Tran, Santa Ana CA
Shira Miess, La Mirada CA
Sarah Stiles, Santa Rosa CA
Marianne Shaw, San Rafael CA
Karl Koessel, Mckinleyville CA
Dennis Korthauer, Long Beach CA
Alisa Risso, Rsm CA
Joanne Britton, San Diego CA
Evette Andersen, Grass Valley CA
Joseph Herman, La CA
Cassie Kifer, San Jose CA
Roberta Schear, Oakland CA
Sharon Paltin, Laytonville CA
Jordan Kanemoto, Los Banos CA
William Imhoff, Mendocino CA
Chris Van Hook, Pacific Palisades, Ca CA
Dave Anderson, Berkeley CA
Beri Pezzner, Hawthorne CA
Jean Turley-Sinclair, Grass Valley CA
Michelle Barton, Los Angeles CA
Brett Bell, Tujunga CA

Denise Halbe, Sonoma CA
Donald Fischer, Running Springs CA
Julia Litaker, Temecula CA
Damian James, Oakland CA
Deborah Fallender, Santa Monica CA
Judith Gottesman, El Cerrito CA
Ella Craig, Eureka CA
John Walton, Gualala CA
Michael Hague, Yuba City CA
Susanne Berntsson, Corona CA
Maria Steffen, Willits CA
Susan Schoenung, Menlo Park CA
Elaine Edell, Malibu CA
Maria Steffen, Willits CA
Lisa Rizzo, San Mateo CA
Sue Roberts, El Cerrito CA
Steviann Yanowitz, Van Nuys CA
Carol Rudisill, Aptos CA
Deborah Childers, Modesto CA
Kelsey Guntharp, San Francisco CA
Bas Garcia, Altadena CA
Tonya Dysart, San Diego CA
Rhoda Holabird, Los Angeles CA
Mark Ricci, Point Arena CA
Allen Royer, San Jose CA
Laura Naismith, Berkeley CA
Roberta Orlando, San Francisco CA
N. J.A Bast, Morro Bay CA
Marlene Licitra, Shadow Hills CA
Su Godwin, Long Beach CA
Alice Hartwell, Los Angeles CA
Erin Daniels, Carson CA
Ms. Courtney, Orange CA
Joseph Shulman, San Diego CA
Rick Sparks, Toluca Lake CA
Philip Moyer, Mill Valley CA
Richard Dimatteo, San Diego CA
Christina Mills, Needles CA
Lauren Ranz, Lafayette CA
Myra Singer, Lake Forest CA
Jeffrey Hurwitz, San Francisco CA
John Nadolski, Antelope CA
Annette Raible, Petaluma CA
Chris Seaton, Santa Barbara CA
Sharon Mulkey, Oceano CA
Wendy Wittl, Santa Barbara CA
Willaim Olson, Mdr CA
Sally Arroyo, La Quinta CA
Rene Voss, San Anselmo CA
Robert Arroyo, La Quinta CA
Lynda Beigel, San Francisco CA

Carl Estes, Boulder Creek CA
Cindy Ferguson, Sacramento CA
Jackie Pomies, San Francisco CA
Oliver Beqaj, Santa Monica CA
Rollin Odell, Orinda CA
Jacqueline Cochrane, Redondo Beach CA
Alma Phillips, Palo Alto CA
Linda Yamane, Seaside CA
Michael Abler, Santa Cruz CA
Michi Pringle, San Francisco CA
Stephanie Greenwald, Long Beach CA
Barbara King, Los Angeles CA
Steven Huskey, Los Angeles CA
Curtis Swan, Long Beach CA
Laurie King, San Jose CA
Ted Milkoff, Santa Rosa CA
Diana Polsky, Long Beach CA
Allen Leinwand, San Jose CA
Tom Falvey, San Diego CA
M Torres, San Francisco CA
Therese Babineau, El Sobrante CA
Michael Marangio, Richmond CA
Mike Santi, Huntington Beach CA
Bruce Burns, Santa Cruz CA
Marilyn Caston, San Francisco CA
D G, Porterville CA
Robert Carlton, Chino CA
Carolyn Kelso, Santa Cruz CA
Patricia Kimball, San Francisco CA
Michael Todisco, San Marcos CA
Nicholas Esser, Simi Valley CA
Michael Wright, Magalia CA
W. Popiel, Thousand Oaks CA
Virginia Lipati, Pacific Grove CA
Joann Woodring, San Diego CA
I-Ching Lao, Los Angeles CA
Dace Brown, San Diego CA
Erin Garcia, Tarzana CA
Tiio-Mai Mccurty, La CA
Sue Breitrose, Marina Del Rey CA
Tygarjas Bigstyck, Pacifica CA
Kl Matlock, San Jose CA
John Everett, Grass Valley CA
Tiio-Mai Mccurty, La CA
Patricia McCauley, Anaheim Hills CA
Donald Betts, Oceanside CA
Steven Waldrip, Aptos CA
Mel Marcus, Long Beach CA
Erin Lamb, Los Angeles CA
Alan Cunningham, Carmel Valley CA
Jack Milton, Davis CA

James Noordyk, San Diego CA
Peggy Sharp, Marina CA
Linda B., Pasadena CA
Kathie Bloom, Carlsbad CA
E Zuniga, Santa Monica CA
Gerrit Woudstra, Lemmer CA
Karen Rusiniak, Berkeley CA
Daniel Denis, Santee CA
Steve Bond, Beverly Hills CA
Stan Hunter, Sierra Madre CA
Katie Spurlock, San Francisco CA
Kim Peterson, Cloverdale CA
Anne Reidt, Newark CA
Nicole Del Priore, San Diego CA
Gloriamarie Amalfitano, San Diego CA
Lindsay Knights, Santa Cruz CA
Nick Slater, Oakland CA
Jasmine Vaught, Glen Ellen CA
Jill Goldman, Toluca Lake CA
Ellen Segal, Toluca Lake CA
Jane Daniels, Simi Valley CA
Brian Luenow, San Francisco CA
Axel Schwarz, San Diego CA
Michael Callaway, Upland CA
Cynthia Vinney, Culver City CA
Diana Rodgers, Mission Viejo CA
Mariel Eplboim, Oakland CA
Andrea Reid, Woodside CA
Rob Firmin, Kensington CA
Gerri Battistessa, Petaluma CA
Terry Bennettcauchon, Manteca CA
Marsha Malone, Chino CA
Therese Debing, Pacific Grove, CA
Anthony Montapert, Ventura CA
Dr, Mha Atma S Khalsa, Los Angeles CA
Ronald Warren, Glendale CA
Jim Finn, Cazadero CA
Mary Ellingwood, Santa Cruz CA
Ann Myers, Berkeley CA
Daniel Michaud, Yucaipa CA
Joan Smith, San Francisco CA
Tammy Rogers, Napa CA
Lance Jordan, San Diego CA
Joan Hunnicutt, Sacti, CA
Silva Harr, Concord CA
Tanya Guchi, Sherman Oaks CA
Joe CuvIELlo, Solana Beach CA
Anne Barker, San Rafael CA
Jacki Hileman, Hesperia CA
G De Salvo, Santa Rosa CA
Kathleen Watson, Forestville CA

George Cleveland, Santa Clara CA
Steve Lustgarden, Santa Cruz CA
Rebecca Brown, San Jose CA
Rebecca Brown, San Jose CA
Genevieve Gates, Culver City CA
Bernard Verhaegen, Brussels CA
William Willis, Costa Mesa CA
Sue Breitrose, Marina Del Rey CA
Barbara Holifield, Mill Valley CA
Kirstie Palmer, Redondo Beach CA
Sandra Taylor, Anderson CA
Miriam Baum, Alta Loma CA
Barbara Gladfelder, Dixon CA
Martin Saitta, San Diego CA
Jan Salas, Santa Cruz CA
Ben Ruwe, Felton CA
Juanita Mangan-Vanham, Spring Valley CA
Raquel Cito, Moreno Valley CA
Carol Germenis, Cobb CA
Valerie Romero, Quincy CA
Jennifer Will, Morgan Hill CA
Annabelle Nye, West Hills CA
Jim Elliott, Encinitas CA
Connie Lindgren, Arcata CA
James Brown, Los Angeles CA
Aaron Haase, Long Beach CA
Debi Bergsma, Fontana CA
Ellen Dollar, San Luis Obispo CA
Anna Narbutovskih, Guerneville CA
Richard Ramirez, Fullerton CA
Myrna Cohen, San Jose CA
Sharon Ketcherside, Lincoln CA
Sonja Malmuth, Santa Ynez CA
Linda Antone, Santa Barbara CA
Kenneth Althiser, Cherry Valley CA
Kirsten Milaney, Chatsworth CA
Patricia Moreno, Goleta CA
Nancy Fetterman, Los Gatos CA
Dale Ball, La Canada Flintridge CA
Elaine Benjamin, Alpine CA
Claire Simonich, Half Moon Bay CA
Phil And Lynn Fischer, Concord CA
Jeremy Taylor, Fairfield CA
Tamadhur Al-Aqeel, Los Angeles CA
Eleanor Burian-Mohr, Los Angeles CA
Álida Montañez-Salas, Norwalk CA
G Caviglia, Morgan Hill CA
Ashley Felix, Riverside CA
Clint Freeland, Santa Maria CA
Ellen Evans, Atascadero CA
Laura Herndon, Burbank CA

Cliff Johnson, Half Moon Bay CA
Quentin Hancock, Santa Cruz CA
Harlan Lebo, La Mirada CA
J Pizzo, Corte Madera CA
Betty Kowall, Penngrove CA
Claire Jones, Hanford CA
Margaret Bautista, San Jose CA
Allyce Von Weidlich, Occidental CA
Trina Snow, Temecula CA
Angel Orona, Alhambra CA
Jamie L, Alameda CA
Joey Talley, Fairfax CA
Rebel Kreklow, Fair Oaks CA
Charlotte Harbeson, Bishop CA
Andrea Kaufman, Guerneville CA
Florence Assalit, Monterey CA
Julie Owen, Napa CA
Charleen Kubota, Oakland CA
Dan Goldberg, Santa Cruz CA
John Groves, San Francisco CA
Jessie Mcguire, Brownsville CA
Aida Brenneis, Berkeley CA
Jeanie Leitner, Irvine CA
Elaine Livesey-Fassel, Los Angeles CA
Jane Latham, Paradise CA
Daniel Gonzales, Lancaster CA
Lauren Goldman, San Francisco CA
Chereale Cormack, Bristol CA
Ana Rosvall, Vista CA
F.Carlene Reuscher, Costa Mesa CA
James Walker, Walnut Creek CA
Lucretia Jevne, Vacaville CA
Caitlin Stocker, San Francisco CA
George Rawley, Chico CA
Marion Acoff, San Dimas CA
Randall Hartman, Torrance CA
Sherry Dunn, Penn Valley CA
Tina Colafranceschi, Whitethorn CA
Mame Boyd, Rancho Mirage CA
Rick Schaffer, Anaheim CA
Marie-Nicole Lapeyrade, El Dorado Hills CA
Andre Leon, Watsonville CA
Valeria Hankins, Palmdale CA
Naila Khalaf, Los Angeles CA
Christine Nathanson, Napa CA
Colleen Mullikin, Rancho Murieta CA
Evette Garcia, Hawaiian Gardens CA
Donna Murphy, Riverside CA
Alena Jorgensen, Temple City CA
Jean Lee, San Francisco CA
Rachel Wilson, Berkeley CA

KK Meredith, Lincoln CA
Cheri Collins, San Francisco CA
Marilyn Shepherd, Trinidad CA
Julie Kmetzko, North Hollywood CA
Elmer Berger, San Rafael CA
Chelsea Potts, San Jose CA
Genevieve Deppong, Los Altos CA
Harold Jackson, Pomona CA
Derek Marotta, San Francisco CA
Tarin O'Brien, Palm Springs CA
Jesse Croxton, Venice CA
Michael Rodriguez, Los Angeles CA
Amy Stein, Corralitos CA
David Doering, San Francisco CA
April West, Santa Rosa CA
Iris Murillo, Hayward CA
Joanie Murphy, San Jose CA
Anne Barr, Kentfield CA
Cindy Major, Suisun City CA
Pablo Voitzuk, Oakland CA
Carol Kommerstad-Reiche, Santa Barbara CA
Jenna M Jardim, San Diego CA
Karynn Merkel, Eureka CA
Christopher Sanchez, Sylmar CA
Michele Castano, Brentwood CA
Nancy Smith, Santa Monica CA
Christopher Sanchez, Sylmar CA
Sophie Carter, Foothill Ranch CA
Jane Anderson, Los Angeles CA
Laura Craun, Bakersfield CA
Juels Fisher, Chino Hills CA
Robert Brunson, Monterey CA
Rose An, Arcadia CA
J. Barry Gurdin, San Francisco CA
Donna Kuge, San Diego CA
Donald Taylor, Fair Oaks CA
Deborah Chew, Lomita CA
V. Louie, San Francisco CA
Dashiell Dunkell, Santa Cruz CA
Kristie Bircumshaw, San Diego CA
Michael and Donnal Langston, LA CA
Jim Perry, Santa Rosa CA
Karen Eikeland, Alameda CA
Steve Kapchinske, San Diego CA
Albert Chiu, Oakland CA
Darren Spurr, La Mirada CA
Caryn Molinelli, Ojai CA
Sandy Levine, Pasadena CA
Rj Cooper, Irvine CA
Laura Rasay Siasoco, San Jose CA
Michael Ames, Castro Valley CA

Robyn Sherrill, Penngrove CA
Lauren Klingman, Orinda CA
Frank B. Anderson, San Pedro CA
Jason Wilson, Alameda CA
Gladys Eddy-Lee, San Diego CA
Mark Crane, Elk Grove CA
Amir Baum, Aliso Viejo CA
Doug Taylor, Roseville CA
Diyane Binno, El Cajon CA
Vasu Murti, Oakland CA
Sharon Glave, Hermosa Beach CA
Gary Beeler, Fallbrook CA
Kathy Popoff, San Pedro CA
Dorothy Pasquinelli, San Mateo CA
G. S., La CA
Nancy Hines, Novato CA
Nancy Dubuc, Pasadena CA
Koorosh Shahidzadeh, San Jose CA
Sarah Mundal, San Francisco CA
Gary Kuehn, Newhall CA
Faye Rye, Torrance CA
Travis Simmons, Oceanside CA
Angela Strafkos, San Marcos CA
Gary Kraus, Playa Del Rey CA
George Grace, Los Angeles CA
Janet Maker, Los Angeles CA
Jeffery Dorer, Los Angeles CA
Roslyn Jones, Riverside CA
Gloria Mejia, Hemet CA
Angelic Rubalcava, Fontana CA
Greg McBride, Watsonville CA
Reem Haddad, La Verne CA
Angela Bourne, Carlsbad CA
Allie Palmer, San Clemente CA
Joe Buhowsky, San Ramon CA
Claire Perricelli, Eureka CA
Carol Wiley, Victorville CA
Carolyn Dennison, Garden Grove CA
Dominique Ryba, Vista CA
Stephen Andersen, San Mateo CA
Evan Morgan, Covelo CA
Louise Zimmer, Paso Robles CA
Terence Pearce, Los Angeles CA
Paris Badat, Santa Barbara CA
Kimberly Sickel, Cypress CA
Kate Smith, Convord CA
Miranda Leiva, Sherman Oaks CA
Pam Slater-Price, Del Mar CA
Pamela Lindsay, Bakersfield CA
Robert Lindey, Rancho Cordova CA
David Harris, Ventura CA

Scott Emsley, Carmel CA
Kelly Henderson, Los Angeles CA
Scott Emsley, Carmel CA
Douglas Dyakon, Los Angeles CA
Kevin Hearle, Ph.D., San Mateo CA
Sharon Fitzgerald, Novato CA
Audrey Clark, Carlsbad CA
Gloria Mejia, Hemet CA
Judy Williams, Caliente CA
Janet Clinger, Grass Valley CA
Lisa Dahill, Thousand Oaks CA
Leslie Spoon, Los Osos CA
Lyn Younger, San Jose CA
Ruth Van Sciver, Los Gatos CA
Micah McIntyre, Valley Center CA
D. Fachko, Buena Park CA
Jan Stark, Westminster CA
Diane Joyce, Temecula CA
Jaime Becker, Berkeley CA
Rika Ishii-Price, Half Moon Bay CA
Lisa Gray, Anaheim CA
Aimee Cheek, San Diego CA
Tiffany H, Arcadia CA
Micah McIntyre, Valley Center CA
Sharma Gaponoff, Grass Valley CA
Valerie Beard, Sacramento CA
Sarah Brady, Los Angeles CA
Jeff Hoffman, Berkeley CA
Robin Tatman, Vallejo CA
Kevin Patterson, Walnut Creek CA
Kelly Swenson, Santa Rosa CA
Leticia Verduzco, Fair Oaks CA
Tracy Elliott, Studio City CA
Jorge Belloso-Curiel, Richmond CA
Connie Stomper, Santa Barbara CA
John Feissel, Cotati CA
Philip Glaser, Laguna Niguel CA
Janet Maker, Los Angeles CA
Diana Stark, Burlingame CA
Fjaere Nilssen-Mooney, North Hollywood CA
Pam Wright, Pasadena CA
Amin Arikat, Discovery Bay CA
Jan Maltzan, Sacramento CA
Mary Ann Gamma, Sonoma CA
Wendy Weikel, Berkeley CA
Stephanie Watters, Newport Beach CA
Devlon Clouser, Novato CA
Vic Deangelo, San Francisco CA
Lacey Levitt, San Diego CA
Deborah Seal, Elk Grove CA
Sheryl Hamblin, Santa Ana CA

Annie P, San Diego CA
Albert Eurs, Cypress CA
Andrew Abate, Ventura CA
Vicki Paulus, Rohnert Park CA
Jonathan Eden, Berkeley CA
Ann Tait, Pasadena CA
Roddy Smith, San Pedro CA
Edward Giguere, Gold River CA
Marina Michel, Los Osos CA
Shelley Brown, Los Angeles CA
Marilyn Price, Mill Valley CA
Diana Aston, Los Altos CA
Holly Dowling, Novato CA
Lyzette Bonaparte, Cypress CA
Brook Linnell, South Lake Tahoe CA
Debbie Prawer, Pacific Palisades CA
Sandra Morey, Oakland CA
Reeta Roo, Sebastopol CA
Suzanne A'Becket, Cupertino CA
Rebecca Fuller, Santa Rosa CA
Geraldine May, Creston CA
Ruth Park, Palm Desert CA
Anovak And Agraff, San Francisco CA
Morris Berman, Los Angeles CA
Helen Engledow, Sonora CA
Marlene Ludlow, Mt. Shasta CA
Halee Bernard, Los Angeles CA
Jenice Jackson, Inglewood CA
Adrian Euler, San Francisco CA
Joseph Reel, Pacific Grove CA
Ellyn Berner, Mountain View CA
Lisa Salazar, Shasta Lake CA
Les Roberts, Fresno CA
Deborah Biron, Hayward CA
Elvira Arias, Harbor City CA
M Katz, Los Angeles CA
Galen Hazelhofer, CA
Vicki Bingaman, Frazier Park CA
Cody Dolnick, Joshua Tree CA
Eva Grey, Sacramento CA
Mary Williamson, Berkeley CA
Romona Czichos, Hollister CA
Frederick Hamilton, Rancho Cucamonga CA
Sami Taylor, Lafayette CA
Karla Silva, Santa Monica CA
Jone Manoogian, Palo Alto CA
Patricia Lewis, Fresno CA
Virginia Krutilek, Alameda CA
Phyllis Levine, San Francisco CA
Gema Ruiz, Yorba Linda CA
Glenn Embrey, Redondo Bch CA

Kimberly Ann Kauffman, Sacramento CA
Janet Drew, Santa Rosa CA
Suzanne Deerlyjohnson, Long Beach CA
Renee Boteilho, Los Angeles CA
T Sherrill, Garden Grove CA
Jay Hummel, San Diego CA
Lana Touchstone, Vallejo CA
Nicole Planchon, Clearlake Oaks CA
Ann Anterasian, Calabasas CA
Carl Cartwright, Whittier CA
Barbara Bennigson, Palo Alto CA
Crystal Hernandez, Torrance CA
Laura Wright, Los Angeles CA
Sharon Barnes, Encino CA
Ken Sanford, Escondido CA
Krystal Lam, Cupertino CA
Mynka Draper, L.A. CA
Christa Neuber, W. Hollywood CA
Brittany Adams, Oakland CA
Roger Jennings, San Diego CA
Maria Sanchez, California CA
M. Starr, Fremont CA
Laurie Long, San Rafael CA
John Stewart, Redway CA
Gina Gatto, Castro Valley CA
Sue Ortiz, San Carlos CA
Karen Villanueva, San Francisco CA
M Susan Ditzler, Carmel CA
Chirstina Babst, W. Hollywood CA
Judy Shively, San Diego CA
Michael Talbot, San Rafael CA
Graham Fulk, Atascadero CA
Nancy Moll, Hemey CA
Chuck Wieland, San Ramon CA
Kristina Fukuda, La CA
Naomi Sobo, San Diego CA
L Nelson, Morgan Hill CA
Patrizio Paratelli, Culver City CA
Lisa Jacobson, El Portal CA
Michael MCGowan, Orinda CA
Mary M. Mason, Huntington Beach CA
Corinne Greenberg, Berkeley CA
Lenore Sorensen, Kensington CA
Donna Fabiano, Forestville CA
Jamie Rosenblood, Los Angeles CA
Rebecca Chan, Vallejo CA
David Boyer, Palo Alto CA
Victor De Vlaming, Sacramento CA
Arleen Weiss, San Lorenzo CA
Steve Downing, Santa Barbara CA
Lonna Richmond, Muir Beach CA

Charlotte Sines, Yosemite CA
Jeff Fromberg, Los Angeles CA
Charlotte Cook, Sacramento CA
Kim Messmer, Santa Clara CA
Christine Stewart, Escondido CA
Sean Corrigan, Bellflower CA
Joseph Dadgari, Los Angeles CA
James Columbia, Bakersfield CA
Carol Fusco, Berkeley CA
Javier Del Valle, Montebello CA
Mitzi Kobashi, Campbell CA
Jeff Melin, Santa Cruz CA
Ian Heptinstall, Utsunomiya CA
James Johnson, Simi Valley CA
David Hyde, Orick CA
Namita Dalal, Los Angeles CA
Adrienne Bush, Modesto CA
Michael Braude, Menlo Park CA
Anja Kollbach, Menlo Park CA
Bonnie Dombrowski, Pasadena CA
Linda Baxter, Yreka CA
Jim Prola, San Leandro CA
Christine Anderson, Ca CA
Linda Baxter, Yreka CA
Ron Vanderford, Burbank CA
John Connors, San Clemente CA
Glen Deardorff, Castro Valley CA
Charlene Knowlton, Los Angeles CA
Rob Erlick, Valley Village CA
Elissa Wagner, Aptos CA
Nadia Haddad, Monterey Park CA
Maureen Roche, Petrolia CA
Glenda Coker, Fresno CA
Jackie Thompson, Shingle Springs CA
Dorothy L Davies, San Francisco CA
Victor Nepomnyashchy, North Hills CA
Heidi Palmer, Montclair CA
Cathy Eisemann, Santa Clara CA
Mika Stonehawk, Tustin CA
Janis Alldis, Scotts Valley CA
Lori West, San Diego CA
Kirsten Holmquist, Sunnyvale CA
Judi Harris, Arcadia CA
Sally Smith, Sacramento CA
Lynne Jeffries, Laguna Niguel CA
D & W Thomas, San Diego CA
Tina Ann, Bolinas CA
Larry Dinger, Rocklin CA
Rob Roberto, Santee CA
Richard Schmitt, Hemet CA
Kermit Cuff, Mountain View CA

Armando Aranjó, Vista CA
James Hedgecock, Pine Grove CA
Jeff Thayer, San Diego CA
Barbara Frances, Aromas CA
Jane Ross, San Francisco CA
David Downing, Desert Hot Springs CA
Dana Wullenwaber, Redding CA
Karen Ratzlaff, Santa Rosa CA
Sandra Wilson, Clayton CA
John Pasqua, Escondido CA
Amy Pine, Santa Cruz CA
Rea Freedom, Los Gatos CA
Marci Stuckey, Sacramento CA
Michael McMahan, Huntington Beach CA
Cyndi Olson, Santa Clarita CA
Lisa Gherardi, Los Gatos CA
Patricia Little, Camarillo CA
Jerry Horner, Walnut Creek CA
M G, Berkeley CA
Jana Menard, CA CA
Arnold Schildhaus, Santa Barbara CA
James Hampson, San Francisco CA
Jamie Kurnik, San Clemente CA
Anita Harwardt, W. Covina CA
Deborah Riker, Sacramento CA
Stephenie Gomes, San Jose CA
Georgia Labey, La Mesa CA
Alezz Laielen, San Rafael CA
Betty Ball, San Diego CA
Lynn Nardella, Lake City CA
Abby Bateman, San Diego CA
Kenneth Pennington, Santa Clarita CA
Maureen McDonald, Los Angeles CA
Stephen Anderson, Simi Valley CA
Judy Hewitt, Stockton CA
Paul Belz, Chico CA
Jennifer Formoso, Oakland CA
Joe Leblanc, Sebastopol CA
David Peterson, San Diego CA
Cathy Goodrich, Verdugo City CA
Angelo Simao, Chico CA
Frank Burke, Los Angeles CA
Berna Nitzberg, Aptos CA
Walter C & Maureen Steffen, Jr., Escondido CA
Judith Sandoval, San Francisco CA
Michelle Lind, Hawthorne CA
Stephanie Linam, Benicia CA
Nicolette Froehlich, Acampo CA
Marika Leff, Novato CA
Rebecca Barker, Glendora CA
Joseph White, Cool CA

Jeannie Boyd, Suisun City CA
Richard Puaoli, Novato CA
Victoria Miller, Encino CA
Sandy Stuhaan, Ridgecrest CA
Melissa Miller, Pleasant Hill CA
Nicholas Lenchner, Santa Rosa CA
Amara Siva, San Diego CA
Benjamin Wong, Newark CA
Colleen Bergh, Santa Ana CA
Frank Burke, La CA
Tim Farrell, Ventura CA
Terry S.C., Santa Maria CA
Jo Ann Schneider, Berkeley CA
Susan Ross, Grass Valley CA
Frank Burke, La CA
Lynne St. John, Santee CA
Ellen Koivisto, San Francisco CA
Rita Carlson, Eureka CA
Eliza Sosa, Gilroy CA
Jacqueline Wells, Calabasas CA
Caryl Parrish, Carlsbad CA
Matthew Davis, San Diego CA
Virginia Watson, Los Angeles CA
Jennifer Cartwright, Rancho Santa Margarita CA
Susie Wong, San Francisco CA
P.P. Soucek, Sherman Oaks CA
Steve Wozniak, Encinitas CA
Jennifer Corrigan, Newbury Park CA
Ryan Corry, Santa Monica CA
Debra Lono, Hayfork CA
Faustino Riveron Jr., Rancho Santa Margarita CA
Jennifer Case, Campbell CA
Robin Steudle, Laguna Woods CA
Michelle Layer, Berkeley CA
David Soto, Santa Clarita CA
Shannon Healey, San Carlos CA
Sharon Ford, Orange CA
Wendy Diamond, Berkeley CA
Allison Beggs, Temecula CA
Antonia Chianis, Blue Jay CA
Chris Withrow, L.A. CA
Julene Freitas, Oakland CA
Debbie Henson, North Hollywood CA
Brett Holland, Los Angeles CA
Garrett Alden, Chico CA
Jessie Miller, Lake Forest CA
Felena Puentes, Bakersfield CA
Helen Dickey, El Cerrito CA
Alice Alford, Blythe CA

Reba Siero, Martinez CA
Gail Lytle, Turlock CA
Susaan Aram, Laguna Beach CA
Marcia Kolb, Oakland CA
Craig Eldred, Discovery Bay CA
Harriet Mitteldorff, Pebble Beach CA
Simran Khalsa, Los Angeles CA
Harry Knapp, Riverside CA
Tim Ryan, Capistrano Beach CA
E D, Riverside CA
Becky Roberts, Yucaipa CA
Shaun Geahigan, San Marcos CA
Sharon Nicodemus, Sacramento CA
Beverly Thiele, Kensington CA
Elizabeth Smith, Sacramento CA
Lynette Ridder, Concord CA
C Pio, Burbank CA
Julie Sicaud, Sebastopol CA
Rhonda Chen, Victorville CA
Debbie Summers, Glendale CA
Deborah A, Murrieta CA
Bob Drury, Long Beach CA
Philip Patino, Pico Rivera CA
Deborah Austin, Torrance CA
Linda Jameson, Dunsmuir CA
Jan Jones, El Cerrito CA
Elaine Barrett, San Diego CA
Barbara Kenton, San Clemente CA
Shirley Fukuhara, Loma Linda CA
Troy Windsor, Ca CA
Diana Blanton, San Diego CA
Lis Fleming, Davia CA
Elizabeth Daniels-Currey, Chico CA
Ross Balcom, Anaheim CA
Cheryl Young, Concord CA
Linda Schoppert, Napa CA
Candace Lamoree, Hemet CA
Dennis Allen, Santa Barbara CA
Nora Gainey, Venice CA
Sharon Kocher, Sebastopol CA
Christine Sepulveda, Anaheim CA
Stephanie Glatt, Santa Barbara CA
Rev. Charlotte Bear, San Jose CA
Susan Allen, Livermore CA
Madeleine Gepner, Grass Valley CA
Deborah Iannizzotto, Escondido CA
Alton Cullen, Pasadena CA
Kimberly Leyden, Concord CA
Anna Schofield, Los Angeles CA
Cindy Stein, Thousand Oaks CA
Alton Cullen, Pasadena CA

Sandra Williams, Simi Valley CA
Manuel Correa, Montara CA
Ken Stein, Thousand Oaks CA
Miranda Mendoza, Santa Rosa CA
Robin Powar, Menlo Park CA
Jeff Levice, Valley Village CA
Kathryn Lanning, Visalia CA
Michele Santoro, Davis CA
David Burtis, Calistoga CA
Tiffany Casler, Laguna Beach CA
Nora Jaffe, La Jolla CA
Mary Haley, Elk Grove CA
Leslie Klein, Los Angeles CA
Christopher Orev Reiger, San Francisco CA
Sydney Berner, Ca CA
John Oda, San Francisco CA
Ann Stratten, La Mesa CA
Betty Lawrence, Cathedral City CA
C S, Sdiego CA
Linda Bruce, Yuba City CA
Jaime Nahman, Topanga CA
Regina Favarote, Pasadena CA
Maryellen Redish, Palm Springs CA
Gail Hubbs, Newbury Park CA
Sharon Torrisi, Hermosa Beach CA
Jill B., San Francisco CA
Kai Ewert, Ojai CA
Cathy Sleva, Seal Beach CA
Cathy Stansell, California CA
Jennifer Hayes, Modesto CA
Richard Patenaude, Hayward CA
Gloria Aguirre, Castaic CA
Rose Shuck, San Francisco CA
Michael Louthian, West Hills CA
Vera Loewer, Pacifica CA
Jamed Bishop, Santa Cruz CA
S O'Neill, Berkeley CA
Staci Evans, Sacramento CA
Lisa Ann Kelly & Family, Santa Barbara CA
Brad Nelson, Oxnard CA
Denise Parsons, Daly City CA
Katrina Schneider, Nevada City CA
Susan Summers, Carmichael CA
S Jones, Huntington Beach CA
Jane Harada, Berkeley CA
Jeff Arnett, Santa Cruz CA
Julie Kramer, San Francisco CA
Ria Young, San Jose CA
Stephanie Silen, Sausalito CA
Sylvia Williams, Tustin CA
Janine Giaime, Valley Village CA

Vicki & Rod Kastlie, San Diego CA
Kathy Obrien, Redway CA
Bernadette Jaeger, Los Angeles CA
Carey Suckow, San Francisco CA
Leilani Hubbard, Tustin CA
Elaine Woodruff, Petaluma CA
Dorothy Southern, Borrego Springs CA
Sheryl Schroeder, Santa Barbara CA
Stephen Muser, Chico CA
Eric Bergman, Santa Clarita CA
Robert Kessler, Oakland CA
Donna Sternberg, Santa Monica CA
Joseph Belli, Hollister CA
Laura Koeninger, Ukiah CA
Kirby Hammel, El Cerrito CA
Michael Grubb, Palo Alto CA
Joseph Sebastian, Sacramento CA
Christie Deddens, Los Angeles CA
Cindy Neeper, San Lorenzo CA
Cristina Amarillas, Santa Rosa CA
Gary Dowling, Pope Valley CA
Russell Weisz, Santa Cruz CA
Rhys Atkinson, San Rafael CA
M G, San Francisco CA
Mary Bobadilla, Antioch CA
Amy Christenson, Seaside CA
Ann Wasgatt, Roseville CA
Joan Paul & Pj Sullivan, Ventura CA
Kate Ague, Menlo Park CA
Rick Posten, Los Angeles CA
Dana Gatto, Oakland CA
Erica Arriaza, Brentwood CA
Kat Wilson, Los Angeles CA
Jennifer Harrison, San Francisco CA
Jeannette Welling, Thousand Oaks CA
Kathleen Powell, Vallejo CA
Kathy Jones, San Marcos CA
Kathleen Dale, Moreno Valley CA
Mark Ogonowski, Ventura CA
Karla Werning, Hayward CA
Gina Ortiz, Claremont CA
Victoria Vance, Bayside CA
Karen Valentine, Soquel, CA
Janis Bates, Sherman Oaks CA
Rita Minjares, El Cerrito CA
Lauren O'Keefe, W Sacramento CA
Carol Irvine, Redwood City CA
Emmy Gutierrez, Fresno CA
Trudy Cohen, Carlsbad CA
Julie Vetrie, Canyon Country CA
Wendy O'Terry, Valley Village CA

Kevin Mendenhall, Walnut Creek CA
Diana Schweickart, San Rafael CA
Janice Barley, Napa Ca 94558 CA
Pilar Romero, Encinitas CA
D. Rowe, Santa Monica CA
Susan Wallace, Rancho Cordova CA
Stephanie Nunez, Van Nuys CA
Hana Correa, La Quinta CA
Stephanie Nunez, Van Nuys CA
Norqui Diaz, Long Beach CA
Jean King, Livermore CA
Leslie Gould, San Anselmo CA
Emily Louise Klatt, Palmdale CA
Toni Garcia, Laguna Niguel CA
Anna Hornick, Daly City CA
Kathie B, Mentone CA
David Hammond, Willits CA
William Grosh, El Centro CA
Andy Ramirez, Santa Ana CA
D. Rincon, Fresno CA
Diane Winter, La Verne CA
Sara Fogan, Santa Clarita CA
Debra Jones, Hawthorne CA
Shirley Harris, Willits CA
Connelee Shaw, San Jose CA
Miryam Liberman, Thousand Oaks CA
Lawrence Carbary, San Francisco CA
Donna Cooksey, Pine Grove CA
Anna Pinto, Bakersfield CA
Daena Acevedo, La Puente CA
V & B Jones, Torrance CA
Nancy Leech, East Palo Alto CA
Antonio Dettori, San Diego CA
Linda Mellen, Newport Beach CA
Maria Cardenas, Azusa CA
Stefanie Owen, Huntington Beach CA
Keiko M., San Francisco CA
Johanna Thommen, Sacramento CA
Laurie Skaggs, South Lake Tahoe CA
Erin Millikin, San Diego CA
Devin McCormick, Santa Rosa CA
Adrian Frazier, Menifee CA
Karyn Pappel, Nanoose Bay CA
Diane Mader, Walnut Creek CA
Maria Delao, San Francisco CA
Tina Anderson, Roseville CA
John Green, Riverside CA
Nancy Heck, Santa Maria CA
David Hild, Atascadero CA
Barbara Diederichs, Poway CA
Judith Collas, Pacific Palisades CA

Vance Handley, Los Angeles CA
Ross Heckmann, Arcadia CA
Vishwa Bhagvat, San Jose CA
Kassi Ydris, Costa Mesa CA
Ruth Piker, Westminster CA
Herb Shoemaker, Carmel Valley CA
Eva Manus, Laguna Niguel CA
Jane Ahrens, Berkeley CA
Robert Park, Sunnyvale CA
John Delgado, San Martin CA
Rebeca Byerley, San Dimas CA
William Winburn, Rancho Palos Verdes CA
Jean Peters, Berkeley CA
Kirk Kloepper, Montara CA
L. Parrish, California CA
Gregory Fite, Castro Valley CA
Judy Levitt, Los Angeles CA
Karen Berger, Montrose CA
Andy Lupenko, Lemon Grove CA
Paula Zerzan, Sonoma CA
Roman Capelli, Benicia CA
Gaile Carr, Mount Shasta CA
Arnold Martelli, Burlingame CA
Fred Rinne, San Francisco CA
C G, San Diego CA
Karen Moffitt, San Diego CA
Meredyth Young, Walnut Creek CA
Gail Alford, Santa Rosa CA
Rosemary Graham-Gardner, Manhattan Beach CA
Robert Hahn, Topanga CA
Marybeth Bowman, Morgan Hill CA
Sally Patterson, Santa Barbara CA
Ila Sherman, Santa Rosa CA
Mal Domser, Stockton CA
Annemarie Weibel, Albion CA
Paula Jain, Nevada City CA
Lauren Schiffman, El Cerrito CA
Ron Goldman, Los Altos CA
Eric Smith, San Jose CA
Emily Lindsey, Los Angeles CA
Emily Ettinger, Encino CA
Karen Jacques, Sacramento CA
Barbara Harper, Castroville CA
April Ochoa, Santa Rosa CA
Carol Gordon, Los Angeles CA
Lisi Brown, Burbank CA
Philip Simon, San Rafael CA
Lois Bacon, Freedom CA
Dr. April Modesti, Redwood City CA
Robert Van Duinen, Walnut Creek CA

Sam Jones, San Jose CA
Tessie Aguilar, South Gate CA
Hilary Danehy, Fremont CA
Kathleen Kuczynski, Lake Forest CA
Joanne Cohen, San Diego CA
Andes Geiger, San Diego CA
Kathleen Van Every, Atascadero CA
Eugene Majerowicz, Los Angeles CA
Gene Trautmann, Los Angeles CA
Alexandra Service, Eureka CA
Michael Tomczyszyn, San Francisco CA
Mary Sullivan, Huntington Beach CA
Nancy Nolan, Red Bluff CA
Beatrice Nelson, Hayward CA
Mindi White, Los Angeles CA
Geoff Regalado, Burbank CA
Robert Conner, Helendale CA
Clara Zhang, Mission Hills CA
Greg Goodman, Concord CA
Ted Porter, North Hollywood CA
James Rees, Castro Valley CA
D Ashurst, Corning CA
Peter Linback, San Diego CA
Sheila Wright, Grenada CA
Cassandra Williams, Brawley CA
Stephanie Darling, San Francisco CA
Donna Lewis, Van Nuys CA
Nancy Arbuckle, Redwood City CA
Rachel Zanetti, Encinitas CA
Nami H, Los Angeles CA
Nancy Freedland, Big Bear City CA
Betty Winholtz, Morro Bay CA
Damian Lopez, Sacramento CA
James Ring, Indio CA
Emanuela Sala, Los Angeles CA
Denise Bowland, Lake Elsinore CA
Ian Haddow, San Francisco CA
Linda Pydeski, Placentia CA
Gladys Bransford, Cobb CA
Susan Ryan, Los Angeles, Ca CA
Bea Shemberg, Playa Del Rey CA
Terrell Rodefer, Van Nuys CA
Richard Corten, Berkeley CA
Gail Caswell, San Francisco CA
Tony Grijalva, Los Angeles CA
Alex Gutt, Tahoe City CA
Alan Haggard, San Diego CA
Sergi Goldman-Hull, Oakland CA
Tia Ja, San Jose CA
Henry Kruger, Eureka CA
Melissa Evask, Eureka CA

Gwen Richards, Santa Barbara CA
Jan Repp, B.P. CA
Pietro Poggi, San Rafael CA
Jan Repp, B.P. CA
Joy Turlo, Redondo Beach CA
Sha Davies, Redding CA
Kathleen Obre, Laguna Beach CA
Carol Downey, Carmichael CA
Joseph Rhoades, Vacaville CA
Mark Mulder, San Jose CA
Evan Ingle, San Diego CA
Marlene Pierce, Puerto Del Carmen CA
Armando Gomez, Santa Rosa CA
Sheri Randolph, CA
Kate Harper, Borrego Springs CA
Ronald Woolford, Placerville CA
Diane Smader, Sunnyvale CA
Sarah Phinney, Porterville CA
Mark Hargraves, Sebastopol CA
Marianne Tornatore, San Clemente CA
Linda Skorheim, Temple City CA
Erin Conner, Oakland CA
Valerie Goldberg, Calabasas CA
Melissa Borbon, Los Banos CA
Joanne Snyder, San Diego CA
Scott Jung, South Pasadena CA
Corey Ploutz, Modesto CA
Penelope Prochazka, Simi Valley CA
Christina Jackson, La Mesa CA
Eric Johnson, San Diego CA
Denise Barger, Bishop CA
Ashlee Johnson, Simi Valley CA
Cynthia Snyder, San Diego CA
Tim Brady, Aliso Viejo CA
Brian Murphy, Sherman Oaks CA
Sandie Brown, Alamo CA
Vicki Sarnecki, Bangor CA
Lisa Annecone, Santa Rosa CA
Evelyn McCormick, Ramona CA
Meredith Elliott, Oakland CA
William Whitson, Berkeley CA
Patrick Craig, Guerneville CA
Lizette Weiss, Fort Bragg CA
Pamela Hamilton, Sacramento CA
Jana Harker, Arcadia CA
Alicia Puppione, Los Gatos CA
Aimee Darrow, Venice CA
Lisa Steele, Roseville CA
Marvin Pettey, San Francisco CA
Carmela Siboldi, Gilroy CA
George Matos, Fremont CA

C Leonard, San Bernardino CA
Stephan Foley, Ojai CA
Margaret Tollner, Lakewood CA
Ernest Bustillos, San Gabriel CA
Aidan Humrich, Rohnert Park CA
Angelica Ceja, Lodi CA
Richard Whaley, Eureka CA
S. Barnhart, Berkeley CA
Nancy Hiestand, Davis CA
Monica Ventrice, Loma Mar CA
Johanna Hart, San Francisco CA
Dale Wright, Ramona CA
Laurie Vann, Rancho Cordova CA
Julie Vazquez-Souza, San Diego CA
Jeffrey Hemenez, San Ramon CA
Rachelle Miller, Fullerton CA
Erica Tyron, Claremont CA
Barbara Lee, Sebastopol CA
Travis King, Los Angeles CA
Karen and Edward Osgood, Citrus Heights CA
Kathryn Riley, El Cajon CA
Pavel Skaldin, San Francisco CA
Jeanne Schuster, West Covina CA
Jo Baxter, Laguna Beach CA
Lisa Cuizon, Thousand Oaks CA
Barbara Drosman, Encinitas CA
Regina Reinhardt, San Diego CA
Barbara Drosman, Encinitas CA
Edwynna Rennie, Alhambra CA
Al Branca, Mendocino CA
Elaine Whooley, Nevada City CA
Bill Boosman, Pacific Grove CA
Matthew Priebe, Galt CA
Scott Workinger, Yucca Valley CA
Mark Gallegos, Los Angeles CA
Sharon Lieberman, Annapolis CA
Judi Naue, Manteca CA
Bruce Vincent, Ojai CA
Tina Peak, Palo Alto CA
Martha Fopiano, Valley Center CA
Francesco Masiello, Signal Hill CA
Chris Toledo, Santa Clara CA
Richard Lee, Salinas CA
Cynthia Tuthill, Hercules CA
Henry Rosenfeld, Riverside CA
Trent Barnhart, Ventura CA
Raquel Hernandez, Santa Paula CA
Paula M Wright, Ca CA
Craig Cook, Santa Rosa CA
Cecelia Mondoc, Los Angeles CA
Jamila Garrecht, Petalluma CA

Sr Hinrichs, Gilroy CA
Christine Johnson, Indio CA
Marilou Jung, Roth Hambach CA
Genevieve Gates, Culver City CA
James Feichtl, Belmont CA
Tina Dekwaadsteniet, Los Angeles CA
Karen Seeberg, Topanga CA
Joan Breiding, San Francisco CA
Rosa Baeza, Reseda CA
Dylan Flather, Long Beach CA
Seth Picker, Diamond Springs CA
Michael Michel, La CA
Marybeth Arago, Fort Bragg CA
Norm Wilmes, Yuba City CA
Diane Parks, Mission Viejo CA
Mark Halvorsen, Coarsegold CA
Billie Davies, Oceanside CA
Nadya Schmeder, Napa CA
Sharon Borrege, Santa Cruz CA
Dennis Lynch, Felton CA
Noah Youngelson, Los Angeles CA
Martha Grimson, Fairfield CA
Katrina Child, San Francisco CA
Norm Wilmes, Yuba City CA
Celia Scott, Santa Cruz CA
John Jordan, Fresno CA
Cecilia Gonzalez, Los Angeles CA
Julie Bohnet, Willits CA
Clare Hooson, Belmont CA
Christel Capps, San Jose CA
Nancy Haskett, Modesto CA
Vicki Hughes, Huntington Beach CA
Carrie Lindh, Richmond CA
Steve Flaherty, Los Gatos CA
Kathryn Santana, Bradbury CA
Nikki Nicola, Davis CA
Corey Prost, Santa Monica CA
Garrine Petersen, Sun Vallkey CA
Margarite Reynolds, San Francisco CA
David Franzetta, Laguna Niguel CA
Jimmie Lunsford, San Diego CA
Florence Lemoine, Garden Grove CA
Barbara Tacker, Camarillo CA
Jeffery Garcia, Mendocino CA
Linda Bodian, Fairfax CA
Ian Marshall, South Pasadena CA
Bonnie Ricca, Redwood City CA
Laurel Przybylski, Oakland CA
Paula Arthur, Westlake Village CA
Denise Louie, San Francisco CA
Susan Sebanc, Marina Del Rey CA

Kris Trottingolf, Petaluma CA
Rich Perez, Torrance CA
Leslie Yost, San Gabriel CA
Leo Buckley, San Francisco CA
Jim Halbert, Poway CA
Stephanie Fazzare, Placentia CA
Kathy Govreau, Morongo Valley CA
Lisa Frey, Emerald Hills CA
Joy Turlo, Redondo Beach CA
Robert Cherwink, Sonoma CA
Claire Joaquin, Pollock Pines CA
Madeline Wright, Los Angeles CA
Hollis Jordan, Toluca Lake CA
Donna Panza, Grass Valley CA
Pam Brown, Mft, Willits CA
Arlyne London, Oakland CA
Paul Pommet, Anaheim CA
Joy Fedele, Ojai CA
Tom Butler, Morgan Hill CA
Sun Roberts-Ibarra, Ca CA
Cynthia Coffman, Chatsworth CA
Chris Berry, Santa Cruz CA
Norene Baiely, Santa Cruz CA
Kate Robinson, Anaheim CA
June Matsuo, Rancho Cordova CA
Laura Newton, Cathedral City CA
Marcia Sewelson, Studio City CA
Eileen Mcleod, North Highlands CA
Christie Childs, Eureka CA
Vernon Jacobs, Corte Madera CA
Karen Brant, San Francisco CA
Thomas Goldenberg, South Lake Tahoe CA
Karlee Schnyder, El Cajon CA
Gillian Wilkerson, Mill Valley CA
Jeanelle Taylor, Thousand Oaks CA
Susan Wright, Bakersfield CA
Iliana Lopez, Glendora CA
Marion Falgren, Fair Oaks CA
Andrea Iaderosa, Los Angeles, CA
Robyn Sumners, North Hollywood CA
Candris Madison, Los Angeles CA
Lynne Holley, Lake Forest CA
Dawn Fountain, Fairfield CA
Shawn Williamson, Studio City CA
Charlene Henley, San Jose CA
Pattie Meade, San Clemente CA
Howard Dillon, Bolinas CA
Joyce/Henry Moser, Laguna Woods CA
Sheila Erwin, Petaluma CA
Judy Irving, San Francisco CA
Jeanne Correa, Montara CA

J. Holley Taylor, Penn Valley CA
Sue Kirkpatrick, Scotts Valley CA
Michael Talbot, San Rafael CA
Kim Stevens, Richmond CA
Amber Tidwell, Culver City CA
Kimberly Bach, Shingle Springs CA
Natasha Saravanja, San Francisco CA
Cristian Contreras, Bell CA
Neil Cardew-Fanning, Dutch Flat CA
Jessica De Ruiter, Los Angeles CA
Mary Hicklin, Lakeside CA
O Lewis, Los Angeles CA
Miyuki Powell, Midway City CA
Jessie Root, Vista CA
Anne Kobayashi, San Diego CA
Ryan Schrader, Cerritos CA
Gail Ryland, Pebble Beach CA
Cynthia Lewis, Templeton CA
Kathleen Fernandez, Huntington Beach CA
Deborah Wheeler, Pleasant Hill CA
Rhea Damon, CA
Cynthia Mccollom, Occidental CA
Emily Moran, Merced CA
Vonza Thompson, Los Gatos CA
Matthew Carlstroem, Kensington CA
Julie Watt, Mountain View CA
Walter C & Maureen Steffen, Jr., Escondido CA
Michael Rotcher, Mission Viejo CA
Ning Su Ong, Richmond CA
Gavrilah Wells, San Francisco CA
Shannon Scott, Los Olivos CA
Christine Zack, Campbell CA
Kirk Kloepper, Montara CA
Carlanne Snyder, Castro Valley CA
Ashni J. Karan, Pleasanton CA
Roberta Heist, Fort Bragg CA
Rubi Khilnani, San Mateo CA
Cynthia Barbaccia, Richmond CA
Suzanne Anderson, Livermore CA
Jim Duff, Sonoma CA
Vincent Rubino, Albany CA
June Cancell, Palo Alto CA
Laura Trujillo, Los Angeles CA
Iris Chynoweth, Midpines CA
Joseph R Seals Jr, Santa Ana CA
Valerie Meyer, Yucca Valley CA
Brent Larsen, San Diego CA
Margaret Merino, San Diego CA
Margaret Spak, Menlo Park CA
Cindy Kamler, Bishop CA
Wyman Hack, El Cajon CA

Barbara Consbruck, Sylmar CA
Lori Ward, Sacramento CA
Jim Reynolds, Montague CA
Susan Williams, Carpinteria CA
Brenda Thompson, La Mesa CA
Gail Cheeseman, Saratoga CA
Barbara Grant, Aptos CA
Rj Padiernos, Tustin CA
Marlene Cady, San Dimas CA
Rich Gililand, Redding CA
Ira Rechtshaffer, San Rafael CA
Marty Bostic, Los Angeles CA
Rebecca Holzer, Huntington Beach CA
Robert Charland, Sacramento CA
Camille Gilbert, Santa Barbara CA
Jon Steenhoven, Santa Rosa CA
Georgia Crowder, Los Gatos CA
Linda Penrose, Paso Robles CA
Tom Canning, Calabasas CA
J Eiser, Long Beach CA
Lorretta Marcel, San Francisco CA
C Montagno, Coarsegold CA
Thomas Gillespie, La Mirada CA
Katherine Prince, Los Angeles CA
Michelle Kory, Valencia CA
Kathryn Major, Concord CA
Rose Miksovsky, Oakland CA
Jennifer Hennig, Boulder Creek CA
Lynn Armstrong, El Cerrito CA
Ren Navez, Los Angeles CA
Nancy Novak, Fresno CA
Corrie Talbot, Annapolis CA
Michael Charnes, Ukiah CA
Malcolm Booth, Sebastopol CA
Jade Scileppi, San Francisco CA
Denis Petitt, Burbank CA
Alyissa Chenoweth, Nevada City CA
Tamara Voyles, Sebastopol CA
Kristine Davis, Sacramento CA
Aaron Van Korlaar, La Habra CA
Anne Gregory, Palo Alto CA
Michelle Orengo-Mcfarlane, El Sobrante CA
Olivia Lim, Davis CA
David Cogswell, San Francisco CA
Michael Craib, Watsonville CA
Kate Marianchild, Ukiah CA
Jay Von Mohr, Lancaster CA
Clare Kelemen, Carlsbad CA
Thi Ton-Olshaskie, Arroyo Grande CA
Rhonda Oxley, San Francisco CA
Aaron Kirschenbaum, Lafayette CA

Shannon Hickey, Davis CA
Rilla Heslin, La Mesa CA
Annamarie Jones, Alturas CA
David Sherman, Santa Rosa CA
Michael Desmarais, Santa Cruz CA
Jorge De Cecco, Ukiah CA
Junko Card, Exeter CA
Melinda Pyle, Citrus Heights CA
Barbara Mrozek, San Francisco CA
Cathy Palamara, Yorba Linda CA
Dennis Ledden, Fiddletown CA
Kelly Harding, San Diego CA
Janis Herbert, Folsom CA
Gerardo Lobo Gonzalez, San Pablo CA
Patricia Puterbaugh, Cohasset CA
Jaye Bergen, Palo Alto CA
Chris Brazis, San Francisco CA
Joelle Porter, Susanville CA
Ady Larsen, Brisbane CA
Dennis Fritzinger, Berkeley CA
Mike Meyer, Gilroy CA
Jeff Alford, Santa Cruz CA
Ken Stack, Los Angeles CA
Kelly Lally, San Francisco CA
David Wolf, San Francisco CA
Eve Angle, La Mesa CA
Gidon Singer, San Diego CA
Mc Yturalde, San Diego CA
Golzar Arvin, Montebello CA
Dawn Garcia, Ororville CA
Marlene Testaguzza, Aromas CA
Vance Arquilla, Los Angeles CA
Ron S., Hp CA
Donna Duran, Northridge CA
Ann Rennacker, Fort Bragg CA
Roshanee Lappe, San Pedro CA
K Kaweck, Alta Loma CA
Nalani Ha'O, Long Beach CA
Nina Smith, Studio City CA
Stephanie Hankey, San Diego CA
Tanya Mann, Sacramento CA
Connie Devine, San Jose CA
Sara Katz, Manhattan Beach CA
Susan Barrett, San Mateo CA
Kazuko Mitose, San Diego CA
Jim & Leslee Mcpherson, San Mateo CA
Erika Whitton, Irvine CA
Claudia Stein, San Diego CA
Julian Yerena Jr, Parlier CA
Jaime Lopez, San Jose CA
Kelly Miller, San Diego CA

Emily Coleman, Los Angeles CA
Marianne Wilson, Granada Hills CA
Link Gerber, Los Angeles CA
Christina Singleton, Pacific Palisades CA
Richard Cohen, Novato CA
Jazzmyn Ibanez, Reedley CA
Francine Banda, South Gate CA
Faith Strailey, Quincy CA
Piers Strailey, Quincy CA
Kathleen Boergers, Oakland CA
Gabriel Chang, Bellflower CA
H Thomson, Long Beach CA
Stacey Rohrbaugh, Willits CA
Anna Brigantino, Campbell CA
Myrna Freeman, North Fork CA
Nadine Borelli, Morgan Hill CA
Erin McCreless, Santa Cruz CA
M Masek, Danville CA
Drew Feldmann, San Bernardino CA
Carla Davis, Corte Madera CA
Melanie Wallace, Sacramento CA
Pamela Peck, Watsonville CA
K V, Carson CA
Lisa Cossettini, Playa Del Rey CA
Teri Herbst, Torrance CA
Genavieve Koenigshofer, San Clemente CA
Katee James, Sacramento CA
Janice Vieth, Covina CA
Jim Phillips, Sonoma CA
Laurel Scott, San Diego CA
Caroline Janosky, La CA
Amber Coverdale Sumrall, Soquel CA
Mary Gorman, Union City CA
Diana Rodgers, Mission Viejo CA
Jym Dyer, San Francisco CA
C. Kitzmiller, North Hollywood CA
Jessica Likens, Buena Park CA
Aaron Senegal, Richmond CA
Anita Tsang-Ling, North Hollywood CA
Andrea Eitelman, Fontana CA
Patti Koger, Cardiff By The Sea CA
Bryan Rosen, Sb CA
Bruce Saltzer, Glendale CA
Kate Brotherton, Lake Forest CA
Damon Brown, Los Angeles CA
Nancy Berman, Kensington CA
Rowena Carlson, San Diego CA
Elizabeth Penn, Santa Rosa CA
Joan Kaplan, Altadena CA
Emily Bernath, Topanga CA
Brien Brennan, Red Bluff CA

Cortney Sumpter, Dos Palos CA
Cindy Roberts, Marysville CA
Amber Wheat, Redondo Beach CA
Susan Ray, West Hollywood CA
Nicole Arduini, Rancho Santa Margarita CA
Jessica Mitchell-Shihabi, Antelope CA
Ingrid Skei, Thousand Oaks CA
Adrienne Picchi, Pasadena CA
Dorothy Mitchell, Chico CA
Melissa Ochoa, Los Angeles CA
Karen Hall, Sonoma CA
Hilarey Benda, Los Angeles CA
Koll Ellis, Kensington CA
Karri Rolien, Corte Madera CA
Kent Lennox, San Francisco CA
Debra Salcido, Ontario CA
Junko Takeya, Diamond Bar CA
Amy Howk, Santa Cruz CA
Irene Gonzalez, Santa Rosa CA
Elizabeth Kloepper, Montara CA
Kathy Skaggs, Sunnyvale CA
Tamra Schnitman, Calabasas CA
Leda Huang, San Leandro CA
Jill Blaisdell, La Canada CA
Judith Bayer, San Diego CA
Cody Porter, Yucaipa CA
Erica Griffin, San Francisco CA
Seb Villani, Chula Vista CA
Roland Knight, Altadena CA
Pamela Nelson, Warner Springs CA
Link Gerber, Los Angeles CA
Alex Von Dallwitz, Carmel CA
Leasa Thernes, San Diego CA
Jessie Osborne, Oceanside CA
Gloria Molina, Oakland CA
Chris Gross, Modesto CA
Ron Rediger, Newhall CA
Lil Judd, Sylmar CA
Dana Monroe, San Diego CA
Romi Stepovich, Encino CA
Cherie Chantal, Moorpark CA
Michelle Allison, Santa Maria CA
Winfield Carson, Poway CA
Amanda Bloom, Oakland CA
Jillian Airaudi, Hesperia CA
William Gemma, Oakland CA
Diana Lubin, La Mesa CA
Angie Grosland Jones, San Diego CA
Carolyn Boor, Rancho Cucamonga CA
Howard Ackerman, San Francisco CA
Valerie Rudd, South Lake Tahoe CA

Helen Doherty, Thousand Oaks CA
Valarie Welte, San Rafael CA
Thea Cohen, Willits CA
Maryam Ali Salamah, Salinas CA
Jake Davis, Chico CA
Betsy Ungeheier, Costa Mesa CA
Linda Garfield, Santa Cruz CA
Laurie Calkins, Palm Desert CA
Leigh Ann Dicarlo, Winchester CA
Ryan Acebo, Oakland CA
Howard Fernandez, San Francisco CA
Andy L, Ca CA
Stacie Charlebois, Sebastopol CA
Aaron Brinkerhoff, Novato CA
Christopher Cronin, San Francisco CA
Harold Mann, San Jose CA
Carole Shelton, Los Angeles CA
Jango Bento, West Hollywood CA
David Chisholm, Palmdale CA
Steve Bond, Beverly Hills CA
Paul Runion, Ben Lomond CA
Elizabeth Edinger, North Hollywood CA
Reevyn Aronson, Redwood City CA
Karen Linarez, Carmichael CA
Amy Wolfberg, Los Angeles CA
Justin Chernow, Paso Robles CA
Julie Osborn, Sacramento CA
Fabiola Banuelos, Cerritos CA
Amber Korb, Fair Oaks CA
Amber Gill, Fullerton CA
Carl Sawyer, Del Mar CA
Darius Fattahipour, San Diego CA
Kathleen Fox, Grover Beach CA
Jannet Valdes Ramirez, Davis CA
Alberto Acosta, Burbank CA
Richard Blain, Temecula CA
R Aleshire, San Jose CA
Anita Wisch, Valencia CA
Melody Grigg, Santa Maria CA
Kristi Hu, Fresno CA
William Briggs, Hermosa Beach CA
Zora Hocking, Santa Rosa CA
Jeanette Snow, Oceanside CA
Cristelle Blackford, Oakland CA
Allan Chen, Alameda CA
Mike Culver, Pollock Pines CA
Christine Hayes, Upland CA
John Varga, Huntington Beach CA
Jena Hallmark, Temecula CA
Ld Roncalli, Santa Rosa CA
Nic Duon, Santa Ana CA

Robert Ortiz, Novato CA
Kim Anthony, Los Angeles CA
Joe Weis, Reedley CA
Nadia Mousa, Union City CA
James Dawson, Davis CA
Armando Gomez, Santa Rosa CA
Susan Bolen, Mariposa CA
Michael White, Los Angeles CA
Gretchen Cooper, San Diego CA
Kelly Dunn, Aliso CA
Julia Conklin, Pasadena CA
Anne Ramsey, Seal Beach CA
Tim Ziesmer, Seal Beach CA
April West, Santa Rosa CA
Heidi Schmitz, Sausalito CA
Susan Ceriani, Valley Village CA
Irene Lutz, Santa Clarita CA
Alexis Morris, San Francisco CA
Cynthia Loewer-Torrez, San Jose CA
Rob Geyer, San Francisco CA
Katie Zukoski, Chico CA
Megan Eding, Berkeley CA
Paul Bickmore, Santa Clara CA
Medi Valaji, San Rafael CA
Seb Villani, Chula Vista CA
Cindy Bassman, Toluca Lake CA
Henrietta Komras, Burbank CA
Christine Hein, Huntington Beach CA
Marina Garrido, General Rodríguez CA
Sharon Bushman, Los Angeles CA
Deborah Marcus, San Diego CA
Caroline Ko, Livermore CA
Alexis Kerr, Gilroy CA
Patricia Nevimaguire, Rancho Palos Verdes CA
Celeste Anacker, Santa Barbara CA
Amy Differding, San Mateo CA
Medi Valaji, San Rafael CA
Michelle Ocken, Penn Valley CA
Erin Rowe, Arcata CA
Dianne Miller, San Diego CA
Debra Nevin, Danville CA
Sherrill Futrell, Davis CA
Rita Ospelt, Vista CA
Rika Ishii-Price, Half Moon Bay CA
Edie Bruce, El Cerrito CA
Linda Strong, Montebello CA
Nancy Berman, Kensington CA
Autumn Scott, Escondido CA
Rebecca Clark, West Hills CA
Julia Petering, Fair Oaks CA
Kristie Koehler, El Cerrito CA

Carlos Cabeud, San Ysidro CA
Mike Lopez, Twentynine Palms CA
Diane Christiansen, Fresno CA
Ruby Alvidrez, Los Angeles CA
Sharon Fisk, Ben Lomond CA
Justin Mccullough, San Diego CA
Lottie Patten, Oxnard CA
Jamie Conrad, San Leandro CA
Susan Perez, Oakland CA
Jennifer Russell, Walnut Creek CA
Madison Irvin, Torrance CA
Carol Blaney, Redlands CA
Leticia Andreas, Pinole CA
Steve Eklund, Salinas CA
Eileen Mckenzie, Sacramento CA
Apryl Mefford-Hemauer, Santa Monica CA
Linda Price, Santa Rosa CA
Constantina Mo Economou, Berkeley CA
Geoffrey Cook, Berkeley CA
Kathryn Harrold, Los Gatos CA
Lisa Ignacz, Indio CA
Alison Tully, Pasadena CA
Genghis Curameng, Pasadena CA
Michael Albanese, Sun Valley CA
Judith Hansell, Sanpablo CA
Madeleine Kern, Los Angeles CA
Suki Ewers, Los Angeles CA
Michelle Huizar, Pomona CA
K. Jenkins, Huntington Beach CA
Randy Gerlach, Daly City CA
Clare Block, San Diego CA
Margarita Denman, Fullerton CA
Lara Wright, Md, Albany CA
Bert Jarnagin, Lone Pine CA
Meg Beeler, Sonoma CA
Sabine Danelon, Sydney CO
Jes Gildea, Denver CO
Robert Levitt, Ft Collins CO
Cody Levitt, Ft Collins CO
John Lundquist, Denver CO
Konrad Hunter, Palmdale CO
Jo Ann Henderson, Aptos CT
Thomas Jankovic, Norwalk CT
Vicki Peyser, Newark DE
Karin Guenther, Cuxhaven DE
Kathleen Williams, Lehigh Acres FL
Christeen Anderson, Crestview FL
Alexandr Yantselovski, Clermont FL
Cindy Ray, Sarasota FL
Pieter Kark, Eustis FL
Karen Minkowski, Homestead FL

Amanda Rewinkel, Merritt Island FL
Roswitha Von Ehrenkrook, Orlando FL
Ned Arre, Ocala FL
Jesse Fernandez, Miami FL
Laura Rose-Fortmueller, Ocoee FL
Pam Shaouy, Woodstock GA
Marian Ahler, McDonough GA
Manuela Wolter, San-Jose IA
Denise Swan, Perry IA
Dany Coclin, Tricot IL
Francesco Deiure, Sammichele Di Bari IL
Stepahn Donovan, Chicago IL
Frank Smith, Braidwood IL
Debra Heatherly, Hawthorn Woods IL
Bob Hagele, Chicago IL
Larisa Long, Woodstock IL
Jaime Skizas, Mokena IL
Lisa Sons, Homer Glen IL
Francesco Deiure, Sammichele Di Bari IL
Francesca Crescenzo, Bari IL
Mark Porter, Chicago IL
Stephen Gliva, Evanston IL
Maria Teresa Romani, Vernon Hills IL
Miriam Beckstrom, Carbondale IL
Jeff Hopkins, Lindenhurst IL
Jennifer Jones, Indianapolis IN
Mike Souza, Terre Haute IN
V. B., Blgtn IN
Maria Van Geel, Zdroisko KS
Mary Schulz, Leawood KS
Lisa Meisinger, Gardner KS
Martin Silberberg, Pelham MA
Nanette Oggiono, Upton MA
Joy Gillman, Bethesda MD
L L, Howell MI
Cody Low, Grosse Pointe Park MI
Priscilla Hawkins, Royal Oak MI
Rachel Green, Reed City MI
Cindy Mayer, Grand Blanc MI
Katrín Rosinski, Roseville MI
Dorothy Neff, Coleman MI
Holly Chisholm, Oxford MI
Erin McGregor, Marysville MI
Allen Olson, Minneapolis MN
Sheila D, Small Town MN
Joseph Wenzel, Lake Elmo MN
Palmeta Baier, Kirksville MO
Giana Peranio-Paz, Hendersonville NC
Brandon Becker, Cary NC
Michael Breiner, Brevard NC
Andrea Fleck, Heddesheim NE

Aiyanna Cameron-Lewis, Wilton NH
Kevin Schuster, Dover NH
Lori Cz, Fort Lee NJ
Eric Biemuller, Crosswicks NJ
Robert M. Deems, Lawrenceville NJ
Heather Ride, Los Angeles NM
Deborah Vandamme, Las Vegas NV
Dr Lori Ugolik, Silver Springs NV
Stephanie Christoff, White Plains NY
Rachel Kahn, Forest Hills NY
Ed Vieira, Staten Island NY
Barbara Vieira, Staten Island NY
Marie Young, New Paltz NY
Kanwaldeep Sekhon, Floral Park NY
R Willson, Rocky Point NY
Nina Insardi, Rye NY
Kevin W. Mcalister, Bellmore NY
Megan Rubino, Rocakway Park NY
Stephanie Christoff, White Plains NY
Peggy Furminger-Haist, Akron NY
John Brewer, Marietta OH
Sarah Lawrence, Columbus OH
Arlin Robins, Scappoose OR
Michelle Bienick, Williams OR
Deborah Quast, Beaverton OR
Demelza Costa, Sweet Home OR
Casey Jo Remy, Days Creek OR
Laurie Fisher, Tigard OR
Linda Hansen, Portland OR
John Barger, Portland OR
Susan Glarum, Cannon Beach OR
Lary Mckee, Gervais OR
Robert Ross, La Quinta PA
James Murphy, Havertown PA
Shanta Banerjee, Plano TX
Ted Williams, Ralls TX
Dory Dallugge, Irving TX
Mid I Boern, Dallas TX
Nancy O'Neal, Giddings TX
John Gogolewski, Hawley TX
Casey Pittman, Coppell TX
Lorena Peinado, El Paso TX
Louise Larsen, Duncanville TX
Patrick Boot, Dallas TX
George Latta, Salt Lake City UT
Erin Duprey, Duchesne UT
Connor Hansell, Salt Lake City UT
Richard Spotts, Saint George UT
W. Clark, Lynchburg VA
Crystal Polk, Burke VA
D.M. Hunter, Spotsylvania VA

Diane Rohn, Mclean VA
James Mulcare, Clarkston WA
Marion Clinton, Seattle WA
Leeza Broome, Lake Stevens WA
Tammy Slaughter, Soap Lake WA
April Atwood, Seattle WA
Norman Baker, Sequim WA
Mariya Starichenok, Bothell WA
Ruth Martin, Everett WA
Laura Wehr, Watertown WI
Maureen Grzanna, Caledonia WI
Nicole Loh, Mayville WI
Shawn Rodriguez, Mesa AZ
Lillith Lascoue, Phoenix AZ
Melinda Weisser-Lee, Thatcher AZ
Stewart Schrauger, Prescott Valley AZ
Karen Kravcov Malcolm, Scottsdale AZ
Cindy Sprecher, Hereford AZ
Cybele Knowles, Tucson AZ

From: [PJ Bremier](#)
Cc: [Wildlife DIRECTOR](#); [Office of the Secretary CNRA](#)
Subject: Support Option 4 - importation of frogs and turtles.
Date: Tuesday, February 14, 2017 10:42:18 AM
Attachments:

Dear Members of the Fish and Game Commission:

For the health of our communities, I urge you to support Option 4 and add the non-native species of frogs and turtles to the Restricted Species list as Oregon and Washington have done.

Not doing so can incur an unnecessary risk to the State of California.

Please do the right thing for ALL Californians and support Option 4.

Many thanks,

PJ

[PJ Bremier](#)

2017 MAR -2 PM 2:29

NLS

President Eric Sklar and Members
The California Fish and Game Commission
1416 Ninth St. Sacramento, CA 95814

Dear President Sklar and Board Members

There is a need for a ban on importing turtles and Bull Frogs into California.

Both Oregon and Washington ban the import of bullfrogs, Oregon the import of soft-shell and slider turtles. It would be ideal if California would do the same.

The reasons for banning these species have often been discussed. Disease, hybridization and predation are reasons.

I urge you to ban the import of these animals. Our native species are battered with the imports of these species that compete with and spread disease to our natives.

I was once the Secretary of Resources and spent considerable time studying the attempts to import these species. We were able to block the import of turtles and frogs then and it would be ideal if you repeated the action.

Sincerely



Huey D. Johnson

cc Chuck Bonham, Director.

From: [Janet and Mark Thew](#)
To: [FGC](#)
Subject: Please ban exotic bullfrogs and turtles
Date: Monday, April 03, 2017 9:25:45 AM

Dear Commissioners,

Your job is to protect California's wildlife, and exotic frogs and turtles are a direct threat to our wildlife. They are also a threat to public health.

Janet and Mark Thew

From: afa@mcn.org
To: [FGC](#); [Wildlife DIRECTOR](#); [Office of the Secretary CNRA](#)
Subject: LIVE ANIMAL FOOD MARKETS - VAN NUYS MEETING - APRIL 26-27, 2017 - ITEM #16 (WED.)
Date: Wednesday, April 12, 2017 8:41:53 PM

April 12, 2017

FOR THE COMMISSIONERS' VAN NUYS PACKET - APRIL 26-27, 2017

TO: ALL MEMBERS, FISH & GAME COMMISSION
FROM: ERIC MILLS, COORDINATOR, ACTION FOR ANIMALS
RE: APRIL 4, 2017 VISIT TO LIVE ANIMAL FOOD MARKETS - OAKLAND/SAN FRANCISCO

Greetings, all -

In anticipation of the Van Nuys meeting (April 26-27), a friend and I on April 4 visited three live food markets in Oakland, and another three in San Francisco. I purchased two bullfrogs from each of the six markets, for a total of 12 frogs. (Plus two others, which the butcher quickly skinned and gutted before I could stop him.)

Not one of the six butchers or their co-workers spoke English (or perhaps pretended not to, who knows?) And my Cantonese is non-existent, unfortunately. One of the butchers tried to sell me the frogs alive (though DFW signs were posted noting that live frogs/turtles were NOT to leave the market.) I shook my head "No!" and mimed cutting off the frogs' heads. He did so with a meat cleaver, as did all but two of the other butchers. Two butchers merely clubbed the frogs a single blow with a wooden mallet. (As we learned later to our chagrin, the single blow was not always fatal.)

The animal cruelty in these abattoirs is staggering. IMO, ALL COMMISSIONERS AND THE DFW SHOULD BE REQUIRED TO TOUR THESE MARKETS TO SEE FOR THEMSELVES HOW THE ANIMALS ARE HOUSED AND BUTCHERED: Often no food, no water, stacked four & five deep, dead frogs and turtles in with the living, some missing body parts. The stench alone can knock you down. My very first frog purchase on 4/4, sans head, hopped out of the plastic bag and across the counter, causing the clerk to scream and about wet her pants. Me, too! I was able to grab the pathetic creature, and put him back in the plastic bag. Clearly, the decapitation process was done improperly, and other frogs suffered the same fate. This is doubtlessly the case in ALL the markets, day in, day out. THIS BRUTAL AND ENVIRONMENTALLY DESTRUCTIVE COMMERCE NEEDS TO CEASE. NOW. Only frozen frog/turtle products should be allowed.

Again, all the bullfrogs are commercially-raised. Past claims notwithstanding, ALL THE MARKET TURTLES ARE TAKEN FROM THE WILD, MOSTLY IN STATES EAST OF THE ROCKIES, DEPLETING LOCAL POPULATIONS. NONE ARE COMMERCIALLY-RAISED. And all are diseased and/or parasitized, though it is ILLEGAL to sell such products for human consumption.

After the purchases, my friend and I stopped in Golden Gate Park to take photos of our purchases. Two of the frogs were still alive: one merely stunned, the other with a broken back. We clubbed both to death with a tire iron. One can only imagine the suffering all this entailed. Multiply that times 365 days for years on end.....AGAIN, NOT ACCEPTABLE, "CULTURE" AND "TRADITION" BE DAMNED.

In one SF market, as I was purchasing the frogs, my friend watched as a butcher (using a meat cleaver) chopped off one front leg of a large softshell turtle, then the other front leg, then most of the turtle's face. Then, noticing that my friend was watching him, the butcher continued to carve up the still alive and struggling turtle. The stuff of nightmares. This cruelty has to stop.

In closing, I urge the Commission & the Department to add these non-native frogs and turtles to the list of "RESTRICTED SPECIES." Nor should they be allowed to be aquacultured anywhere in California, if we're truly serious about protecting our native resources, business concerns notwithstanding.

I recall DFW Director Bonham quoting Dr. Seuss's The Lorax at a recent Commission meeting: "Unless someone like YOU cares a whole, awful lot, then nothing is going to get better, it's not." Add to that Tennessee Williams' line: "Cruelty is the only unforgivable sin." The answer is clear: Stop the imports, stop the commerce.

Sincerely,

Eric Mills, coordinator
ACTION FOR ANIMALS
P.O. Box 20184
Oakland, CA 94620
tel. 510/652-5603

From: [Tiffany N](#)
To: [FGC](#)
Subject: How to submit documentation concerning: Non-marine items of interest
Date: Tuesday, February 21, 2017 11:23:41 AM

Hello,

My name is Tiffany Namwong followed the issue concerning the overpopulation of Red-Eared Slider turtles due to their importation as pets and food into the state for many years. I have verifiable documentation in the form of statistics to submit to the group for consideration in the next meeting.

Furthermore, I have conducted a very large rescue of these animals from a dying pond in a public park and there are graphic photos demonstrating the ecological impact of RES on native turtles since this exact same pond was occupied by Western Pond Turtle.

Thanks,
Tiffany Namwong

From:
To: [FGC; Office of the Secretary CNRA; Wildlife DIRECTOR](#)
Subject: [Fwd: ShiuStokesAnimalRelease.pdf]
Date: Monday, February 13, 2017 5:45:14 PM
Attachments: [untitled-\[2\]](#)

February 13, 2017

Greetings, all -

PLEASE FORWARD THIS STUDY TO ALL F&G COMMISSIONERS - religious releases of animals (including exotics) in Buddhist "animal liberation" ceremonies.

x
Eric Mills, coordinator
ACTION FOR ANIMALS
Oakland

----- Original Message -----
Subject: ShiuStokesAnimalRelease.pdf

Date: Mon, February 13, 2017 2:15 pm
To:

<http://www.polsci.ucsb.edu/faculty/stokes/docs/ShiuStokesAnimalRelease.pdf> .

Opinion

Fish and Game Commission needs to protect wildlife, not hunters

By Eric Mills

January 27, 2016 Updated: January 28, 2016 10:47am

The five-member California Fish and Game Commission is in disarray, down to three members, and without an executive director following recent resignations. Since 1870, the governor's appointees have all been hunters or fishers or both. And only two women and one African American have served on the commission in 146 years. This must change.

Chaos at Fish & Game

The commission needs to be more representative of all Californians, of whom fewer than 5 percent hunt or fish. Gov. Jerry Brown needs to hear from a concerned citizenry.

Departed Fish and Game Commissioner Jim Kellogg, an advocate for hunting, fishing and trapping who was accustomed to winning all disputes during his 13-year tenure, explained his resignation by bemoaning his recent "losses": new protections of California [condors](#) (2007) and [wolves](#) (2014); and [bans](#) on lead bullets (2015), coyote-killing [contests](#) (2014) and commercial [trapping](#) of bobcats (2015). Most Californians would agree that those were battles he should have lost.

Commission President Jack Baylis did not seek reappointment for his term, which expired Jan. 15. Executive Director Sonke Mastrup also resigned.

The commission is primarily an advisory body, with little real authority over the California Department of Fish and Wildlife. Case in point: Back in 2010, after 15 years of testimony and thousands of letters in support of a ban on the importation of non-native frogs and turtles for human consumption, the commission [voted unanimously](#) to stop the imports, a decision ignored by the department. When challenged, then-Department of Fish and Wildlife Deputy Director Mastrup said, "The director acts at the pleasure of the governor." So much for democratic process and resource protection.

Market bullfrogs and turtles are routinely released into local waters, where they displace native species. Worse, the majority of the bullfrogs carry chytrid fungus, which has caused extinctions of some 200 amphibian species worldwide. A 2014 Department of Fish and Wildlife [white paper](#) on the bullfrog problem recommends an import ban. Yet, the imports, sales and releases continue. Sadly, cultural and financial concerns are allowed to trump environmental protections and common sense.

Over the years, the sporting community has done much commendable work on behalf of conservation. Kudos for that. But everyone has a responsibility to protect the environment and its wildlife. Urge the governor to fill the two vacancies on the California Fish and Game commission as soon as possible with qualified appointees: biologists, former game wardens, perhaps a non-consumptive user or two.



April 13, 2017

Fish and Game Commission
1416 Ninth Street, Room 1320
Sacramento, CA 95814
fgc@fgc.ca.gov

Re: Item 16(A): Importation of American Bullfrogs and Non-native Turtles

Dear Commissioners,

These comments are submitted on behalf of the Center for Biological Diversity. The Center ("Center") is a national, nonprofit conservation organization dedicated to the protection of endangered species and wild places. The Center has more than 1.2 million members and online activists throughout the country, many of whom reside in California. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for people throughout California.

I am writing to ask you to move forward on adding non-native bullfrogs and freshwater turtles (*Apalone* and *Trachemys* species) to California's list of restricted species, presented as Option 4 by Commission staff at the Commission's February 8, 2017 meeting.

Please see the Center's petition (#2016-30) for more information to support adding bullfrogs to California's list of restricted species. At the February Commission meeting, staff presented Option 4 as requiring legislative action due to 6881-6885 of the Fish and Game Code, which deal with collection and possession of frogs for frog-jumping competitions. However, these code provisions do not specifically refer to bullfrogs. This section of the Code refers to "frogs" generally, indicating that adding a species like the bullfrog to the list of restricted species would not be prohibitive, as other unrestricted species could still be utilized under these regulations for frog-jumping contests. In fact, the Commission added coqui frogs to the list of restricted species in 2007 without a need for legislative action.¹

Apalone and *Trachemys* species of freshwater turtles are also justified in being added to the restricted species list due to their impacts on native wildlife, including the western pond turtle, a Species of Special Concern in California. Adding these turtles to the restricted list is not in any way limited by the frog-jumping provisions mentioned above.

¹ Office of Administrative Law's Notice ID #Z07-0925-08;
<http://www.fgc.ca.gov/regulations/2007/#671> (Last Accessed October 13, 2016).

Harvest of these turtles in states where they are native is also causing detrimental impacts to *Apalone* and *Trachemys* species in their native habitats. One of the exporters that supplies freshwater turtles to markets in California is a commercial collector within Texas. Harvest of wild turtles is unsustainable. Wild collection is the primary driver of turtle declines across the world (Bohm et al. 2013). Overexploitation has caused population declines in almost all turtle species that are now extinct, critically endangered, or rare (Klemens and Thorbjarnarson 1995), and it contributes to population declines also caused by water pollution, habitat loss, road mortality and other threats (Moll and Moll 2004; Schlaepfer et al. 2005). Turtles are beneficial scavengers that feed on water plants, dead animals, snails, aquatic insects and crayfish. Population declines due to overexploitation can cause changes in energy flow, nutrient cycling, and food web structure (Mali et al. 2014).

Thank you,

Jennifer Loda
Amphibian and Reptile Staff Attorney
Center for Biological Diversity
1212 Broadway, Suite 800
Oakland, CA 94612
jloda@biologicaldiversity.org
510-844-7100 x 336

CALIFORNIA FISH AND GAME COMMISSION
DECISION LIST FOR NON-MARINE REGULATION PETITIONS THROUGH FEB 9, 2017
Revised 04-11-2017

FGC - California Fish and Game Commission **DFW** - California Department of Fish and Wildlife **WRC** - Wildlife Resources Committee **MRC** - Marine Resources Committee

Grant: FGC is <i>willing to consider</i> the petition through a process Deny: FGC is <i>not willing to consider</i> the petition Refer: FGC <i>needs more information</i> before deciding whether to grant or deny the petition								
Tracking No.	Date Received	Accept or Reject	Name of Petitioner	Subject of Request	Code or Title 14 Section Number	Short Description	Staff Recommendation	FGC Decision
2016-030	12/9/2016	A	Jennifer Loda Center for Biological Diversity, Save the Frogs!	American bullfrogs	671(c)(3), T14	Add American bullfrogs to the list of restricted species.	Deny: Would require permit exemptions pursuant to Fish and Game Code Section 6881 that limit oversight and incur potentially significant administrative and enforcement costs.	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017
2016-031	12/5/2016	A	Pat Wright	Ferrets	Section 2118, Fish & Game Code; 671, T14	Requests FGC issue permits for ferrets under certain circumstances.	Deny: FGC has previously indicated that it will not authorize wild animals to be possessed as pets.	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017
2016-032	12/16/2016	A	Paul Siebensohn	Striped bass	5.75, T14	Remove all size and limit restrictions on the take of striped bass.	Deny: Inconsistent with existing FGC policy and potentially significant impacts that require further analysis. Possible options for striped bass management scheduled for discussion at the FGC/DFW Delta Fisheries Forum on May 24, 2017.	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017
2017-001	2/2/2017	A	Sean Brady National Rifle Association, California Rifle and Pistol Association	Archery hunting	354(h), T14	Allow firearm possession while archery hunting.	Refer: To DFW for evaluation and recommendation.	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017



Tracking Number: (Click here to enter text.)

2016-030

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, 1416 Ninth Street, Suite 1320, Sacramento, CA 95814 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

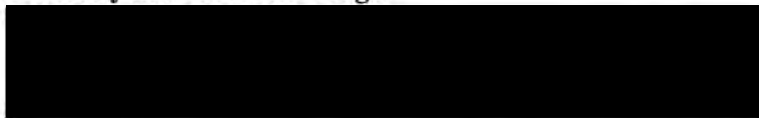
Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

1. Person or organization requesting the change (Required)

Name of primary contact person: Jennifer Loda, on behalf of Petitioners Center for Biological Diversity and Save the Frogs!



- 2. Rulemaking Authority (Required)** - Reference to the statutory or constitutional authority of the Commission to take the action requested: **Fish and Game Code Sections 2118(i) and 2118(k)**
- 3. Overview (Required)** - Summarize the proposed changes to regulations: **Amend 14 CCR 671(c)(3) to add bullfrogs (*Rana catesbeiana*, *Lithobates catesbeianus*) to the list of restricted species.**
- 4. Rationale (Required)** - Describe the problem and the reason for the proposed change: **The American bullfrog is a non-native, invasive species that negatively impacts a wide variety of native wildlife in California. Bullfrogs act as both predators and competitors of California's native wildlife. They also act as a disease vector and have been implicated in the introduction and spread of ranaviruses and the amphibian chytrid fungus, which are considered to be the most significant infectious diseases contributing to global population declines of amphibians. The Commission recognized the threat of imported live American bullfrogs to California's native fish and wildlife in a declaration in 2010, which resulted in the Department of Fish and Wildlife imposing additional requirements on importation permits. The Department recently re-assessed the threats posed by live bullfrog imports, in light of the permit modifications, and presented a report to the Commission at its February 12, 2015 meeting. In its report, entitled "Implications of Importing American Bullfrog (*Lithobates catesbeianus* = *Rana catesbeiana*) into California," the Department explained that the threats were not diminished, and suggested that amphibian importation permits should be further limited or eliminated altogether to reduce the risks to native wildlife. The Commission is obligated to take actions within its power to conserve California's threatened and endangered species. Adding the American bullfrog to the list of restricted species is clearly**



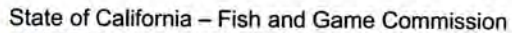
within the capacity of the Commission and will help to reduce the risks that importation of live bullfrogs has on native fish and wildlife in California, including many species protected under the California Endangered Species Act.

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION
2016 DEC -9 AM 8:48

SECTION II: Optional Information

5. **Date of Petition:** 12/07/2016
6. **Category of Proposed Change**
 - ☐ Sport Fishing
 - ☐ Commercial Fishing
 - ☐ Hunting
 - ☒ Other, please specify: Restricted Species
7. **The proposal is to:** (To determine section number(s), see current year regulation booklet or <https://govt.westlaw.com/calregs>)
 - ☒ Amend Title 14 Section(s):671(c)(3)
 - ☐ Add New Title 14 Section(s): [Click here to enter text.](#)
 - ☐ Repeal Title 14 Section(s): [Click here to enter text.](#)
8. **If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition** [Click here to enter text.](#)
Or ☒ Not applicable.
9. **Effective date:** If applicable, identify the desired effective date of the regulation.
If the proposed change requires immediate implementation, explain the nature of the emergency: [Click here to enter text.](#)
10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: **Petition to Add Bullfrogs to the List of Restricted Species. All papers referenced in the supporting petition will also be submitted to the Commission via cd**
11. **Economic or Fiscal Impacts:** Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: **Prohibition on importation of live bullfrogs may have some impact on the food market. However, allowance of frozen bullfrog importation, transportation, sales and possession will likely offset this minor economic impact. The vast majority of Californians do not participate in the purchase, sale or importation of American Bullfrogs.**
12. **Forms:** If applicable, list any forms to be created, amended or repealed:
[Click here to enter text.](#)

SECTION 3: FGC Staff Only



FGC 1 (NEW 10/23/14) Page 3 of 3

FGC staff action:

- Tracking Number

FGC action:

- ☐ Denied by FGC
- ☐ Denied - same as petition _____
Tracking Number
- ☐ Granted for consideration of regulation change

BEFORE THE CALIFORNIA FISH AND GAME COMMISSION
PETITION TO ADD BULLFROGS TO THE LIST OF RESTRICTED SPECIES



Photo by Carl D. Howe

CENTER FOR BIOLOGICAL DIVERSITY and SAVE THE FROGS!

December 7, 2016

I. NOTICE OF PETITION

Pursuant to Title 14, Section 662 of the California Code of Regulations ("CCR") (*Petitions for Regulation Change*), the Center for Biological Diversity ("the Center") and Save the Frogs! (collectively, "Petitioners") submit this petition to the California Fish and Game Commission ("the Commission") to amend Section 671(c)(3) of Title 14 of the CCR to add bullfrogs (*Rana catesbeiana*, *Lithobates catesbeianus*) to the list of restricted species to protect the native wildlife of this state. 14 CCR 662. Such a regulatory amendment would prevent new introductions of bullfrogs into the state, protecting against further damage to native wildlife. This non-native, invasive frog devastates native wildlife populations through disease spread and by consuming and competing with numerous species, including several that are listed under the federal Endangered Species Act ("ESA") and/or the California Endangered Species Act ("CESA"), as well as California Species of Special Concern.

A. LEGAL AUTHORITY

The Commission possesses the authority to make such amendments pursuant to Sections 2118, and 2120 of the California Fish and Game Code ("FGC").

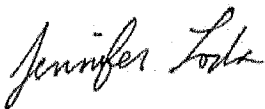
B. PETITIONERS

The Center for Biological Diversity is a non-profit, public interest environmental organization dedicated to the protection of species and their habitats through science, policy and environmental law. The Center has over 1.1 million members and online activists worldwide, including over 100,000 members and supporters in California.

Save the Frogs! is the world's leading amphibian conservation organization. Save the Frogs! works in California, across the USA, and around the world to prevent the extinction of amphibians, and to create a better planet for humans.

Authors: Jenny Loda, Center for Biological Diversity
Address: 1212 Broadway St, Suite 800, Oakland, CA 94612
Phone: (510) 844-7136
Email: jloda@biologicaldiversity.org

I hereby certify that, to the best of my knowledge, all statements made in this petition are true and complete.



Jenny Loda
Staff Attorney
Center for Biological Diversity
Submitted on behalf of Petitioners
Date submitted: December 7, 2016

II. INTRODUCTION

The bullfrog is widely recognized as one of the most destructive, invasive species in areas outside of its native range. Bullfrogs prey on and compete with, California's native wildlife. They can also play a role in the spread of novel wildlife diseases, including the amphibian chytrid fungus, which has devastated amphibian populations in California and throughout the world.

The Commission and the California Department of Fish and Wildlife ("the Department") have previously recognized the dangers that bullfrogs pose to California's wildlife and the potential for live bullfrog imports to contribute to this problem. In response, they have taken positive steps to limit the potential for new introductions associated with trade, by adding permit measures such as requiring that animals be euthanized before leaving retail premises. Unfortunately, those changes have not been sufficient to fully remove the threat of future bullfrog introductions into California linked to live imports. The Commission has the authority to regulate imports of wild animals and on previous occasions used this authority to add species to the Restricted Animal's List that were found to pose a threat to California's native wildlife.

In February, 2015, the Department presented the Commission with a comprehensive peer-reviewed paper on the risks of American bullfrogs to California's wildlife.¹ In this paper the Department found that importation of live American bullfrogs poses a significant threat to California's wildlife, and argued for the reduction or elimination of importation of live bullfrogs to reduce that threat. The Department concluded that a more comprehensive ban or reduction would provide the best benefit to our wildlife.

III. FACTUAL AND LEGAL BACKGROUND

A. The Commission's Authority to Act

It is California's policy that "the importation, transportation, and possession of wild animals shall be regulated . . . to protect the native wildlife and agricultural interest of this state against damage from the existence at large of certain wild animals."²

To enact this policy, the California Legislature gave the Commission, in cooperation with the Department of Food and Agriculture, the authority to adopt regulations governing "the entry, importation, possession, transportation, keeping, confinement, or release of any and all wild animals that will be or that have been imported into this state . . ."³ This authority includes the power to designate additional species of wild animals as Restricted Animals when the species "is proven to be undesirable and a menace to native wildlife or the agricultural interests of the state."⁴ As will be further explained below, the American bullfrog is a clear example of an undesirable species that is a menace to California's native wildlife, and the Commission should

¹ California Department of Fish and Wildlife ("CDFW"). 2014. Implications of Importing American Bullfrog (*Lithobates catesbeianus* = *Rana catesbeiana*) into California.

² FGC § 2116.5 (Findings and Declarations)

³ FGC § 2120(a)

⁴ FGC § 2118(i)

use its power to restrict its importation by adding it to the Restricted Animals List in Section 671 of Title 14.

Consistent with these conservation mandates, the Commission has previously added a number of species to the Restricted Animals List at Section 671. For example, in 2007 the Commission adopted a regulatory change to add seven species and two genera to the Restricted Animals List.⁵ The Commission found the animals to be non-native invasive species that “pose[d] a threat to native fish and wildlife populations through competition for food, predation, alteration of habitats and/or as potential sources of introducing diseases or parasites to native fish and wildlife.”⁶ In that instance several of the species, such as watersnakes and coqui frogs, were already present in California, but the Commission found their addition to the list to be warranted in order to control the spread of these species.

Petitioners’ proposed regulatory amendment would afford comparable protections to the state’s fish and wildlife populations from the American bullfrog, which is a non-native invasive species that poses a threat through competition for food, predation, and as a potential source of emerging and novel wildlife diseases.

B. Species Description

The American bullfrog (*Lithobates catesbeianus*) is a frog species native to the eastern United States, but was introduced to California about a century ago. This species has been introduced all over the world to over 40 countries, as well as areas outside of its native range in North America. Bullfrogs are included in the Global Invasive Species Database’s list of “One Hundred of the World’s Worst Invasive Alien Species.”⁷ In 1997 the European Union banned the importation of live North American bullfrogs due to their invasiveness.⁸

The Department’s 2014 Report provides a thorough discussion of the bullfrog’s biology and ecology and explains how these characteristics lead to its classification as an invasive species.⁹ Bullfrogs negatively impact a wide variety of native wildlife in California and, in particular, are

⁵ Office of Administrative Law’s Notice ID #Z07-0925-08; <http://www.fgc.ca.gov/regulations/2007/#671> (Last Accessed October 13, 2016).

⁶ State of California Fish and Game Commission. September 12, 2007. Initial Statement of Reasons for Regulatory Action, Amend Section 671, Title 14, California Code of Regulations Re: Importation, Transportation, and Possession of Live Restricted Species. Available at: <http://www.fgc.ca.gov/regulations/2007/#671> (Last Accessed October 13, 2016).

⁷ Global Invasive Species Database (2016). Available at: http://www.iucngisd.org/gisd/100_worst.php (Last Accessed Oct. 12, 2016).

⁸ Scalera, R. and Zaghi, D., 2004. Alien species and nature conservation in the EU. The role of the LIFE program. Brussels, Belgium: European Commission.

⁹ CDFW (2014) *supra* fn. 1; Kats, L.B. and R.P. Ferrer. 2003. Alien Predators and Amphibian Declines: Review of Two Decades of Science and the Transition to Conservation. Diversity and Distributions 9: 99-110.

implicated in the declines of amphibians.¹⁰ Bullfrogs act as both predators and competitors of California's native wildlife, and can cause reproductive interference for other frog species. They also act as a disease vector and have been implicated in the introduction and spread of ranaviruses and the amphibian chytrid fungus (*Batrachochytrium dendrobatidis*, *Bd*), which are considered to be the most significant infectious diseases contributing to global population declines of amphibians.

i. Bullfrogs Prey on and Compete with Native Wildlife in California

Bullfrogs are voracious, opportunistic predators, consuming a wide variety of prey dominated by invertebrates and small vertebrates. While bullfrog tadpoles primarily eat algae, they are also known to prey on the eggs and tadpoles of other frogs. Bullfrogs have been documented to prey on species listed as threatened or endangered under both the California Endangered Species Act ("CESA") and the federal Endangered Species Act ("ESA"), including California tiger salamanders, giant garter snakes, and mountain yellow-legged frogs.¹¹ They also prey on numerous other species of fish, salamanders, frogs, toads, birds, bats, snakes, and turtles, including many that are listed as Species of Special Concern in California.¹²

This ability to consume a wide variety of prey, including vertebrates, was documented in California's Cache Creek Watershed.¹³ An evaluation of stomach contents of 65 bullfrogs collected at 21 sites throughout the watershed found bullfrog consumption of a wide variety of invertebrate and vertebrate prey, including fish, birds, lizards, snakes, turtles, and frogs.¹⁴ The stomach contents included two hatchling western pond turtles and two unidentified frogs likely to be foothill yellow-legged frogs, both species classified as Species of Special Concern in California and currently being reviewed for listing under the ESA.¹⁵

The voracious appetite of bullfrogs also makes them important competitors for food with native wildlife, especially with California's amphibians since they often share the same habitats.

¹⁰ Kats, L.B. and R.P. Ferrer. 2003. Alien Predators and Amphibian Declines: Review of Two Decades of Science and the Transition to Conservation. *Diversity and Distributions* 9: 99-110; Jennings, M. R. 1996. Status of amphibians. Pages 921-944 in *Sierra Nevada ecosystem project: final report to Congress, volume 2, assessments and scientific basis for management options*. University of California, Centers for Water and Wildland Resources, Davis, California, USA.

¹¹ 69 Fed. Reg. 47212, 47233-34 (August 4, 2004); Wylie, G. D., Casazza, M. L., & Carpenter, M. (2003). Diet of bullfrogs in relation to predation on giant garter snakes at Colusa National Wildlife Refuge. *California Fish and Game*, 89(3), 139-145; 79 Fed. Reg. 24256, 24273 (April 29, 2014)..

¹² Thomson, R. C., Wright, A. N., & Shaffer, H. B. (2016). *California Amphibian and Reptile Species of Special Concern* University of California Press.

¹³ Hothem, R. L., Meckstroth, A. M., Wegner, K. E., Jennings, M. R., & Crayon, J. J. 2009. Diets of three species of anurans from the Cache Creek Watershed, California, USA. *Journal of Herpetology*, 43(2), 275-283.

¹⁴ *Id.*

¹⁵ *Id.*; Thomson et al. (2016). *supra* fn.12; U.S. Fish and Wildlife Service ("USFWS"), ECOS Environmental Conservation Online System. *Available at:* <http://ecos.fws.gov/ecp/> (Last Accessed Nov. 2, 2016).

Bullfrogs are a strong competitor with multiple life stages of the California red-legged frog.¹⁶ Research indicates that bullfrogs may have an additional advantage of being able to outcompete other species of amphibians where fish are present because bullfrogs are unpalatable to fish, unlike most native amphibians.¹⁷

The presence of bullfrogs can also lead to reproductive interference with other frogs and these interactions may reduce the reproductive output of California's native frogs. For example, interspecific mating has been observed between male foothill yellow-legged frogs and female bullfrogs.¹⁸

ii. Bullfrogs Aid in the Introduction and Spread of Diseases Harming Native Wildlife

Emerging infectious diseases of wildlife pose a major threat to global biodiversity.¹⁹ The global movement of plants and animals is a well-recognized mechanism for the introduction of pathogens into new regions.²⁰ International trade of wildlife can contribute to the introduction and spread of emerging and novel wildlife diseases, especially when the wildlife being traded are highly invasive species like bullfrogs.

Bullfrogs are a known carrier of the chytrid fungus *Batrachochytrium dendrobatidis* (Bd), which causes the disease chytridiomycosis. Bullfrogs are highly resistant to the disease, exhibiting no clinical signs when infected with the fungus.²¹ In a recent study examining the relationships between invasive alien species and threatened vertebrates, Bd was identified as the invasive alien species that threatens the greatest number of vertebrates.²² Chytridiomycosis is a contributor to the threatened status of almost 400 amphibian species worldwide and causes species extinctions, mass mortality events, and precipitous and persistent population declines.²³ The disease

¹⁶ Thomson et al. (2016) *supra* fn. 12.

¹⁷ 79 Fed. Reg. 24264 (April 29, 2014).

¹⁸ Lind, A. 2003. The Distribution and Habitat of Foothill Yellow-legged Frogs (*Rana boylei*) on National Forests in Southern Sierra Nevada Mountains of California. Report to the FHR Program of Region 5 of the USDA Forest Service. pp. 1-31.

¹⁹ Ip, H. S., Lorch, J. M., & Blehert, D. S. 2016. Detection of spring viraemia of carp virus in imported amphibians reveals an unanticipated foreign animal disease threat. *Emerging Microbes & Infections* 5(9), e97.

²⁰ *Id.*

²¹ Daszak, P., Strieby, A., Cunningham, A.A., Longcore, J.E., Brown, C., and D. Porter. 2004. Experimental evidence that the bullfrog (*Rana catesbeiana*) is a potential carrier of chytridiomycosis, an emerging infectious disease of amphibians. *Herpetological Journal* 14, 201-207.

²² Bellard, C., Genovesi, P., and J.M. Jeschke. 2016. Global patterns in threats to vertebrates by biological invasions. *Proc. R. Soc. B* 283: 20152454.

²³ Lips, K.R. 2016. Overview of chytrid emergence and impacts on amphibians. *Phil. Trans. R. Soc. B*. 371: 20150462. Available at <http://dx.doi.org/10.1098/rstb.2015.0465> (Last Accessed Nov. 2, 2016).

negatively impacts California's native amphibians, and played a major role in the declines of the Sierra Nevada yellow-legged frog, the mountain yellow-legged frog, and the Yosemite toad.²⁴

The African clawed frog (*Xenopus laevis*) is also implicated as having played a role in the spread of Bd, as the earliest identified Bd infection was of this species and clawed frogs appear to be resistant to the onset of disease.²⁵ Early speculation was that the widespread distribution of this species in the 1940s and 1950s for human pregnancy testing disseminated the pathogen to differing regions of the world; however, African clawed frog distributions do not always overlap with Bd outbreaks so additional hosts, such as bullfrogs must also play a role in Bd's spread.²⁶ The African clawed frog does not currently present a major threat for the introduction of new pathogens into California because imports of this species are already restricted, as all frogs in the genus *Xenopus* are included in the Restricted Animal List.²⁷

Ranaviruses are also classified as emerging pathogens, because their geographic distribution and host range appear to be expanding.²⁸ Ranaviruses are known to cause disease in amphibians, fish, and reptiles and have the potential to cause population declines and extinctions.²⁹ Ranaviruses may be a particularly significant threat to host species that are geographically isolated or exist at low abundance,³⁰ and California is home to numerous species of amphibians, fish, and reptiles that fall into these categories. Because ranaviruses can be transmitted between these different taxonomic classes of vertebrates, introductions of ranaviruses by imported bullfrogs can impact fish and reptiles, as well as amphibians.³¹ Ranaviruses are frequently moved in the regional and international trade of animals.³²

Commercial trade appears to play a major role in the spread of Bd and ranaviruses.³³ Bd and ranaviruses have been detected at bullfrog farms in Asia and South America.³⁴ In a study of newly

²⁴ 79 Fed. Reg. 24256, 24274-24275, 24296 (April 29, 2014).

²⁵ Schloegel LM; Picco AM; Kilpatrick AM; Davies AJ; Hyatt AD; Daszak P. 2009. Magnitude of the US trade in amphibians and presence of *Batrachochytrium dendrobatidis* and ranavirus infection in imported North American bullfrogs (*Rana catesbeiana*). *Biological Conservation* 142:1420-1426.

²⁶ *Id.*

²⁷ Title 14 §671(c)(3)(B)

²⁸ Duffus, A.J., Waltzek, T.B., Stöhr, A.C., Allender, M.C., Gotesman, M., Whittington, R.J., Hick, P., Hines, M.K. and R.E. Marschang. 2015. Distribution and host range of ranaviruses. In *Ranaviruses*, pp. 9-57. Springer International Publishing.

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ Schloegel, L.M., Toledo, L.F., Longcore, J.E., Greenspan, S.E., Vieira, C.A., Lee, M., Zhao, S., Wangen, C., Ferreira, C., Hipolito, M. and Davies, A.J., 2012. Novel, panzootic and hybrid genotypes of amphibian chytridiomycosis associated with the bullfrog trade. *Molecular Ecology*, 21(21), pp.5162-5177; Schloegel et al. (2009) *supra* fn. 25; Picco AM, Collins JP. 2008. Amphibian commerce as a likely source of pathogen pollution. *Conservation Biology* 22(6):1582-89.

imported bullfrogs in Los Angeles, New York, and San Francisco, researchers identified a high prevalence of Bd infections, with a presence of Bd on 62% of samples (306/493) and an infection prevalence of 8.5% (50/588) for ranaviruses.³⁵ In an additional study of 47 bullfrogs purchased from 13 shops in seven U.S. cities, 70% of the shops sold bullfrogs carrying infections with Bd, and 41% of the bullfrogs tested positive for Bd.³⁶

While the importation of live bullfrogs may not greatly increase the geographic distribution of Bd and ranaviruses in California that are already present in the state, it may aid in the introduction of new strains of these pathogens.³⁷ Recent studies of Bd have revealed that the genetic diversity of Bd is much greater than previously realized, and there are multiple strains of the fungus found throughout the world, with some strains being more virulent than others.³⁸ Bullfrogs in U.S. markets are infected with a large diversity of Bd genotypes, and thus bullfrog invasions are likely to have facilitated intercontinental gene flow of Bd.³⁹

There is still much that is unknown about additional pathogens that may be spread through the trade in wildlife. Chytrid fungus and ranaviruses are two currently recognized types of pathogens carried in the live bullfrog trade, but more are clearly possible. A recent study found that salamanders imported into the U.S. from China tested positive to spring viraemia of carp virus ("SVCV"), a pathogen not previously known to infect amphibians.⁴⁰ SVCV is a rhabdovirus pathogen of cyprinid fish that is considered an economically important pathogen impacting the commercial aquaculture industry.⁴¹ This provides just one recent example of additional pathogens that may be spread into California through imports of live bullfrogs.

C. Current Regulation of Live Bullfrogs is Inadequate

Approximately two million live bullfrogs are currently imported into California each year, which are primarily sold in food markets.⁴² These bullfrogs pose a threat to California's wildlife, for the reasons stated above, through the potential for the accidental or intentional release of imports. The Department acknowledged in its 2014 report that bullfrogs are likely to continue to spread

³⁴ Mazzoni, R., A. Jose de Mesquita, and M.H.B. Catroxo. 2009. Mass mortality associated with a frog virus 3-like ranavirus infection in farmed tadpoles *Rana catesbeiana* from Brazil. *Diseases of Aquatic Organisms* 88(3):181-191; Schloegel et al. (2009) *supra* fn. 25; Mazzoni R, Cunningham A.A., Daszak P., Apolo A., Perdomo E., and G. Speranza. 2003. Emerging pathogen of wild amphibians in frogs (*Rana catesbeiana*) farmed for international trade. *Emerging Infectious Diseases* 9(8):995-8.

³⁵ Schloegel et al. (2009) *supra* fn. 25.

³⁶ Schloegel et al. (2012) *supra* fn.33.

³⁷ Schloegel et al. (2009) *supra* fn. 25.

³⁸ Schloegel et al. (2012) *supra* fn.33.

³⁹ *Id.*

⁴⁰ Ip, H. S., Lorch, J. M., & Blehert, D. S. 2016. Detection of spring viraemia of carp virus in imported amphibians reveals an unanticipated foreign animal disease threat. *Emerging Microbes & Infections* 5(9), e97.

⁴¹ *Id.*

⁴² CDFW (2014) *supra* fn. 1.

within California, likely via three primary pathways.⁴³ Besides the dispersal and spread of existing bullfrog populations, one of the recognized pathways is via “new introduction events associated with live bullfrog importation and trade.”⁴⁴ Another pathway recognized by the Department is via “new introduction events from ethically motivated releases of captive frogs,”⁴⁵ which may rely on live bullfrog markets to provide a source for frogs to be released.

In 2010 the Commission recognized this problem and declared “[t]he importation of non-native turtles and frogs poses threats not only to the State’s native turtles and frogs, but also to the native source populations of the imported turtles and frogs.”⁴⁶ The Commission further adopted a policy that the “Department of Fish and Game shall cease issuing importation permits for any live non-native turtles or frogs.”⁴⁷

Rather than cease issuing these importation permits, in response to the Commission’s new policy the Department amended its own policies with additional requirements for the permits, including a requirement that all animals sold be euthanized before leaving the retail premises. However, the Department concluded in its 2014 report that these amendments have not been effective, as they have accumulated evidence of numerous violations of these new requirements.⁴⁸ The Department argued that the severity of the risks of bullfrogs to native wildlife is positively correlated to the number of live bullfrogs imported into California.⁴⁹ As a result of its findings, the Department argues in its report that “further limiting or eliminating the issuance of amphibian importation permit is a reasonable alternative to current policy.”⁵⁰

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ “The Fish and Game Commission declares that:

1. The Fish and Game Commission and the Department of Fish and Game have been charged by the Legislature to protect and wisely manage the State’s living natural resources and the habitats upon which they depend.
2. The importation of non-native turtles and frogs poses threats not only to the State’s native turtles and frogs, but also to the native source populations of the imported turtles and frogs.
3. These threats include, but are not limited to: disease, hybridization, competition, and predation.

Therefore, it is the policy of the Fish and Game Commission that the Department of Fish and Game shall cease issuing importation permits for any live non-native turtles or frogs pursuant to Section 236, Title 14, CCR.

(Adopted: 4/8/2010).” California Fish and Game Commission. Miscellaneous Policies: Non-Native Turtles and Frogs. Available at <http://www.fgc.ca.gov/policy/p4misc.aspx> (Last Accessed Oct. 13, 2016).

⁴⁷ *Id.*

⁴⁸ CDFW (2014) *supra* fn.1.

⁴⁹ *Id.* at 11

⁵⁰ *Id.* at 12

IV. PROPOSED REGULATION AMENDMENT

Petitioners request the Commission adopt the following amendments to add American bullfrogs to the list of Restricted Live Wild Animals (additions shown in *redline italics*):

Title 14 §671. Importation, Transportation and Possession of Live Restricted Animals.

(c) Restricted species include:

(3) Class Amphibia -Frogs, Toads, Salamanders

(A) Family Bufonidae -Toads: Bufo marinus, Bufo paracnemis, Bufo horribilis (Giant toad or marine toad group) and all other large toads from Mexico and Central and South America-(D).

(B) Family Pipidae -Tongueless Toads: 1. Genus Xenopus (Clawed frog)-(D).

(C) Family Ambystomatidae-Mole Salamanders: 1. Genus Ambystoma (tiger salamanders) (D).

(D) Family Leptodactylidae -Neotropical Frogs: 1. Eleutherodactylus coqui - Common Coqui or Coqui frog

(E). Family Ranidae - True Frogs : 1. Rana catesbeiana (Lithobates catesbeianus) - American Bullfrog (D).

V. POLICY AND LEGAL JUSTIFICATION FOR PROPOSED REGULATION AMENDMENTS

A. The Commission is Legally Required to Advance Recovery of Species Listed in the California Endangered Species Act by Addressing Threats Such as Bullfrogs

The California Endangered Species Act (“CESA”) requires the Commission to utilize its authority to carry out the purposes of the Act. The rulemaking requested under this petition is within the Commission’s authority to implement and serves the purpose of CESA in reducing the detrimental impacts of bullfrogs to threatened and endangered species.

Specifically, when a species is listed as threatened or endangered pursuant to CESA, affirmative mandates come into force. CESA § 2055 requires that all state commissions and agencies “conserve endangered species and threatened species” and “utilize their authority in furtherance of the purposes” of CESA. CESA further defines “conserve” to mean “to use . . . *all methods and procedures which are necessary* to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary . . .”⁵¹

⁵¹ CESA § 2061, *emphasis added*.

Further, CESA § 2052 declares that “it is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat.”

Bullfrogs negatively impact the state-threatened California tiger salamander, giant garter snake, and Sierra Nevada yellow-legged frog.⁵² They also impact mountain yellow-legged frogs, which are listed as state-endangered as three separate populations.⁵³ All of these species are also protected under the federal ESA.⁵⁴

Bullfrogs prey on and compete with the federal and state protected California tiger salamander and are considered a threat to this species’ recovery.⁵⁵ Tiger salamanders are also threatened by ranaviruses which may be spread by bullfrogs, as explained above.⁵⁶ An overall pattern of decline of this species is seen in areas where bullfrogs and other invasive species are present.⁵⁷ Bullfrogs and California tiger salamanders tend not to co-occur in the same wetlands and bullfrogs have eliminated some California tiger salamander populations.⁵⁸

Bullfrogs are also recognized as predators of the giant garter snake.⁵⁹ An examination of bullfrog stomach contents at the Colusa National Wildlife Refuge in Colusa County showed neonate giant garter snakes in three of the 99 bullfrogs examined.⁶⁰ The authors estimated the total annual predation of bullfrogs to be about 22% of giant garter snake neonate production.⁶¹

Predation by bullfrogs and introduced fishes, and the chytrid fungus (Bd) and other pathogens are two of the primary driving forces leading to population declines in the mountain yellow-legged frog complex.⁶² Predation by bullfrogs is considered to be an ongoing, significant threat

⁵² 69 Fed. Reg. 47212, 47233-34 (August 4, 2004); U.S. Fish and Wildlife Service (“USFWS”). 2012. Giant Garter Snake (*Thamnophis gigas*) 5-Year Review: Summary and Evaluation. Available at: <http://ecos.fws.gov/ecp0/profile/speciesProfile?sId=4482> (Last Accessed Oct. 19, 2016); 79 Fed. Reg. 24256, 24273 (April 29, 2014).

⁵³ 79 Fed. Reg. at 24264 *supra* fn. 52.

⁵⁴ USFWS- ECOS *supra* fn. 15.

⁵⁵ 69 Fed. Reg. 47212, 47233-34 (August 4, 2004); U.S. Fish and Wildlife Service (“USFWS”). 2016. Recovery Plan for the Santa Rosa Plain: *Blennosperma bakeri* (Sonoma sunshine); *Lasthenia burkei* (Burke’s goldfields); *Limnanthes vinculans* (Sebastopol meadowfoam); California Tiger Salamander Sonoma County Distinct Population Segment (*Ambystoma californiense*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. vi + 128 pp.

⁵⁶ 69 Fed. Reg. 47212, 47233 (August 4, 2004).

⁵⁷ *Id.*

⁵⁸ USFWS (2016) *supra* fn. 55; USFWS. 2014. Central California tiger salamander 5-Year Review. Available at: <http://ecos.fws.gov/ecp0/profile/speciesProfile?sId=2076> (Last Accessed November 4, 2016).

⁵⁹ USFWS (2012) *supra* fn. 52.; Wylie et al. (2003) *supra* fn. 11.

⁶⁰ Wylie et al (2003) *supra* fn. 11.

⁶¹ *Id.*

⁶² 79 Fed. Reg. 24256, 24275 (April 29, 2014).

to the Sierra Nevada yellow-legged frog and the mountain yellow-legged frog.⁶³ In its final listing rule for the mountain yellow-legged frog, the USFWS noted that “bullfrog predation and competition is expected to have population-level effects where bullfrog populations occupy the same areas as extant mountain yellow-legged frog populations.”⁶⁴ At present the impact of bullfrogs on Sierra Nevada and mountain yellow-legged frogs is limited to the lower elevations where they co-occur, but bullfrogs may present more of a future threat to these native frogs if they are able to expand their elevational range as a result of climate change.⁶⁵

B. The Commission Should Act to Protect California Species of Special Concern

The Commission’s policy is to “[p]rotect and preserve all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates and plants, and their habitats, threatened with extinction; or those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation.”⁶⁶ This inherently includes Species of Special Concern, which are administratively designated by the Department to help preclude the need to list additional species by achieving conservation and recovery before they meet CESA criteria for listing as threatened or endangered.⁶⁷

In a recent synthesis of the conservation risks faced by California amphibians and reptiles that qualify as Species of Special Concern (“SSC”), 16 of the 45 species were classified as Priority I, those of greatest concern.⁶⁸ Bullfrogs prey on and/or compete with 10 of these 16 Priority I species.⁶⁹ They also prey on and/or compete with other SSC, such as the northern red-legged frog.⁷⁰

Among the 10 Priority I SSC affected by bullfrogs, the California red-legged frog, arroyo toad, and Oregon spotted frog are also federally-listed under the ESA; and the foothill yellow-legged frog, western pond turtle, and western spadefoot are currently being considered for ESA protection.⁷¹ For example, bullfrogs are a strong competitor with, and predator on, multiple life stages of California red-legged frogs resulting in a strong overall negative impact on this federally-threatened species.⁷² Although the federally-endangered arroyo toad is primarily

⁶³ *Id.* at 24275.

⁶⁴ *Id.* at 24273.

⁶⁵ *Id.* at 24273-24274.

⁶⁶ California Fish and Game Commission. Miscellaneous Policies: Endangered and Threatened Species. Available at: <http://www.fgc.ca.gov/policy/p4misc.aspx> (Last Accessed Oct. 13, 2016).

⁶⁷ Thomson et al. (2016) at 4-5 *supra* fn. 12.

⁶⁸ *Id.* at 3

⁶⁹ *Id.* at 68, 91, 104, 110, 116, 122, 134, 294, 302, 308. These Priority I SSC include arroyo toad, foothill yellow-legged frog, California red-legged frog, northern leopard frog, Oregon spotted frog, lowland leopard frog, western spadefoot, common garter snake (southern populations), southern western pond turtle, and Sonora mud turtle.

⁷⁰ *Id.* at 81-82.

⁷¹ USFWS - ECOS *supra* fn. 15.

⁷² Thomson et al. (2016) at 104 *supra* fn. 12.

threatened by the loss and degradation of their habitat, declines are occurring in areas without these threats, largely due to introduced predators like bullfrogs.⁷³

Foothill yellow-legged frogs are rare or absent in habitats where bullfrogs are present, due to competition between tadpoles of the two species, and predation of foothill yellow-legged frogs by metamorphosed bullfrogs.⁷⁴ In a study of bullfrog invasion in a northern California river system, foothill yellow-legged frogs were almost an order of magnitude less abundant in stream reaches where bullfrogs were well established.⁷⁵ In a follow-up artificial experiment bullfrog tadpoles caused a 48% reduction in survivorship of foothill-yellow legged frogs.⁷⁶

For a number of these species, the management recommendations made in the recent Department publication on amphibian and reptile SSC included the need to remove bullfrogs and to protect against the further introduction of bullfrogs into their habitats.⁷⁷ The requested regulatory change will contribute to this effort by reducing the possibility of bullfrogs being re-introduced into areas where there are management efforts to remove them, and preventing bullfrog introductions into new areas.

VI. CONCLUSION

As the Commission has recognized, American bullfrogs pose a threat to California's native fish and wildlife, as they are strong predators and competitors of native species. Bullfrogs are implicated in the introduction and spread of deadly pathogens like chytrid fungus and ranaviruses, and future bullfrog imports may facilitate the introduction of additional emerging and novel wildlife disease. These risks are especially problematic for rare animals like those protected under the federal Endangered Species Act and the California Endangered Species Act, and those classified as Species of Special Concern in California. To conserve native wildlife, as the law requires, the Commission should ban the importation of live American bullfrogs by adding this species to the list of restricted animals.

Respectfully submitted on behalf of Petitioners,

Jenny Loda
Staff Attorney
Center for Biological Diversity
1212 Broadway Street, Suite 800
Oakland, California 94612
Phone: (510) 844-7136
jloda@biologicaldiversity.org

⁷³ *Id.* at 64-68.

⁷⁴ *Id.* at 91.

⁷⁵ Kupferberg, S. J. 1997. Bullfrog (*Rana catesbeiana*) invasion of a California river: the role of larval competition. *Ecology*, 78(6), 1736-1751.

⁷⁶ *Id.*

⁷⁷ *Eg.* Thomson et al. (2016) at 68, 92, 105, 117, 303.



2016-031
Tracking Number: (Click here to enter text.)

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, 1416 Ninth Street, Suite 1320, Sacramento, CA 95814 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

1. Person or organization requesting the change (Required)

Name of primary contact person: Pat Wright



2. **Rulemaking Authority (Required)** - Reference to the statutory or constitutional authority of the Commission to take the action requested: **2118**. It is unlawful to import, transport, possess, or release alive into this state, except under a revocable, nontransferable permit as provided in this chapter and the regulations pertaining thereto, any wild animal of the following species: Mammals of the orders Primates, Edentata, Dermoptera, Monotremata, Pholidota, Tubulidentata, Proboscidea, Perissodactyla, Hyracoidea, Sirenia and Carnivora are restricted for the welfare of the animals, except animals of the families Viverridae and Mustelidae in the order Carnivora are restricted because such animals are undesirable and a menace to native wildlife, the agricultural interests of the state, or to the public health or safety.
3. **Overview (Required)** - Summarize the proposed changes to regulations: We are requesting the Fish and Game Commission issue permits to for ferrets under certain circumstances:
Only sterilized ferrets
Ferrets must be current on rabies vaccination
\$100 or more cost per ferret per permit
4. **Rationale (Required)** - Describe the problem and the reason for the proposed change: Ferrets are already in California in large numbers and this is an issue that won't go away. This would allow dedicated ferret owners to come out of the closet and for the Fish and Game Commission to continue jurisdiction over domestic ferrets.



SECTION II: Optional Information

5. **Date of Petition:** December 3rd, 2016
6. **Category of Proposed Change**
☐ Sport Fishing
☐ Commercial Fishing
☐ Hunting
☒ Other, please specify: non marine animals
7. **The proposal is to:** *(To determine section number(s), see current year regulation booklet or <https://govt.westlaw.com/calregs>)*
☐ Amend Title 14 Section(s): Click here to enter text.
☐ Add New Title 14 Section(s): Click here to enter text.
☐ Repeal Title 14 Section(s): Click here to enter text.
8. **If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition 2016-008**
Or ☐ Not applicable.
9. **Effective date:** If applicable, identify the desired effective date of the regulation.
If the proposed change requires immediate implementation, explain the nature of the emergency: Click here to enter text.
10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: Documents have already been submitted for the previous petition 2016-008
11. **Economic or Fiscal Impacts:** Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: Charge a fee necessary to cover the cost of issuing permits.
12. **Forms:** If applicable, list any forms to be created, amended or repealed:
Click here to enter text.

SECTION 3: FGC Staff Only

Date received: Click here to enter text.

FGC staff action:

- ☒ Accept - complete
☐ Reject - incomplete
☐ Reject - outside scope of FGC authority
Tracking Number

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION
2016 DEC -9 AM 10:15



State of California – Fish and Game Commission

PETITION TO THE CALIFORNIA FISH AND GAME COMMISSION FOR REGULATION CHANGE

FGC 1 (NEW 10/23/14) Page 3 of 3

Date petitioner was notified of receipt of petition and pending action: Dec 19, 2016

Meeting date for FGC consideration: April 26-27, 2017

FGC action:

☐ Denied by FGC

☐ Denied - same as petition _____

Tracking Number

☐ Granted for consideration of regulation change



2016-032
Tracking Number: (Click here to enter text.)

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, 1416 Ninth Street, Suite 1320, Sacramento, CA 95814 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

1. Person or organization requesting the change (Required)

Name of primary contact person: Paul Siebensohn



2. **Rulemaking Authority (Required)** - Reference to the statutory or constitutional authority of the Commission to take the action requested: Title 14 § 5.75. **Striped Bass.** (a) Open season: All year except for closures listed in special regulations. (b) Limit: Two, except in waters listed in (d) below. (c) Minimum size: 18 inches total length except in waters listed in (d) below. (d) Exceptions: (1) In the Colorado River District, the Southern District (except Lake Elsinore), and New Hogan, San Antonio and Santa Margarita lakes. (A) Limit: Ten. (B) Minimum size: No size limit. (2) Lake Elsinore has the limit and minimum size shown in (b) and (c) above. (e) For the purpose of these regulations, any striped bass hybrid with white bass is considered to be striped bass. Note: Authority cited: Sections 200, 202, 205 and 215, Fish and Game Code. Reference: Sections 200, 202, 205 and 206, Fish and Game Code.

3. **Overview (Required)** - Summarize the proposed changes to regulations: Remove all size and limit restrictions on Striped Bass (*Morone saxatilis*)

4. **Rationale (Required)** - Describe the problem and the reason for the proposed change: They are a non-native species which are impacting endangered native species, particularly the Delta Smelt (*Hypomesus transpacificus*), as well migrating members of the Salmonidae family of fish. I have seen multiple times how striped bass hoard and devour bait balls of migrating minnows in the delta and have found them in the digestive system of the Striped bass when cleaning them. I do not see there would be any negative financial impacts to making this change, but possible increase in the interest in fishing and more licenses possibly sold. As a fishing license doesn't require a Striped Bass stamp anymore CDFW should not loose any money as a result of this change. As salmon are commercially fished, allowing



more Salmon fry to reach the ocean should help in the increase of their numbers and therefore the catch for commercial fishermen as well.

SECTION II: Optional Information

5. **Date of Petition:** 12/13/2016
6. **Category of Proposed Change**
☒ Sport Fishing
☐ Commercial Fishing
☐ Hunting
☐ Other, please specify: Click here to enter text.
7. **The proposal is to:** (To determine section number(s), see current year regulation booklet or <https://govt.westlaw.com/calregs>)
☒ Amend Title 14 Section(s): Click here to enter text.
☐ Add New Title 14 Section(s): Click here to enter text.
☐ Repeal Title 14 Section(s): Click here to enter text.
8. **If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition** Click here to enter text.
Or ☒ Not applicable.
9. **Effective date:** If applicable, identify the desired effective date of the regulation.
If the proposed change requires immediate implementation, explain the nature of the emergency: As Soon As Practical
10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: Click here to enter text.
11. **Economic or Fiscal Impacts:** Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: Possible positive financial impacts with increased numbers of Salmon and their commercial harvesting.
12. **Forms:** If applicable, list any forms to be created, amended or repealed:
Click here to enter text.

SECTION 3: FGC Staff Only

Date received: Click here to enter text. December 16, 2016 3:24pm Via email

FGC staff action:

- ☐ Accept - complete
☐ Reject - incomplete
☐ Reject - outside scope of FGC authority



State of California – Fish and Game Commission

PETITION TO THE CALIFORNIA FISH AND GAME COMMISSION FOR REGULATION CHANGE

FGC 1 (NEW 10/23/14) Page 3 of 3

Tracking Number

Date petitioner was notified of receipt of petition and pending action: January 27, 2017

Meeting date for FGC consideration: April 26-27, 2017

FGC action:

☐ Denied by FGC

☐ Denied - same as petition _____

Tracking Number

☐ Granted for consideration of regulation change



Tracking Number: (2017-001) (Click here to enter text.)

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, 1416 Ninth Street, Suite 1320, Sacramento, CA 95814 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

1. Person or organization requesting the change (Required)

Name of primary contact person: Sean A. Brady

Address:

Telephone number:

Email address:

2. Rulemaking Authority (Required) - Reference to the statutory or constitutional authority of the Commission to take the action requested: The authority cited by the Commission for the regulatory provision sought to be amended includes: Fish & Game Code §§ 200, 202, 203, & 240. However, as explained below, it is unclear whether those cited statutes in fact confer on the Commission authority to adopt the provision in question in the first place, meaning it may be invalid per se.

3. Overview (Required) - Summarize the proposed changes to regulations: Subsection (h) of Section 354, of Title 14, Division 1, Subdivision 2, Chapter 3, of the California Code of Regulations ("Section 354(h)") provides that for big game "archers may not possess a firearm while hunting in the field during any archery season, or while hunting during a general season under the provisions of an archery only tag." The only exceptions to this restriction are for: (1) the possession of a crossbow by a person issued a Disabled Archer Permit (Section 354(g),(j)); and (2) current and honorably retired peace officers who are hunting deer during an archery season (California Fish & Game Code section 4370).

Petitioners seek to have Section 354(h) amended to limit its general restriction on firearm possession to apply only to firearm "use" so that mere possession is not prohibited or, alternatively, to at least add language specifically exempting those with a valid carry concealed weapon license from its restriction, as is already the case for archery hunting for small game (see Section 311(k).)

4. Rationale (Required) - Describe the problem and the reason for the proposed change: Section 354(h) should be amended as petitioners request because its current blanket restriction on possessing a firearm while archery hunting for big game is not only bad (and potentially life-threatening) policy, but is also likely illegal.



Improper Regulation

The Administrative Procedures Act (“APA”) governs the rule-making processes of the Commission. Under the APA, the validity of a regulation is evaluated by: necessity, authority, clarity, consistency, reference, and non-duplication. (Cal. Gov’t. Code § 11349.1). A key purpose of the APA is to limit an agency to adopting only regulations “within the scope of the authority conferred” that are necessary and “consistent and not in conflict with [any] statute . . .” (Cal. Gov’t. Code §§ 11342.1–11342.2).

In applying the APA’s criteria, Section 354(h) suffers three deficiencies: (1) there is no authority for it; (2) it lacks consistency with general law; and (3) it is not necessary.

Lack of Authority

Under the APA, “authority” is defined as “the provision of law which permits or obligates the agency to adopt, amend, or repeal regulation.” Cal. Gov’t Code § 11349(b). The only provision cited by the Commission as its basis for authority to adopt Section 354 that is potentially relevant here is subsection (d) of Fish & Game Code § 203, which permits the Commission to prescribe “the manner and the means of taking” animals. “Taking,” in this context, is defined as “hunt, pursue, catch, capture or kill game or attempt to hunt, pursue, catch, capture or kill game.” Cal. Fish & Game Code § 86.

Section 354(h) categorically prohibits firearm possession while archery hunting—a context unrelated to the “manner” or “means” of “taking” game. The mere presence of a firearm alone has no effect on game. It does not give a hunter any type of unfair advantage per se nor does it cause any harm to game, unless the firearm is improperly *used*, which conduct the Commission may, and already does, regulate because such qualifies as a “means” of “taking” game. *See, e.g.,* Cal. Code Regs. tit. 14, §§ 311(k) (prohibiting use of firearm for hunting small game during archery season); and 507 (prohibiting use of shot size larger than No. BB for taking of migratory game birds).

Thus, Section 354(h) exceeds the scope of the Commission’s regulatory authority. But, even if the Commission has the authority to adopt such a regulation, Section 354(h) is nevertheless invalid because it negates provisions of statutes that preempt it and it is unnecessary.

Inconsistency

Under the APA, the term “consistency” is defined as “being in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or other provisions of law.” Cal. Gov’t Code § 11349(d). Agency regulations that conflict with statutory law (i.e., lack “consistency”) are void. *Assn. For Retarded Citizens v. Dept. of Developmental Services*, 38 Cal. 3d 384, 391 (1985); *accord Credit Ins. Gen. Agents Ass’n v. Payne*, 16 Cal. 3d 651, 656 (1976); *Agric. Labor Rels. Bd. V. Super Ct.*, 16 Cal. 3d 392, 419 (1976) (citing *Morris v. Williams*, 67 Cal. 2d 733, 737 (1967)). This doctrine has frequently been invoked to strike down administrative regulations in conflict with the statute creating the agency or a statute the agency is authorized to administer; however “the principle is equally applicable when the regulation contravenes a provision of a different statute.” *Agric. Lab Rel. Bd.*, 16 Cal. 3d at 420.

California Penal Code sections 26150 and 26155 exempt the holders of a concealed carry license (“CCW”) from California’s restrictions on carrying firearms in public. Those sections, along with Penal Code § 26200, confer on Sheriffs and Police Chiefs the exclusive authority to determine who is entitled to a CCW and with what restrictions. By adopting Section 354(h), the Commission has effectively



usurped the statutory authority of those Sheriffs and Police Chiefs by placing restrictions on CCWs that they did not authorize, thereby improperly conflicting with Penal Code sections 26150, 26155, & 26200.

Additionally, Penal Code section 25640 expressly exempts anyone engaged in hunting from section 25400's general prohibition on carrying a concealed firearm in public. Section 354(h) disallows such carrying and thus directly and improperly conflicts with section 25640. *See Fiscal v. City and County of San Francisco* (2008) 158 Cal.App.4th 895, 911 [70 Cal.Rptr.3d 324, 335] (finding an ordinance preempted, in part, because it "would prohibit the possession of handguns by City residents even if those residents are expressly authorized by state law to possess handguns for self-defense or other lawful purposes").

Because Section 354(h) conflicts with general provisions of California law concerning the lawful possession of firearms, it is void and unenforceable and the Commission must amend it. Even if it was not in conflict, Section 354(h) is nevertheless unnecessary.

Lack of Necessity

Under the APA, the term "'Necessity' means the record of the rulemaking proceeding demonstrates by substantial evidence the need for a regulation to effectuate the purpose of the statute, court decision, or other provision of law that the regulation implements, interprets, or makes specific, taking into account the totality of the record. For purposes of this standard, evidence includes, but is not limited to, facts, studies, and expert opinion." Cal. Gov't Code § 11349(a).

The obvious (and understandable) purpose of Section 354(h) is to prevent the illegal and unfair taking of big game with a firearm during archery season. While well-intentioned, however, it is not necessary. Prohibiting the *use* of a firearm, while allowing the lawful possession of one, as petitioners request, is sufficient to achieve that goal. There is no "need" to go the next, excessive step of restricting firearm possession by all archers, the vast majority of whom simply want a means to adequately defend themselves, solely based on the hope that doing so will prevent poaching. Nothing in the record of the rulemaking process for Section 354(h) suggests otherwise.

Ironically, a poacher walking around the woods with no license and a firearm (especially a sidearm) during archery season could escape liability under Section 354(h) more easily than a legitimate archery hunter because the poacher would probably not have a license or an archery tag in the first place, making it hard to prove he is pursuing game. Moreover, any warden talented enough to get the job can tell whether an animal has been shot by an arrow or bullet and, if the latter, whether the shot was made in self-defense or offensively.

Unconstitutionality

The Supreme Court has held that the Second Amendment right to keep and bear arms is a fundamental, individual right that includes at its core the right of law-abiding, competent adults to "possess and carry weapons in case of confrontation." *District of Columbia v. Heller*, 554 U.S. 570, 592 (2008). It is improper for the Commission to require archers to forfeit their right to armed self-defense solely as a precaution against the *potential* misuse of the firearm they wish to carry.



Bad Policy

Setting aside legal questions, it is simply dangerous and wrong to have people out hunting, often alone and isolated, without an adequate means to protect themselves from dangerous predators and criminals. This is an issue more so than ever, with the increase of illegal marijuana grows in popular hunting areas that are often patrolled by armed gang members willing to violently defend their crops, as well as the influx of apex predators like bears and mountain lions, and now wolves, due to legal restrictions on hunting them and managing their populations.

Conclusion

For the above stated reasons, NRA and CRPA urge the Commission to accept this Petition and open the rulemaking process for a regulation that amends Section 354(h) to replace the word “possess” therein with the word “use” and add the phrase on the end: “, unless to protect archer from an immediate threat of great bodily harm or death by a person or animal.”

Alternatively (or additionally), Petitioners urge that Section 354(h) should be amended to add the following provision:

“Nothing in this section shall prohibit the lawful possession of a concealed firearm by an active peace officer listed in Chapter 4.5 (commencing with Section 830) of Title 3 of Part 2 of the Penal Code or a retired peace officer in lawful possession of an identification certificate issued pursuant to Penal Code Section 25455 authorizing the retired officer to carry a concealed firearm. Nor shall this section prohibit the lawful possession of a concealed firearm pursuant to a concealed carry permit issued pursuant to Penal Code Section 26150 or 26155.”

(See, e.g., Cal. Code Regs. tit. 14, §§ 311(k) & 550).

The addition of this provision makes clear that peace officers and anyone with a valid CCW are not subject to any restriction on the carrying of firearms in Section 354(h). While there is reason, both legal and practical, to allow all people to carry firearms in the situations Section 354(h) prohibits, this amendment would at least avoid the direct conflict with CCW holders.

SECTION II: Optional Information

5. **Date of Petition:** February 2, 2017

6. **Category of Proposed Change**

- ☐ Sport Fishing
- ☐ Commercial Fishing
- ☒ Hunting
- ☐ Other, please specify: [Click here to enter text.](#)



7. **The proposal is to:** (*To determine section number(s), see current year regulation booklet or <https://govt.westlaw.com/calregs>*)
☒ Amend Title 14 Section(s): Section 354, subsection (h)
☐ Add New Title 14 Section(s): *Click here to enter text.*
☐ Repeal Title 14 Section(s):
8. **If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition** *Click here to enter text.*
Or ☒ Not applicable.
9. **Effective date:** If applicable, identify the desired effective date of the regulation.
If the proposed change requires immediate implementation, explain the nature of the emergency: This is not an emergency. But, the effective date of this regulatory change should be made at the Commission's and Department's earliest convenience to avoid any unnecessary episodes of archers being unable to defend themselves while hunting.
10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: *Click here to enter text.*
11. **Economic or Fiscal Impacts:** Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: None known.
12. **Forms:** If applicable, list any forms to be created, amended or repealed:
Click here to enter text.

SECTION 3: FGC Staff Only

Date received: *Click here to enter text.*

FGC staff action:

- ☐ Accept - complete
☐ Reject - incomplete
☐ Reject - outside scope of FGC authority
Tracking Number

Date petitioner was notified of receipt of petition and pending action: _____

Meeting date for FGC consideration: _____

FGC action:

- ☐ Denied by FGC
☐ Denied - same as petition _____
Tracking Number
☐ Granted for consideration of regulation change

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION
2017 FEB -2 PM 1:17

California Fish and Game Commission

April 12, 2017

Mr. Eric Sklar, President
Mrs. Jacque Hostler-Carmesin, Vice President
Mr. Anthony C. Williams, Member
Mr. Russell Burns, Member
Mr. Peter Silva, Member
1416 Ninth Street, Room 1320
Sacramento, CA 95814

Dear Commissioners,

We write to you as scientists who study the effect of bullfrogs on California's native amphibians. The agenda of your upcoming meeting (April 26-27) includes item 17(A)(I), Petition #2016-030 to add the American bullfrog to the list of restricted species. Our research provides important evidence in support of a decision to approve this petition.

While it has long been known that bullfrogs, as superior competitors and effective predators, can displace native amphibians, only recently have we learned that bullfrogs spread wildlife diseases that harm sensitive species. Please find attached our paper just published in the Ecological Society of America's journal *Ecosphere* which implicates bullfrogs in an outbreak of the amphibian chytrid fungus *Batrachochytrium dendrobatidis* (*Bd*) that caused a die-off of Foothill Yellow-legged Frogs (*Rana boylei*). The dynamics of wildlife diseases are complex, and bullfrogs, with their pathogens, have long been present in California, so you may ask why is it important for you to take action now.

Our results indicate that against the backdrop of an increasingly variable climate in which extreme droughts will be more frequent and human demands on water resources will amplify, the consequences of unrestricted bullfrog importation will take on new dimensions. Multiple stressors will act in concert in ways previously not imagined. Because bullfrogs are both vectors and reservoir hosts of diseases to which they are resistant, they effectively spread pathogens in natural systems undergoing new environmental stresses. Under the crowded conditions in which live bullfrogs are held in food markets, disease organisms such as *Bd* and Ranavirus can proliferate. When well-meaning people purchase live frogs and make so-called "compassionate releases", new and virulent strains are introduced to ecosystems where the resident fauna have naive immune systems and are susceptible to the diseases.

The listing of *R. boylei* as a threatened species under California's Endangered Species Act is also an agenda item in your upcoming meeting. By approving the petition to restrict bullfrogs, you will also be helping this native frog in great need of protection.

Sincerely,



Sarah Kupferberg, Ph.D.
Visiting Scholar, Dept of Int. Biology
UC Berkeley

Andrea Adams, Ph.D.
Dept of Ecology, Evolution, and Marine Biology
UC Santa Barbara

[skupferberg](#)

Ph.D., Integrative Biology, University of California, Berkeley 1996

B.S., Botany, Duke University, Durham, NC 1984; magna cum laude, Phi Beta Kappa

Dr. Kupferberg focuses on food web ecology, amphibian population biology, and conservation of aquatic ecosystems in California. She is trained in the design of ecological monitoring programs, experimental design, and data analysis of multi-species assemblages. She studies the effects of flow regulation by dams and diversions on physical and biotic conditions for wildlife. She conducts field research and does experiments in rivers with hydroelectric projects, drinking water reservoirs, and flood control projects. She reviews stream restoration plans and works with engineers to facilitate designs that work from both hydraulic and biologic perspectives. Dr. Kupferberg currently works as an independent consultant and as a part time employee of Questa Engineering. She is currently conducting an investigation of chytrid fungal infections of frogs in the Alameda Creek and participating in a project to re-introduce native ranid frogs to Yosemite Valley.

With regards to husbandry of frogs, Dr. Kupferberg has 20 years experience handling and rearing eggs, embryos, and tadpoles. For her various research projects she has successfully transported eggs and larvae from the field to the laboratory, and from one field location to another. She has reared embryos and tadpoles of *Rana boylei*, *Hyla regilla*, *Anaxyrus boreas*, and *Lithobates catesbeianus* to metamorphosis; constructed and maintained many types of flow-through stream enclosures, laboratory aquaria, outdoor tanks, and re-circulating troughs. She has conducted experiments manipulating algal food resources, rearing temperature, and current velocity, in which tadpoles were weighed and measured weekly without handling mortality.

Dr. Kupferberg serves as a volunteer technical advisor to Friends of Tesla Park, a community based environmental group aimed at protecting natural resources around the Carnegie State Vehicular Recreation Area in eastern Alameda County. She also serves as an associate editor for the amphibian section of the journal Herpetological Conservation and Biology.

Ecologist with Questa Engineering Corp., Pt Richmond, CA (2001-present)

- Developed study plan and conducted mitigation for removal of Benbow Dam on South Fork Eel River for California State Parks. Organized volunteers to assist in frog egg mass relocation prior to construction spring 2016.
- Designed stream restoration for California Red-legged frog habitat at Lawrence Livermore Lab's Site 300.
- Developed management plans to minimize impact of impoundments on native frogs.
- Conducted site assessments for *Rana draytonii* and *Rana boylei* on several N. California projects.

Ecologist with McBain & Assoc., Arcata, CA (2013-2014)

- For San Francisco Public Utilities Commission assessed amphibian / reptile issues, drafted sections of Habitat Conservation Plan; conducted population monitoring and studies for CEQA Mitigation Monitoring and Reporting Plan; developed ecological models to evaluate in-stream flow proposals for Tuolumne River and Alamada Creek.

Research Assoc., Visiting Scholar, Dept of Integrative Biol., UC Berkeley (2008-11, 2014-17)

- Conducting long term (+20 yr) population monitoring of *R. boylei* and *R. draytonii* (S. Fk. Eel River, Alameda Ck.)
- Completed California Energy Commission sponsored project on the downstream thermal effects of hydroelectric power generation on amphibians and algal food webs.
- Developed population viability analysis methods specific to *R. boylei*.

Consulting Ecologist for US Forest Service re FERC hydropower relicensing (2002-06, 2013)

- Helped design flow studies, developed Federal Power Act section 4e conditions, reviewed draft license applications, and developed monitoring plans for several California rivers including: Pit, N. Fk. Feather, West Branch Feather, Butte Ck., Stanislaus, American, and Tule Rivers
- Drafted the sections of the USFS Conservation Assessment of *Rana boylei*.

Presentations and Teaching

- Chytrid Infection, Drought, and Flow Regulation Create Multiple Stressors on Foothill Yellow-Legged Frog Populations in the Alameda Creek Watershed. California / Nevada Amphibian Populations Task Force Meeting, Pepperdine Univ, Malibu CA. Jan. 2015.
- California Department of Fish and Wildlife, Conservation Lecture Series. Gave presentation on Foothill yellow legged frogs, Dec. 2014.
- Joint Aquatic Sciences Meeting. Special session, The Future of Aquatic Science. "From algal food web ecology to dam management: connecting the dots one tadpole at a time." May 2014
- Friends of the Eel River Science Symposium. Presentation comparing thermal conditions on Eel River below Scott Dam and free-flowing reaches of the South Fork Eel watershed, April 2012
- Jasper Ridge Biological Preserve, Stanford University. Brown-Bag Lecture Series presentation on importance of flow regime and thermal conditions to stream-breeding amphibians, Nov. 2011.

- Geomorphic & Ecological Fundamentals for River Restoration. Taught ecology section of short course organized by Matt Kondolf (UC Berkeley) at Sagehen Creek Field Station, Aug. 2009- 10
- State Water Resources Control Board, Division of Water Rights. Taught section in workshop: Effects of Water Diversion on Ecology and Geomorphology of Small Streams, April 2009
- Upper Tuolumne River Stakeholder Meeting. Presentation reviewing how competing demands for water (e.g. power generation, recreation, irrigation) affect riverine biota. Nov. 2008
- University of California, Berkeley Graduate Student Instructor 1991-1994, Department of Integrative Biology: Intro Biology and Ecology. Department of Geology and Geophysics: The Water Planet (intro to hydrology)
- Yosemite National Institutes, Yosemite National Park and Golden Gate National Recreation Area, California Naturalist / Instructor / Environmental Educator 1988-89.
- Naturalists at Large, Santa Monica, CA; Boojum Wilderness Institutes, San Diego, CA; Venture West School of Outdoor Living, Walnut Creek, CA. Instructor 1986-87
- Sierra Institute, U.C. Santa Cruz Extension, Teaching Assistant Natural History and Ecology of the Sierra Nevada Summers 1986, 1987

Service

- Associate Editor for Herpetological Conservation and Biology
- Volunteer Technical Advisor for Friends of Tesla Park
- Presentations to AP Env'tl Studies classes at Skyline High School, Oakland CA
- Peer reviewer for Herpetological Conservation and Biology, Freshwater Biology, Oecologia, Copeia, Ecology, PLoS ONE, Alameda County Resource Conservation District publications

Membership in Professional Societies

- American Society of Ichthyologists and Herpetologists; Ecological Society of America; California Nevada Amphibian Populations Task Force; Society for Freshwater Science

Peer-Reviewed Publications *indicates *in situ* rearing of embryos and tadpoles in rivers

Catenazzi A, SJ Kupferberg. 2017. Variation in thermal niche of a declining river-breeding frog: from counter-gradient responses to population distribution patterns. *Freshwater Biology in press*

Kupferberg SJ. 2017. In Search of Lost Frogs—Book Review. *Copeia in press*

Adams AJ, SJ Kupferberg, MQ Wilber, AP Pessier, M Grefsrud, S Bobzien, VT Vredenburg, CJ Briggs. 2017. Extreme drought, host density, sex, and bullfrogs influence fungal pathogen infection in a declining lotic amphibian. *Ecosphere in press*

Power ME, SJ Kupferberg, SD Cooper, ML Deas. 2016. California's River Ecosystems. In: *Ecosystems of California*, H Mooney, E Zavaleta, eds. University of California Press, Berkeley.

Railsback SF, BC Harvey, SJ Kupferberg, MM Lang, S McBain and HH Welsh Jr. 2016. Modeling potential conflicts between frogs and salmonids. *Canadian Journal of Fisheries Science* 73:773-784.

Howard JK, KR Klausmeyer, KA Fesenmyer, J Furnish, T Gardali, T Grantham, JVE Katz, S Kupferberg, P McIntyre, PB Moyle, PR Ode, R Peek, RM Quiñones, AC Rehn, N Santos, S Schoenig, L Serpa, JD Shedd, J Slusark, JH Viers, A Wright, and SA Morrison. 2015. Patterns of freshwater species richness, endemism, and vulnerability in California. *PLoS ONE* DOI: 10.1371/journal.pone.0130710

Carah JK, JK Howard, SE Thompson, AG Short Gianotti, SD Bauer, SM Carlson, DN Dralle, MW Gabriel, LL Hulette, BJ Johnson, CA Knight, SJ Kupferberg, SL Martin, RL Naylor, and ME Power. 2015. High time for conservation: Adding the environment to the debate on marijuana liberalization *BioScience* 01/2015; 1:1-8. DOI:10.1093/biosci/biv083

Furey PC, SJ Kupferberg, AJ Lind. 2014. The perils of unpalatable periphyton: *Didymosphenia* and other mucilaginous stalked diatoms as food for tadpoles. *Diatom Research* 29:267–280.

*Catenazzi A, SJ Kupferberg. 2013. The importance of thermal conditions to recruitment success in stream-breeding frog populations distributed across a productivity gradient. *Biological Conservation*. 168: 40–48.

*Kupferberg SJ, A Catenazzi, ME Power. 2013. The importance of water temperature and algal assemblage for frog conservation in northern California rivers with hydroelectric projects. Final Report. California Energy Commission, PIER. 110pp.

- Kupferberg SJ, C Addley, P Graf. 2012a. Water temperature effects on Foothill Yellow-legged Frog and Hardhead. Filed September 14, 2012 to the Federal Energy Regulatory Commission in Reply Comments of Placer County Water Agency on the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service Preliminary Recommendations of Measures under Federal Power Action § 10(j) and Preliminary Federal Power Action § 18 Fishway Prescriptions. Appendix A.
- Kupferberg SJ, WJ Palen, AJ Lind, S Bobzien, A Catenazzi, J Drennan, ME Power. 2012b. Effects of altered flow regimes by dams on survival, population declines, and range-wide losses of California river-breeding frogs. *Conservation Biology* 26:513-524.
- *Kupferberg SJ, AJ Lind, V Thill, and S Yarnell. 2011. Water velocity tolerance in tadpoles of the foothill yellow-legged frog (*Rana boylei*): swimming performance, growth, and survival. *Copeia* 2011:141–152.
- *Kupferberg SJ, AJ Lind, S Yarnell, J Mount. 2009a. Pulsed flow effects on the foothill yellow-legged frog (*Rana boylei*): Integration of empirical, experimental and hydrodynamic modeling approaches. Final Report to the California Energy Commission, PIER. 194 pp. <http://animalscience.ucdavis.edu/PulsedFlow/Kupferberg%20500-09-002.pdf>
- *Kupferberg SJ, AJ Lind, and WJ Palen. 2009b. Pulsed flow effects on the foothill yellow-legged frog (*Rana boylei*): Population modeling. Final Report to the California Energy Commission, PIER. 80pp. <http://animalscience.ucdavis.edu/PulsedFlow/Kupferberg%20Sept2010.pdf>
- Kupferberg SJ, A Catenazzi, K Lunde, AJ Lind, and WJ Palen. 2009c. Parasitic copepod (*Lerneacyprinacea*) outbreaks in foothill yellow-legged frogs (*Rana boylei*) linked to unusually warm summers and amphibian malformations in northern California. *Copeia* 2009:529-537.
- Sanderson SL, SJ Kupferberg. 1999. Development and evolution of aquatic larval feeding mechanisms. In: The origin and evolution of larval forms, BK Hall, MH Wake, eds. Academic Press, London.
- Kupferberg SJ. 1998. Predator mediated patch use by tadpoles (*Hyla regilla*): risk balancing or consequence of motionlessness? *Journal of Herpetology* 32:84-92.
- Kupferberg SJ. 1997a. The role of larval diet in amphibian metamorphosis. *American Zoologist* 37:146-159.
- Kupferberg, SJ. 1997b. Bullfrog (*Rana catesbeiana*) invasion of a California river: the role of larval competition. *Ecology* 78:1736-1751.

*Kupferberg SJ. 1997c. Facilitation of primary production by grazing: functionally important differences among species. *Freshwater Biology* 37:427-439.

Power ME SJ Kupferberg, GW Minshall., MC Molles and MS Parker. 1997d. Sustaining western aquatic food webs. In: *Aquatic Ecosystems Symposium. Report to the Western Water Policy Review, a Presidential. Advisory Commission* (ed. W. C. Minckley) pp. 45–61. Department of Commerce, National Technical Information Service, Springfield.

Kupferberg, SJ. 1996. Hydrologic and geomorphic factors affecting conservation of the foothill yellow legged frog (*Rana boylei*) *Ecological Applications* 6:1332-1344.

*Kupferberg SJ, JC Marks, and ME Power. 1994. Variation in natural algal and detrital diets affects larval anuran life history traits. *Copeia* 1994: 446-457.

Kupferberg SJ. 1994. Exotic larval bullfrogs (*Rana catesbeiana*) as prey for native garter snakes: functional and conservation implications. *Herp Review* 25: 95-97.

Extreme drought, host density, sex, and bullfrogs influence fungal pathogen infection in a declining lotic amphibian

ANDREA J. ADAMS¹,[†] SARAH J. KUPFERBERG,² MARK Q. WILBER¹, ALLAN P. PESSIER,³
MARCIA GREFSRUD,⁴ STEVE BOBZIEN,⁵ VANCE T. VREDENBURG,⁶ AND CHERYL J. BRIGGS¹

¹Department of Ecology, Evolution, and Marine Biology, University of California, Santa Barbara, California 93106 USA

²Department of Integrative Biology, University of California, Berkeley, California 94720 USA

³Department of Veterinary Microbiology and Pathology, College of Veterinary Medicine,
Washington State University, Pullman, Washington 99164 USA

⁴California Department of Fish and Wildlife, Bay Delta Region, Napa, California 94558 USA

⁵East Bay Regional Park District, Oakland, California 94605 USA

⁶San Francisco State University, San Francisco, California 94132 USA

Citation: Adams, A. J., S. J. Kupferberg, M. Q. Wilber, A. P. Pessier, M. Grefsrud, S. Bobzien, V. T. Vredenburg, and C. J. Briggs. 2017. Extreme drought, host density, sex, and bullfrogs influence fungal pathogen infection in a declining lotic amphibian. *Ecosphere* 8(3):e01740. 10.1002/ecs2.1740

Abstract. Freshwater biodiversity is imperiled across the globe, and multiple stressors such as habitat alteration, non-native species invasion, disease, and climate change can act in concert to threaten vulnerable taxa. The amphibian chytrid fungus *Batrachochytrium dendrobatidis* (Bd), which causes the disease chytridiomycosis, is one of the causative factors of severe amphibian declines. The foothill yellow-legged frog (*Rana boylei*) is a stream-breeding anuran endemic to California and Oregon (USA) that has declined precipitously in recent decades, yet there is little information on its susceptibility to Bd. In the fall of 2013, we observed dead and dying juvenile *R. boylei* in a San Francisco Bay Area watershed where annual amphibian breeding censuses have been conducted since 1997 in a free-flowing reach and since 2003 in an anthropogenically modified stream reach. High pathogen loads on *R. boylei* and histologic lesions observed on a dead *R. boylei* metamorph collected from the site were consistent with lethal chytridiomycosis. The outbreak coincided with extremely low stream flows in autumn that concentrated frogs in drying pools and the absence of high peak flows in winter that allowed non-native American bullfrogs (*Rana catesbeiana*) to expand their spatial distribution in the stream network. Following the outbreak, we surveyed *R. boylei* and sympatric anurans at the site for the next two years to determine Bd trends within the population. Using mixed-effects models, we found that bullfrog presence was a positive predictor of both Bd prevalence and Bd load in *R. boylei*. Prevalence was also influenced by sex and life stage: Adult males were more likely to be infected than either females or juveniles. Moreover, we found that stream flow volume was negatively associated with Bd load. These results indicate that disease, drought, and flow regulation may interact synergistically to impact amphibians in ways not previously recognized, informing stream flow management strategies for native aquatic taxa.

Key words: amphibian declines; *Batrachochytrium dendrobatidis*; chytrid fungus; climate change; dams; disease; drought; multiple stressors; pathogen; *Rana boylei*; rivers; streams.

Received 27 June 2016; revised 29 January 2017; accepted 31 January 2017. Corresponding Editor: Robert R. Parmenter.

Copyright: © 2017 Adams et al. This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

[†] **E-mail:** andrea.adams@lifesci.ucsb.edu

INTRODUCTION

Fungal pathogens causing disease in wildlife are on the rise, with catastrophic consequences for

biodiversity (Fisher et al. 2012, Ercan et al. 2015). Anthropogenic disturbances, such as the transport and introduction of non-native species and habitat alteration, can facilitate the dispersal of fungal

pathogens and can cause shifts in their host-specific suitability, making disease outcomes difficult to predict (Fisher et al. 2012, Adlard et al. 2015). Shifts in environmental conditions can also alter host–pathogen relationships, changing disease risk (Dobson and Foufopoulos 2001). In some cases, climate change can increase the incidence and severity of animal pathogens by extending the suitable range of vectors and reservoir hosts, lengthening periods suitable for pathogen transmission, or directly affecting host susceptibility (Harvell et al. 2002, Greer et al. 2008, Eisenlord et al. 2016). In addition, climate change can combine with pre-existing stressors, resulting in cumulative effects to the host (Gallana et al. 2013).

The pathogenic chytrid fungus *Batrachochytrium dendrobatidis* (hereafter Bd) produces the amphibian disease chytridiomycosis in susceptible hosts and has caused declines and extinctions in over 200 species globally (Stuart et al. 2004, Wake and Vredenburg 2008). Bd has altered our understanding of the interaction between diseases and their hosts, in that Bd can cause host extinction, which is unlikely for most pathogens (MacPhee and Greenwood 2013). Bd's ability to infect multiple hosts allows it to maintain itself in less susceptible species while driving more susceptible species to extinction or near extinction (Catenazzi 2015). Therefore, it is crucial to understand the range of host species infected with Bd in ecosystems, and to identify potential reservoir hosts that could increase the threat of chytridiomycosis infection for susceptible species of conservation concern.

Both the biotic and abiotic contexts of Bd outcome must be considered because disease is also strongly shaped by the environment, which can influence the traits of the pathogen and hosts' responses to it (Blaustein et al. 2012). The prevalence and severity of Bd infection can be highly dependent upon local climatic conditions (Kriger and Hero 2007, Savage et al. 2011); however, these effects are not always observed (Knapp et al. 2011). Bd is an aquatic pathogen, requiring a minimum level of moisture to be viable in vitro (Johnson et al. 2003), and is often dependent upon moisture variables in the wild (Kriger 2009). Therefore, it is often suggested that warmer, drier climates may reduce Bd prevalence and loads (Becker and Zamudio 2011, Raffel et al. 2013); however, shifting climates may also

increase chytridiomycosis severity as warmer and drier conditions force amphibians to aggregate in reduced areas of moisture, increasing pathogen transmission rates (Burrowes et al. 2004, Lampo et al. 2006, Longo et al. 2010).

Here, we present the results of two years of Bd monitoring in the foothill yellow-legged frog (*Rana boylei*), a stream-dwelling species endemic to California and Oregon (USA) that has declined from over half of its former range (Davidson et al. 2002, Lind 2005). *Rana boylei* is a Species of Special Concern in the State of California (Thomson 2016) and is a candidate for federal Endangered Species Act listing, currently under review (U.S. Fish and Wildlife Service 1994, 2015). A primary driver of *R. boylei* declines is artificial stream flow and temperature regulation by dams (Lind et al. 1996, Kupferberg et al. 2012, Catenazzi and Kupferberg 2013), but the potential role of Bd in the precipitous decline of this species is not yet known. In a location where annual amphibian breeding censuses have been conducted since 2003, a highly anthropogenically modified watershed in California's East San Francisco Bay Area (Fig. 1), we observed dead and dying juvenile *R. boylei* in the fall of 2013. High pathogen loads at the site of dead and dying frogs suggested that the die-off was associated with an outbreak of chytridiomycosis, consistent with high susceptibility in early post-metamorphic individuals observed in other studies (Knapp et al. 2011, Abu Bakar et al. 2016).

The outbreak and two subsequent years of sampling approximately 16 km of stream coincided with the most severe drought event in California in the last 1200 yr (Griffin and Anchukaitis 2014), with 2012–2015 being the driest four consecutive water years since the record began in 1895 (Mann and Gleick 2015, California Department of Water Resources 2016). Extremely low stream flows concentrated frogs in shrinking pools throughout the dry season and the absence of peak flows in the rainy season allowed non-native American bullfrogs (*Rana catesbeiana*) to expand their spatial distribution. Bullfrogs occurred farther away from the lentic environs of a large water impoundment in the surrounding stream network's lotic habitats than had been observed since censuses began. Prior to the recent drought (2012–2015), *R. boylei* were consistently more abundant in the upstream unregulated portions of the study area (Kupferberg et al. 2012), but became relatively more abundant

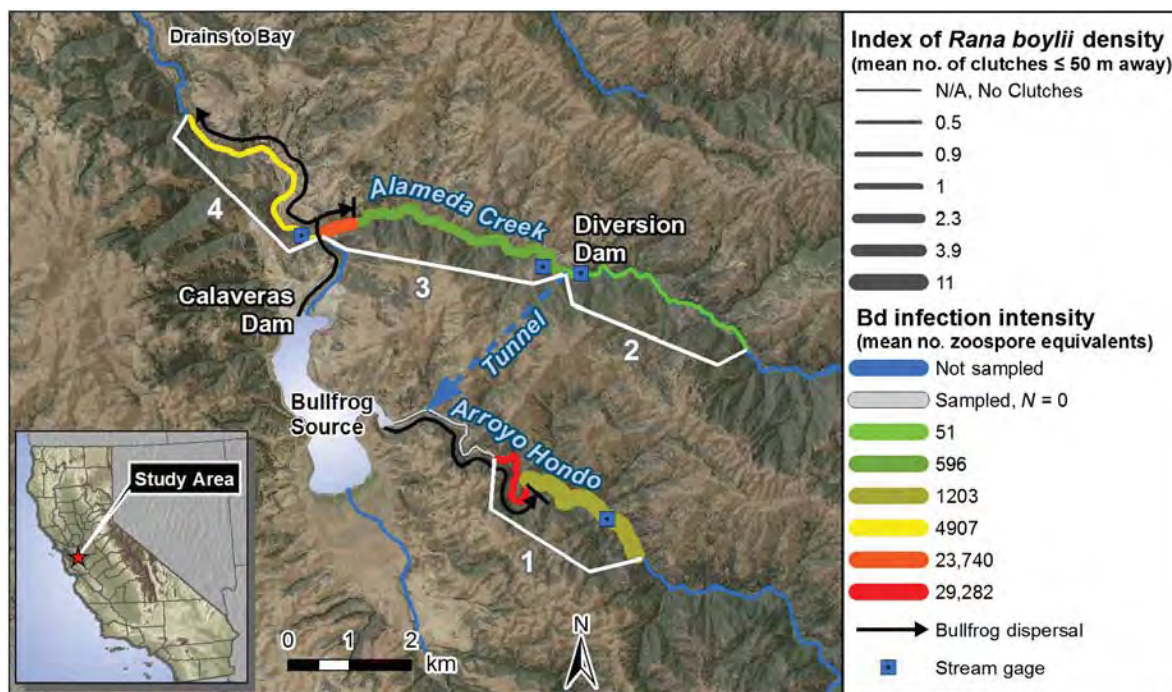


Fig. 1. The location of the study area in Alameda County, California (USA), and the four numbered hydrologically and geomorphologically distinct study reaches: (1) Arroyo Hondo upstream of the reservoir (ochre and red); (2) unregulated Alameda Creek upstream of the diversion dam which delivers water to the reservoir through a tunnel (bright green); (3) downstream of the diversion dam (dark green and orange); and (4) downstream of the confluence of the outflow of Calaveras Dam (bright yellow). Study reach colors correspond to the intensity of Bd infection on foothill yellow-legged frogs (*Rana boylei*) across the reach as well as Bd load of frogs within two infection hot spots (orange segment of Reach 3, and red segment of Reach 4). Line width indicates mean number of *R. boylei* clutches observed within 50 m of capture point of frogs sampled for Bd. Bullfrog (*Rana catesbeiana*) presence/absence status and direction of expansion are indicated by black arrows.

downstream in the regulated reaches (Fig. 2A) which remained wetted throughout the year, while the channels in the upper part of the watershed were completely without surface flow by midsummer (Fig. 2B, C). The 2013 chytridiomycosis outbreak also coincided with this period of shifting frog distribution, prompting us to hypothesize that drought could have played a synergistic role in the Bd outbreak we observed.

The goals of our study were to examine the potential causes of the Bd outbreak and die-off in juvenile *R. boylei*, assess the biotic and abiotic factors that may have influenced Bd prevalence and infection intensity in this population since the outbreak, and suggest which factors may have led to the die-off at this site. In addition, we wanted to better understand the potential for

synergistic effects of threats on this declining species and other species affected by Bd.

MATERIALS AND METHODS

Study site

Located in Alameda County, California, United States, the Alameda Creek watershed (Fig. 1) contains several large water impoundments, including Calaveras Reservoir, which provides a portion of the city of San Francisco's drinking water. Alameda Creek and Arroyo Hondo, the study streams, flow through a series of alluvial valleys and flood plains interspersed with narrow bedrock corridors. Elevations of the study stream reaches range from approximately 130 to 360 m above sea level. The Alameda Creek

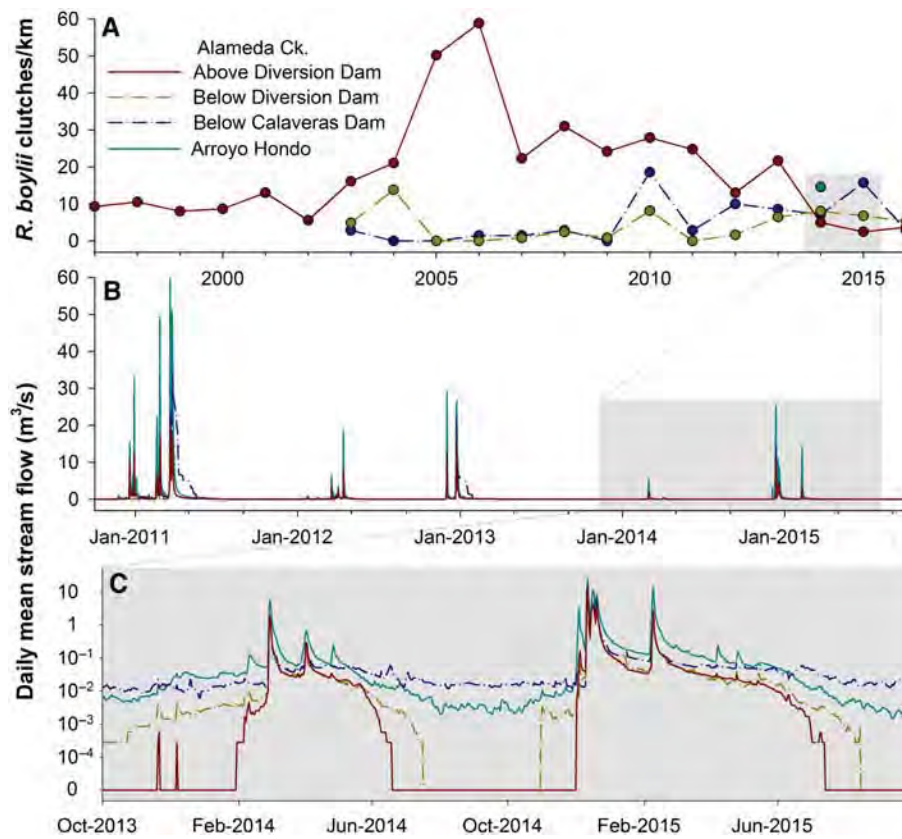


Fig. 2. (A) Breeding population size of *Rana boylei*; (B) daily mean stream flows in the study reaches of Arroyo Hondo and Alameda Creek prior to (i.e., 2011) and during a prolonged drought (2012–2015), showing reduced magnitude of winter flooding for all stream reaches in dry years and in regulated reaches in a normal rainfall year; and (C) differences in flow regime among reaches when sampling of amphibians for Bd occurred. Free-flowing reaches are indicated by solid lines, and regulated reaches by broken lines. A water year spans from 1 October to 30 September.

sampling area consists of three hydrologically distinct reaches: unregulated (i.e., no upstream dams or water diversions); below the Alameda Creek Diversion Dam (which delivers water to Calaveras Reservoir through a tunnel); and below the confluence with Calaveras Creek, which conveys releases from Calaveras Dam to Alameda Creek. The second stream sampled, Arroyo Hondo, is unregulated, but flows into the reservoir (Fig. 1). The four study reaches are also distinct from each other with respect to faunal composition of fish communities, land use (e.g., cattle grazing, recreation), and are different with respect to factors affecting water temperature such as composition of streamside vegetation (shrubs vs. trees), extent of shading by riparian canopy, and height of canyon walls. *Rana boylei*

can move upstream and downstream within both creeks, but migration distances in this system are unknown. A genetic analysis of frogs sampled in the various reaches indicates that *R. boylei* do not move around the reservoir and that it represents a barrier to gene flow (Peek 2012). The *R. boylei* population in the Alameda Creek watershed is one of the last populations of the species in the county, where it was formerly widespread.

Sampling methods

For two years following the fall 2013 Bd outbreak in which we observed dead and dying juveniles and recorded Bd loads that are lethally high in other ranid species (mean \log_{10} Bd load \pm standard error: 3.45 ± 0.36 ; Briggs et al.

2010, Vredenburg et al. 2010, Kinney et al. 2011), we sampled *R. boylei* for Bd and sampled other frog species encountered during the course of our surveys. We also collected a dead *R. boylei* metamorph from the die-off on 7 November 2013 for histologic analysis, which we conducted following Reeder et al. (2012). From November 2013 to September 2015, we surveyed 16 km of stream habitat (Fig. 1) during the day, when *R. boylei* are most active. The cryptic nature of *R. boylei* and its low densities in this system make capturing a large number of individuals a challenge (Appendix S1: Fig. S1). Effort was made to equalize sample size among seasons—we made several more visits during cold weather in the winter when frogs are extremely difficult to locate in order to not disproportionately weight the number of summer samples. There were a total of 30 field days dedicated specifically to Bd sampling (Appendix S1: Table S1). We walked along the banks, waded in the channel, and captured amphibians with gloved hands. We recorded water temperature with a quick-read thermometer and recorded latitude and longitude of capture locations with a hand-held GPS device (Garmin GPSmap 60Csx, Olathe, Kansas, USA). Locations of all encountered bullfrogs and signal crayfish (*Pacifastacus leniusculus*), even if not captured, were also noted. Upon capture, we recorded sex, length (snout-urostyle length for post-metamorphic individuals; body length for tadpoles, using dial calipers), and swabbed for Bd using sterile, rayon-tipped swabs (Medical Wire and Equipment, Corsham, Wiltshire, England) following a standardized protocol (Hyatt et al. 2007). Post-metamorphic individuals were swabbed five times each on the bottoms of the feet, on the ventral thighs, and both sides of the drink patch. Tadpoles were sampled by swabbing across the beak and tooth rows 30 times. A fresh pair of gloves was used to handle each animal to prevent cross-contamination. Swabs were individually placed in sterile screw-cap vials and then frozen upon return from the field (within 6–8 h).

Batrachochytrium dendrobatidis dynamics in a population are often characterized by a positive relationship between Bd prevalence (the proportion of infected individuals) and Bd load (a measure of infection intensity) during an epidemic (Briggs et al. 2010). To test for the quantity of Bd in each sample (Bd load), we used a real-time PCR assay (qPCR). Using qPCR analysis, infection

intensity is determined in terms of zoospore equivalents (ZE), the number of zoospores on the swab sample as compared to a standard curve of serial dilutions of standard Bd DNA. After extracting DNA from swabs using 40 µL of PrepMan Ultra (Applied Biosystems, Foster City, California, USA), qPCR analysis followed a standardized protocol (Boyle et al. 2004), and samples were run on a StepOnePlus real-time PCR system (Applied Biosystems). Positive controls in quantities of 0.1, 1, 10, and 100 ZE were run in addition to negative controls (PCR water only). Negative controls indicated that there was no false-positive amplification on any of the qPCR plates.

We assessed the local density of *R. boylei* by conducting a breeding census of the full study reach (16 km) in the spring of 2014 following the same protocol (Kupferberg et al. 2012) used for long-term monitoring of sub-sections of Alameda Creek ($\text{km}_{\text{unregulated 1997–2016}} = 1.64$; $\text{km}_{\text{below diversion dam 2003–2016}} = 0.7$; $\text{km}_{\text{below Calaveras Dam 2003–2013}} = 1.23$; $\text{km}_{\text{below Calaveras Dam 2015–2016}} = 3.69$). For ranid frogs that oviposit a discrete mass of eggs (clutch) per year, clutch counts are a commonly used index (Petranka et al. 2007). *Rana boylei* clutches are readily visible on the rocks where they are attached, and are much more conspicuous than the frogs themselves (Appendix S1: Fig. S1) which spend more than half their time below water and under substrates (Gonsolin 2010). Clutch counts closely correspond to the number of adult females (Van Wagner 1996). Spatial clustering in 2015 mirrored that of 2014, so the 2014 density estimates were applied to both study years. This mirroring is consistent with the pattern that *R. boylei* congregate and breed at the same lek sites from year to year (Kupferberg 1996, Wheeler and Welsh 2008). Males begin arriving at the breeding sites in early March and remain in the vicinity of the leks for several weeks after the last female oviposits, and tadpoles and juveniles generally remain within the natal riffle–pool sequence until fall rains trigger dispersal. Every 10–14 d we searched for clutches and marked them by placing a bamboo skewer with flagging in the stream bed. We repeated surveys until no new clutches were found and noted any previously overlooked clutches. For each swab or egg mass location, we took a GPS reading and converted that latitude and longitude to a stream station. Stream stations

are given in river kilometers, defined as a measure of distance tracing the line of steepest ascent in the river channel from its outlet. San Francisco Bay is designated as zero, and distances increase as one moves upstream (U.S. Geological Survey 2015). We calculated stream distances as the difference between the stream station values for each swab location using ArcGIS 10.1 (ESRI, Redlands, California, USA). We calculated two variables from stream station: (1) “Bullfrog Distance,” which is the distance from point of capture to the nearest bullfrog observation, and (2) “*R. boylei* egg clutches,” which is the number of *R. boylei* egg clutches observed 25 m upstream and 25 m downstream of point of capture (50 m total distance; Table 1).

Analyses and hypothesis evaluation

We used generalized linear mixed-effects models (GLMMs) and an information-theoretic approach to test various hypotheses for which factors best predict Bd prevalence and load in *R. boylei* and in bullfrogs (four models in total). Using mixed-effects models enabled us to account for non-independence of samples that were collected at the same locality on the same day, as well as to evaluate predictors at the individual or site-specific level. To accomplish this, in every model we included “survey event,” a variable created to group frogs sampled on the same date and within the same one of the four study reaches, as a random effect; there were 24 levels of this random effect. To ensure that our results were not driven by this choice of random effect, we also explored a number of alternative random effects in the model, including a continuous random effect accounting for spatial autocorrelation between samples (Appendix S2). These more complex random effects (i.e., error structures) did not affect our inference, and thus, we present the simpler “survey event” random effect in this paper.

Based on the literature, we expected Bd prevalence and load to vary according to different biotic and abiotic factors (Table 1). We hypothesized that drought conditions would positively affect Bd prevalence and load if amphibians become highly concentrated in some reaches as the stream flow becomes intermittent—we expected Bd transmission rates and Bd susceptibility (due to stress) to increase as a function of host density (Rachowicz and Briggs 2007, Peterson and McKenzie 2014, Brannelly et al. 2015). We therefore included as

predictor variables in the model several metrics of hydrologic conditions derived from stream gauge data (collected by the U.S. Geological Survey) that could be indicative of the current drought (including water temperature) and the number of *R. boylei* egg clutches within 50 m of each frog location/Bd sampling locality (Table 1). This 50-m distance scales with the morphology of the channel and the boundaries of a given riffle–pool habitat unit. The typical wetted width of our sampling sites was 8–9 m, and the wavelength of the riffle–pool cycle is five to seven times the channel width (Langbein and Leopold 1964).

In addition to the temperature-dependent rate of both Bd growth (Piotrowski et al. 2004) and responses of amphibians to chytridiomycosis (Raffel et al. 2010, Becker et al. 2012), seasonal changes in climate can affect Bd outcome through host factors such as behavior, transmission opportunities, and immune function (Kriger and Hero 2007, Rowley and Alford 2007, Ribas et al. 2009, Kinney et al. 2011). Therefore, we hypothesized that there could be variation in seasonal effects on Bd. We used a water year variable to determine whether there was an effect of time as the multi-year drought continued. Water year 2014 is 1 October 2013 through 30 September 2014, and water year 2015 is 1 October 2014 through 30 September 2015.

Additional biotic variables of interest in this system include the presence of non-native species, bullfrogs, and crayfish. Bullfrogs are capable of becoming infected with Bd, but do not appear to succumb to chytridiomycosis when infected with most strains, making them a potential disease vector and reservoir, both in the live amphibian trade and in the wild (Daszak et al. 2004, Garner et al. 2006, Schloegel et al. 2012, Gervasi et al. 2013). Since both bullfrogs and crayfish can harbor Bd and are capable of transferring infection to amphibian hosts (Greenspan et al. 2012, McMahon et al. 2013, but see Betancourt-Roman et al. 2016), we expected the presence of these invasive species to positively influence Bd in the system. We also tested for effects of different biometric variables (i.e., length, stage, and sex; Table 1) as these have been associated with Bd prevalence and load in amphibian populations (Kriger et al. 2007, Garner et al. 2009, Imasuen et al. 2011).

Driven by the aforementioned hypotheses, we used a forward selection procedure with the GLMMs to determine the predictor variables that

Table 1. Variables used in mixed-effects models to predict Bd load and probability of Bd infection.

Covariate	Type	Range or levels	Description
Season 3	Environmental/ Temporal	Winter/Spring; summer; fall	Winter/Spring: 1 December to 31 May; Summer: 1 June to 31 August; Fall: 1 September to 30 November
Season 2	Environmental/ Temporal	Wet, dry	Wet season: 1 December to 31 May; Dry season: 31 June–30 November
Hydrologic unit/ Flow regime	Environmental/ Geographic (anthropogenic)	Alameda Creek: unregulated; diversion; dam release and diversion Arroyo Hondo: unregulated	Stream and flow regime where sampling occurred
Water year	Environmental (drought)	2014, 2015	1 October–30 September
Water temperature	Environmental/ Temporal (drought)	9.9–23.0°C	Temperature of stream†
Days since peak stream flow	Environmental (drought)	6–429 d	Number of days since peak stream flow for the respective water year
Preceding peak stream flow	Environmental (drought)	4.9–121.8 m ³ /s	Peak flow of respective water year that preceded survey date‡
Mean daily stream flow	Environmental (drought)	0–0.12 m ³ /s	Mean daily flow on the survey date‡
Drought index	Environmental (drought)	1.0–54.4 d/m ³ s ⁻¹	Days since the peak flow of the respective water year divided by the magnitude of that peak flow
Sex-stage§	Biological	Tadpole, juvenile, female, male	Combination of sex (if stage is adult) and stage (larval or juvenile) if not adult
Stage¶	Biological	Tadpole, post- metamorphic	Indicates whether pre- (i.e., tadpoles) or post-metamorphic (juveniles and adults)
Length	Biological	21.2–67 mm	Snout-vent length (for adults); body length (for tadpoles and juveniles); measured with dial calipers
Crayfish§	Biological (invasive species)	Present, absent	Binary indication of whether crayfish are present at the site
Bullfrogs§	Biological (invasive species)	Present, absent	Binary indication of whether bullfrogs observed at the site
Bullfrog time§	Biological (invasive species)	Absent, recent, established	History of bullfrog observations at site (absent = no observations 1997–2015; recent = observed during drought 2012–2015; established = observed pre-drought)
Bullfrog distance§	Biological (invasive species)	0.0–8027.8 m	Distance to the nearest bullfrog along the stream
<i>Rana boylei</i> clutches	Biological	0–19	Number of <i>R. boylei</i> egg clutches within 50 m (25 m upstream and 25 m downstream) of sample collection site

Note: Bd, *Batrachochytrium dendrobatidis*.

† Water temperature was measured with a thermometer at the site of capture. If thermometer temperature was not available, then median daily temperature from the nearest USGS gage station was used, via National Water Information System: Web Interface (<https://waterdata.usgs.gov/nwis>).

‡ Measured at USGS stream gage for respective reach, accessed using National Water Information System: Web Interface. Gages used: 11173200—Arroyo Hondo near San Jose, California; 11172945—Alameda Creek above diversion dam, near Sunol, California; 11172955—Alameda Creek below diversion dam, near Sunol, California; 11173510—Alameda Creek below Calaveras Creek, near Sunol, California.

§ Variables used in *R. boylei* models only.

¶ Variables used in bullfrog models only.

were the best fit to the data. Predictor variables were sequentially tested for all four models in the order as presented in Table 1. We log-transformed the ZE values for the model with *R. boylei* Bd load as a response variable. We z-transformed all

continuous predictor variables so that effect sizes of different predictors were comparable. Only post-metamorphic *R. boylei* were used in both *R. boylei* Bd prevalence and load models since all *R. boylei* tadpoles were Bd negative. Interactions

were included in the models whenever biologically appropriate. We ranked candidate models according to Akaike's information criterion (AIC) to determine the relative importance of predictor variables within each model set. The models with the lowest AIC were considered the best-supported models by the data, and models with a $\Delta\text{AIC} > 2$ as compared to the model with the lowest AIC were considered not as well supported by the data (Burnham and Anderson 2004). We complemented this information-theoretic approach by computing likelihood ratio tests for nested models. Variance inflation factors (VIFs) were used to determine that none of the fixed effects in the best-fit models were collinear, as indicated by VIF values < 3 (Zuur et al. 2010). We conducted all analyses in the R computing environment (R Development Core Team 2012). Generalized linear mixed-effects models were fit using the "glmer" (for Bd presence/absence models) and "lmer" (for the Bd load models) functions in the "lme4" package (Bates 2010). If a model failed to converge using these functions, we refit the identical model using a Bayesian approach with slightly regularizing prior distributions on the model coefficients. This allowed for convergence of the model while guarding against overfitting (McElreath 2016).

RESULTS

Histologic examination of serial transverse sections of a dead *Rana boylei* metamorph collected from the 2013 die-off revealed lesions of moderate to severe epidermal hyperplasia and hyperkeratosis and myriad intralesional chytrid-type fungal organisms consistent with lethal chytridiomycosis (Appendix S1: Fig. S2). No visceral lesions of other infectious diseases known to cause mortality events of metamorphs (e.g., Ranavirus) were observed. Between 7 November 2013 and 11 September 2015, *R. boylei* were the most frequently encountered species throughout the study reaches (Fig. 3A). We captured and sampled 142 *R. boylei* individuals (127 post-metamorphic), along with four *Anaxyrus boreas halophilus* (California toad), 26 *Hyla regilla* (Pacific treefrog), 10 *Rana draytonii* (California red-legged frog), and 33 *Rana catesbeiana* (American bullfrog). Bullfrog observations were restricted to sites downstream of 170 m elevation in Alameda Creek and

downstream of 228 m elevation in Arroyo Hondo (Figs. 1, 3A). All species tested positive for Bd, and infection prevalence (Fig. 4A) for all species combined was 40% (87 of 216 samples). Bd-positive individuals were found across all reaches, from the most downstream to the most upstream extent of the surveys. Among species, Bd loads were highest in *R. boylei* and bullfrogs (Fig. 4B). Within *R. boylei*, males were more likely to be infected than either females or juveniles (Fig. 5D).

The model analyses of post-metamorphic *R. boylei*, for both Bd presence/absence and Bd load, indicated that spatial and temporal environmental factors were important. The presence of bullfrogs had a positive influence on Bd infection (Appendix S1: Tables S2, S3; Figs. 5, 6). While Bd prevalence was higher in water year 2015 than in 2014 (Fig. 5), none of the stream flow metrics included were important predictor variables based on the best-fit models for Bd presence/absence in *R. boylei* (Appendix S1: Table S2). For Bd load however, a marginally significant negative association of mean daily stream flow was included among the best-fit models (i.e., significant at $\alpha = 0.1$, but not at $\alpha = 0.05$; Table 2, Appendix S1: Tables S2, S3; Fig. 6). Two of the best-fit models for Bd load in *R. boylei* included an interaction between season and mean daily stream flow (Appendix S1: Table S3). Bd loads in *R. boylei* were generally lower in summer than in fall (Fig. 6C), and stream flows were lowest in fall (Fig. 2). The local density of conspecifics, as indicated by the number of *R. boylei* egg clutches within 50 m of each capture location, was also a significant positive predictor of Bd load in *R. boylei* (Table 2 and Appendix S1: Table S3; Fig. 6E).

Because bullfrogs were among the most important predictors of Bd in both the *R. boylei* load and prevalence models, and bullfrogs are potentially a Bd reservoir in the systems they inhabit, we also included models of Bd in bullfrogs to see which factors best predict Bd infection in that species. The best predictors of Bd presence/absence in bullfrogs included a positive effect of water temperature and an effect of life stage, in which post-metamorphic individuals were more likely to be Bd positive than tadpoles (Table 2; Appendix S1: Table S4; Fig. 7). In the bullfrog Bd load model, none of the predictors improved the model beyond the intercept-only model (Appendix S1: Table S5).

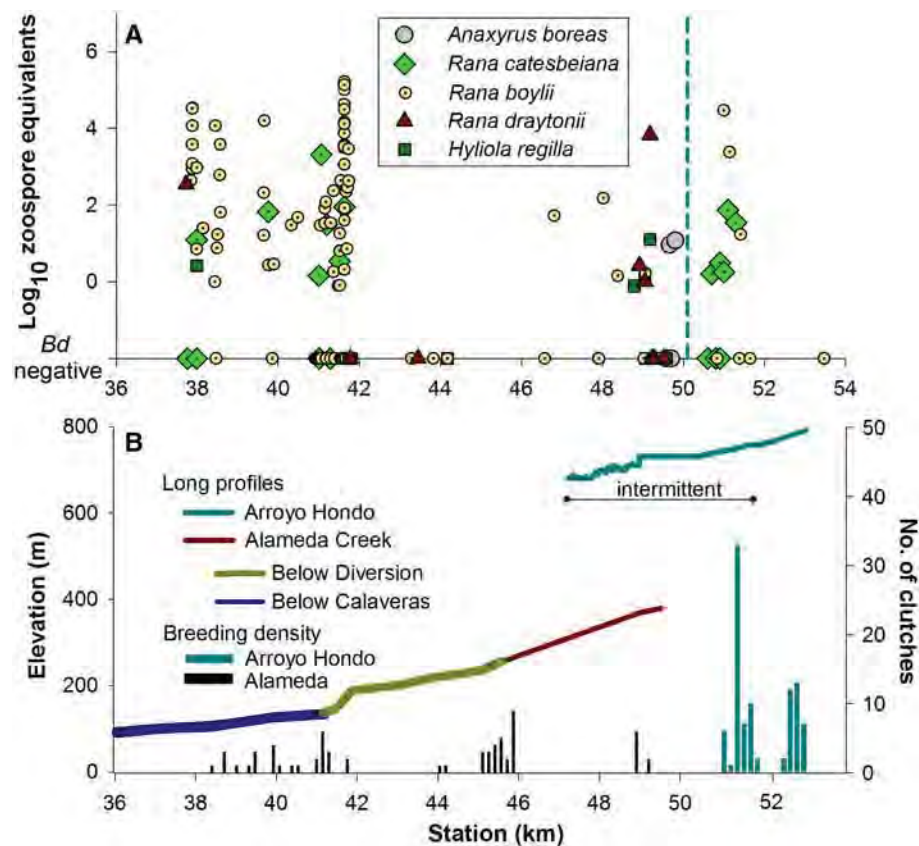


Fig. 3. (A) Pathogen load by species at stream station locations. Left of the vertical dashed line is Alameda Creek; right of the dashed line is Arroyo Hondo. (B) Stream profiles (lines) and number of *Rana boylei* clutches (bars) observed at stream station locations along Alameda Creek and Arroyo Hondo in 2014. Breeding sites were visited an average of four times between 13 March and 14 May (during the oviposition season). In Alameda Creek, only the reach depicted in dark blue remained continuously wetted throughout the drought.

DISCUSSION

Bd susceptibility in *Rana boylei*

Our observations of relatively high *Bd* loads and lesions consistent with severe chytridiomycosis coinciding with a mass mortality event make this the first published report of lethal chytridiomycosis in *R. boylei* in the field. Although *Bd* has been detected many miles upstream of the current study site in a tributary of Arroyo Hondo over the last decade (Padgett-Flohr and Hopkins 2010), these were the first indications of negative effects of *Bd* infection among lotic-breeding frogs in the watershed. *Bd* has been documented in the watershed from museum specimens collected in 1966, and in live animals as recently as 2007 (Padgett-Flohr and Hopkins 2009, 2010), approximately

5 miles upstream of the closest sampling location used in this study, but it is possible that the 2013 outbreak may have been the result of an introduction of a novel genotype of *Bd* to the watershed. Even when genotypes are the same (e.g., belonging to the widespread, deleterious Global Panzootic Lineage of *Bd*), local variation in phenotype can lead to differential *Bd* outcome in the host (Lambertini et al. 2016), so a novel variation in genotype is not essential for a shift from enzootic to epizootic conditions.

Our observations that *R. boylei* can be susceptible to the lethal consequences of chytridiomycosis in the field are in contrast to laboratory experiments (Davidson et al. 2003, 2007) and a field study (Lowe 2009) that found reduced growth or body condition in *Bd*-positive juveniles, but which

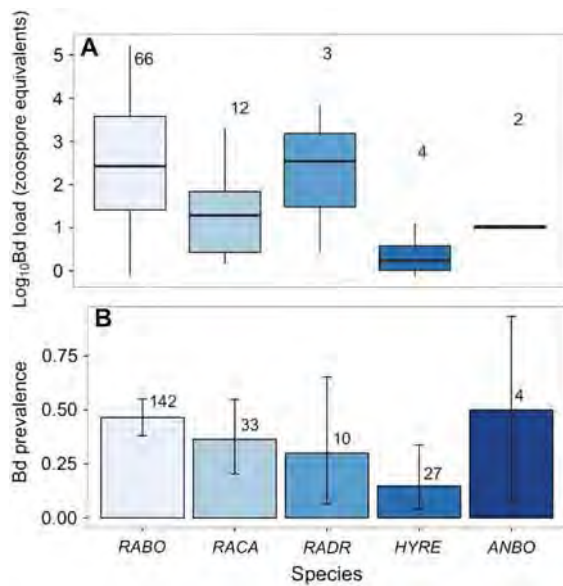


Fig. 4. (A) Bd load and (B) Bd prevalence for all anuran species sampled at the study site. Bold horizontal lines within each boxplot in (A) indicate the median, boxes show the interquartile (IQ) range, and whiskers show the range within 1.5 times the IQ range. Error bars in (B) represent the 95% Clopper-Pearson binomial confidence intervals. Numbers above the bars indicate (A) the number of Bd-positive individuals or (B) total sample size for each species. Species codes: RABO, *Rana boylei* (foothill yellow-legged frog); RACA, *Rana catesbeiana* (American bullfrog); RADR, *Rana draytonii* (California red-legged frog); HYRE, *Hyllola regilla* (Pacific treefrog); ANBO, *Anaxyrus boreas halophilus* (California toad).

were inconclusive with respect to chytridiomycosis-induced mortality. Significant within-species variation in Bd outcome is not uncommon (Briggs et al. 2010, Bradley et al. 2015). Indeed, when the experiment of Davidson et al. (2007) was repeated, and *R. boylei* from the same location were exposed to the same Bd strain, the result was 100% mortality (C. Davidson, unpublished data). Different disease outcomes could result from variation in a variety of biotic or abiotic factors, including immunity-related factors, such as composition of the skin microbiome (Krynak et al. 2016), differences in antimicrobial peptides (AMPs), behavior, or major histocompatibility complex genotype (Rollins-Smith and Conlon 2005, Savage and Zamudio 2011). The AMPs in *R. boylei* skin have been found to be highly active against Bd in culture (Davidson

et al. 2007); however, species with peptides active in vitro such as the mountain yellow-legged frog (*Rana muscosa*) can still be highly susceptible to Bd infection in nature (Rachowicz et al. 2006, Rollins-Smith et al. 2006).

Climate

Increasing volatility and variability in predicted precipitation is expected to have considerable conservation consequences for amphibians, which can have highly specific flow and moisture requirements (Walls et al. 2013). A spatial analysis of *R. boylei* decline suggested that climate change may be influencing the species' northward range

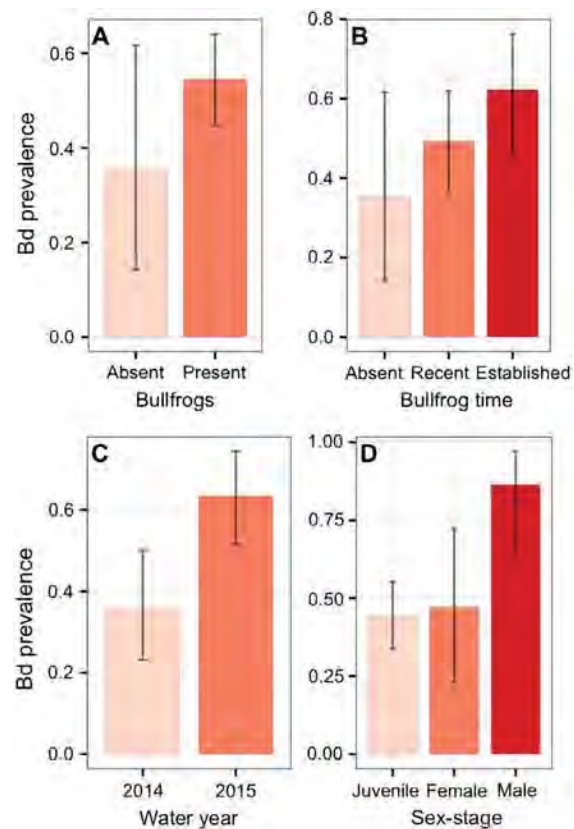


Fig. 5. Relationship between Bd prevalence in *Rana boylei* and the most important explanatory variables as determined by the best-fit mixed-effects models (Table 2 and Appendix S1: Table S2), including (A) Bullfrog presence/absence; (B) length of time of bullfrog presence; (C) water year; (D) sex/life stage. Error bars indicate 95% Clopper-Pearson binomial confidence intervals. Descriptions of explanatory variables are in Table 1.

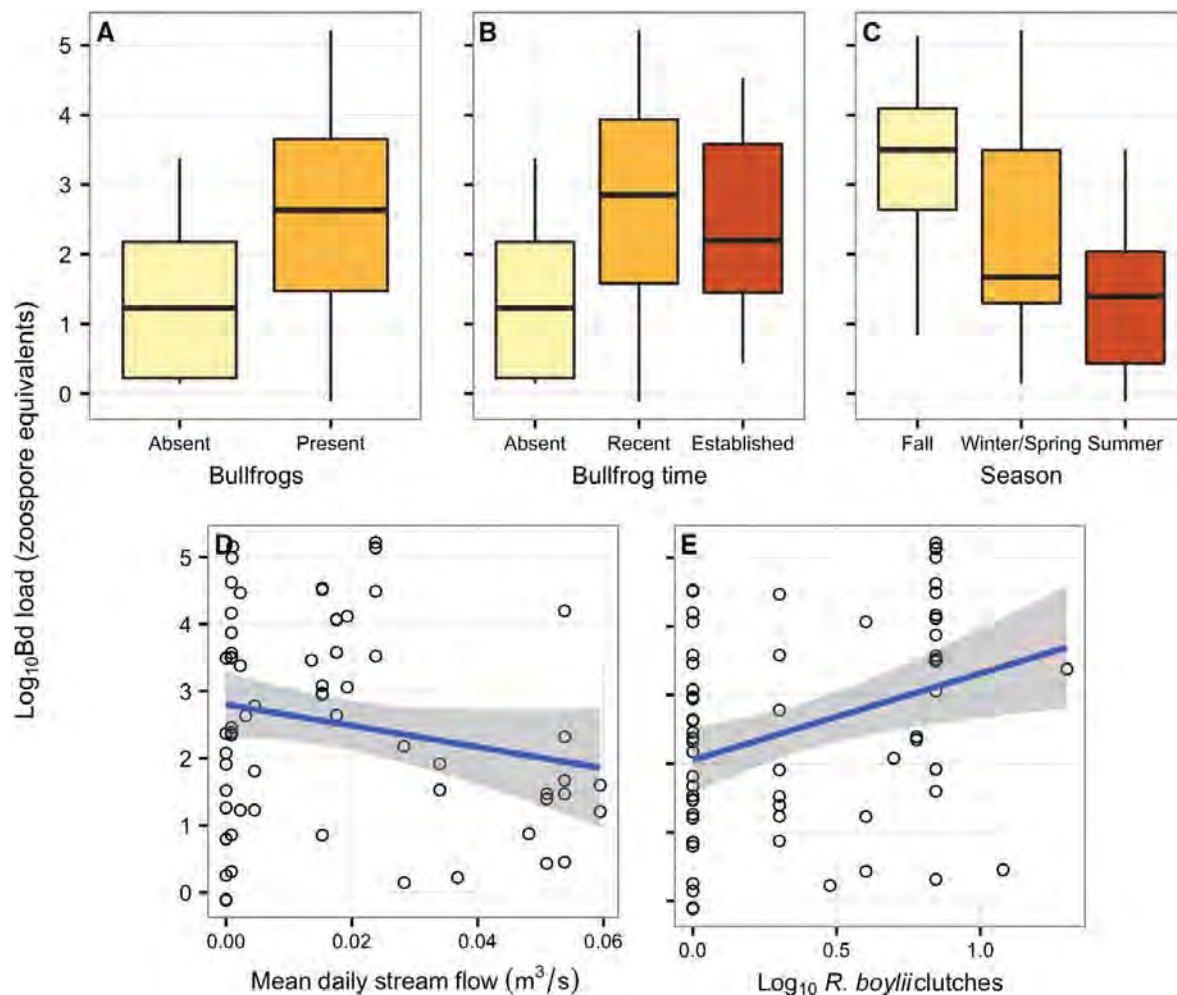


Fig. 6. Relationship between Bd loads of infected *Rana boylei* and the most important explanatory variables as determined by the best-fit mixed-effects models (Table 2 and Appendix S1: Table S3), including (A) bullfrog presence/absence; (B) length of time of bullfrog presence; (C) season; (D) mean daily stream flow; and (E) number of *R. boylei* clutches within 50 m of each Bd sampling point. Both (D) and (E) depict the best-fit line for a regression of the two continuous variables against \log_{10} Bd load. Descriptions of explanatory variables are in Table 1.

contraction (Davidson et al. 2002). In addition, during the drought, the previously robust population in the upstream unregulated reach of Alameda Creek declined steadily to the lowest number observed during 20 yr of annual monitoring (Kupferberg et al. 2012, Fig. 2A). This, coupled with our observation that Bd loads in *R. boylei* increase at lower stream flows, indicates that climate change, water extraction for human use, and disease may be acting synergistically to threaten *R. boylei* populations in central California and amphibians globally. Bd zoospores, the infective stage of the pathogen, are flagellated and

actively swim in the water column (Piotrowski et al. 2004), so could be concentrated at lower flows. This has been observed in laboratory experiments, in which Bd naïve frogs had significantly decreased time to mortality and Bd growth rate at higher flow rates, presumably because of the increased availability of zoospores at lower current velocities (Tunstall 2012).

Our observation that water temperature has a positive relationship with Bd infection in bullfrogs is consistent with the optimum range of temperatures for Bd growth in amphibian species of temperate regions (Raffel et al. 2010, Becker

Table 2. Parameter estimates for best-fit models (see Appendix S1: Tables S2–S4) used to determine the best predictors of (A) Bd presence/absence in *Rana boylei*; (B) Bd presence/absence in bullfrogs; and (C) Bd load in *R. boylei*.

Model	Parameter	Estimate	SE	<i>z</i>	<i>P</i>
(A) Bd presence/absence (<i>R. boylei</i> ; $R^2 = 0.35$)	(Intercept)	−5.32	2.99	−1.78	0.08
	Water year 2015	4.29	2.73	1.57	0.12
	Sex-stage (Juveniles)	−0.47	1.49	−0.32	0.75
	Sex-stage (Males)	4.90	2.56	1.92	0.06
	Bullfrog time (Established)	3.25	2.48	1.31	0.19
	Bullfrog time (Recent)	5.10	2.62	1.94	0.05
(B) Bd presence/absence (bullfrogs; $R^2 = 0.95$)	(Intercept)	−4.54	1.84	−2.47	0.01*
	Water temperature	5.88	2.49	2.36	0.02*
	Stage (Post-metamorphic)	9.78	4.53	2.16	0.03*
(C) Bd load (<i>R. boylei</i> ; $R^2 = 0.53$)		Estimate	95% CI (lower, upper)		
	(Intercept)†	4.42	2.09, 6.76		
	Season 3 (Summer)†	−4.60	−6.24, −2.95		
	Season 3 (Winter/Spring)	−0.43	−2.97, 1.89		
	Mean daily stream flow	−1.13	−2.40, 0.22		
	Bullfrog time (Established)†	3.06	0.80, 5.47		
	Bullfrog time (Recent)†	2.48	0.18, 4.84		
	<i>R. boylei</i> clutches†	0.82	0.14, 1.53		

Notes: SE, standard error. Confidence intervals (CI) were calculated using a parametric bootstrap. R^2 values presented for each model were calculated for the fixed effects.

* $P < 0.05$.

† Parameter estimates with 95% CI that do not overlap zero.

et al. 2012), although temperature variability and not just absolute temperature can also affect host responses to Bd (Raffel et al. 2013). The majority of Bd positives in bullfrogs in this study occurred when water was warmer than 17°C (Fig. 7B), which is the lower end of the thermal optimum growth range of Bd (Piotrowski et al. 2004, Woodhams et al. 2008). California climate change projections under a range of emissions scenarios predict a 1.5–4.5°C increase in air temperatures within the next century (Cayan et al. 2008), consistent with historical observations and projections of future river temperatures in the United States (Kaushal et al. 2010, van Vliet et al. 2013). Therefore, temperatures could rise into Bd's thermal optimum growth range in portions of the Alameda Creek watershed, potentially increasing the prevalence of Bd in bullfrogs in this system. Although stream temperatures largely follow air temperatures, they are spatially heterogeneous as a result of microgeographic factors such as tributary plumes, influx of groundwater, and canopy shading, creating locally cooler conditions (Webb et al. 2008, Fullerton et al. 2015, Wawrzyniak et al. 2016). For example, planned hypolimnetic releases from Calaveras Reservoir after the completion of the Calaveras Dam Replacement Project

(now under construction) will cool Alameda Creek downstream of the confluence with Calaveras Creek (Study Reach 4, Fig. 1) by as much as 5°C (McBain Associates 2014). This is below the realized thermal niche for *R. boylei* tadpoles (Catenazzi and Kupferberg 2013, Wheeler et al. 2015), but may limit Bd in bullfrogs.

In vitro, Bd has the ability to rapidly adapt to a broad spectrum of thermal conditions by optimizing its growth rate, which may affect the severity of chytridiomycosis in the host (Voyles et al. 2012). Therefore, while present temperatures may be in the optimum range for growth in the bullfrog reservoir host, Bd may be able to adapt to local temperature shifts. Our observation that Bd prevalence is higher in bullfrogs at temperatures that are optimum for the fungus in vitro is supported by the thermal optimum hypothesis, but is speculative given that Bd's response to temperature in the host is complex (Fisher et al. 2009, Raffel et al. 2013). In laboratory experiments, hosts infected with Bd have shown different responses to increased temperatures, ranging from no response to increased survival (Berger et al. 2004, Carey et al. 2006, Andre et al. 2008). In contrast to our observations that warmer temperatures appear to positively

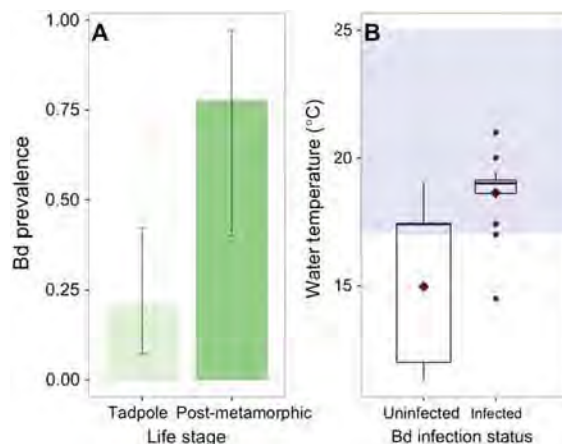


Fig. 7. Bd infection in non-native American bullfrogs (*Rana catesbeiana*), with (A) Bd prevalence by life stage and (B) Bd infection status at the range of water temperatures observed. Error bars in (A) indicate 95% Clopper-Pearson binomial confidence intervals. Bold bars in (B) indicate the median; lower and upper hinges indicate the 25% and 75% quantiles, respectively; and lower and upper whiskers indicate the smallest and largest observations greater than or equal to the upper and lower hinges—1.5 times the interquartile range, respectively. Red diamonds represent the means and the blue shaded area represents the Bd thermal optimum growth range from Piotrowski et al. (2004).

influence Bd infection in bullfrogs in this system, we observed lower Bd loads in *R. boylei* in summer (Fig. 6C). However, temperature was not an important predictor of either Bd load or prevalence in the *R. boylei* models.

Bullfrogs

Our findings that both the probability of Bd infection and the probability of Bd load are higher in *R. boylei* when bullfrogs are present are supported by a prior field study that showed a positive relationship between Bd prevalence and load and bullfrog density in native amphibian populations sympatric with non-native bullfrogs (Peterson and McKenzie 2014). Because they prefer pools with little or no flow, bullfrog densities in rivers can increase during drought years in California's Mediterranean climate (i.e., cool, wet winters and warm, dry summers), particularly after years with low winter peak discharges (Kupferberg 1997, Doubledee et al. 2003). We attribute the influence of water year on Bd

prevalence in *R. boylei* to the continued expansion of bullfrogs into the study area through water year 2015. In addition, the site of the 2013 die-off is the zone of most recent contact with bullfrogs in the stream, so Bd naïve *R. boylei* juveniles were located in the area where the density of alternate hosts was increasing as the result of the drought. In recent drought years, bullfrogs expanded their range at the Alameda Creek site, providing a Bd reservoir host species where previously there had been none. Although it has been suggested that *Hyliola* (*Pseudacris*) species may act as a Bd vector and reservoir in California (Padgett-Flohr and Hopkins 2009, Reeder et al. 2012), Bd prevalence and load were lower in *Hyliola regilla* than in the bullfrogs observed in this study (Fig. 4). Moreover, *H. regilla* (which is terrestrial for part of its life history) and *R. boylei* share the same stream channel habitat less frequently compared to *R. boylei* and bullfrogs, so transmission opportunities between *R. boylei* and *H. regilla* are fewer at this site.

In addition to their role as Bd vectors (Green-span et al. 2012, Schloegel et al. 2012), bullfrogs may also increase native ranids' susceptibility to Bd by decreasing their fitness in other ways. In mesocosm experiments, both *Rana draytonii* tadpoles (Kiesecker and Blaustein 1998) and *R. boylei* tadpoles (Kupferberg 1997) had increased time to metamorphosis and decreased mass when housed with bullfrog tadpoles and/or adults, presumably because of shifts in behavior, habitat use, and resource availability. Such stresses can act synergistically to increase Bd susceptibility in sympatric species.

The male effect

Our observation that Bd prevalence is higher in *R. boylei* males than in either females or juveniles could be caused by behavioral or physiological factors. Several behaviors observed in *R. boylei* males may increase opportunities for Bd transmission, therefore increasing the likelihood that they will be infected with Bd. For example, adult male *R. boylei* frequently engage in aggressive wrestling behavior, likely induced by calling activity (Wheeler and Welsh 2008, Murphy et al. 2011). *Rana boylei* is a prolonged breeder (i.e., breeding occurs over a period of greater than one month), as indicated by their male-biased daily operational sex ratio (Wheeler and Welsh 2008). At breeding sites, *R. boylei* males will congregate

and stay in the water for extended periods, while females arrive at different times throughout the breeding season (Wheeler and Welsh 2008), so the higher incidence of Bd infection observed in males in this study could be due to higher rates of contact with each other and with the water, which Bd needs to survive (Johnson et al. 2003). A similar trend has been observed in Boreal toad (*Anaxyrus boreas boreas*) populations in Colorado, United States, wherein males in chytridiomycosis-infected populations have much lower survival rates than adult females (Carey et al. 2006).

In addition to behavior, physiological factors such as testosterone and other sex hormones can lead to higher parasite loads in male amphibians. For example, the prevalence and intensity of macroparasite infections are generally higher in males than in females, owing to the relationship between sex hormones and immune function (Klein 2004). In addition, testosterone may play an immunosuppressive role in amphibians as it does in mammals and birds; in one study, higher Ranavirus titers were associated with higher testosterone levels in males (Crespi et al. 2015).

Our observations that both bullfrog presence and sex influence Bd presence in *R. boylei* may be multiplicative, although we did not find strong statistical evidence for this interaction in either of the *R. boylei* models (Appendix S1: Tables S2, S3). *Rana boylei* frequently amplex bullfrogs in an attempt to breed where the species are sympatric (S. J. Kupferberg and S. Bobzien, *personal observations*, Fig. 8, Lind et al. 2003), suggesting that *R. boylei* males may experience direct Bd transmission from contact with bullfrog reservoir hosts. In addition, Bd-infected bullfrogs have been observed shedding more infective zoospores than other native western species (Peterson and McKenzie 2014).

Batrachochytrium dendrobatidis itself may alter male host behavior to increase opportunities for transmission or increase reproductive investment in infected males that have a shorter lifespan due to chytridiomycosis infection (Chatfield et al. 2013, An and Waldman 2016). In Alameda Creek after the Bd outbreak, young-of-last-year males were observed amplexing other males during the day, behaviors not seen in the prior 19 yr (S. J. Kupferberg, *personal observation*), suggesting that Bd infection status may influence this behavior if such a causative mechanism exists.



Fig. 8. Male foothill yellow-legged frog (*Rana boylei*; 51 mm snout-urostyle length) in amplexus with a non-native American bullfrog (*Rana catesbeiana*) at the site of the 2013 chytridiomycosis die-off in Alameda Creek. Photo credit: Steve Bobzien.

Density

Our finding that Bd loads in *R. boylei* increase with increasing density of *R. boylei* clutches within 50 m of a Bd sampling site (i.e., individual frog location) is consistent with the hypothesis that Bd transmission is density dependent (Briggs et al. 2005, 2010). Large increases in Bd prevalence have been observed during the breeding season of aggregate breeding species (Kinney et al. 2011), likely related to this density dependence phenomenon (Brannelly et al. 2015). *Rana boylei* density at the 2013 die-off site may have increased as a result of the drought on two spatial and temporal scales. First, over the course of the drought, the number of frogs breeding and laying eggs increased in the vicinity. Second, within a given breeding season, the drought caused individual pools to become isolated with little surface flow, likely allowing Bd's infective zoospore stage to increase in the shrinking pools. The bedrock lithology of the steepest part of Study Reach 3 (Fig. 1), where we observed very high Bd loads, forces subsurface flows above ground, so the area remains wetted when the channel dries out upstream. Therefore, by creating a refuge for frogs during the drought, the canyon morphology of this reach may have also created a refuge for Bd.

Rana boylei population trajectories through 2010 indicate that historically the more dense populations occurred upstream in the unregulated

reaches (Kupferberg et al. 2012), but since the drought began, trends have reversed. The perennial reach of Alameda Creek, which remained wet because of discharge from Calaveras Reservoir, and the perennial reach of Arroyo Hondo, which drains a large watershed and flows into Calaveras Reservoir, provide refugia for *R. boylei* but also expose them to increased risk because bullfrogs can thrive there. The potential indirect negative effects of bullfrogs as Bd reservoir hosts, which our results suggest can be added to their well-documented direct effects on native amphibians as predators (Kats and Ferrer 2003).

Flow regulation

Globally, flow regulation can cause a plethora of environmental problems, and the influence of dams and diversions on invasive species and pathogens is not unique to the system in this study. When stream or river flow is manipulated, it can create complex cascades of indirect effects on disease outcomes (Ong et al. 2016). Fish can be more susceptible to parasites in regulated systems, especially when dams increase abundance of an alternate reservoir host (Bartholomew et al. 2007), but ours is the first study that we are aware of to recognize the potential for indirect effects of flow regulation on Bd outcome for native amphibians. Non-native species proliferate when flow regulation creates habitat similar to their native ranges (Rahel 2002, Lobos and Jaksic 2005), especially when ephemeral lotic systems become permanent lentic ones. In California's rivers, habitat conversion and diminution of winter flooding (due to dams and inter-annual variation in precipitation as shown in Fig. 2B) promote persistence and expansion of bullfrog populations (Kupferberg 1997, Doubledee et al. 2003, Fuller et al. 2011). In addition, the pattern we observed of low flows assisting an advancement of the bullfrog invasion upstream is similar to a study of California fish, wherein non-native fish assemblages were favored in drought years and natives in non-drought years (Marchetti and Moyle 2001).

CONCLUSIONS

Rana boylei appears to be susceptible to the lethal consequences of chytridiomycosis in the field, and flow regulation, drought, invasive bullfrogs, and Bd may be acting synergistically to impact

R. boylei populations in this system. During extreme drought, when the reach downstream of the dam remained wet, while other reaches went dry, a 20-yr pattern of higher *R. boylei* densities in unregulated reaches was reversed (Fig. 2A). Because loss of the young-of-the-year cohort (e.g., scouring of eggs after ill-timed dam releases) has been associated with subsequent declines of *R. boylei* in this and other rivers (Kupferberg et al. 2012), we anticipate that the effects of chytridiomycosis-induced mortality on recent metamorphs may have a time-lagged impact on the population that survived the drought. Furthermore, shifts to epizootic states among populations in space and time can cause mortality with population-level consequences even after Bd has reached a state of endemism (Briggs et al. 2010, Pilliod et al. 2010, Piovato-Scott et al. 2015), so a greater understanding of the biotic and abiotic factors that affect Bd outcome is critical. Our findings highlight the importance of implementing management actions (e.g., eradicating bullfrogs, mimicking the natural disturbance regime) that increase resilience in declining wildlife populations that are threatened by flow regulation, climate change, invasive species, and disease.

ACKNOWLEDGMENTS

We thank the East Bay Regional Park District and the San Francisco Public Utilities Commission for access and data sharing; Alan Striegle and Kevin Wiseman for field assistance; Eric Smith for GIS assistance; and Carlos Davidson and Samuel Sweet for their insightful comments on earlier versions of the manuscript. This work was supported by the Robert and Patricia Switzer Foundation (awarded to A. Adams) and the Alameda County Fish and Game Commission (awarded to S. Kupferberg on behalf of *Save the Frogs!*).

LITERATURE CITED

- Abu Bakar, A., D. S. Bower, M. P. Stockwell, S. Clulow, J. Clulow, and M. J. Mahony. 2016. Susceptibility to disease varies with ontogeny and immunocompetence in a threatened amphibian. *Oecologia* 181: 997–1099.
- Adlard, R. D., T. L. Miller, and N. J. Smit. 2015. The butterfly effect: parasite diversity, environment, and emerging disease in aquatic wildlife. *Trends in Parasitology* 31:160–166.

- An, D., and B. Waldman. 2016. Enhanced call effort in Japanese tree frogs infected by amphibian chytrid fungus. *Biology Letters* 12:20160018.
- Andre, S. E., J. M. Parker, and C. J. Briggs. 2008. Effect of temperature on host response to *Batrachochytrium dendrobatidis* infection in the mountain yellow-legged frog (*Rana muscosa*). *Journal of Wildlife Diseases* 44:716–720.
- Bartholomew, J. L., S. D. Atkinson, S. L. Hallett, C. M. Zielinski, and J. S. Foott. 2007. Distribution and abundance of the salmonid parasite *Parvicapsula minibicornis* (Myxozoa) in the Klamath River basin (Oregon-California, USA). *Diseases of Aquatic Organisms* 78:137.
- Bates, D. M. 2010. lme4: mixed-effects modeling with R. <http://lme4.r-forge.r-project.org/book>
- Becker, C. G., D. Rodriguez, A. V. Longo, A. L. Talaba, and K. R. Zamudio. 2012. Disease risk in temperate amphibian populations is higher at closed-canopy sites. *PLoS ONE* 7:e48205.
- Becker, C. G., and K. R. Zamudio. 2011. Tropical amphibian populations experience higher disease risk in natural habitats. *Proceedings of the National Academy of Sciences USA* 108:9893–9898.
- Berger, L., et al. 2004. Effect of season and temperature on mortality in amphibians due to chytridiomycosis. *Australian Veterinary Journal* 82:434–439.
- Betancourt-Roman, C., C. C. O'Neil, and T. Y. James. 2016. Rethinking the role of invertebrate hosts in the life cycle of the amphibian chytridiomycosis pathogen. *Parasitology* 143:1723.
- Blaustein, A. R., S. S. Gervasi, P. T. Johnson, J. T. Hoverman, L. K. Belden, P. W. Bradley, and G. Y. Xie. 2012. Ecophysiology meets conservation: understanding the role of disease in amphibian population declines. *Philosophical Transactions of the Royal Society of London B: Biological Sciences* 367:1688–1707.
- Boyle, D. G., D. B. Boyle, V. Olsen, J. A. T. Morgan, and A. D. Hyatt. 2004. Rapid quantitative detection of chytridiomycosis (*Batrachochytrium dendrobatidis*) in amphibian samples using real-time Taqman PCR assay. *Diseases of Aquatic Organisms* 60: 141–148.
- Bradley, P. W., S. S. Gervasi, J. Hua, R. D. Cothran, R. A. Relyea, D. H. Olson, and A. R. Blaustein. 2015. Differences in sensitivity to the fungal pathogen *Batrachochytrium dendrobatidis* among amphibian populations. *Conservation Biology* 29: 1347–1356.
- Brannelly, L. A., D. A. Hunter, D. Lenger, B. C. Scheele, L. F. Skerratt, and L. Berger. 2015. Dynamics of chytridiomycosis during the breeding season in an Australian alpine amphibian. *PLoS ONE* 10: e0143629.
- Briggs, C. J., R. A. Knapp, and V. T. Vredenburg. 2010. Enzootic and epizootic dynamics of the chytrid fungal pathogen of amphibians. *Proceedings of the National Academy of Sciences USA* 107:9695–9700.
- Briggs, C. J., V. T. Vredenburg, R. A. Knapp, and L. J. Rachowicz. 2005. Investigating the population-level effects of chytridiomycosis: an emerging infectious disease of amphibians. *Ecology* 86: 3149–3159.
- Burnham, K. P., and D. R. Anderson. 2004. Multimodel inference: understanding AIC and BIC in model selection. *Sociological Methods & Research* 33: 261–304.
- Burrowes, P. A., R. L. Joglar, and D. E. Green. 2004. Potential causes for amphibian declines in Puerto Rico. *Herpetologica* 60:141–154.
- California Department of Water Resources. 2016. Drought and water year 2016: hot and dry conditions continue. State of California, Sacramento, California, USA.
- Carey, C., J. E. Bruzgul, L. J. Livo, M. L. Walling, K. A. Kuehl, B. F. Dixon, A. P. Pessier, R. A. Alford, and K. B. Rogers. 2006. Experimental exposures of boreal toads (*Bufo boreas*) to a pathogenic chytrid fungus (*Batrachochytrium dendrobatidis*). *EcoHealth* 3:5–21.
- Catenazzi, A. 2015. State of the world's amphibians. *Annual Review of Environment and Resources* 40:91–119.
- Catenazzi, A., and S. J. Kupferberg. 2013. The importance of thermal conditions to recruitment success in stream-breeding frog populations distributed across a productivity gradient. *Biological Conservation* 168:40–48.
- Cayan, D. R., E. P. Maurer, M. D. Dettinger, M. Tyree, and K. Hayhoe. 2008. Climate change scenarios for the California region. *Climatic Change* 87:21–42.
- Chatfield, M. W., L. A. Brannelly, M. J. Robak, L. Freeborn, S. P. Lailvaux, and C. L. Richards-Zawacki. 2013. Fitness consequences of infection by *Batrachochytrium dendrobatidis* in northern leopard frogs (*Lithobates pipiens*). *EcoHealth* 10:90–98.
- Crespi, E. J., L. J. Rissler, N. M. Mattheus, K. Engbrecht, S. I. Duncan, T. Seaborn, E. M. Hall, J. D. Peterson, and J. L. Brunner. 2015. Geophysiology of wood frogs: landscape patterns of prevalence of disease and circulating hormone concentrations across the Eastern Range. *Integrative and Comparative Biology* 55:602–617.
- Daszak, P., A. Strieby, A. A. Cunningham, J. E. Longcore, C. C. Brown, and D. Porter. 2004. Experimental evidence that the bullfrog (*Rana catesbeiana*) is a potential carrier of chytridiomycosis, an emerging fungal disease of amphibians. *Herpetological Journal* 14:201–207.

- Davidson, C., M. F. Benard, H. B. Shaffer, J. M. Parker, C. O'Leary, J. M. Conlon, and L. A. Rollins-Smith. 2007. Effects of chytrid and carbaryl exposure on survival, growth and skin peptide defenses in foothill yellow-legged frogs. *Environmental Science & Technology* 41:1771–1776.
- Davidson, E. W., M. Parris, J. P. Collins, J. E. Longcore, A. P. Pessier, J. Brunner, and S. J. Beaupre. 2003. Pathogenicity and transmission of chytridiomycosis in tiger salamanders (*Ambystoma tigrinum*). *Copeia* 2003:601–607.
- Davidson, C., H. B. Shaffer, and M. R. Jennings. 2002. Spatial tests of the pesticide drift, habitat destruction, UV-B, and climate-change hypotheses for California amphibian declines. *Conservation Biology* 16:1588–1601.
- Dobson, A., and J. Foufopoulos. 2001. Emerging infectious pathogens of wildlife. *Philosophical Transactions of the Royal Society of London B: Biological Sciences* 356:1001–1012.
- Doubledee, R. A., E. B. Muller, and R. M. Nisbet. 2003. Bullfrogs, disturbance regimes, and the persistence of California red-legged frogs. *Journal of Wildlife Management* 67:15.
- Eisenlord, M. E., et al. 2016. Ochre star mortality during the 2014 wasting disease epizootic: role of population size structure and temperature. *Philosophical Transactions of the Royal Society of London B: Biological Sciences* 371:20150212.
- Ercan, D., D. Andreou, S. Sana, C. Öntaş, E. Baba, N. Top, U. Karakuş, A. S. Tarkan, and R. E. Gozlan. 2015. Evidence of threat to European economy and biodiversity following the introduction of an alien pathogen on the fungal–animal boundary. *Emerging Microbes & Infections* 4:e52.
- Fisher, M. C., T. W. Garner, and S. F. Walker. 2009. Global emergence of *Batrachochytrium dendrobatidis* and amphibian chytridiomycosis in space, time, and host. *Annual Review of Microbiology* 63:291–310.
- Fisher, M. C., D. A. Henk, C. J. Briggs, J. S. Brownstein, L. C. Madoff, S. L. McCraw, and S. J. Gurr. 2012. Emerging fungal threats to animal, plant and ecosystem health. *Nature* 484:186–194.
- Fuller, T. E., K. L. Pope, D. T. Ashton, and H. H. Welsh. 2011. Linking the distribution of an invasive amphibian (*Rana catesbeiana*) to habitat conditions in a managed river system in northern California. *Restoration Ecology* 19:204–213.
- Fullerton, A. H., C. E. Torgersen, J. J. Lawler, R. N. Faux, E. A. Steel, T. J. Beechie, J. L. Ebersole, and S. G. Leibowitz. 2015. Rethinking the longitudinal stream temperature paradigm: region-wide comparison of thermal infrared imagery reveals unexpected complexity of river temperatures. *Hydrological Processes* 29:4719–4737.
- Gallana, M., M.-P. Ryser-Degiorgis, T. Wahli, and H. Segner. 2013. Climate change and infectious diseases of wildlife: altered interactions between pathogens, vectors and hosts. *Current Zoology* 59:427–437.
- Garner, T. W., M. W. Perkins, P. Govindarajulu, D. Seglie, S. Walker, A. A. Cunningham, and M. C. Fisher. 2006. The emerging amphibian pathogen *Batrachochytrium dendrobatidis* globally infects introduced populations of the North American bullfrog, *Rana catesbeiana*. *Biology Letters* 2:455–459.
- Garner, T. W. J., S. Walker, J. Bosch, S. Leech, J. Marcus Rowcliffe, A. A. Cunningham, and M. C. Fisher. 2009. Life history tradeoffs influence mortality associated with the amphibian pathogen *Batrachochytrium dendrobatidis*. *Oikos* 118:783–791.
- Gervasi, S. S., J. Urbina, J. Hua, T. Chestnut, R. Relyea, and A. Blaustein. 2013. Experimental evidence for American bullfrog (*Lithobates catesbeianus*) susceptibility to chytrid fungus (*Batrachochytrium dendrobatidis*). *EcoHealth* 10:166–171.
- Gonsolin, T. E. 2010. Ecology of foothill yellow-legged frogs in upper Coyote Creek, Santa Clara County, CA. Thesis. San Jose State University, San Jose, California, USA.
- Greenspan, S. E., A. J. K. Calhoun, J. E. Longcore, and M. G. Levy. 2012. Transmission of *Batrachochytrium dendrobatidis* to wood frogs (*Lithobates sylvaticus*) via a bullfrog (*L. catesbeianus*) vector. *Journal of Wildlife Diseases* 48:575–582.
- Greer, A., V. Ng, and D. Fisman. 2008. Climate change and infectious diseases in North America: the road ahead. *Canadian Medical Association Journal* 178:715–722.
- Griffin, D., and K. J. Anchukaitis. 2014. How unusual is the 2012–2014 California drought? *Geophysical Research Letters* 41:9017–9023.
- Harvell, C. D., C. E. Mitchell, J. R. Ward, S. Altizer, A. P. Dobson, R. S. Ostfeld, and M. D. Samuel. 2002. Climate warming and disease risks for terrestrial and marine biota. *Science* 296:2158–2162.
- Hyatt, A. D., et al. 2007. Diagnostic assays and sampling protocols for the detection of *Batrachochytrium dendrobatidis*. *Diseases of Aquatic Organisms* 73:175–192.
- Imasuen, A. A., M. S. O. Aisien, C. Weldon, D. L. Dalton, A. Kotze, and L. Du Preez. 2011. Occurrence of *Batrachochytrium dendrobatidis* in amphibian populations of Okomu National Park, Nigeria. *Herpetological Review* 42:379–382.
- Johnson, M. L., L. Berger, L. Phillips, and R. Speare. 2003. Fungicidal effects of chemical disinfectants, UV light, desiccation and heat on the amphibian chytrid, *Batrachochytrium dendrobatidis*. *Diseases of Aquatic Organisms* 57:255–260.

- Kats, L. B., and R. P. Ferrer. 2003. Alien predators and amphibian declines: review of two decades of science and the transition to conservation. *Diversity and Distributions* 9:99–110.
- Kaushal, S. S., G. E. Likens, N. A. Jaworski, M. L. Pace, A. M. Sides, D. Seekell, K. T. Belt, D. H. Secor, and R. L. Wingate. 2010. Rising stream and river temperatures in the United States. *Frontiers in Ecology and the Environment* 8:461–466.
- Kiesecker, J. M., and A. R. Blaustein. 1998. Effects of introduced bullfrogs and smallmouth bass on microhabitat use, growth, and survival of native red-legged frogs (*Rana aurora*). *Conservation Biology* 12:776–787.
- Kinney, V. C., J. L. Heemeyer, A. P. Pessier, and M. J. Lannoo. 2011. Seasonal pattern of *Batrachochytrium dendrobatidis* infection and mortality in *Lithobates areolatus*: affirmation of Vredenburg's "10,000 zoospore rule". *PLoS ONE* 6:e16708.
- Klein, S. L. 2004. Hormonal and immunological mechanisms mediating sex differences in parasite infection. *Parasite Immunology* 26:247–264.
- Knapp, R. A., C. J. Briggs, T. C. Smith, and J. R. Maurer. 2011. Nowhere to hide: impact of a temperature-sensitive amphibian pathogen along an elevation gradient in the temperate zone. *Ecosphere* 2:1–26.
- Kruger, K. M. 2009. Lack of evidence for the drought-linked chytridiomycosis hypothesis. *Journal of Wildlife Diseases* 45:537–541.
- Kruger, K. M., and J. M. Hero. 2007. Large-scale seasonal variation in the prevalence and severity of chytridiomycosis. *Journal of Zoology* 271:352–359.
- Kruger, K. M., F. Pereoglou, and J. M. Hero. 2007. Latitudinal variation in the prevalence and intensity of chytrid (*Batrachochytrium dendrobatidis*) infection in eastern Australia. *Conservation Biology* 21:1280–1290.
- Krynak, K. L., D. J. Burke, and M. F. Benard. 2016. Landscape and water characteristics correlate with immune defense traits across Blanchard's cricket frog (*Acris blanchardi*) populations. *Biological Conservation* 193:153–167.
- Kupferberg, S. J. 1996. Hydrologic and geomorphic factors affecting conservation of a river-breeding frog (*Rana boylei*). *Ecological Applications* 6:1332–1344.
- Kupferberg, S. J. 1997. Bullfrog (*Rana catesbeiana*) invasion of a California river: the role of larval competition. *Ecology* 78:1736–1751.
- Kupferberg, S. J., W. J. Palen, A. J. Lind, S. Bobzien, A. Catenazzi, J. O. E. Drennan, and M. E. Power. 2012. Effects of flow regimes altered by dams on survival, population declines, and range-wide losses of California river-breeding frogs. *Conservation Biology* 26:513–524.
- Lambertini, C., C. G. Becker, T. S. Jenkinson, D. Rodriguez, D. da Silva Leite, T. Y. James, K. R. Zamudio, and L. F. Toledo. 2016. Local phenotypic variation in amphibian-killing fungus predicts infection dynamics. *Fungal Ecology* 20:15–21.
- Lampo, M., A. Rodriguez-Contreras, E. La Marca, and P. Daszak. 2006. A chytridiomycosis epidemic and a severe dry season precede the disappearance of *Atelopus* species from the Venezuelan Andes. *Herpetological Journal* 16:395–402.
- Langbein, W. B., and L. B. Leopold. 1964. Quasi-equilibrium states in channel morphology. *American Journal of Science* 262:782–794.
- Lind, A. J. 2005. Reintroduction of a declining amphibian: determining an ecologically feasible approach for the foothill yellow-legged frog (*Rana boylei*) through analysis of decline factors, genetic structure, and habitat associations. Dissertation. University of California, Davis, Davis, California, USA.
- Lind, A., J. Bettaso, and S. Yarnell. 2003. *Rana boylei* (Foothill yellow legged frog) and *Rana catesbeiana* (Bullfrog). Reproductive behavior. *Herpetological Review* 34:235.
- Lind, A. J., H. H. Welsh, and R. A. Wilson. 1996. The effects of a dam on breeding habitat and egg survival of the foothill yellow-legged frog (*Rana boylei*) in northwestern California. *Herpetological Review* 27:62–67.
- Lobos, G., and F. M. Jaksic. 2005. The ongoing invasion of African clawed frogs (*Xenopus laevis*) in Chile: causes of concern. *Biodiversity & Conservation* 14: 429–439.
- Longo, A. V., P. A. Burrowes, and R. L. Joglar. 2010. Seasonality of *Batrachochytrium dendrobatidis* infection in direct-developing frogs suggests a mechanism for persistence. *Diseases of Aquatic Organisms* 92:253–260.
- Lowe, J. 2009. Amphibian chytrid (*Batrachochytrium dendrobatidis*) in post-metamorphic *Rana boylei* in inner coast ranges of central California. *Herpetological Review* 40:180–182.
- MacPhee, R. D., and A. D. Greenwood. 2013. Infectious disease, endangerment, and extinction. *International Journal of Evolutionary Biology* 2013:1–9.
- Mann, M. E., and P. H. Gleick. 2015. Climate change and California drought in the 21st century. *Proceedings of the National Academy of Sciences USA* 112:3858–3859.
- Marchetti, M. P., and P. B. Moyle. 2001. Effects of flow regime on fish assemblages in a regulated California stream. *Ecological Applications* 11:530–539.
- McBain Associates. 2014. Alameda Creek water temperature modeling refinement, final technical memorandum. McBain Associates, Arcata, California, USA.

- McElreath, R. 2016. Statistical rethinking: a Bayesian course with examples in R and Stan. CRC Press, Boca Raton, Florida, USA.
- McMahon, T. A., L. A. Brannelly, M. W. H. Chatfield, P. T. J. Johnson, M. B. Joseph, V. J. McKenzie, C. L. Richards-Zawacki, M. D. Venesky, and J. R. Rohr. 2013. Chytrid fungus *Batrachochytrium dendrobatidis* has nonamphibian hosts and releases chemicals that cause pathology in the absence of infection. *Proceedings of the National Academy of Sciences USA* 110:210–215.
- Murphy, P. J., S. St-Hilaire, and P. S. Corn. 2011. Temperature, hydric environment, and prior pathogen exposure alter the experimental severity of chytridiomycosis in boreal toads. *Diseases of Aquatic Organisms* 95:31–42.
- Ong, X., Y.-C. Wang, P. Sithithaworn, C. Grundy-Warr, and O. Pitaksakulrat. 2016. Dam influences on liver fluke transmission: fish infection and human fish consumption behavior. *Annals of the American Association of Geographers* 106:755–772.
- Padgett-Flohr, G. E., and R. L. Hopkins II. 2009. *Batrachochytrium dendrobatidis*, a novel pathogen approaching endemism in central California. *Diseases of Aquatic Organisms* 83:1–9.
- Padgett-Flohr, G. E., and R. L. Hopkins. 2010. Landscape epidemiology of *Batrachochytrium dendrobatidis* in central California. *Ecography* 33:688–697.
- Peek, R. 2012. Analysis of long-term river regulation effects on genetic connectivity of foothill yellow-legged frogs (*Rana boylei*) in the Alameda Creek watershed. Draft Report, San Francisco Public Utilities Commission, Davis, California, USA.
- Peterson, A. C., and V. J. McKenzie. 2014. Investigating differences across host species and scales to explain the distribution of the amphibian pathogen *Batrachochytrium dendrobatidis*. *PLoS ONE* 9:e107441.
- Petranka, J. W., E. M. Harp, C. T. Holbrook, and J. A. Hamel. 2007. Long-term persistence of amphibian populations in a restored wetland complex. *Biological Conservation* 138:371–380.
- Pilliod, D. S., E. Muths, R. D. Scherer, P. E. Bartelt, P. S. Corn, B. R. Hossack, B. A. Lambert, R. McCaffery, and C. Gaughan. 2010. Effects of amphibian chytrid fungus on individual survival probability in wild boreal toads. *Conservation Biology* 24:1259–1267.
- Piotrowski, J. S., S. L. Annis, and J. E. Longcore. 2004. Physiology of *Batrachochytrium dendrobatidis*, a chytrid pathogen of amphibians. *Mycologia* 96:9–15.
- Piovia-Scott, J., et al. 2015. Correlates of virulence in a frog-killing fungal pathogen: evidence from a California amphibian decline. *ISME Journal* 9:1570–1578.
- R Development Core Team. 2012. R: a language and environment for statistical computing, reference index version 2.15. 1. R Foundation for Statistical Computing, Vienna, Austria. <http://CRAN.R-project.org/>
- Rachowicz, L. J., and C. J. Briggs. 2007. Quantifying the disease transmission function: effects of density on *Batrachochytrium dendrobatidis* transmission in the mountain yellow-legged frog *Rana muscosa*. *Journal of Animal Ecology* 76:711–721.
- Rachowicz, L. J., R. A. Knapp, J. A. T. Morgan, M. J. Stice, V. T. Vredenburg, J. M. Parker, and C. J. Briggs. 2006. Emerging infectious disease as a proximate cause of amphibian mass mortality. *Ecology* 87:1671–1683.
- Raffel, T. R., P. J. Michel, E. W. Sites, and J. R. Rohr. 2010. What drives chytrid infections in newt populations? Associations with substrate, temperature, and shade. *EcoHealth* 7:526–536.
- Raffel, T. R., J. M. Romansic, N. T. Halstead, T. A. McMahon, M. D. Venesky, and J. R. Rohr. 2013. Disease and thermal acclimation in a more variable and unpredictable climate. *Nature Climate Change* 3:146–151.
- Rahel, F. J. 2002. Homogenization of freshwater faunas. *Annual Review of Ecology and Systematics* 33:291–315.
- Reeder, N. M. M., A. P. Pessier, and V. T. Vredenburg. 2012. A reservoir species for the emerging amphibian pathogen *Batrachochytrium dendrobatidis* thrives in a landscape decimated by disease. *PLoS ONE* 7:e33567.
- Ribas, L., M.-S. Li, B. J. Doddington, J. Robert, J. A. Seidel, J. S. Kroll, L. B. Zimmerman, N. C. Grassly, T. W. J. Garner, and M. C. Fisher. 2009. Expression profiling the temperature-dependent amphibian response to infection by *Batrachochytrium dendrobatidis*. *PLoS ONE* 4:e8408.
- Rollins-Smith, L. A., and J. M. Conlon. 2005. Antimicrobial peptide defenses against chytridiomycosis, an emerging infectious disease of amphibian populations. *Developmental and Comparative Immunology* 29:589–598.
- Rollins-Smith, L. A., D. C. Woodhams, L. K. Reinert, V. T. Vredenburg, C. J. Briggs, P. F. Nielsen, and J. Michael Conlon. 2006. Antimicrobial peptide defenses of the mountain yellow-legged frog (*Rana muscosa*). *Developmental & Comparative Immunology* 30:831–842.
- Rowley, J. J., and R. A. Alford. 2007. Behaviour of Australian rainforest stream frogs may affect the transmission of chytridiomycosis. *Diseases of Aquatic Organisms* 77:1–9.
- Savage, A. E., M. J. Sredl, and K. R. Zamudio. 2011. Disease dynamics vary spatially and temporally in

- a North American amphibian. *Biological Conservation* 144:1910–1915.
- Savage, A. E., and K. R. Zamudio. 2011. MHC genotypes associate with resistance to a frog-killing fungus. *Proceedings of the National Academy of Sciences USA* 108:16705–16710.
- Schloegel, L. M., et al. 2012. Novel, panzootic and hybrid genotypes of amphibian chytridiomycosis associated with the bullfrog trade. *Molecular Ecology* 21:5162–5177.
- Stuart, S. N., J. S. Chanson, N. A. Cox, B. E. Young, A. S. Rodrigues, D. L. Fischman, and R. W. Waller. 2004. Status and trends of amphibian declines and extinctions worldwide. *Science* 306:1783–1786.
- Thomson, R. C. 2016. California amphibian and reptile species of special concern. University of California Press, Oakland, California, USA.
- Tunstall, T. S. 2012. Characteristics of the emergent disease *Batrachochytrium dendrobatidis* in the *Rana muscosa* and *Rana sierrae* species complex. Dissertation. University of California Berkeley, Berkeley, California, USA.
- U.S. Fish and Wildlife Service. 1994. Endangered and threatened wildlife and plants: animal candidate review for listing as endangered or threatened species. U.S. Fish and Wildlife Service, Washington, D.C., USA. Pages 58982–59028.
- U.S. Fish and Wildlife Service. 2015. Endangered and threatened wildlife and plants; 90-day findings on 31 petitions. U.S. Fish and Wildlife Service, Washington, D.C., USA. Pages 37568–37579.
- U.S. Geological Survey. 2015. Streamer Online Mapping Application. USGS Texas Water Science Center, Austin, Texas, USA. <https://txpub.usgs.gov/DSS/streamer/web/>
- van Vliet, M. T. H., W. H. P. Franssen, J. R. Yearsley, F. Ludwig, I. Haddeland, D. P. Lettenmaier, and P. Kabat. 2013. Global river discharge and water temperature under climate change. *Global Environmental Change* 23:450–464.
- Van Wagner, T. J. 1996. Selected life-history and ecological aspects of a population of foothill yellow-legged frogs (*Rana boylei*) from Clear Creek, Nevada County, California. Thesis. California State University, Chico, Chico, California, USA.
- Voyles, J., L. R. Johnson, C. J. Briggs, S. D. Cashins, R. A. Alford, L. Berger, L. F. Skerratt, R. Speare, and E. B. Rosenblum. 2012. Temperature alters reproductive life history patterns in *Batrachochytrium dendrobatidis*, a lethal pathogen associated with the global loss of amphibians. *Ecology and Evolution* 2:2241–2249.
- Vredenburg, V. T., R. A. Knapp, T. S. Tunstall, and C. J. Briggs. 2010. Dynamics of an emerging disease drive large-scale amphibian population extinctions. *Proceedings of the National Academy of Sciences USA* 107:9689–9694.
- Wake, D. B., and V. T. Vredenburg. 2008. Colloquium paper: Are we in the midst of the sixth mass extinction? A view from the world of amphibians. *Proceedings of the National Academy of Sciences USA* 105(Suppl 1):11466–11473.
- Walls, S. C., W. J. Barichivich, and M. E. Brown. 2013. Drought, deluge and declines: the impact of precipitation extremes on amphibians in a changing climate. *Biology* 2:399–418.
- Wawrzyniak, V., H. Piégay, P. Allemand, L. Vaudor, R. Goma, and P. Grandjean. 2016. Effects of geomorphology and groundwater level on the spatio-temporal variability of riverine cold water patches assessed using thermal infrared (TIR) remote sensing. *Remote Sensing of Environment* 175:337–348.
- Webb, B. W., D. M. Hannah, R. D. Moore, L. E. Brown, and F. Nobilis. 2008. Recent advances in stream and river temperature research. *Hydrological Processes* 22:902–918.
- Wheeler, C., J. Bettaso, D. Ashton, and H. Welsh. 2015. Effects of water temperature on breeding phenology, growth, and metamorphosis of foothill yellow-legged frogs (*Rana boylei*): a case study of the regulated mainstem and unregulated tributaries of California's Trinity River. *River Research and Applications* 31:1276–1286.
- Wheeler, C. A., and H. H. Welsh. 2008. Mating strategy and breeding patterns of the foothill yellow-legged frog (*Rana boylei*). *Herpetological Conservation and Biology* 3:128–142.
- Woodhams, D. C., R. A. Alford, C. J. Briggs, M. Johnson, and L. A. Rollins-Smith. 2008. Life-history trade-offs influence disease in changing climates: strategies of an amphibian pathogen. *Ecology* 89: 1627–1639.
- Zuur, A. F., E. N. Ieno, and C. S. Elphick. 2010. A protocol for data exploration to avoid common statistical problems. *Methods in Ecology and Evolution* 1:3–14.

SUPPORTING INFORMATION

Additional Supporting Information may be found online at: <http://onlinelibrary.wiley.com/doi/10.1002/ecs2.1740/full>

STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0078
(916) 319-2078
FAX (916) 319-2178

Assembly
California Legislature



TODD GLORIA
ASSEMBLYMEMBER, SEVENTY-EIGHTH DISTRICT

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION

2017 MAR 29 PM 3:01

MLS

March 24, 2017

Eric Sklar, President
California Fish and Game Commission
C/O Valerie Termini
1416 9th Street, Suite 1320
Sacramento, CA 95814

Dear Mr. Sklar,

I am writing in support of Petition 2016-031 regarding consideration of a process to permit ferret ownership in California, which will be considered by the California Fish and Game Commission on April 26, 2017. The petition was submitted by Mr. Pat Wright on behalf of Ferrets Anonymous, an organization founded in my district.

The petition requests that the California Fish and Game Commission authorize individual permits for domestic male ferrets that have been neutered and have been vaccinated for rabies. The petition also suggests that a permit fee be established to provide for cost recovery of the program expenses.

It has been estimated that tens of thousands of Californians currently keep domesticated ferrets as pets. By providing a process for legal ownership that eliminates the possibility of feral colonies being established, and requires ferrets to be vaccinated against dangerous diseases such as rabies, the Department of Fish and Game would establish greater regulatory control while allowing ferret owners to legally and openly enjoy their pets.

The responsible ferret community in California deserves a respite from the fear of having their pets seized and destroyed. By authorizing such a process, the Fish and Game Commission would enable Californians the same ability to keep domesticated ferrets that is enjoyed in 48 other states.

I appreciate your consideration of this matter. Please do not hesitate to contact me if I can provide any additional information.

Sincerely,

A handwritten signature in blue ink that reads "Todd Gloria".

TODD GLORIA

Assemblymember, 78th District



LegalizeFerrets.org

PO Box 1480
La Mesa, CA 91944
619-303-0645

CLIFFNotes@legalizeferrets.org

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION

2017 APR -6 PM 3:21
MLS

April 5th, 2017

Erin Chappell
Wildlife Advisor
California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090

Hello Erin,

We are very excited and hopeful as the Commission prepares to consider our request for them to once again issue permits for ferrets as they did prior to 1985 for neutered male ferrets. Of course, this time around we are hoping to sterilized female ferrets will be included as well.


Enclosed please find our "Open Letter." To the Fish and Game Commission regarding domestic ferrets in California. Multiple copies are included in hopes you will pass it around. Perhaps I went a little overboard but after 24 years of working on ferret legalization I have a ton of information and it was difficult to put this simple matter into one letter.

Also, please find a notebook with letters from every state in the Union and for some reason a few Canadian provinces. Dr Geo Graening asked each state "Are there any instances of domesticated ferrets killing or harassing wildlife in your state?" Each state answered either "No" or "Don't know." This was included on a CD he submitted with his Final Report.

Lastly, please find a letter of support from Assemblyman Todd Gloria for this petition. For some reason he mentions only neutered male ferrets, but we'll take this letter and try to get one from the other members of the Water, Parks and Wildlife.

According to an email I received from your office, our petition is most likely to come up on Wednesday, April 26th. Can you please confirm that and let us know if there is a particular time we need to be there?

As always, thanks for your help.


Pat Wright
LegalizeFerrets.org

STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0078
(916) 319-2078
FAX (916) 319-2178

Assembly California Legislature



TODD GLORIA
ASSEMBLYMEMBER, SEVENTY-EIGHTH DISTRICT

March 24, 2017

Eric Sklar, President
California Fish and Game Commission
C/O Valerie Termini
1416 9th Street, Suite 1320
Sacramento, CA 95814

Dear Mr. Sklar,

I am writing in support of Petition 2016-031 regarding consideration of a process to permit ferret ownership in California, which will be considered by the California Fish and Game Commission on April 26, 2017. The petition was submitted by Mr. Pat Wright on behalf of Ferrets Anonymous, an organization founded in my district.

The petition requests that the California Fish and Game Commission authorize individual permits for domestic male ferrets that have been neutered and have been vaccinated for rabies. The petition also suggests that a permit fee be established to provide for cost recovery of the program expenses.

It has been estimated that tens of thousands of Californians currently keep domesticated ferrets as pets. By providing a process for legal ownership that eliminates the possibility of feral colonies being established, and requires ferrets to be vaccinated against dangerous diseases such as rabies, the Department of Fish and Game would establish greater regulatory control while allowing ferret owners to legally and openly enjoy their pets.

The responsible ferret community in California deserves a respite from the fear of having their pets seized and destroyed. By authorizing such a process, the Fish and Game Commission would enable Californians the same ability to keep domesticated ferrets that is enjoyed in 48 other states.

I appreciate your consideration of this matter. Please do not hesitate to contact me if I can provide any additional information.

Sincerely,

A handwritten signature in blue ink that reads "Todd Gloria".

TODD GLORIA

Assemblymember, 78th District



Printed on Recycled Paper

AN **OPEN LETTER** TO THE **CALIFORNIA FISH AND GAME COMMISSION** REGARDING

Domestic Ferrets **in California**

The ferret issue has been going on in California for a long time.



While residents in **48 states** are enjoying **legal ferret ownership**, California is locked in a **ferret ban**.

Fish and Game controls ferrets because they can label **ANY ANIMAL** as “**wild**” – even when scientifically invalid.



OUR PETITION SIMPLY REQUESTS

that the Fish and Game Commission issue ferret permits, each at a cost of \$100 or more, for **pet ferrets** that are **sterilized and current on rabies vaccination**.

This is something the Commission can do without any changes in regulation.



There were two objections recently stated by Fish and Game Staff to removing ferrets from the prohibited species list:

#1

Staff recommends denying the petition. Given that the proposed action would effectively eliminate the Commission's authority to regulate ferrets,...

By issuing permits, the Fish and Game Commission will maintain its jurisdiction. Ferrets are the only domesticated animal on the prohibited species list, classified as a wild animal simply for being a member of the Mustelidae family.

#2

Regarding potential impacts to wildlife populations, the report finds that while the establishment of feral colonies is highly improbable, there is a remote possibility that escaped ferrets might do significant damage to wildlife...

We have letters on file from all 50 states responding to: “**Are there any instances of domesticated ferrets killing or harassing wildlife in your state?**” Everyone answered “**No**” or “**Don't know**” – not one “**Yes**”!

Ferrets are the only domesticated animal on the prohibited species list, classified as a wild animal simply for being a member of the Mustelidae family.

This is the explanation I received from the Legislative Analyst's Office



Legislative Analyst's Office

The California Legislature's Nonpartisan Fiscal and Policy Advisor

From: Favorini-Csorba, Anton [mailto:Anton.Favorini-Csorba@LAO.CA.GOV]
Sent: Monday, April 02, 2012 9:48 AM
To: cliffnotes@legalizeferrets.org
Subject: Inquiry with LAO

Hi Pat,

My name is Anton Favorini-Csorba and I'm the analyst with the Legislative Analyst's Office with responsibility over the wildlife policy area. We received an inquiry from you on the Fish and Game Commission's authority to regulate domestic animals, specifically as it pertains to ferrets. In general, the Commission and the Department of Fish and Game have relatively broad authority to regulate the importing and possession of non-native species, and so that extends to ferrets. Regarding your specific question about domestic animals, it's my understanding that currently ferrets are considered wild animals under state law. Fish and Game Code section 2118(b) lists animals of the families Viverridae and Mustelidae as restricted, and I believe ferrets fall into the latter. Furthermore, the Commission is the body that determines whether an animal is wild or not because the Commission is charged with determining whether an animal is "normally domesticated in this state," (FGC section 2116). So that would indicate to me that the Legislature has declared its intent on the Commission's authority.

Hopefully that answers your question, although I realize it may not be the answer you were looking for.

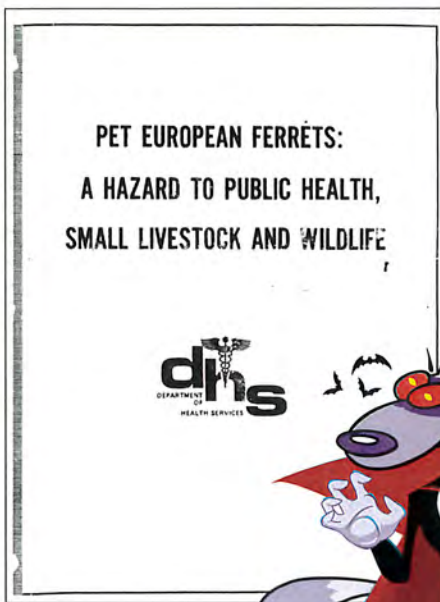
Best,
Anton Favorini-Csorba
Fiscal & Policy Analyst
Water, Agriculture, and Wildlife
Legislative Analyst's Office



Is it fair that the agency that issues hunting and fishing licenses is charged with regulating a cute, furry PET? We have very little common ground here. Ferrets are domestic animals and should be regulated by the Department of Agriculture as are dogs and cats. How would California hunters respond if their permits were issued by PETA?



Officials from these three state agencies have gone through considerable expense to produce “reports” to back up their position. Most notably are these two reports. **They have one thing in common: Begin with the position that ferrets pose various threats and work backwards.** Neither has been peer reviewed and both are **significantly lacking in documentation.**



PET EUROPEAN FERRETS: A HAZARD TO PUBLIC HEALTH, SMALL LIVESTOCK AND WILDLIFE

Denny G Constantine, Public Health Veterinarian for the State of California and the foremost authority on bats and public health. Kenneth Kizer, Director, California Department of Health Services. Published December 1988.

1988

REALLY?!

From the Executive Summary:

Ferret play frequently assumes the form of mock attacks, which may result in bites to humans. Serious bites may occur, especially if the animal is surprised or angered.

Adults are able to quickly terminate such encounters, and thereby limit injury. However, infants, who often seem to be perceived by ferrets as prey, may suffer severe injury as a result of ferret attacks. Indeed, **ferrets sometimes unleash frenzied, rapid-fire bite and slash attacks on infants, usually on their heads and throats, and sometimes inflict hundreds of bites.** The animals have been reported to then **drink the victim's blood** and eat the shredded tissues.

Proceedings of the Sixteenth Vertebrate Pest Conference : THE EUROPEAN FERRET, MUSTELA PUTORIUS, (FAMILY MUSTELIDAE) ITS PUBLIC HEALTH, WILDLIFE AND AGRICULTURAL SIGNIFICANCE

1994

Jim C. Hitchcock, California Department of Health Services, Vector-borne Disease Section, Ontario, California 91764.

Abstract:

The European ferret, *Mustela putorius*, a species prohibited in California, has become increasingly popular as a household “pet.” As a result, its threat to public health, wildlife and agriculture has markedly increased. There has also been a consequent increase in reported attacks on humans, especially infants, including several fatalities.

Reports of rabid European ferrets are also on the increase. When European ferrets establish “feral” populations, domestic poultry, waterfowl, game birds, rabbits and other species are at substantial risk. At this time, a California Proc. 16th Vertebr. PestConf. (W.S. Halverson & A.C. Crabb, Eds.) Published at Univ. of Calif., Davis. 1994.



Ferret proponents have been working toward **legalization** since about 1988.

2004

Several bills have been through the legislature. The last one, SB84 (Dede Alpert) passed— but was vetoed by Governor Schwarzenegger.

“I love ferrets,” Schwarzenegger wrote in his veto message to the California State Senate. “I co-starred with a ferret in Kindergarten Cop. However... I am concerned that there has not been proper study to determine whether ferrets are detrimental to the health and safety of California citizens and the environment.”



Most recently, the Fish and Game Commission **rejected** a petition for regulation change to remove ferrets from the **prohibited species** list.

Ferrets as Wild Animals?

§2116. Wild Animal As used in this chapter, “wild animal” means any animal of the class Aves (birds), class Mammalia (mammals), class Amphibia (frogs, toads, salamanders), class Osteichthyes (bony fishes), class Monorhina (lampreys), class Reptilia (reptiles), class Crustacea (crayfish), or class Gastropoda (slugs, snails) which is not normally domesticated in this state as determined by the commission.

Everyone knows domestic ferrets aren't wild animals.

What we don't know is when the Fish and Game Commission ruled that ferrets are not normally domesticated in this state.

We are being **UNFAIRLY** penalized because ferrets ARE domestic animals.



LegalizeFerrets.org

PO Box 1480 · La Mesa, CA 91944

CLIFFNotes@legalizeferrets.org

Phone/Fax 619-303-0645

© 2017, LegalizeFerrets.org

CALIFORNIA FISH AND GAME COMMISSION
DECISION LIST FOR NON-MARINE NON-REGULATORY REQUESTS THROUGH FEB 9, 2017
Revised 04-11-2017

FGC - California Fish and Game Commission **DFW** - California Department of Fish and Wildlife **WRC** - Wildlife Resources Committee **MRC** - Marine Resources Committee

Date Received	Name of Petitioner	Subject of Request	Short Description	Staff Recommendation	FGC Decision
1/17/2017	Kevin Ward	Out of state hunting	Request FGC authorize permits to bring mountain lion products into California from mountain lions legally harvested in another state.	Deny; outside FGC authority. Requires legislative change to Fish and Game Code Section 4800(b)(1).	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017
2/8/2017	Eric Mills	Hunting and fishing	(1) Requests FGC discuss a ban on robo-ducks, and (2) Requests a ban on lead fishing tackle	(1) Deny; analyzed in 2017 draft environmental document for waterfowl hunting and no new biological information presented to indicate a change is warranted, and (2) Deny; regulatory requests must be submitted using the regulation change petition form, FGC-1.	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017
2/8/2017	Marilyn Jasper	FGC meeting procedures	Requests FGC consider changes in public noticing and comment deadline processes. Specifically: (1) post meeting materials 72 hours before the written comment deadline, and (2) extend the late comment deadline.	(1) Deny; meeting materials prepared for commissioners currently include public comments received by the written comment deadline and could not be incorporated if the materials were posted before the deadline, and (2) Deny; regulation change requests must be submitted using the regulation change petition form, FGC-1.	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017

From: Kevin Ward

Sent: Tuesday, January 17, 2017 8:23 PM

To: FGC

Subject: Re: Reminder about marine and non-marine days for 2017

I would like to propose a change in our California law so that it would be legal for a California resident to go to some other state, legally harvest a mountain lion, have a fur, rug, or taxidermy mount made of it and then be able to bring it back into California. Right now a California hunter can go out of state and harvest other animals that are not legal to hunt in California and/or harvest a larger number of some animals that are legal in California, and we can legally bring them back into California. Why should the mountain lion be any different. As long as the animal is legally harvested in any other state in the United States of America it should be legal to at least harvest it and bring it back into the state of California. How do I make that happen? Thank you. Kevin Ward



2015-008
Tracking Number: (Click here to enter text.)

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, 1416 Ninth Street, Suite 1320, Sacramento, CA 95814 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

- 1. Person or organization requesting the change (Required)**
Name of primary contact person: Paula Lane Action Network (PLAN), Susan Kirks, Badger Ecologist
- 2. Rulemaking Authority (Required)** - Reference to the statutory or constitutional authority of the Commission to take the action requested: Mammal Hunting 2015-2016 Regulations
- 3. Overview (Required)** - Summarize the proposed changes to regulations: Repeal allowed hunting of American Badger and Gray Fox. American Badger is a Species of Concern in California since 1987 with diminishing populations and significant fragmentation of and loss of habitat.
- 4. Rationale (Required)** - Describe the problem and the reason for the proposed change: Special Status Animals should not be allowed to be hunted in California. In particular, the American Badger is a CA Species of Concern. Population is diminishing and habitat areas have increasingly diminished and fragmentation prevents habitat access as well as movement for mating to sustain biodiversity. The American Badger also creates benefits for other wildlife in coastal and inland ecosystems. Hunting of this fur-bearing mammal (as well as Gray Fox) should be permanently repealed. Please see attached summary.

SECTION II: Optional Information

- 5. Date of Petition: November 28, 2015**
- 6. Category of Proposed Change**
☐ Sport Fishing



- ☐ Commercial Fishing
☒ Hunting
☐ Other, please specify: [Click here to enter text.](#)

7. **The proposal is to:** *(To determine section number(s), see current year regulation booklet or <https://govt.westlaw.com/calregs>)*
☐ Amend Title 14 Section(s): [Click here to enter text.](#)
☐ Add New Title 14 Section(s): [Click here to enter text.](#)
☒ Repeal Title 14 Section(s): Mammal Hunting Regulations, Subdivision 2 Game, Furbearers, Nongame and Depredators (Detail Listing). Chapter 5 Furbearing Mammals. §461. Badger and Gray Fox. (a) Badger may be taken as follows: (1) Season and Area: November 16 through the last day of February, statewide. (2) Bag and Possession Limit: No limit. (b) Gray fox may be taken as follows: (1) Season and Area: November 24 through the last day of February, statewide. (2) Bag and Possession Limit: No limit. (3) Dogs may be permitted to pursue gray fox in the course of breaking, training, or practicing dogs in accordance with the provisions of Section 265 of these regulations. *Repealer and new section filed 5-13-81; designated effective 5-23-81.*
8. **If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition** [Click here to enter text.](#)
Or ☒ Not applicable.
9. **Effective date:** If applicable, identify the desired effective date of the regulation.
If the proposed change requires immediate implementation, explain the nature of the emergency: Request expedient review and implementation of repeal for hunting Badger and Gray Fox immediately.
10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: See attached summary.
11. **Economic or Fiscal Impacts:** Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: None.
12. **Forms:** If applicable, list any forms to be created, amended or repealed:
[Click here to enter text.](#)

SECTION 3: FGC Staff Only

Date received: [Click here to enter text.](#)

FGC staff action:

- ☐ Accept - complete
☐ Reject - incomplete
☐ Reject - outside scope of FGC authority
Tracking Number

Date petitioner was notified of receipt of petition and pending action: _____

Meeting date for FGC consideration: _____

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION
2015 DEC -2 AM 9:03



State of California – Fish and Game Commission

PETITION TO THE CALIFORNIA FISH AND GAME COMMISSION FOR REGULATION CHANGE

FGC 1 (NEW 10/23/14) Page 3 of 3

FGC action:

☐ Denied by FGC

☐ Denied - same as petition _____

Tracking Number

☐ Granted for consideration of regulation change

Request to Repeal Hunting of American Badger and Gray Fox

The American Badger (*Taxidea taxus*) has been a designated Special Status Animal, a CA Species of Concern, since 1987, for over 28 years. The CA Department of Fish and Wildlife defines Species of Concern as:

“A Species of Special Concern (SSC) is a species, subspecies, or distinct population of an animal* native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- is extirpated from the State or, in the case of birds, in its primary seasonal or breeding role;
- is listed as Federally-, but not State-, threatened or endangered; meets the State definition of threatened or endangered but has not formally been listed;
- is experiencing, or formerly experienced, serious (nonscyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status;
- has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status.”

The 3rd and 4th points of this description directly relate to American Badger (*Taxidea taxus*) in California.

A Special Status animal, a CA Species of Concern, should not be on the CA Department of Fish and Wildlife’s permitted Hunting list. We respectfully request the Department repeal this regulation at your earliest convenience.

Discussion

The conservation nonprofit organization, Paula Lane Action Network (PLAN) in Sonoma County, formed in 2000 and incorporated in 2004, has for 15 years dedicated resources and time to observe and document American Badger in the San Francisco Bay area, protect identified longstanding American Badger habitat, and establish outreach in California and outside California, to better understand this reclusive mammal. The conservation effort includes documenting all available habitat, species sightings, and relating seasonal behaviors to this work. By seasonal behaviors, we mean, for example, observing burrowing and foraging patterns June through August for evidence of increased activity related to dispersal of juvenile badgers. Or from February through Summer, observing Badger activity on properties to identify and confirm preferred territories of adult female Badgers. In fact, one of the most salient factors in the potential preservation of the species in California and possibly elsewhere, is identifying preferred adult female Badger territories and ensuring non-encroachment and protection of those areas. Coupled with this is the protection of wildlife movement areas to ensure the ability of traversal by male adult Badgers and movement of all Badgers through preferred wildlife corridors, to help sustain biodiversity. Added to this is the pressing need for prey and water availability during the current drought, which has been observed to negatively impact American Badger and other wildlife species, making competition for both resources heightened.

The nonprofit, Paula Lane Action Network, has a Naturalist and Badger ecologist who has visited every available identified property and habitat, with repeat visits over seasonal time periods, in the San Francisco Bay area during these 15 years, to receive reports, discuss sightings and any questions with property owners or residents, and verify reports received of habitat and/or species sightings. The naturalist and badger ecologist has also fielded questions and responded to inquiries in California and outside California. A significant field-study-based body of knowledge about American Badger has resulted from this level of attention to the species.

In the greater San Francisco Bay Area, there are estimated to be a population of 15 adult badgers and possibly 5 remaining living juvenile Badgers from the 2015 birthing season. In Sonoma and Marin Counties, in Summer 2015, two adult Badgers were documented as killed by motor vehicle strikes and 2 juvenile Badgers were also documented as killed by motor vehicle strikes. Death by vehicle strike, especially in Summer months, from 2011 to present, as reported to PLAN and confirmed, is consistent, 2-4 Badgers annually.

American Badger relies on grassland, including agricultural areas, for habitat and foraging. Badgers succumb to mortality from ranchers who believe a badger burrow or foraged out gopher mounds on a property will result in livestock stepping in holes and breaking legs, thus a loss of potential income source for the rancher. American Badger poses no threat to ranchers or farmers. Preferred prey of American Badger of gopher, vole, mouse, and ground squirrel follow a pattern of underground prey tunnels aerating soil in grassland areas, but also partaking of available grasses and vegetation. American Badger is a natural manager of gopher, vole, mouse and ground squirrel in grassland and adjacent areas. American Badger burrow creation occurs from foraged out prey holes. The burrow is usually in a hillside and the hole itself is created on a diagonal angle with a large area of displaced soil outside the burrow opening. Unless a herd of animals is panicked and fleeing a perceived threat, thus increasing the likelihood for an accident of any kind, the possibility of a domestic large animal stepping into and then down into a Badger Burrow opening is extremely low. Direct observation of horses galloping on a hillside among 15 active Badger burrows contributes to this clarification of what is a non-threat to livestock. Foraged out gopher mounds or vole holes are also similar in size to any general small or medium hole in a grassland area and livestock have not in 15 years of multiple observations been observed to inadvertently step into such a hole. In addition, a Marin County rancher who raises cattle and sheep on a 300+ acre ranch has over time observed his bull to intentionally step into a foraged out prey hole and kick up dirt from the loosened soil onto its body to alleviate itching, and then move along its way. Direct observation over an extended period of time allows this factual clarification to offset the cultural myth of rancher and farmer dislike of American Badger on a grassland property. While American Badger generally will remain within its home range, often from necessity due to obstructed movement areas and fragmented habitat, and return to preferred areas for prey foraging, the adult female Badger selects and remains in her territory, and male adult Badgers traverse through established female Badger territories. On farms and ranches comprised of grassland, a permanent Badger in residence is unusual and any concern about a Badger burrow created on a private property could be followed by filling in the hole with dirt after an adult Badger has foraged, obtained prey, also managing the gopher, vole, mouse or ground squirrel population, and has moved on to another area in the Badger's home range. The average length of time for an adult Badger to remain in an area, foraging, is generally a week to ten days, based on direct observation.

Sonoma and Marin Counties are recorded to have a small sustaining Badger population in the coastal area and, to the degree badgers can move and range, further inland in the Occidental, Petaluma and Sonoma Valley areas in grassland with gopher/vole/mouse prey base. Petaluma in southern Sonoma County, comprised of fairly expansive grassland, has a documented American Badger presence of longstanding, over 100 years (Habitat Survey, 2003, Fitts). Nicasio in Marin County also has documented American Badger activity, with two additional reports of Badger activity in southern/mid Marin and one report in northern Marin County. In Napa County, where grassland habitat does exist, but the vineyard properties abound, there appears to be one adult female Badger and possibly one or two adult male Badgers. The East San Francisco Bay area included reports as of 2015 of one adult female Badger in the Dublin area in Summer with one to two juvenile Badgers dispersing and living, seeking water and prey, in Summer 2015. Thus, at least one adult male Badger has also been in residence in the East Bay Hills. The available land to sustain a Badger population in the East Bay is questionable.

South of the San Francisco Bay Area in Santa Clara County and Santa Cruz County are reports of one to three adult Badgers sustaining, with an unknown variant of the number of female adult Badgers in this population as of 2015.

The Central Valley area, particularly Sacramento agricultural land, has a reported small badger population via reports and questions posed to the nonprofit PLAN. The southern California area of Monterey has had documented a population of 7 adult Badgers in the mid-2000s. The current population in the Monterey area is unknown.

In Mendocino County's coastal area, reports of one juvenile badger and one adult Badger were been received in 2014 and 2015.

Negative impacts contributing to diminution in American Badger population and ability to survive include:

-First and foremost, habitat loss and habitat fragmentation. As a Species of Concern in California, habitat and assured movement areas for badger are not protected. Mitigations for development and other impacts relate to direct harm to the species and our past experience reflects the Department's lack of understanding of species needs and behaviors when regulators become involved in reviewing and approving mitigations related to loss of habitat from development or other causes requiring consideration for mitigation. Accrual of observations and data by PLAN over 15 years reflect significant loss of habitat and prey bases and a clear need to ensure habitat areas, preferred adult female Badger habitat, and the ability for American badger to range or move be identified and actively preserved.

-Additional significant negative impacts to the remaining American Badger in California include drought. Less prey available and dried-up Summer and Autumn water sources result in competition for both.

-Motor vehicle strikes killing adult and juvenile badgers especially during critical Summer months for dispersal of young.

Dr. Jessie Quinn's research and subsequent dissertation in the late 2000s documented a movement range in the Monterey area for a population of 10 badgers of approximately 10 miles. In the San Francisco Bay area, the movement range for American Badger is directly observed over 15 years for the documented small badger populations to be only 4 to 6 miles on the Sonoma Coast, 4 miles on the Marin Coast (with development in between coastal areas preventing contiguous corridor movement) and approximately 8 miles coast-inland-coast, but *only if* conditions allowing movement, not being killed by ranchers who own the agricultural lands, and sufficient prey and water are available. A more realistic inland movement area for American Badger in Sonoma County is 6 miles and in Marin County is 5 miles.

Because there do not appear to be other dedicated broad-scale efforts to discern factual information about this Species of Concern and the observation of diminished and fragmented habitat along with mortality rates, even if the American Badger were not listed as a Special Status animal, the species should be removed from the Department's Hunting list. As a Species of Concern, the American Badger should not have ever been on the Hunting list (this includes trapping as a method for killing). Of note, in addition, is the allowed Hunting season is during mating season and early birthing season for the American Badger.

It is likely the level of knowledge about American Badger is in-depth in the San Francisco Bay Area because of the nonprofit organization's (PLAN) dedicated observation and research over 15 years. This observation and research continue. While educational outreach also continues, including dispelling cultural myths and understanding the significant benefit of the remaining Badger population to coastal and inland ecosystems, serious concerns exist related to continued fragmented and diminishing habitat and negative impacts to the species described above. Without a Threatened status designation, unquestionably, the habitat areas for American Badger will continue to be negatively impacted and diminish. This, coupled with drought and intentional killing, are of severe concern.

Gray Fox

Gray Fox is also listed in the described regulation under question. Grey Fox is a native mammal to California and, while data collection and observations of the conservation nonprofit, PLAN, relate specifically to American Badger, Gray Fox is requested to also be removed from the Hunting list of the CA Department of Fish and Wildlife as a native mammal who relies on similar movement areas, similar prey, similar habitat areas as American Badger, with negative impacts from diminishing habitat and drought-related challenges.

How many Badgers remain in California? The exact quantity is unknown. In the entire San Francisco Bay Area grassland habitat areas, we estimate under 30 Badgers. Sustaining biodiversity is challenging because of fragmented habitat areas and obstructed movement corridors. The mortality rate for vehicle strike deaths annually appears to average between 2 and 4 badgers, adult and juvenile. This has been consistently observed over 12 years. Identifying preferred female adult Badger territory areas is critical to support sustenance of Badgers that remain. However, without open movement areas, sufficient prey and water, male adult Badgers are challenged to enter a female adult Badger's territory and successfully mate. Although some publicly protected lands such as a national park (Pt. Reyes National Seashore) or public open space grassland area are preserved with no possibility for development, the necessity of connection to agricultural lands and open grassland to these areas, and prevention of obstruction of wildlife corridors as well as further loss of prey base areas, make the critical nature of preserving wildlife corridors and habitat for American Badger more urgent.

It is imperative to take every action in an attempt to allow the small American Badger population of adults and juveniles in California to sustain. Unquestionably, the American Badger's official status should be Threatened.

The purpose of this request is to repeal the allowed hunting of American Badger and also of Grey Fox in California as soon as possible.

Benefits to other species from American Badger presence in grassland habitat include for Burrowing Owl (also a CA Species of Concern), California Tiger Salamander, California Red-Legged Frog, and other unlisted species such as Striped Skunk and Gray Fox. The American Badger provides immense benefits to coastal and inland ecosystems.

Submitted for Paula Lane Action Network (P.L.A.N.), PO Box 2903, Petaluma, CA 94953

Tax ID#: 73-1702426.

Susan Kirks, Naturalist and Badger Ecologist

PETITION 2015-008

Comment for CA Fish and Game Commission Meeting, April 26-27, 2017

Agenda Item:

17. Non-marine petitions for regulation change and non-regulatory requests from previous meetings

(C) Update on pending regulation petitions and non-regulatory requests referred to staff and the Department for review

I. Petition #2015-008 to repeal hunting of American badger and gray fox

Submitted by Paula Lane Action Network

Susan Kirks, Naturalist

Contact: Susan Kirks, susankirks@sbcglobal.net, 707-241-5548

Thank you for the opportunity to submit this Comment. Unfortunately, the location of this meeting in southern California precludes our ability to have a representative present at the meeting to deliver the Comment.

Comment:

General and Group-Relevant:

The Predator Policy Work Group agendized and reviewed the above-referenced Petition on March 20, 2017.

I appreciated the opportunity to be present for the meeting, which included an approximately 1 hour and 20 minute discussion of the topic. PPWG Chairperson Erin Chappell also graciously accommodated my travel time and ability to attend the meeting in Sacramento on March 20, 2017.

Regarding member composition of the Predator Policy Work Group: The Group appears to be comprised of a majority of representatives from the hunting and trapping lobbies and similar advocacy groups or agencies.

A non-majority member questioned qualifications of the PPWG to review Petition 2015-008, including lack of expertise in the subject matter as well as potentially biased views related to the species. Such a statement appeared to reflect a reasonable viewpoint of unbiased review of the Petition.

This is a salient point that Fish and Game Commissioners are requested to consider.

In addition, because Petition 2015-008 relates to regulatory hunting issues as well as raises questions of the significance of understanding accurate species information and conservation needs, which may lead to additional questions and recommendations, the special interests reflected in membership of the PPWG should be evaluated with an apparent identified bias in mind.

While I appreciated the opportunity to proactively provide supportive information for Petition 2015-008 during this meeting, a fundamental question from our nonprofit organization and from me is:

Why is there not an equal number of conservation-oriented members and hunting/trapping lobbyist members of the Predator Policy Work Group? The Commission has appeared to request of this Group consensus-based input on recommendations related to review of Predator Policy and Regulations. It appears a most reasonable approach would be to ensure an equal number of representatives from hunting/trapping interests and conservation interests comprise this Group. Is it possible there is such a balance and several members were absent from the meeting on March 20th?

Next, regarding the Policy and Regulation review by the PPWG, two substantive views from each perspective would appear to be relevant in examining questions and regulation changes. These viewpoints should be documented and provided to the Commission in summary for review. The Commission appears to have requested the PPWG provide consensus based information on Policy and Regulation review. However, if there is not an equal representation in terms of composition in the Group, important recommendations related to conservation, with supportive information, may not be provided to the Commission. This could be detrimental to the species under review as well as the citizens of California.

Following review of two sets of recommendations, anticipated on many of the Policy and Regulation issues, the Fish and Game Commissioners could pose additional questions, with requests, to the members of the Predator Policy Work Group. Subsequently, re-examination of issues and regulations may lead to further discussion and agreement on change, or not. For the future of California's wildlife, a deeply substantive and comprehensive review of Policy and Regulations for the subject species appears to be most functional and, ultimately, productive course for California's wildlife.

The conservation-oriented organizations and individuals should not be requested to compromise important viewpoints or experiences that may positively contribute to the process because they are outnumbered in terms of membership in the PPWG and the hunting/trapping lobbyist advocates and representatives refuse to compromise themselves.

As important, concurrent with a functional process needs to be, as the DFW staff present in a former meeting stated, an examination of how to request budgetary funding for the CA Department of Fish and Wildlife, directed toward conservation measures – for data gathering, documentation to reflect accuracy of identified wildlife populations and locations, and effective policies, especially those who are CA Species of Concern and Threatened and Endangered species.

To this end, and related to Petition 2015-008, our nonprofit recommends the following:

Specific to Petition 2015-008:

Please support the second recommendation of the Predator Policy Work Group – which is to refer the above-referenced Petition to DFW staff for review, consideration and recommendation, intact, for both species. The DFW staff present in the March 20th meeting indicated a capability to consider the Petition as presented, and to consider species individually and in combination the American Badger, a CA Species of Concern, and the Gray Fox.

In the meeting, I stated this was our preference.

In addition, please consider the Fish and Game Commission's position on seeking annual budgetary funding for conservation-based staff, policy and activities.

I and my nonprofit organization made a commitment to your DFW staff in the March 20th meeting, and again state herein our intention to communicate with, provide support for and seek to identify potential grant funding for habitat and species data gathering statewide. This is needed to update and clarify available information for American Badger and Gray Fox in California. We have a suggested framework for regional data gathering, to accrue for statewide updated information, and will actively seek funders for such a study, which should be a minimum of 3 years of data gathering.

If the Fish and Game Commission is aware of available funding sources for such a project, we would appreciate receiving those recommendations or references.

Please note, during the March 20, 2017 PPWG meeting, one of the majority group members referenced a discussion in a prior PPWG meeting, where there appeared to be a consensus among all, including DFW staff, that updated and accurate information on species is needed, beyond hunting/trapping reported data to the State of California.

While such a project is formulated and begun for American Badger and Gray Fox, with a concerted effort to obtain grant funding, which my nonprofit organization hopes to coordinate, the hunting of a CA Species of Concern since 1987, with diminishing populations and loss of habitat, should be suspended. A final recommendation related to permanent removal of American Badger from the Mammal Hunting List to continue the suspension the Fish and Game Commission has the capability to enact, would likely be forthcoming. Gray Fox is a species about whom additional data is being gathered and Petition 2015-008 supports consideration of removal of Gray Fox from the Active Mammal Hunting List, with a similar recommendation in the future for permanent removal of hunting a native species with similar impacts and conditions as American Badger (see Bill Leikam Supplemental comment for Petition).

Thank you again for the opportunity to submit this Comment for your meeting and for your consideration.

Respectfully submitted,

Susan Kirks

Susan Kirks

April 13, 2017

copy: Erin Chappell, Chairperson, PPWG



Sent via electronic mail

April 13, 2017

California Fish and Game Commission (“the Commission”)
President Erick Sklar
Commissioner Jacque Hostler-Carmesin
Commissioner Burns
Commissioner Silva
Commissioner Anthony Williams
Executive Director Valerie Termini

California Fish & Wildlife Department (“the Department”)
Executive Director Charles Bonham
Deputy Director of Wildlife and Fisheries Stafford Lehr

Re: PUBLIC FORUM (April 26, 2017 Commission Meeting) - Petition on Banning Night-Time Hunting and Lethal Trapping in Gray Wolf Territory (Petition #2015-010)

Dear President Sklar, Executive Director Termini, Fish & Game Commissioners, Director Bonham, and Deputy Director Lehr,

On behalf of the Center for Biological Diversity and Project Coyote (“Petitioners”) and our more than 100,000 members and supporters in California, we write to (i) address and discuss several points raised by President Sklar at the February Commission meeting regarding the FGC Petition on banning night-time hunting and lethal trapping within the range of the Gray Wolf (Petition #2015-010) (“the Petition”); and (ii) respectfully urge the Commission to take concrete steps on this Petition by committing to a rulemaking schedule, as currently none is established.

As the Commission is well aware, it has been over sixteen months now since the Petition was submitted to the Commission on December 4, 2015. Yet, in spite of the Commission’s intent to use the public petition process to boost transparency and decrease the public’s confusion as to the status of rulemakings, Petitioners lack information as to when this Petition will be properly processed and addressed by the Commission and Department.

At the February 2017 Commission meeting, President Sklar stated that the Commission could not move forward with the Petition and would stay its processing in light of the lawsuit filed by wolf-opponents challenging the CESA listing (*California Cattlemen’s Association et. al. v. California Fish and Game Commission*, 37-2017-00003866-CU-MC-CTL), and the fact that the state wolf plan had recently been released. We respectfully disagree with the reasoning for staying this Petition.

First, the recognition that the lawsuit could be prolonged over a significant period of time fuels the necessity for swift action by the Commission and Department on the Petition. A pending lawsuit does not absolve the Commission and Department of their obligation to act in the public trust and halt activities which have the significant potential to jeopardize the continued existence of a listed species.

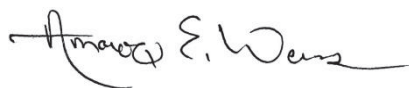
Second, the wolf plan on its face is an adaptive management document intentionally written by the Department to be subject to change whenever needed to respond to changing circumstances on the ground, new relevant science, or new regulations. The plan thus is neither an impediment nor reason for the Commission and Department to refrain from taking action to ban activities which jeopardize a listed species.

Third, and most importantly, each day the Commission delays action on the sought-after ban, each individual member of California's state-and-federally-listed wolf population is at risk of harm including death. Because wolf recovery in California is in its infancy, with only a handful of known wolves here, any such harm could jeopardize the continued existence of the species. The illegal poaching of federally protected wolves in southcentral Oregon in recent times highlights the precarious population of wolves in California.

We reiterate that precedent exists to enact a ban, as has been done to protect two other state-listed canids, the San Joaquin Valley kit fox and Sierra Nevada red fox. We also emphasize the legal liability of the Commission and Department for authorizing activities which place wolves in harm's way and for not acting to eliminate that risk by banning the activities.

Thank you for your consideration. If you have any questions, please feel free to contact us directly.

Sincerely,



Amaroq Weiss
West Coast Wolf Organizer
Center for Biological Diversity
911 Lakeville St #333
Petaluma, California 94952
(707) 779-9613
aweiss@biologicaldiversity.org



Camilla Fox
Executive Director
Project Coyote
P.O. Box 5007
Larkspur, CA 94977
(415) 945-3232
cfox@projectcoyote.org

From: [Nic D](#)
To: [FGC](#)
Subject: Protect precious wolves!
Date: Thursday, April 13, 2017 4:45:14 PM

- I am a California resident who want to see wolves fully recovered in California and therefore support a ban on lethal traps and night-time hunting of nongame and furbearer species within the range of the grey wolf.
- Mistaken killings of grey wolves recolonizing California pose an immediate risk to grey wolf recovery in California.
- Successful recovery of the grey wolf in California will require the establishment of policy that addresses human-caused killing of grey wolves, which remains a primary threat to the species.
- If the Fish and Game Commission fails to ban night-time coyote hunting and lethal trapping within range of the grey wolf in California, illegal killing of grey wolves in violation of the California Endangered Species Act and the Federal Endangered Species Act will likely result.
- As apex predators and keystone species, grey wolves are critical to healthy ecosystems. Assuring a broader recovery of wolves by banning night-time hunting and lethal trapping within their native range will benefit other native species as well as the overall integrity of the ecosystems in grey wolf range.
- Precedent exists to enact a ban, as has been done to protect two other state-listed canids: the San Joaquin Valley kit fox and Sierra Nevada red fox.
- This petition has been before the Commission for more than 16 month; it is time for the Commission and the Department to act now. There is no excuse for further delay.

Dr. Kelly Dunn

Sent from my iPhone

From: [Pat Marriott](#)
To: [FGC](#)
Subject: Please protect wolves in California
Date: Thursday, April 13, 2017 3:34:03 PM

Fish & Game Commissioners:

The grey wolf is currently protected by the California Endangered Species Act and the Federal Endangered Species Act.

I urge you to amend the CA Code of Regulations to ban

- nighttime coyote hunting
- lethal traps
- night time hunting

all within the grey wolf's range.

I want to see full recovery of these wolves, so we need to protect them from humans. The grey wolf is essential to a healthy ecosystem.

This petition has been before the Commission for over 16 months. Precedent exists for the ban. Examples are the sierra Nevada red fox and the San Joaquin Valley kit fox.

Please act now.

Thank you,

Pat Marriott,

From: [Nic D](#)
To: [FGC](#)
Subject: Trapping wildlife is barbaric!
Date: Thursday, April 13, 2017 4:46:23 PM

- A Fish and Game Code provision was added with the passage of SB 1148 (Pavley) that requires license fees be raised to cover program and implementation costs from fee-based programs yet this straightforward requirement has not yet been fully implemented for the state's fur-trapping licensing fees.
- If the Commission cannot ensure that trapping license fees are raised to a level that would realistically cover the state's trapping program implementation costs, the Commission should eliminate the fur-trapping program.
- Fewer than 100 Californians engage in commercial trapping for the fur trade. As public trustees of California's wildlife, the Commission should require licensing fees that are in line with the true cost incurred by this tiny minority of people who enjoy trapping animals for fun and profit.
- This petition has been before the Commission for more than 16 months; it is time for the Commission and the Department to act now. There is no excuse for further delay.

Dr. Kelly Dunn

Sent from my iPhone

EDWARD MACAN

RECEIVED
CALIFORNIA
FISH AND GAME
COMMISSION

2017 FEB -2 PM 2:15

MLS

January 28, 2017

California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090

Dear Commissioners,

In August 2015, the Commission correctly voted to end bobcat trapping in California. Unfortunately, thousands of other fur-bearing animals are still subject to cruel trapping for profit and recreation in California. Why? Because the Commission has never correctly complied with Pavley, SB 1148. It is time for the Commission to do so, shifting the costs of managing the trapping program from state taxpayers to the trappers themselves, and, if the trappers are unwilling or unable to pay these costs, entirely abolishing both commercial and recreational trapping across the state.

As you know, a Fish and Game Code provision was added with the passage of SB 1148 (Pavley) for the 2013-2014 trapping season that requires license fees be raised to cover program and implementation costs from fee-based programs. Yet the Commission has failed to comply with this straightforward requirement for four years now. We cannot stand for a fifth year of non-compliance. Trapping license fees come nowhere close to covering the actual cost of implementing the state's trapping program: the current cost of a trapping license is just \$117, which is at least 15 times less than it should be to generate enough revenue to cover the cost of the fur-bearing and non-game mammal trapping program, based on publicly available information. Existing law requires that license fees be adjusted to cover the program costs of the Fish and Game Commission and the California Department of Fish and Wildlife in the management and implementation of the state's trapping program.

I therefore request that the Commission immediately end the illegal subsidy of trapping. If ending it results in a statewide ban of commercial and recreational fur trapping—which I hope it does, given its role in the worldwide fur trade that is driving so many mammals to extinction—so be it. Given that fewer than 100 Californians engage in commercial trapping for the fur trade, it is incumbent on the Commission, as public trustees of California's wildlife, to require licensing fees that are in line with the true cost incurred by this tiny minority of people who enjoy trapping animals for "fun" and profit.

Thank you for your consideration,

Sincerely,


Edward Macan

CDFW News



CDFW STAFF, ENFORCEMENT, LAW ENFORCEMENT

CDFW Officers Recognized for Outstanding Acts and Achievements

FEBRUARY 14, 2017 | AHUGHAN

Several wildlife officers from the California Department of Fish and Wildlife (CDFW) Law Enforcement Division were recently recognized for exceptional performances. Awards were presented in front of their peers during a CDFW luncheon held in January 2017, in conjunction with CDFW's annual Advanced Officer Training. Many of the awards are issued directly by CDFW, while others are issued through non-government organizations that support the mission and efforts of CDFW and its officers. At the core of each award are the exemplary efforts and commitment these officers have demonstrated, above and beyond the normal course of their duties.

The honored officers represent Alameda, Contra Costa, Fresno, Inyo, Kings, Los Angeles, Merced, Modoc, Nevada, Placer, Shasta and Siskiyou counties.

Awards included the following:

CDFW Exemplary Service Award: Medal of Valor – Warden Michael Dilts (Patrol Vessel Coho, Los Angeles County)

In July 2016, Warden Dilts was patrolling in the Seal Beach area near the San Gabriel River, when he was flagged down by two pedestrians who told him that a vehicle was in the river and the female driver still inside. In the front seat of the partially submerged van, Warden Dilts found a woman who was making no attempt to escape. He immediately radioed for additional officer assistance, removed and secured his heavy duty belt and entered the water. Warden Dilts swam to the sinking van, extricated the driver and pulled her back to shore. Thanks to the quick actions and dedication of Warden Dilts, the driver was rescued and the fully submerged van was recovered from the river.

CDFW Regional Wildlife Officer(s) of the Year

The following officers were selected and awarded recognition for exceptional performances within the six CDFW geographical enforcement districts throughout California, with one being elevated to the status of Statewide Wildlife Officer of the Year: Headquarters, Warden Lyle Chan (Merced); Office of Spill Prevention and Response, Warden Mike Conely (Fresno); Southern Enforcement District, Warden Michele Budish (Los Angeles); Central Enforcement District, Warden Art Golden (Kings); Northern Enforcement District, Warden Jerry Karnow, Jr. (Nevada County and recently retired); North Coast Enforcement District and Statewide Wildlife Officer of the Year, who was acknowledged in a separate news release, Warden Nicole Kozicki (<https://cdfgnews.wordpress.com/2016/12/08/warden-nicole-kozicki-recognized-as-cdfw-wildlife-officer-of-the-year/>) (Contra Costa County).

CDFW Exemplary Service Award: Lifesaving – Warden Chad Edwards (Siskiyou)

In September 2014, an arsonist ignited a brush fire on the outskirts of the town of Weed. The fire spread into town where it burned more than 150 homes and numerous commercial structures in a matter of hours. Warden Edwards heard the radio traffic regarding the fire and immediately responded to the area. He evacuated homes by transporting people in his patrol truck and flagged down other evacuees with empty seats in their cars to shuttle people out. Working through the chaos of the actively burning areas and aerial retardant dump, Warden Edwards made trip after trip into the burning neighborhoods to rescue stranded families, senior citizens and pets. Warden Edwards acted with bravery above and beyond the call of duty. Amazingly, no lives were lost in this fire, due in part to the actions of Warden Edwards.

CDFW Exemplary Service Award: Lifesaving – Warden Aaron Galwey (Shasta)

In July 2016, Warden Galwey was off-duty, fishing from a boat on the Sacramento River with friends, when he saw a woman struggling in the current and calling for help. The woman was holding onto a branch while trying to keep her head above water, and there was an empty raft mangled in the bushes nearby. As he motored towards the woman and the raft, there was an additional capsized vessel with two men clinging to it who had just attempted a rescue, and another man floating upstream. Warden Galwey maneuvered his vessel alongside the panicked woman and pulled her into the boat, while the man upstream made it to the river's edge and pulled himself from the water. Warden Galwey attached a line to the capsized boat, pulled the two men and their vessel to safety, then went back to pick up the

man from the river's edge and bring him back to his female companion. All four subjects escaped serious injury, thanks to the decisive and rapid actions of Warden Galwey.

Shikar-Safari Club International (SSCI) Wildlife Officer of the Year – Lt. Bill Dailey (Inyo)

Lt. Dailey exhibits the inherent qualities of a leader by modeling professionalism, developing innovative programs, contributing fresh ideas, maintaining a positive attitude, and demonstrating and encouraging commitment. In 2016, Lt. Dailey worked with his squad to develop innovative, proactive public outreach strategies to better connect with the community they serve, increase his squad's productivity combatting poaching in their districts and to introduce CDFW's Hunter Education Program into local public schools.

National Wild Turkey Federation (NWTf) Wildlife Officer of the Year and CDFW Trainer of the Year Award – Warden Adam Kraft (Placer)

Warden Kraft is energetic, enthusiastic and passionate about apprehending poachers. He is known for working extended hours, drafting complex operations and backpacking miles into remote areas to catch violators. In 2016, Warden Kraft led numerous operations resulting in arrests and citations for take out of season, shooting from vehicles, spotlighting, having a loaded long gun in a vehicle, no license or tag, unlawful possession of wildlife, overlimits of species and delaying an officer/evading arrest. Warden Kraft is dedicated to the Hunter Education Program and regularly participates in training courses. He is a seasoned Field Training Officer, an active instructor at the CDFW law enforcement academy, a firearms and range master and a defensive tactics instructor. He is also an avid outdoorsman and promoter of conservation and the CDFW mission.

Rocky Mountain Elk Foundation (RMEF), Wildlife Officer of the Year – Warden Brian Gallaher (Modoc)

Warden Gallaher takes a very active role in his community of Alturas. He is skilled at both general public outreach and relationship building, as well as promoting Hunter Education courses. He developed and teaches an archery-focused course for adults and children, which provides a positive learning opportunity and promotes respect for and enjoyment of the outdoors. Warden Gallaher's notable contribution in 2016 was his successful completion of a significant elk poaching case. Working off of a CalTIP report involving a suspect who allegedly took two bull elk under one legal tag, Warden Gallaher began an investigation which led to a search warrant. Under the warrant, officers discovered electronic and physical evidence including photos, meat and antlers. Warden Gallaher analyzed and compared the evidence to build a strong case. The suspect pled guilty to six poaching charges and was ultimately placed on probation for three years, paid a fine of \$4,800, had his hunting license suspended for one year and his gear and elk forfeited.

Media Contact:

Lt. Chris Stoots, CDFW Law Enforcement Division, (916) 651-9982

CDFW News



ENDANGERED SPECIES, FISHERIES, HATCHERIES, SALMON, WATER

CDFW Releases First Million of Evacuated Fish into Feather River

MARCH 20, 2017 | KMACINTY

The California Department of Fish and Wildlife (CDFW) in cooperation with the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) released one million state and federally listed threatened spring-run Chinook salmon into the Feather River on Monday, March 20.

These were the first fish to be released that were evacuated from the Feather River Hatchery in Oroville on Feb. 9, when the water became dangerously murky following the failure of the Oroville Dam spillway. The fish were moved to the Feather River/Thermalito Annex Hatchery and held there until conditions improved.

“Based on the weather forecast and current reservoir storage, we are anticipating high flows in the Feather River for some time,” said CDFW Senior Environmental Scientist Colin Purdy. “Releasing these fish now should allow them to imprint on Feather River water and move downstream before flows drop back down to normal levels.”

Central Valley spring-run Chinook are a state and federally listed species and their abundance has declined considerably during the recent drought. The Feather River Fish Hatchery plays a key role in the state’s efforts to propagate this unique run of Chinook salmon.

“Today’s fish release marks the success of federal and state agencies coordinating and managing valuable resources while ensuring public safety during a crisis situation,” said Howard Brown, NOAA Sacramento River Basin Branch Chief. “NOAA Fisheries remains deeply concerned with the damage of the Oroville spillways and is committed to reducing further threats to California communities and ecosystems.”

“This is another example of the extraordinary multi-agency effort to respond to this unfortunate incident,” said California Department of Water Resources Acting Director Bill Croyle. “We will continue to work closely to protect the Feather River and its fisheries.”

Of the fish that were evacuated, another million spring-run Chinook and three million fall-run Chinook remain at the Annex Hatchery. CDFW and NOAA fisheries staff will continuously evaluate the remaining salmon and begin planting them in northern California Rivers when the fish are mature enough.

#

Media Contacts:

Andrew Hughan, CDFW Communications, (916) 201-2958

Jim Milbury, NOAA Fisheries, (562) 980-4006



◀ [CHINOOK](#) ◀ [FEATHER RIVER](#) ◀ [HATCHERIES](#) ◀ [OROVILLE](#) ◀ [SALMON](#)

California Fish and Game Commission Tribal Committee (TC) Work Plan

Revised April 2017

Topic	Type	Goals	2017		
			Feb 7	Jun 20	Oct 10
			Santa Rosa	Smith River	Morro Bay
Special Projects					
Co-management	TC workgroup	Development of a vision statement	X	X	
Regulatory/Legislative					
Formalizing Tribal Committee in statute	TC project	Legislative Bill	X	X	
Kelp and algae harvest management	DFW project	Recommendation and guidance	X		
Emerging Management Issues					
FGC Climate Policy	FGC policy	Development of a policy for the FGC. Looking for recommendations and guidance as we move forward.	X	X	
Fishing communities	MRC project	Recommendation and guidance	X	X	
Management Plans					
Marine Life Management Act (MLMA) Master Plan for Fisheries	Management framework document - part of MRC crosswalk	Updates on DFW process to amend the Master Plan for Fisheries, and identify areas of interest to Tribes	X		
Elk	DFW	Identification of informational needs? Gaps in knowledge?	X		

Informational/Special topics					
Cross pollination with MRC and WRC	Ongoing FGC committee coordination	Identification of tribal concerns and common themes that overlap between WRC and MRC.	X	X	X
Annual Commission-Tribal planning meeting pursuant to Commission's tribal consultation policy	Annual FGC-Tribal coordination and consultation	1) Identify process to inform Tribes of anticipated regulatory and policy topics to be considered each year; 2) Identify tribal priorities from within topics; 3) Develop collaborative interests; 4) Contribute to planning logistics for annual meeting	X	X	X
OPC update on tribal participation in the statewide leadership team	OPC project			X	
Request for a presentation regarding the status of the regulatory process regarding marijuana	DFW/LED			X	
FGC staff to provide a regulatory calendar overview and where tribal interests could provide feedback	FGC			X	

FGC = California Fish and Game Commission MRC = FGC's Marine Resources Committee WRC = FGC's Wildlife Resources Committee
DFW = California Department of Fish and Wildlife LED = DFW's Law Enforcement Division OPC = California Ocean Protection Council

Termini, Valerie@FGC

From: Sam Cohen <scohen@santaynezchumash.org>
Sent: Tuesday, February 14, 2017 5:14 PM
To: Termini, Valerie@FGC; Ashcraft, Susan@FGC
Cc: Jacque Hostler-Carmesin; Sam Cohen; nativepaddler ; Cynthia Gomez; Joe Dhillon; Frank Molina
Subject: Fish and Game Commission Tuesday Feb. 8--refusal of requests for tribal MPA exceptions: South Coast MPAs off of Channel Islands

I have been informed that the Commission (based on staff advice I assume) refused to initiate rule making on the two no-take SMCAs for the Santa Ynez Band of Chumash Indians.

Of course, your "No Take" designation was a result of the process where all Chumash and tribal requests for co-management and consultation were refused.

Please thank the Commission and your staff for at least agreeing to initiate rule making on the Kashtayit SMCA and the Naples SMCA.

In lieu of the Goleta Slough and Campus Point SMCAs (No-Take), we propose tribal cultural, ceremonial and subsistence exceptions for the following replacement SMCAs:

Anacapa Island SMCA; and

Point Dume SMCA.

Please advise me if this would be acceptable to you and you staff.

Sincerely,
Sam Cohen
Government Affairs and Legal Officer
Santa Ynez band of Chumash Indians
Cell: 805-245-9083

Marine Resources Committee (MRC) 2017 Draft Work Plan: Scheduled topics and timeline for items referred to MRC from the California Fish and Game Commission
(Updated for Apr FGC 2017 meeting)

TOPIC	TYPE	2017		
		MAR 23	JUL 20	NOV 9
		San Clemente	Petaluma	Marina
Management Plans				
Update to MLMA Master Plan - Fisheries	MP amendment	X	X	X
Abalone FMP / ARMP update	FMP development	X	X	X
Herring FMP Updates	FMP development	X	X	
Regulatory				
Electronic Landings Data System	DFW project	X		
Kelp & Algae Harvest Management	DFW project	X		
Nearshore Fishery Structure Review	Referral for review	X/R		
Sea cucumber fishery status and update	Referral for review	X	X/R	
Aquaculture Best Management Practices			X/R	
Emerging Management Issues				
California's Fishing Communities	MRC project	X	X	X
Offshore Wind Energy (BOEM project)	Informational	X		
Informational / Special Topics				
Marine Debris and Plastic Pollution	Informational		X	
Special Projects				
Fisheries Bycatch Workgroup	MRC workgroup	X	X	

KEY: *X* Discussion scheduled *R* Recommendation to FGC anticipated

Commissioners
Eric Sklar, President
 Saint Helena
Jacque Hostler-Carmesin, Vice President
 McKinleyville
Anthony C. Williams, Member
 Huntington Beach
Russell E. Burns, Member
 Napa
Peter S. Silva, Member
 El Cajon

STATE OF CALIFORNIA
 Edmund G. Brown Jr., Governor

Valerie Termini, Executive Director
 1416 Ninth Street, Room 1320
 Sacramento, CA 95814
 (916) 653-4899
www.fgc.ca.gov

Fish and Game Commission



*Wildlife Heritage and Conservation
 Since 1870*

MARINE RESOURCES COMMITTEE

Committee Co-Chairs: President Sklar and Commissioner Silva

March 23, 2017 Meeting Summary

The following is a summary of the meeting as prepared by staff.

Call to order

The meeting was called to order at 9:05 a.m. by Co-chair Sklar at the Holiday Inn Express, 35 Via Pico Plaza, San Clemente, California. Co-chair Sklar gave the opening remarks.

Valerie Termini introduced Fish and Game Commission (FGC) and California Department of Fish and Wildlife (DFW) staff, and outlined meeting procedures and guidelines, noting that the Committee is a non-decision making body that provides recommendations to FGC on marine items. She reminded participants that the meeting was being audio-recorded and would be posted to the FGC website. The following Committee chairs, FGC and DFW staff, and invited speakers were in attendance:

Committee Chairs

Eric Sklar	Present
Peter Silva	Present

FGC Staff

Valerie Termini	Executive Director
Elizabeth Pope	Acting Senior Environmental Scientist
Heather Benko	Sea Grant Fellow

DFW Staff

David Bess	Deputy Director and Chief, Law Enforcement Division
Mike Stefanak	Assistant Chief, Law Enforcement Division
Bob Puccinelli	Captain, Law Enforcement Division
Craig Shuman	Manager, Marine Region
Tom Barnes	Program Manager, State Managed Fisheries, Marine Region
Sonke Mastrup	Program Manager, Invertebrate Fisheries, Marine Region
Tom Mason	Senior Environmental Scientist Supervisor, Marine Region
Traci Larinto	Senior Environmental Scientist, Marine Region

Ian Taniguchi	Senior Environmental Scientist, Marine Region
Carlos Mierles	Environmental Scientist, Marine Region
Travis Tanaka	Environmental Scientist, Marine Region

Other Invited Speakers

Chris Potter	Environmental Scientist, California Ocean Science Trust (OST)
Sara Shen	Program Manager (DFW contractor), Marine Life Management Act master plan amendment process
Sarah Valencia	Program Manager (DFW contractor), Herring Fisheries Management Plan (FMP) development process

1. Approve agenda

The Committee approved the agenda without changes.

Co-chair Silva invited David Bess to present Bob Puccinelli with an award in recognition of 25 years with DFW.

2. Public forum for items not on the agenda

Pete Halmay: Made a presentation on issues and challenges facing small scale, spatially explicit, and sedentary fisheries such as sea urchin. He cited the need for additional data collection and DFW support, and recommended an apprenticeship program for new entrants and exploring a permit buyback program for those leaving the fishery.

Sara Shen: Announced a “community gathering” to discuss south coast marine protected areas (MPA) baseline information was scheduled after the MRC meeting and that a joint presentation by DFW and OST will be provided at the April 2017 FGC meeting.

George Osborn (representing California Sport Fishing League): Commented that proposed SB 234 was recently amended to require FGC to compile and report to the California State Legislature on local regulations affecting pier fishing, and requested MRC support the bill as amended. President Sklar requested that staff review the bill as amended and report to FGC on feasibility of the project at its April meeting.

Butch Powers: Commented that the nearshore fishery community in San Luis Obispo is suffering impacts from recent stormy weather. When there is a closure in March and April preceded by stormy weather, fishers are missing their quota. He requested that FGC allow fishers to fish during closed months to reach their allotted quota. A commenter expressed concern over the State’s proposal for landing tax increases, and requested clarification if the nearshore permit transfer fees are associated with them. President Sklar clarified that the potential landing tax increase was part of a broader budget discussion before the Legislature on closing the budget gap, and MRC does not have direct input.

Paul Weakland: Requested DFW improve record keeping.

Tara Brock (Pew Charitable Trusts): Requested an update on the set gill net sword fish fishery be scheduled as it had been some time since the last update.

3. Staff and agency updates

(A) FGC - Climate change policy

Valerie Termini provided an update on FGC efforts to develop a policy; a draft will be available for public comment later this year.

(B) DFW - Electronic reporting for commercial fishery landing

Travis Tanaka gave a progress report on DFW implementation of electronic reporting, highlighting the proposed regulatory timeline.

DFW confirmed that there would still be a paper record for personal record keeping and that the format is the same as the current federal standard. Attendees provided general support for the transition to electronic reporting.

(C) DFW - Kelp and algae harvest

Craig Shuman provided an update on DFW's tribal outreach efforts on possible kelp and algae harvest regulatory changes, originally presented to the MRC in November 2016. He also provided a general update on a series of upcoming artificial reef scoping meetings to share perspectives, needs, and concerns around the topic.

(D) DFW - Law enforcement

David Bess provided an update on prosecution of lobster fishery violations. He highlighted the need to engage with district attorneys (DAs) to provide training on wildlife and environmental crime and process bottlenecks. Two primary issues were identified as diversion and the effects of Proposition 47, which reduces many transgressions to misdemeanors. He identified that engaging with local DAs is essential to creating a better outcomes with DA offices.

4. U.S. Bureau of Ocean Energy Management (BOEM) offshore wind stakeholder engagement

Chris Potter provided an informational overview of the offshore wind energy planning process under development through the BOEM Intergovernmental Renewable Energy Task Force. This was an information-sharing opportunity to notify the public that the process is beginning; no final projects have been proposed.

Chris Potter and FGC staff confirmed that projects would be sited in federal waters, outside FGC authority. If a future project traverses state waters with potential impacts to State-managed fisheries, FGC authority might be a more direct issue.

MRC Recommendation

MRC recommends continued MRC tracking and scheduling general updates as necessary.

5. Nearshore and deeper nearshore fishery permits

Traci Larinto provided an update on the proposed changes to the nearshore and deeper nearshore permit structure. At the November 2016 MRC meeting, DFW had three recommendations: (1) change the nearshore fishery permit transfer rate from 2-to-1 to 1-to-1; (2) make deeper nearshore permits transferable; and (3) increase transfer fees that would apply to both types of permits, within a range of \$1,000 to \$2,000.

Previously MRC had requested that DFW bring to the March 2017 meeting a specific transfer fee proposal. As follow-up, Ms. Larinto informed MRC that the cost analysis was still underway by DFW staff, but that the specified range still applied. She also highlighted new administrative fixes to the permit process identified since the last MRC meeting, including the process and timeline to transfer permits upon the death of a permittee.

Public Discussion

The majority of comments were in general support for the transfer structure as proposed by DFW, although one commenter opposed changes to the current \$500 transfer fee. Additional clarification on proposed administrative aspects of permits in cases of permit holder death was provided.

MRC Recommendation

MRC recommends that FGC approve for inclusion in the proposed rulemaking a range of fees of \$1,000-\$2,000 for each permit as identified by DFW for commercial nearshore and deeper nearshore fishery permits, and include processing procedure changes as proposed by DFW. MRC supports the rulemaking scheduled to commence in June 2017.

6. Discussion of potential commercial sea cucumber regulation changes

Carlos Mireles presented DFW's evaluation of the commercial sea cucumber fishery and status of the stock, and findings that the fishery is showing a trend of significant declines. Currently the fishery may operate year-round with no closures; therefore DFW recommends that a season length be established around the spawning season of the sea cucumber. Enacting a commercial regulatory season would be an immediate step to help populations rebuild while also allowing the fishery to continue.

Public Discussion

Fishery participants confirmed that they have seen a decrease in the fishery attributed to increased year-round pressure, although not all agreed that the resource itself was in jeopardy.

Commenters expressed general support for some type of closed season or management measures to assist the population and avoid fishery collapse.

Additional discussion took place regarding scientific monitoring techniques for sea cucumber. While there was support for long-term monitoring, commenters recognized that the declines in the fishery observed by both DFW and the commercial fleet were significant enough to warrant implementation of a closed season now as an important initial step.

MRC Recommendation

MRC recommends that FGC support DFW's recommendation to schedule a rulemaking for the commercial sea cucumber fishery in 2017, with a specific regulatory timeline to be proposed by DFW at the April 2017 FGC meeting.

7. Updates on current fishery management plan (FMP) development efforts

(A) Red Abalone FMP

Sonke Mastrup presented an update on progress in development of a red abalone FMP, including a general timeline, associated California Environmental Quality Act (CEQA) review, and regulatory processes. DFW estimates that a draft management framework for the FMP will be completed in time for discussion at the July 2017 MRC meeting, and that the FMP and CEQA documents will be finalized in 2018, leading to FGC adoption and regulatory process in 2019. DFW will continue to update MRC and FGC as appropriate.

Public Discussion

Paul Weakland asked what benefit the "no fishing" policy has had on black abalone and expressed concern about the FMP process.

The MRC co-chairs both supported continued updates on the FMP progress to MRC. Sonke Mastrup offered that July MRC could be a good avenue for an update given the proximity to the abalone fishery.

MRC Direction

MRC requested an update on the FMP at the July 2017 MRC in Santa Rosa.

(B) Pacific Herring FMP

Sarah Valencia provided an update on the progress of the FMP including how and why specific stakeholder comments were addressed in the FMP.

Public Discussion

One general comment of support was provided for the Pacific Herring FMP as an apparent successful model for FMP implementation, and support was expressed for

the decision to not include round haul gear in the fishery.

(C) *Marine Life Management Act master plan for fisheries (MLMA Master Plan) and discussion on stakeholder engagement*

Craig Shuman provided an update and overview of stakeholder engagement processes, DFW outreach efforts, and products developed as part of information-gathering projects. This included discussion on DFW testing of an outreach decision support tool (DST) developed by Kerns & West and the Center for Ocean Solutions that identifies potential outreach methods based on audience needs and required scope. DFW staff tested the tool and found it re-affirmed approaches already utilized by DFW and does not anticipate employing it as a MLMA Master Plan tool.

Public Discussion

Comments were made that the selection of management approaches should consider cost when looking at a data set or management structure, including priority, timeline, and “how-to” for DFW actions.

Co-chair Sklar and Craig Shuman both supported outreach as valuable within the MLMA amendment process but that outreach and management efforts need to be at appropriate scale and level of funding in order to make informed decisions about management strategies.

8. Marine Resources Committee special projects

(A) *Fisheries Bycatch Workgroup*

Elizabeth Pope reported on Fisheries Bycatch Workgroup (BWG) progress toward completing its work plan and future meeting schedule. BWG had a teleconference meeting on March 17, 2017, during which members supported alignment of work products with the MLMA Master Plan amendment process, with a final BWG product by late 2018. BWG members supported FGC staff commitment to integrate member comments in the work plan and provide a version for review before the next meeting, targeted for April or May.

Public Discussion

A BWG member expressed support for BWG focus on aligning products with the MLMA Master Plan amendment timeline, but also supported looking at existing statutes and policies and an assessment of bycatch data. While BWG does not have capacity to do the data assessment, it should be able to provide recommendations for consideration.

Co-chair Sklar supported the continued efforts of BWG and alignment with the MLMA Master Plan timeframe.

(B) *Fishing Communities*

Heather Benko reported that regional fishing communities meetings were being

developed for spring/summer 2017. She presented two options for scheduling: (1) to have a sequential series of meetings along the coast in one short time frame, or (2) schedule meetings to align with the existing FGC 2017 schedule.

Co-chair Sklar suggested a hybrid method for meeting planning, to maximize staff and public participation by aligning meetings with the existing FGC and MRC schedule where possible, and scheduling separate meetings where smaller ports are farther apart (e.g., along the north coast).

MRC Direction

Directed staff to schedule fishing communities meetings, commencing in late spring/early summer 2017.

9. Future agenda items

(A) Review work plan, agenda topics, and timeline

Following discussion, MRC recommended that staff explore scheduling a sea cucumber fishery update, best management practices for aquaculture leases, and possible BOEM project update for the July MRC meeting.

(B) Potential new agenda topics for Commission consideration

Based on request under Item 2 public forum, MRC recommends that an informational overview of the federal process related to the drift gill net swordfish fishery be added to the MRC work plan for July 2017.

The meeting adjourned at 2:30 p.m.

2017 APR 11 AM 8:15

Memorandum

Date: April 10, 2017

To: Valerie Termini
Executive Director
Fish and Wildlife Commission

From: Charlton H. Bonham
Director



Subject: **Agenda Item for the April 26-27 Fish and Game Commission Meeting; Request for Authorization to Publish Notice of the Commission's Intent to Add Section 1.95, Title 14, California Code of Regulations, RE: Process for Automatic Conformance with Federal Regulations**

The Department of Fish and Wildlife (Department) requests that the Fish and Game Commission (Commission) authorize publication of notice of its intent to add regulations to establish a Commission process through which State recreational fishing regulations for salmon and Pacific halibut will automatically conform to federal regulations (Section 1.95, Title 14, CCR). This will allow for discussion and adoption at the June and August 2017 Commission meetings, respectively.

For species managed under federal fishery management plans or regulations, the Commission usually takes concurrent action to conform State recreational regulations to federal regulations, which are adopted through an open and deliberative federal rulemaking process. This is done in recognition of federal jurisdiction and to ensure consistency, but this dual process is redundant and inefficient with timing mismatches between the State and federal adoption processes.

Under current State law (Fish and Game Code Section 7110), the Commission has authority to establish through regulation an automatic process to conform State recreational fishing regulations applicable in State waters (zero to three miles offshore) to federal regulations. The conforming actions implemented pursuant to the automatic process are exempt from the Administrative Procedure Act.

The proposed regulation provides for recreational regulations for salmon and Pacific halibut to be established through the automatic conformance process unless the Commission adopts regulations using the regular rulemaking process and specifically declares at the time of adoption the intent to deviate from the automatic conformance process.

A Notice of Exemption (NOE) is also attached. Since the NOE is not anticipated to change, this early submission gives the Commission notice of the Department's recommendation to rely on a California Environmental Quality Act (CEQA) categorical exemption for this rulemaking. The following paragraphs describe staff's analysis of use of a categorical exemption under the CEQA.

Categorical Exemptions to Protect Natural Resources and the Environment

In adopting a process for automatic conformance of State recreational regulations to federal regulations, the Commission relied for purposes of CEQA on the Class 7 and 8 categorical exemptions. In general, both exemptions apply to agency actions to protect natural resources and the environment. The regulations describe the process through which State recreational fishing regulations will automatically conform to federal regulations for salmon and Pacific halibut in federal waters of the ocean off California.

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S. Code §1801 et seq.), the federal government exercises exclusive jurisdiction over fishery resources from 3 to 200 miles offshore. However, because these fish stocks also live in State waters, it is important to have consistent State and federal regulations (also referred to as federal rules) establishing season dates and other management measures, it is important that the State and federal regulations be effective concurrently. Consistency of regulations in adjacent waters allows for uniformity of enforcement, minimizes confusion, and allows for a comprehensive approach to resource management. Consistency with federal regulations is also necessary to maintain State authority over its fisheries and avoid federal preemption under the Magnuson-Stevens Fishery Conservation Act [16 USC §1856 (b)(1)].

This proposed action is undertaken to assure the maintenance and enhancement of fishery resources and the marine environment. The Department has determined there are neither significant cumulative impacts of successive projects of the same type in the same place, nor is there a reasonable possibility the proposed action will have a significant effect on the environment due to unusual circumstances. Accordingly, the Department recommends that the Commission determine the proposed action to be the proper subject of the CEQA Class 7 and 8 Categorical Exemptions.

If you have any questions regarding this item, please contact Craig Martz, Regulations Unit Manager at (916) 653-4674 or Craig.Martz@wildlife.ca.gov.

Attachment

ec: Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

Craig Shuman, D. Env.
Regional Manager
Marine Region
Craig.Shuman@wildlife.ca.gov

Valerie Termini, Executive Director
Fish and Game Commission
April 10, 2017
Page 3

Craig Martz, Regulations Unit Manager
Wildlife and Fisheries Division
Craig.Martz@wildlife.ca.gov

Marci Yaremko, Program Manager
State and Federal Fisheries
Marine Region
Marci.Yaremko@wildlife.ca.gov

Deb Wilson-Vandenberg
Senior Environmental Scientist Supervisor
Marine Region
Deb.Wilson-Vandenberg@wildlife.ca.gov

Melodie Palmer-Zwahlen
Senior Environmental Scientist
Marine Region
Melodie.Palmer@wildlife.ca.gov

Melanie Parker, Environmental Scientist
Marine Region
Melanie.Parker@wildlife.ca.gov

Barry Miller, Environmental Scientist
Marine Region
Barry.Miller@wildlife.ca.gov

Scott Barrow
Senior Environmental Scientist Specialist
Regulations Unit
Scott.Barrow@wildlife.ca.gov

Sherrie Fonbuena
Associate Governmental Program Analyst
Fish and Game Commission
Sherrie.Fonbuena@fgc.ca.gov

Date of Initial Statement of Reasons: March 22, 2017

Dates and Locations of Scheduled Hearings:

(a) Notice Hearing: Date: April 27, 2017
Location: Van Nuys, CA

(b) Discussion Hearing: Date: June 22, 2017
Location: Smith River, CA

(c) Adoption Hearing: Date: August 17, 2017
Location: Sacramento, CA

Description of Regulatory Action:

(a) Statement of Specific Purpose of Regulation Change and Factors for Determining that Regulation Change is Reasonably Necessary

conforming actions, implemented pursuant to the automatic process are exempt from the Administrative Procedure Act [Chapter 3.5 (commencing with Section 11340) of the Government Code.]

The National Marine Fisheries Service (NMFS) adopts fishing regulations annually and may amend the regulations more often, if necessary, to implement fishery management measures adopted by the Pacific Fishery Management Council (Council). These measures include those for recreational fishing in federal waters off California.

For species managed under federal fishery management plans or regulations, the Commission has usually taken concurrent action to conform State recreational regulations to federal regulations that have been adopted through an open and deliberative federal rulemaking process, which includes a detailed review of economic impacts. Conforming State recreational regulations is done in recognition of federal jurisdiction and to ensure consistency and ease of use for constituents who are subject to both State and federal laws while fishing, or possessing sport fish. However, the dual process is redundant and inefficient, and historically the lag between federal action and conforming State action has created a period of management inconsistency and confusion. To improve regulatory efficiency, Fish and Game Code Section 7110 was enacted with the goal of reducing redundancies between State and federal rulemaking processes for these species.

Present Regulations

Current recreational fishing regulations for salmon and Pacific halibut are a conglomerate of State regulations that conform to federal regulations, and State regulations that are more restrictive than and not in conflict with federal regulations, including State regulations that cover aspects not addressed in federal regulations.

Proposed Regulation

Section 1.95, Title 14, CCR, is proposed to be added to describe the process through which State recreational fishing regulations for salmon and Pacific halibut will automatically conform to federal regulations.

Subsection (a) of Section 1.95, Title 14, CCR

The proposed regulation provides that recreational regulations for salmon and Pacific halibut established through the automatic conformance process shall govern unless the Commission adopts regulations using the regular rulemaking process [Chapter 3.5 (commencing with Section 11340) of Division 3 of Title 2 of the Government Code] and specifically declares at the time of adoption the intent to deviate from the automatic conformance process.

|

Necessity: This provision is included to clarify that the Commission reserves its authority to adopt recreational fishing regulations for salmon and Pacific halibut pursuant to the regular rulemaking process.

Subsection (b) of Section 1.95, Title 14, CCR

Proposed subsection (b)(1) provides that there are two processes by which State recreational fishing regulations for salmon and Pacific halibut may conform to federal regulations.

Necessity: This provision is included for clarity.

Proposed subsection (b)(2) of Section 1.95 outlines the standard conformance process to be used for annual regulations or corrections to annual regulations.

Proposed subsection (b)(2)(A) provides that no later than 10 days after publication in the Federal Register of any NMFS annual regulation affecting salmon or Pacific halibut, or any correction to an annual regulation affecting such species, the Commission shall submit amended State recreational fishing regulations to the Office of Administrative Law for publication in the California Code of Regulations and shall file amended State recreational fishing regulations with the Secretary of State.

Necessity: This provision is included to ensure that State regulations conform to federal regulations.

Proposed subsection (b)(2)(B) provides that no later than 10 days after publication in the Federal Register of any NMFS annual regulation affecting salmon or Pacific halibut, or any correction to an annual regulation affecting such species, the following shall occur:

- The Department of Fish and Wildlife (Department) shall inform the public, via news release, of the Federal Register in which the applicable fishing regulations are published and the effective date of the conformed State regulations. [Subsection (b)(2)(B)1.]
- The Commission shall mail or email the Department news release to any person, group of persons or small business enterprise that has filed with the Commission a request for notice of, or the Commission believes to be interested in, recreational fishing regulations for salmon or Pacific halibut. [Subsection (b)(2)(B)2.]
- To the extent practicable, the Department shall provide information on any changes to the applicable State recreational fishing regulations through public contact, electronic notification, and online and printed publications. [Subsection (b)(2)(B)3.]

Proposed subsection (b)(2)(C) provides that an update on the conformed State recreational fishing regulations shall be included on the agenda of the next regularly-scheduled Commission meeting.

Necessity: This provision is included to ensure that the public is informed of how to access the annual federal regulation, or correction to an annual federal regulation, to which State regulations automatically conform and to ensure that the public is informed of the changes to State regulations.

Proposed subsection (b)(3) of Section 1.95 outlines the conformance process to be used for in-season changes to regulations.

Proposed subsection (b)(3)(A) provides that State recreational fishing regulations for salmon shall conform to applicable in-season changes to federal regulations and that such changes are publically noticed through the NMFS ocean salmon hotline.

Proposed subsection (b)(3)(B) provides that State recreational fishing regulations for Pacific halibut shall conform to applicable in-season changes to federal regulations and that such changes are publically noticed through the NMFS Area 2A Pacific halibut hotline.

Necessity: This provision is included to ensure that the public is informed of how to access the in-season changes to federal regulation to which State regulations automatically conform, and to ensure that the public is informed of the changes to State regulations.

Subsection (c) of Section 1.95, Title 14, CCR

This proposed subsection specifies that the effective date of State regulations conformed pursuant to the automatic conformance process will be the same as the effective date of the federal regulations.

Necessity: This provision is included to ensure that consistent State regulations are in effect concurrently with federal regulations. This provision is needed to reduce public confusion.

Subsection (d) of Section 1.95, Title 14, CCR

This proposed subsection specifies that nothing in Section 27.53 controls the adoption or validity of Commission regulations pertaining to the identified species on matters that the federal regulations do not address.

Necessity: This provision is included to clarify that the Commission reserves its authority to adopt State recreational fishing regulations for federally-managed species pursuant to the regular rulemaking process.

Existing species-specific regulations will remain in Title 14. In the future, these sections may be amended to conform to federal regulations pursuant to the process described in Section 1.95, or may be amended pursuant to the regular rulemaking process, as desired by the Commission.

Goals and Benefits of the Regulation

The proposed regulation will help reduce or eliminate the delay between federal action and conforming State action which leads to a period of management inconsistency and confusion between regulations for federal and State ocean waters. Timely conformance also eliminates the potential for a preemption issued under the Magnuson-Stevens Fishery Conservation and Act, and reduces redundant workload for the State.

The proposed regulation may result in future benefits to the environment by the timely conformance to federal regulation, resulting in the sustainable management of California's fish resources.

- (b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Section 7110, Fish and Game Code.

Reference: Section 7110, Fish and Game Code.

- (c) Specific Technology or Equipment Required by Regulatory Change:
None.

- (d) Identification of Reports or Documents Supporting Regulation Change:
None.

- (e) Public Discussions of Proposed Regulations Prior to Notice Publication:

No public meetings are being held prior to the notice publication. The 45-day comment period provides adequate time for review of the proposed amendments.

IV. Description of Reasonable Alternatives to Regulatory Action:

- (a) Alternatives to Regulation Change:

No alternatives were identified by or brought to the attention of Commission staff that would have the same desired regulatory effect.

- (b) No Change Alternative:

|

Status quo management of salmon and Pacific halibut resources may result in mis-alignment between State and federal regulations. The Council would continue to recommend regulations for federal waters, NMFS would continue to implement federal regulations for waters off California, and the Commission would continue to adopt the same changes to State regulations, for conformance, via regular Administrative Procedure Act rulemakings. Not adopting the proposed process for automatic conformance with federal regulations would continue to result in redundant workload to the State in order to make changes to State regulations to keep them in conformance with federal regulations.

- (c) Consideration of Alternatives: In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made:

- (a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed regulation prescribes a procedure the Commission may use to conform State recreational fishing regulations to federal regulations.

- |
- (b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The Commission does not anticipate any impacts on the creation or elimination of jobs in California.

The Commission does not anticipate any impacts on the creation of new businesses, the elimination of existing businesses, or the expansion of businesses in California.

The Commission does not anticipate benefits to the health and welfare of California residents.

The Commission anticipates future benefits to the environment by the timely conformance to federal regulation, resulting in the sustainable management of California's fish resources.

The Commission does not anticipate any benefits to worker safety.

- (c) Cost Impacts on a Representative Private Person or Business:

The agency is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

- (d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State:

The Commission expects time savings for existing staff that will permit both the Commission and Department to devote more staff resources to achieving other core mandates.

- (e) Nondiscretionary Costs/Savings to Local Agencies: None.

- (f) Programs Mandated on Local Agencies or School Districts: None.

- (g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed Under Part 7 (commencing with Section 17500) of Division 4, Government Code: None.

- (h) Effect on Housing Costs: None.

VII. Economic Impact Assessment:

- (a) Effects of the Regulation on the Creation or Elimination of Jobs Within the State:

The Commission does not anticipate any significant impacts on the creation or elimination of jobs, because the regulatory action does not alter existing conditions. The intent is to improve regulatory efficiency in State conformance with federal regulations.

- (b) Effects of the Regulation on the Creation of New Businesses or the Elimination of Existing Businesses Within the State:

The Commission does not anticipate any significant impacts on the creation of new business or the elimination of existing businesses in California. The intent is to improve regulatory efficiency in State conformance with federal regulations. The regulatory action does not alter existing conditions.

- (c) Effects of the Regulation on the Expansion of Businesses Currently Doing Business Within the State:

The Commission does not anticipate any significant impacts on the expansion of businesses currently doing business in California. The intent is to improve regulatory efficiency in State conformance with federal regulations.

- (d) Benefits of the Regulation to the Health and Welfare of California Residents:

The Commission does not anticipate benefits to the health and welfare of California residents. The intent is to improve regulatory efficiency in State conformance with federal regulations. The regulatory action does not alter existing conditions.

- (e) Benefits of the Regulation to Worker Safety:

The Commission does not anticipate any benefits to worker safety because this regulatory action will not impact working conditions or worker safety.

- (f) Benefits of the Regulation to the State's Environment:

The Commission anticipates future benefits to the environment by the timely conformance to federal regulation, resulting in the sustainable

|
management of California's fish resources.

(g) Other Benefits of the Regulation:

Concurrence with Federal Law:

The proposed regulations will establish an automatic process which may be used to bring State recreational fishing regulations into alignment with federal regulations.

DRAFT

Informative Digest/Policy Statement Overview

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S. Code §1801 et seq.), the federal government exercises exclusive jurisdiction over fishery resources from 3 to 200 miles offshore. However, because these fish stocks also live in State waters, it is important to have consistent State and federal regulations establishing season dates and other management measures, and also important that the State and federal regulations be effective concurrently. Consistency of rules in adjacent waters allows for uniformity of enforcement, minimizes confusion, and allows for a comprehensive approach to resource management. Consistency with federal regulations is also necessary to maintain State authority over its fisheries and avoid federal preemption under the Magnuson-Stevens Fishery Conservation Act [16 USC §1856 (b)(1)].

Under current State law (Fish and Game Code Section 7110) the Fish and Game Commission (Commission) has authority to establish through regulation an automatic process to conform State recreational fishing regulations applicable in State waters (zero to three miles offshore) to federal regulations. The conforming actions implemented pursuant to the automatic process are exempt from the Administrative Procedure Act [Chapter 3.5 (commencing with Section 11340) of the Government Code].

Federal regulations may be adopted annually and may be amended more often, if necessary, and serve to implement fishery management measures adopted by the Pacific Fishery Management Council. These measures include those for recreational fishing in federal waters off California.

For species managed under federal fishery management plans or regulations, the Commission has usually taken concurrent action to conform State recreational regulations to federal regulations that have been adopted through an open and deliberative federal rulemaking process, which includes a detailed review of economic impacts. Conforming State recreational regulations is done in recognition of federal jurisdiction and to ensure consistency and ease of use for constituents who are subject to both State and federal laws while fishing, or possessing sport fish. However, the dual process is redundant and inefficient, and historically the lag between federal action and conforming State action has created a period of management inconsistency and confusion. To improve regulatory efficiency, Fish and Game Code Section 7110 was enacted with the goal of reducing redundancies between State and federal rulemaking processes for these species.

Current recreational fishing regulations for salmon and Pacific halibut are a conglomerate of State regulations that conform to federal regulations, and State regulations that are more restrictive than and not in conflict with federal regulations, including State regulations that cover aspects not addressed in federal regulations.

Proposed Regulations

Section 1.95 will be added to Title 14, CCR to describe the process through which State recreational fishing regulations for salmon and Pacific halibut will automatically conform to federal regulations.

The proposed regulation provides that recreational regulations for salmon and Pacific halibut established through the automatic conformance process shall govern unless the Commission adopts regulations using the regular rulemaking process [Chapter 3.5 (commencing with Section 11340) of Division 3 of Title 2 of the Government Code] and specifically declares at the time of adoption the intent to deviate from the automatic conformance process.

The proposed regulations describe the two processes by which State recreational fishing regulations for salmon and Pacific halibut may conform to federal regulations: the standard conformance process to be used for annual regulations, or corrections to annual regulations, and the conformance process to be used for in-season changes to regulations.

The proposed regulation specifies that the effective date of State regulations conformed pursuant to the automatic conformance process will be the same as the effective date of the federal regulation.

The proposed regulation specifies that nothing in Section 1.95 controls the adoption or validity of Commission regulations pertaining to the identified species on matters that the federal regulations do not address.

Existing species-specific regulations will remain in Title 14. In the future, these sections may be amended to conform to federal regulations pursuant to the process described in Section 1.95, or may be amended pursuant to the regular rulemaking process, as desired by the Commission.

Goals and Benefits of the Regulation

The proposed regulations will help reduce or eliminate the delay between federal action and conforming State action which leads to a period of management inconsistency and confusion between regulations for federal and State ocean waters. Timely conformance also eliminates the potential for a preemption issued under the Magnuson-Stevens Fishery Conservation and Act, and reduces redundant workload for the State.

The proposed regulation may result in future benefits to the environment by the timely conformance to federal regulation, resulting in the sustainable management of California's fish resources.

Compatibility with Existing State Regulations

The proposed regulations are neither inconsistent nor incompatible with existing State

| regulations. The Legislature has delegated authority to the Commission to adopt recreational fishing regulations in general (Fish and Game Code Sections 200, 205 and 265); and an automatic process to conform State recreational fishing regulations to federal regulations (Fish and Game Code Section 7110). Commission staff has searched the California Code of Regulations and has found no other State regulations related to conforming recreational fishing regulation to federal regulations.

DRAFT

Regulatory Language

Section 1.95 is added to read:

1.95. Process to Conform State Recreational Fishing Regulations to Federal Regulations.

(a) The commission establishes the process in subsection (b) below to automatically conform state regulations for the fish species listed in subsections (a)(1) through (a)(2). Conforming regulations established through subsection (b) shall govern unless the commission adopts regulations for said species using the regular rulemaking process [Chapter 3.5 (commencing with Section 11340) of Division 3 of Title 2 of the Government Code] and specifically declares at the time of adoption the intent to deviate from the automatic conformance process.

(1) Salmon as defined in Section 1.73.

(2) Pacific halibut (*Hippoglossus stenolepis*).

(b) Automatic Process to Conform State Recreational Fishing Regulations to Federal Regulations.

(1) Recreational fishing regulations for fish species listed in subsections (a)(1) through (a)(2) in state waters shall conform to applicable federal regulations enacted by the National Marine Fisheries Service by the process described in subsection (b)(2) or by the process described in subsection (b)(3):

(2) Process for Annual or Corrective Actions.

(A) No later than 10 days after publication in the Federal Register of any National Marine Fisheries Service annual regulation for the species listed in subsection (a), or any correction to an annual regulation affecting such species, the commission shall submit amended recreational fishing regulations to the Office of Administrative Law for publication in the California Code of Regulations, and shall file amended recreational fishing regulations with the Secretary of State.

(B) Notification of State Conformance Action.

No later than 10 days after publication in the Federal Register of any National Marine Fisheries Service annual regulation for the species listed in subsection (a), or any correction to an annual regulation affecting such species, the following shall occur:

1. The department shall inform the public, via news release, of the Federal Register in which the applicable fishing regulations are published and the effective date of the conformed regulations.

2. The commission shall mail or email the department news release to any person, group of persons or small business enterprise that has filed with the commission a request for notice of, or the commission believes to be interested in, recreational fishing regulations for the species listed in subsection (a).

3. To the extent practicable, the department shall provide information on any changes to applicable fishing regulations through public contact and by electronic notification and online and printed publications.

(C) An update on the conformed recreational fishing regulations for the species listed in subsection (a) shall be included on the agenda of the next regularly-scheduled commission meeting.

|
(3) Process for In-Season Changes.

(A) Salmon. Recreational fishing regulations for salmon in state waters shall conform to applicable in-season changes to federal regulations. Public notification of any in-season change to state salmon regulations to conform to in-season changes to federal regulations is made through the National Marine Fisheries Service ocean salmon hotline at (800) 662-9825.

(B) Pacific Halibut. Recreational fishing regulations for Pacific halibut in state waters shall conform to applicable in-season changes to federal regulations. Public notification of any in-season change to state Pacific halibut regulations to conform to in-season changes to federal regulations is made through the National Marine Fisheries Service Area 2A Pacific halibut hotline at (800) 662-9825.

(c) Effective Date. The effective date of regulations conformed pursuant to subsection (b) shall be the same as the effective date of the federal regulation.

(d) Nothing in this section controls the adoption or validity of commission regulations pertaining to the species identified in subsection (a) on matters that federal regulations do not address.

Note: Authority cited: Section 7110, Fish and Game Code. Reference: Section 7110, Fish and Game Code.

Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk

County of: N/A

From: (Public Agency): CA Fish and Game Commission
1416 Ninth Street, Room 1320
Sacramento, CA 95814

(Address)

Project Title: Section 1.95 Process for Automatic Conformance to Federal Regulations

Project Applicant: N/A

Project Location - Specific:

Statewide

Project Location - City: N/A

Project Location - County: N/A

Description of Nature, Purpose and Beneficiaries of Project:

This is a process through which State recreational fishing regulations will automatically conform to federal regulations for salmon and Pacific halibut in federal waters of the ocean off California

Name of Public Agency Approving Project: California Fish and Game Commission

Name of Person or Agency Carrying Out Project: California Department of Fish and Wildlife

Exempt Status: **(check one):**

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption. State type and section number: Cal. Code Regs., tit. 14, §§ 15307, 15308
- ☐ Statutory Exemptions. State code number: _____

Reasons why project is exempt:

See attached.

Lead Agency

Contact Person: Valerie Termini

Area Code/Telephone/Extension: (916) 653-4899

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? ☒ Yes ☐ No

Signature: _____ Date: 8/17/2017 Title: Executive Director

☒ Signed by Lead Agency ☐ Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

Date Received for filing at OPR: _____

August 17, 2017

ATTACHMENT TO NOTICE OF EXEMPTION
Adoption of Process for Automatic Conformance to Federal Regulations

The California Fish and Game Commission (Commission) took final action under the Fish and Game Code and the Administrative Procedure Act (APA) with respect to the proposed project on August 17, 2017. In taking its final action for the purposes of the California Environmental Quality Act (CEQA, Pub. Resources Code, § 21000 *et seq.*), the Commission adopted the regulations relying on the categorical exemption for “Actions by Regulatory Agencies for Protection of Natural Resources” contained in CEQA Guidelines section 15307, and the categorical exemption for “Actions by Regulatory Agencies for Protection of the Environment” contained in CEQA Guidelines section 15308. (Cal. Code Regs., tit. 14, §§ 15307, 15308.)

Categorical Exemptions to Protect Natural Resources and the Environment

In adopting a process for automatic conformance of State recreational regulations to federal regulations, the Commission relied for purposes of CEQA on the Class 7 and 8 categorical exemptions. In general, both exemptions apply to agency actions to protect natural resources and the environment. The regulations describe the process through which State recreational fishing regulations will automatically conform to federal regulations for salmon and Pacific halibut in federal waters of the ocean off California.

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S. Code §1801 *et seq.*), the federal government exercises exclusive jurisdiction over fishery resources from 3 to 200 miles offshore. However, because these fish stocks also live in State waters, it is important to have consistent State and federal regulations (also referred to as federal rules) establishing season dates and other management measures, and also important that the State and federal regulations be effective concurrently. Consistency of regulations in adjacent waters allows for uniformity of enforcement, minimizes confusion, and allows for a comprehensive approach to resource management. Consistency with federal regulations is also necessary to maintain State authority over its fisheries and avoid federal preemption under the Magnuson-Stevens Fishery Conservation Act [16 USC §1856 (b)(1)].

This proposed action is undertaken to assure the maintenance and enhancement of fishery resources and the marine environment. The Commission has determined there are neither significant cumulative impacts of successive projects of the same type in the same place, nor is there a reasonable possibility the proposed action will have a significant effect on the environment due to unusual circumstances. Accordingly, the Commission concludes that the proposed action is properly subject to the CEQA Class 7 and 8 Categorical Exemptions.

State of California
Department of Fish and Wildlife

M e m o r a n d u m

Date: January 4, 2017

To: Valerie Termini,
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director



Subject: Agenda Item for the February 8-9, 2017 Fish and Game Commission (Commission) Meeting Re: Request for Authorization to Publish Notice of Commission's Intent to Amend Sections 29.80 and 122, Dungeness Crab and Lobster Recreational Gear Marking and Commercial Lobster Harbor Restricted Fishing Areas

Attached please find the Initial Statement of Reasons (ISOR), which proposes to amend Section 29.80 and Section 122, Title 14, California Code of Regulations (CCR), Re: Dungeness Crab and Lobster Recreational Gear Marking and Commercial Lobster Harbor Restricted Fishing Areas. Under current regulations, Section 29.80 governs gear restrictions for recreational crustacean fishing in California and Section 122 specifies spiny lobster permits and restricted fishing areas for commercial lobster activities.

At the October 2015 Fish and Game Commission adoption hearing for recreational crab trap regulations, the Commission received public comment identifying a discontinuity in the regulatory language as it relates to the existing provision of subsection 29.80(a)(3) and new crab trap buoy marking requirements (subsection 29.80(c)(3)). Additionally, at the June 2016 Commission adoption hearing for the California Spiny Lobster Fishery Management Plan (FMP) Implementing Regulations, the Commission received public comments identifying possible issues with the new requirement under subsection 29.80(b)(3) to mark hoop net buoys with operator GO-ID numbers for Commercial Fishing Passenger Vessels and guided operations. The Commission also received public comments during the rulemaking process for the lobster FMP implementing regulations concerning the amended restricted fishing areas for the commercial lobster fishery as specified under subsection 122(d). The California Department of Fish and Wildlife (Department) finds that the proposed changes are necessary to address concerns raised by the public to the Commission.

Valerie Termini, Executive Director
Fish and Game Commission
January 4, 2017
Page 2

If you have any questions regarding this item, please contact Dr. Craig Shuman, Regional Manager, Marine Region, at (805) 568-1246. The public notice for this rulemaking should identify Senior Environmental Scientist, Tom Mason as the Department's point of contact. Mr. Mason can be reached at (562) 342-7107 or Tom.Mason@wildlife.ca.gov.

Attachment

ec: Craig Shuman, D. Env.
Regional Manager
Marine Region
Craig.Shuman@wildlife.ca.gov

Sonke Mastrup
Environmental Program Manager
Marine Region
Sonke.Mastrup@wildlife.ca.gov

Tom Mason, Sr. Environmental Scientist
Marine Region
Tom.Mason@wildlife.ca.gov

Robert Puccinelli, Captain
Law Enforcement Division
Robert.Puccinelli@wildlife.ca.gov

Craig Martz, Regulations Unit Manager
Wildlife and Fisheries Division
Craig.Martz@wildlife.ca.gov

Scott Barrow, Senior Environmental
Scientist (Specialist)
Regulations Unit
Scott.Barrow@wildlife.ca.gov

STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-publication of Notice Statement)

Amend Section 29.80 and Section 122,
Title 14, California Code of Regulations
Re: Crab and Lobster Recreational Gear Marking and
Commercial Lobster Harbor Restricted Fishing Areas

I. Date of Initial Statement of Reasons: March 13, 2017

II. Dates and Locations of Scheduled Hearings:

(a) Notice Hearing: Date: February 9, 2017
Location: Rohnert Park, CA

(b) Discussion Hearing: Date: April 27, 2017
Location: Van Nuys, CA

(c) Adoption Hearing: Date: June 22, 2017
Location: Smith River, CA

III. Description of Regulatory Action:

(a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

In October 2015, the California Fish and Game Commission (Commission) adopted recreational crab trap regulations that included a new requirement to mark crab trap buoys (subsection 29.80(c)(3), Title 14, California Code of Regulations) starting August 1, 2016. During the adoption hearing, a representative from the recreational fishing community identified a discontinuity in the provision of subsection 29.80(a)(3) as it relates to subsection 29.80(c)(3) and subsequently requested the Commission consider a change to the regulatory language to address this issue. The Commission adopted the recreational crab trap regulations as proposed by the California Department of Fish and Wildlife (Department) at that time with the caveat that further corrective action may be needed to address the issue once the regulations have been implemented. This proposed regulatory change is necessary to allow a long-standing fishing practice of sharing gear and for consistency with subsection (c)(3) of Section 29.80 regarding crab trap buoy marking requirements.

In June 2016, the Commission adopted the California Spiny Lobster Fishery Management Plan (FMP) implementing regulations that amended and added to existing commercial and recreational lobster regulations to improve the management of the spiny lobster resource and support an orderly fishery. The regulatory amendments included changes to Section 29.80, which governs gear restrictions for recreational crustacean fishing activities in California and Section 122, which specifies commercial spiny lobster permits and commercial lobster restricted fishing areas (RFA). These regulations become effective on April 1, 2017. During the rulemaking process, the Commission received public comments identifying possible issues with the new requirement for marking hoop net buoys under Section 29.80 and restricted fishing areas for the commercial lobster fishery as specified under subsection (d) of Section 122.

To address concerns raised by the public, the Commission is proposing changes to 1) recreational gear marking requirements for hoop nets and crab traps and 2) commercial lobster restricted fishing areas as described below. In addition, other minor, non-substantive changes are proposed to subsection 29.80(a)(2) to fix a grammatical error (minor re-wording of text) and subsections 29.80(c)(2)-(c)(4) to remove the August 1, 2016, start date as these regulations are currently in effect.

Amend Section 29.80(a)(3), Title 14, CCR; Clarify Recreational Crab Trap Buoy Marking Requirements.

Under current regulations, each recreational crab trap must be marked with a buoy and the buoy must be legibly marked with the operator's GO ID number as stated on his or her fishing license (subsection 29.80(c)(3)). This requirement, however, does not consider the provision for operating another fisherman's trap with written permission (i.e., a note) from the owner of the trap (subsection 29.80(a)(3)). It is common fishing practice for a fisherman to allow other fishermen to use and service his or her crab traps that are deployed in the ocean. However, when a deployed trap is operated under written permission from the owner, the buoy may not have been marked in advance with the operator's GO ID number(s) of the person(s) now using the deployed trap (i.e., the operator). Recreational fishing constituents initially raised the issue at the October 2015 Commission meeting and sought further clarification.

The proposed amendment would modify subsection 29.80(a)(3) to exempt recreational crab fishermen from the GO ID marking requirement when working sport crab traps under the authority of written permission from the owner and clarify that written permission may be sent electronically (e.g., a text message). Operators must possess a valid note from the traps'

owner giving them permission to operate the traps, and the note must contain the GO ID number of the owner. Furthermore, the GO ID number on the note must match the GO ID number on the buoys. The proposed regulatory change is necessary to allow a long-standing fishing practice of sharing gear and for consistency with subsection (c)(3) of Section 29.80 regarding crab trap buoy marking requirements.

Amend Subsection 29.80(b)(3) and add Subsections 29.80(b)(3)(A) and 29.80(b)(3)(B), Title 14, CCR; Hoop Net Buoy Marking Requirements.

Beginning on April 1, 2017, subsection 29.80(b)(3) will require hoop nets used south of Point Arguello (except those deployed from shore or from manmade structures connected to shore) to be legibly marked with a surface buoy containing the operator's GO ID number as stated on the operator's sport fishing license or lobster report card for the purpose of minimizing gear loss and improving the accountability of hoop net use in the ocean. However, at the March 2016 Marine Resources Committee meeting, several members of the public expressed concern that the new requirement would place a potential burden on fishing guide license holders and Commercial Passenger Fishing Vessel (CPFV) operations, which take customers on fishing trips for lobster and provide hoop nets for use by their clients or passengers. The regulation as currently written would require guide license holders and CPFV operators to mark each customer's GO ID number on the hoop net buoy(s) that the customer would be operating during a trip, which would need to be repeated for each trip.

The proposed amendment would add subsection 29.80(b)(3)(A) to require the buoys of hoop nets deployed from CPFVs to be marked with the corresponding CPFV number. The proposed amendment would also add subsection 29.80(b)(3)(B) to require the buoy of hoop nets provided by licensed guides to clients for use on guided trips to be marked with the guide license number of the accompanying guide. Clients who supply and operate their own hoop nets when working with a licensed guide are still required to mark the hoop net buoys with their individual GO ID numbers as stated on their sport fishing license or lobster report card. Non-substantive amendments to section 29.80(b)(3) are also proposed to improve the section and reference the proposed new subsections. The proposed change is needed to avoid undue hardship for businesses that rely on providing their gear to customers for recreational fishing. As a practical consideration, it would be more efficient for CPFV operators and guide license holders to mark the hoop net buoys with the identification number of the CPFV, or the license number of the accompanying guide,

respectively.

Amend Subsection 122(d)(2)(B), Title 14, CCR; Dana Point Harbor Restricted Fishing Area.

Beginning on April 1, 2017, the boundary descriptions of all navigation channel restricted fishing areas (RFAs) applicable only to commercial lobster fishing will be updated to latitude and longitude coordinates in subsection 122(d)(2). The original RFA descriptions used compass headings and distances between landmarks that are outdated, as most boaters and fishermen use GPS devices for navigation. The Dana Point RFA was initially created to reduce navigational hazards due to commercial lobster gear while minimizing economic impact to the commercial fishermen.

The latitude and longitude RFA coordinates for Dana Point Harbor entrance (subsection 122(d)(2)(B)) were reviewed by the Dana Cove Commercial Fishermen's Association (DCCFA). The DCCFA found that the navigational channel, as currently defined by the RFA, does not represent traffic patterns around Dana Point Harbor. The DCCFA also found that although the coordinates for subsection 122(d)(2)(B) properly reflect the existing description, the updated RFA description included an area that has been traditionally fished by commercial lobster fishermen. The DCCFA submitted a letter (Attachment 1) to the Commission and the Department on May 16, 2016, detailing proposed modifications to the RFA for the Dana Point Harbor entrance to better reflect current harbor traffic conditions in Dana Point as well as make available traditional fishing grounds on the easterly boundary of the RFA (Figure 1).

The proposed amendment would modify the Dana Point Harbor RFA from a southerly approach (180°) to a more westerly approach (200°) to align the RFA with current traffic patterns in the harbor. This modification would open a traditional lobster fishing area, while providing a navigational channel void of commercial lobster gear for vessels entering and leaving the harbor, most of which are heading towards or returning from areas west of Dana Point.

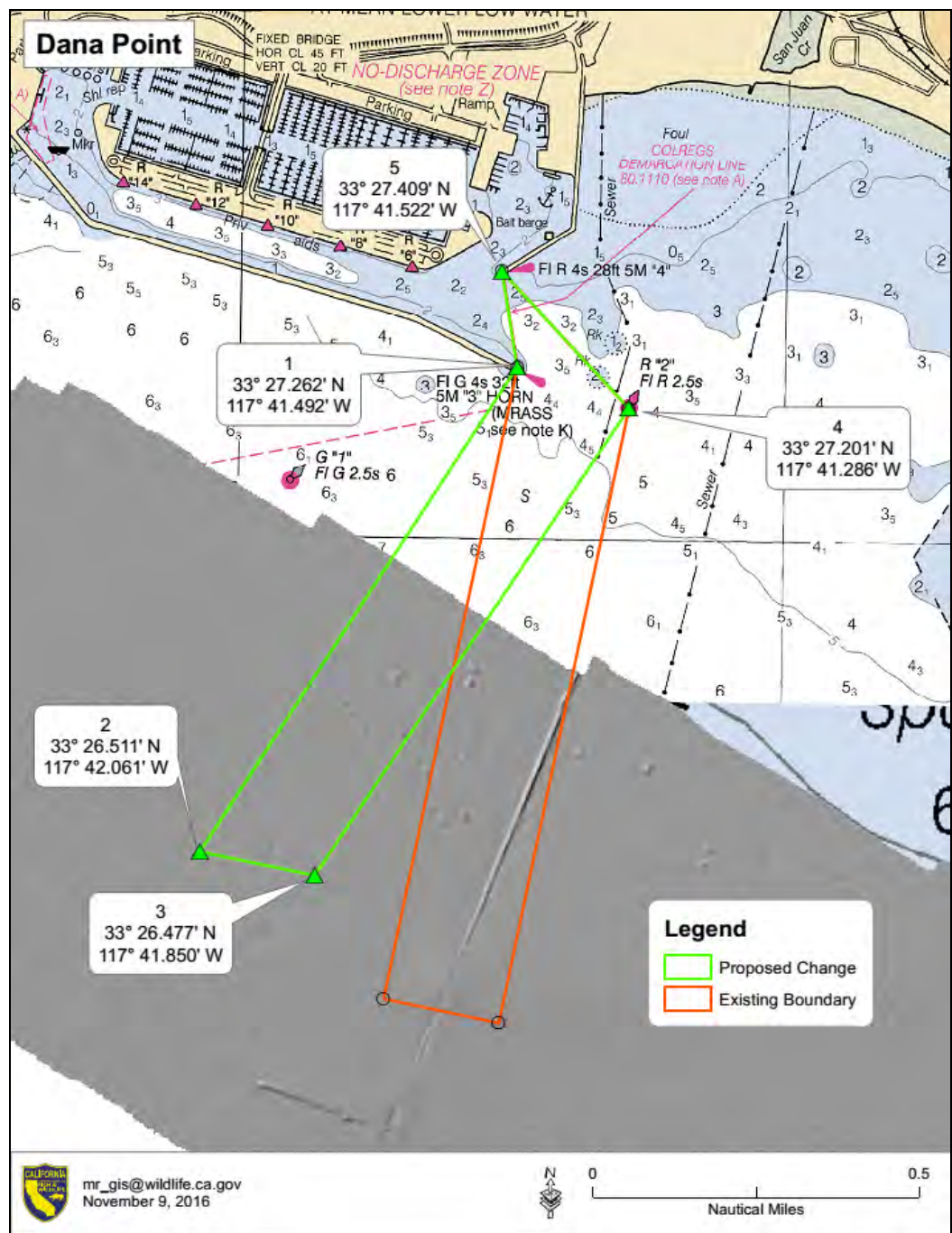


Figure 1. Proposed boundary modifications to the Dana Point Harbor entrance restricted commercial fishing area.

Add Subsection 122(d)(2)(D), Title 14, CCR; Port Hueneme Restricted Fishing Area.

On January 28, 2016, the Port of Hueneme (Port) submitted a letter (Attachment 2) to the Commission requesting the designation of a new RFA for the entirety of the Port Hueneme safety fairway as shown on NOAA Chart 18724 (Figure 2). The letter noted that the safety fairway of the Port has consistently experienced commercial gear deployment, mainly lobster gear, and the placement of commercial lobster gear within the operating areas of the Port poses a hazard to navigational safety. The Department analyzed the commercial lobster logbook data reported for fishing block 683, which encompasses the safety fairway of the Port and surrounding area (Figure 3). The data indicate that commercial lobster fishing effort (number of trap pulls) has substantially increased in block 683 since the 2005-06 lobster season (Figure 4).

The proposed amendment would designate the safety fairway of the Port as a new RFA under new subsection 122(d)(2)(D) (Figure 2). This designation is necessary to reduce the potential for commercial lobster gear fouling vessel propellers and ensure continued safety of port operations and navigation. The proposed RFA is consistent with the RFAs listed in subsection 122(d)(2) restricting the use of commercial lobster gear around harbor entrances located in Newport Beach, Dana Point, and Oceanside.

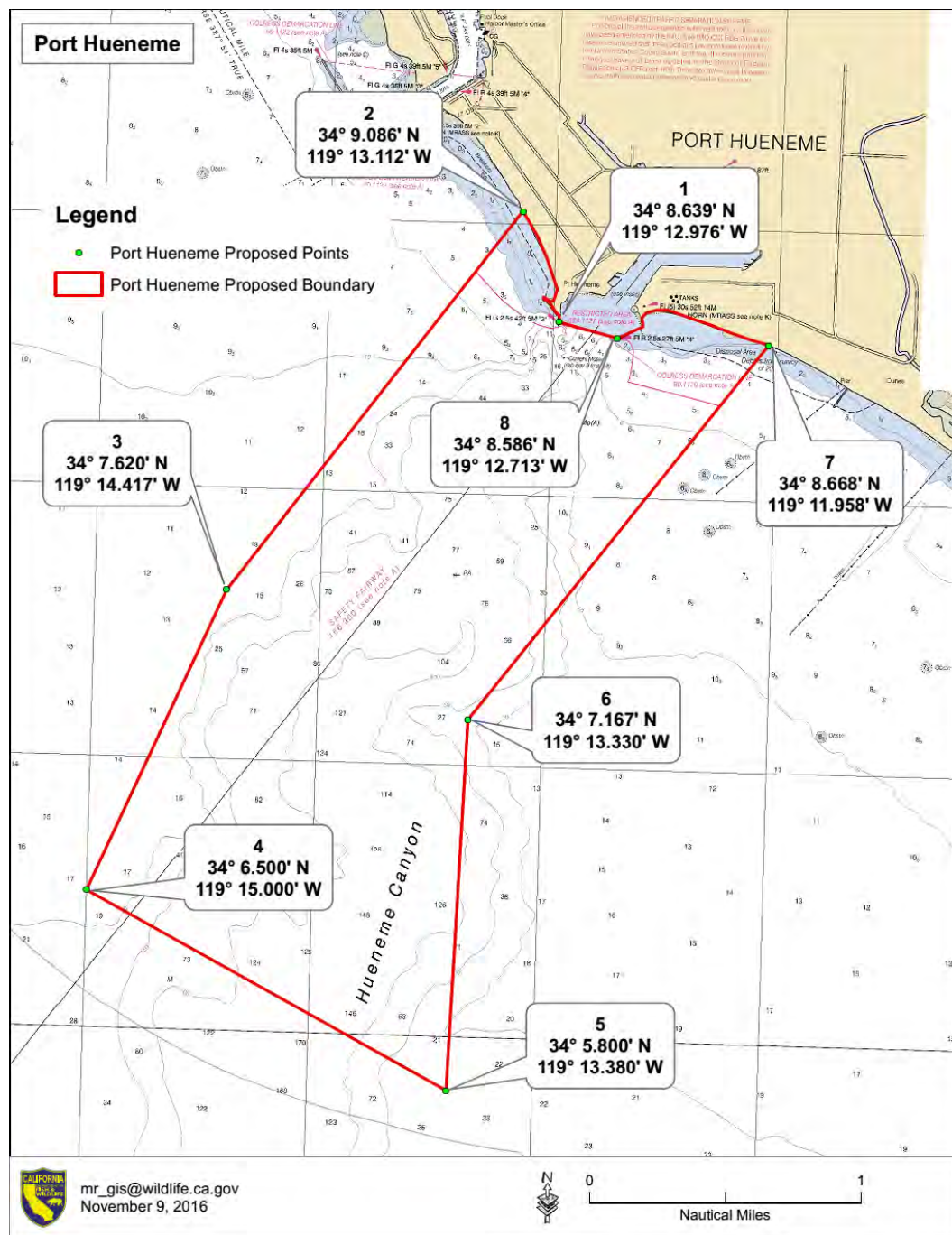


Figure 2. Proposed restricted fishing area boundary for the Port Hueneme Safety Fairway.



Figure 3. Map showing the extent of the proposed Port Hueneme commercial lobster restricted fishing area (RFA) relative to fishing block 683.

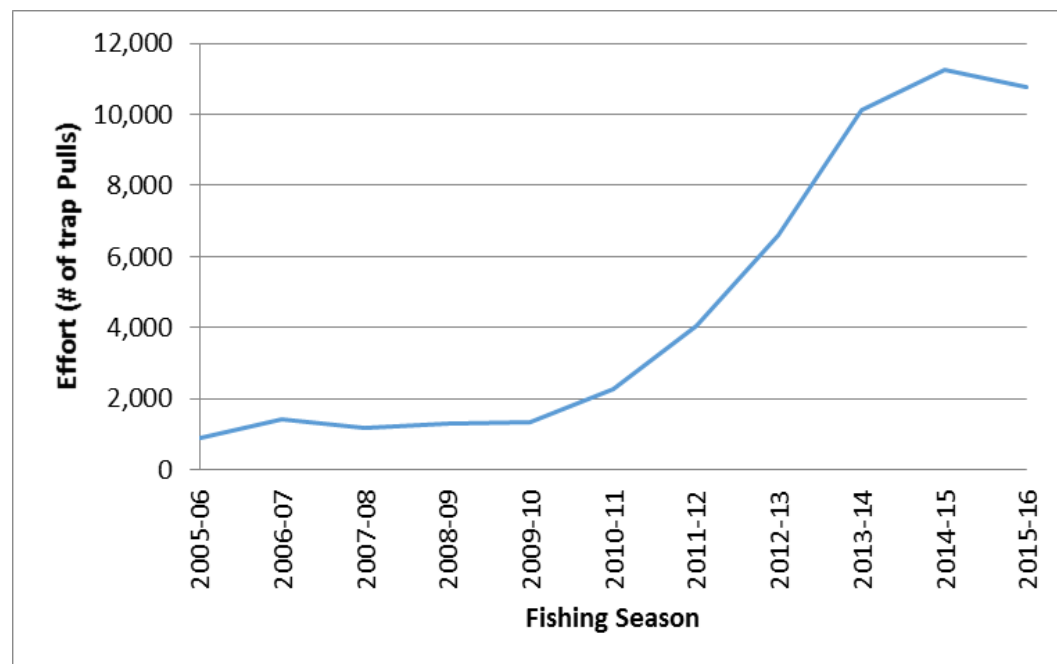


Figure 4. Commercial lobster fishing effort (trap pulls) for fishing block 683 from the 2005 – 2015 fishing seasons.

Benefit of the Proposed Regulations

It is the policy of this State that conservation and management measures for a restricted access fishery include modifications that contribute to a more orderly and sustainable fishery. (Section 7082(b), Fish and Game Code.) The proposed regulation changes are intended to provide clarification of the regulatory language concerning buoy marking requirements for hoop nets and crab traps, minimize the potential for trap gear and vessel entanglement, and improve safety in navigational channels where commercial lobster fishing currently occurs.

- (b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Sections 200, ~~202~~, 205, ~~215~~, ~~220~~, 265, 270, 275, 1050, 7075, 7078, 8254 and 8259, Fish and Game Code. Reference: Sections 110, 200, ~~202~~, 205, ~~206~~, ~~215~~ and ~~220~~, 265, 270, 275, 1050, 2365, 7050, 7055, 7056, 7071, 7852.2, 8026, 8043, 8046, 8250, 8250.5, 8254, 9002, 9002.5, 9005, 9006 and 9010, Fish and Game Code.

- (c) Specific Technology or Equipment Required by Regulatory Change:

None.

- (d) Identification of Reports or Documents Supporting Regulation Change:

Attachment 1

Roger Healy, DCCFA, Letter to the Fish and Game Commission and the Department of Fish and Wildlife, May 16, 2016.

Attachment 2

John Demers, the Port of Hueneme, Letter to the Fish and Game Commission, January 28, 2016.

- (e) Public Discussions of Proposed Regulations Prior to Notice Publication:

January 10, 2017, Port of Hueneme District Office, California. The proposed Port Hueneme RFA was presented and discussed at an outreach meeting with commercial lobster fishing constituents and interested members of the public.

IV. Description of Reasonable Alternatives to Regulatory Action:

- (a) Alternatives to Regulation Change:

No alternatives were identified by or brought to the attention of Commission staff that would have the same desired regulatory effect.

(b) No Change Alternative:

Without regulatory change, crab and lobster recreational gear marking requirements will continue to place avoidable burdens on CPFVs, guided operations, and the recreational sector in general. Commercial lobster gear will continue to pose a hazard to safe navigation in the Port Hueneme safety fairway. The Dana Point Harbor RFA will not reflect current vessel traffic patterns and will not make available fishing grounds traditionally fished by commercial lobster fishermen.

(c) Consideration of Alternatives:

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made:

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states because the regulatory action will not substantially increase compliance costs, is not anticipated to impact harvest quantities, and only applies to a fishery that is unique to the state of California. The commercial spiny lobster fishery extends from Point Conception in Santa Barbara County to the

U.S.-Mexico border. The recreational spiny lobster fishery covers the same range but also extends further north into San Luis Obispo County.

- (b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The Commission anticipates no negative impacts on the creation or elimination of jobs within the state, the creation of new businesses or the elimination of existing businesses because the proposed action will not significantly increase costs or reduce harvest quantities. The recreational gear marking changes are designed to accommodate efficient business practices without sacrificing gear accountability. The adjustment to the Dana Point Harbor RFA and proposed new Port Hueneme RFA will create an efficient safe passage for vessels entering and leaving the harbors with no expected change to lobster harvest quantities for the fishery.

- (c) Cost Impacts on a Representative Private Person or Business:

The agency is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action,

- (d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State:

None.

- (e) Nondiscretionary Costs/Savings to Local Agencies:

None.

- (f) Programs Mandated on Local Agencies or School Districts:

None.

- (g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed Under Part 7 (commencing with Section 17500) of Division 4, Government Code:

None.

(h) Effect on Housing Costs:

None.

VII. Economic Impact Assessment:

Commercial Spiny Lobster Fishery Economic Impact

The commercial California spiny lobster fishery ranks as the fourth highest in ex-vessel value, ranging from \$15 to \$18 million in the last three seasons. This rank is achieved, despite having amongst the lowest harvest volume, by having generally the highest value per pound of all California fisheries. The fishery is a restricted access fishery with about 150 permits actively fished since 2008.

The average total statewide economic output is estimated at \$34,477,000, based on the 2012-13 to 2014-15 seasons, supporting about 495 FTE jobs. The economic impact of the catch by each south coast county for the 2014-15 season is shown in Table 1. The commercial lobster fishery adds about \$6.9 million in total value added (also called net economic output) to Santa Barbara County, \$2.2 million to Ventura County, \$3.4 million to Los Angeles County, \$2.1 million to Orange County, and \$5.1 million to San Diego County.

Table 1. Commercial Lobster Fishery Economic Impacts by County for 2014-15 Season

County	Ex-Vessel Value (2015\$)	Total Lobster- Associated Employment (2015)	Employee Compensation (2015)	Total Value Added (2015)	Total Economic Output (2015)
Santa Barbara*	\$ 6,527,889	188.5	\$ 2,250,535	\$ 6,925,470	\$ 13,129,557
Ventura	\$ 2,126,246	61.4	\$ 733,038	\$ 2,255,745	\$ 4,276,523
Los Angeles	\$ 3,172,293	91.6	\$ 1,093,670	\$ 3,365,501	\$ 6,380,439
Orange	\$ 2,014,218	58.1	\$ 694,416	\$ 2,136,894	\$ 4,051,200
San Diego	\$ 4,846,048	139.9	\$ 1,670,709	\$ 5,141,197	\$ 9,746,866
California State Total	\$ 18,686,694	539.5	\$ 6,442,368	\$ 19,824,807	\$ 37,584,585

* Santa Barbara County includes Channel Islands spiny lobster catch.

The proposed modification to the Dana Point Harbor RFA to a more westerly approach would have no negative economic impacts because the realignment would result in increased access to a traditional lobster fishing area. Opening access to areas with favorable conditions may increase harvest quantities and/or decrease harvest costs.

The proposed new Port Hueneme RFA would prohibit commercial lobster fishing in approximately 3.25 square nautical miles inside fishing block 683 (Figure 3), which covers about 78 square nautical miles off the Ventura County coast. According to landing receipt data for the 2015-16 lobster season, 11 commercial fishermen landed 5,008 pounds of lobster from fishing block 683 with an ex-

vessel value of \$102,000. As a whole, the fishery landed 793,861 pounds of lobster with an ex-vessel value of \$15,628,167. For the 2015-16 season, block 683 accounted for 0.63 percent of the total landings and 0.65 percent of the ex-vessel value for the fishery. The 11 fishermen that made landings from block 683, obtained between 1 and 25 percent of their catch from block 683, with the majority obtaining between 1 and 5 percent. However, with landing receipt data it is not possible to determine the portion of reported landings from block 683 originating from within the proposed Port Hueneme RFA. It has been reported and observed by Department personnel that only a few fisherman operate in the proposed Port Hueneme RFA. Therefore, the potential annual economic impact of the Port Hueneme RFA will likely be substantially less than the reported \$102,000, because only a small portion of block 683 would be closed to commercial lobster fishing. Additionally, it is anticipated that current commercial lobster fishing activity inside the proposed Port Hueneme RFA will likely be redirected to other open areas.

The proposed regulations are designed to preserve efficient business practices without sacrificing important conservation and safety objectives.

(a) Effects of the Regulation on the Creation or Elimination of Jobs Within the State:

The Commission anticipates no negative impacts on the creation or elimination of jobs within the state because the proposed action is not likely to reduce harvest quantities. These actions are intended to simultaneously promote safety, efficient business practices, and gear accountability.

(b) Effects of the Regulation on the Creation of New Businesses or the Elimination of Existing Businesses Within the State:

The Commission anticipates no negative impacts on the creation of new businesses or the elimination of existing businesses within the state because the proposed action is not likely to reduce harvest quantities. These actions are intended to simultaneously promote safety, efficient business practices, and gear accountability.

(c) Effects of the Regulation on the Expansion of Businesses Currently Doing Business Within the State:

The Commission anticipates no negative impacts on the expansion of businesses currently doing businesses within the state because the proposed action is not likely to reduce harvest quantities. These actions

are intended to simultaneously promote safety, efficient business practices, and gear accountability.

(d) Benefits of the Regulation to the Health and Welfare of California Residents:

The Commission anticipates generalized benefits to the health and welfare of California residents through the sustainable management of the spiny lobster resource. These actions are intended to simultaneously promote safety, efficient business practices, and gear accountability.

(e) Benefits of the Regulation to Worker Safety:

The Commission anticipates that this regulatory action will benefit worker safety by improving operational and navigational safety by decreasing the risk of commercial lobster gear fouling propellers of vessels entering and leaving Port Hueneme.

(f) Benefits of the Regulation to the State's Environment:

The Commission anticipates benefits to the State's environment. It is the policy of this State to ensure "the conservation, sustainable use, and, where feasible, restoration of California's marine living resources for the benefit of all the citizens of the State" (FGC Section 7050(b)). These actions are intended to simultaneously promote safety, efficient business practices, and gear accountability.

(g) Other Benefits of the Regulation:

None

Informative Digest/Policy Statement Overview

Summary of Proposed Amendments

Under current regulations, Section 29.80, Title 14 of the California Code of Regulations (CCR) governs gear restrictions for recreational crustacean fishing in California and Section 122 specifies spiny lobster permits and restricted fishing areas for commercial lobster activities.

The Fish and Game Commission (Commission) proposes to amend subsections (a) and (b) of Section 29.80 concerning recreational crab trap and hoop net buoy marking, respectively. The proposed amendment to subsection 29.80(a)(3) would exempt a person from having their GO ID number on crab trap buoys when operating recreational crab traps belonging to another fisherman, provided that the fisherman operating the crab trap has written permission (i.e., a note) from the owner(s) of the traps. Written permission may be transmitted electronically (e.g., a text message) from owner to operator and is valid only if it contains the GO ID number of the owner, and that GO ID number must also be on the buoy of the trap being pulled.

In addition, an amendment to subsection 29.80(b)(3) is proposed to clarify the current hoop net buoy marking requirements. The Commission proposes to add subsection 29.80(b)(3)(A) requiring the buoys of hoop nets deployed from Commercial Passenger Fishing Vessels (CPFVs) to be marked with the corresponding CPFV number and subsection 29.80(b)(3)(B) requiring licensed guides to mark buoys with their guide license number for hoop nets provided to clients for use on trips.

The proposed action would also amend the restricted fishing areas (RFAs) specified in subsection (d)(2) of Section 122. The Commission proposes to modify the Dana Point Harbor RFA (subsection 122(d)(2)(B) from a southerly orientation to a more westerly orientation. Additionally, a new RFA for Port Hueneme is proposed in subsection 122(d)(2)(D), which would cover approximately 3.25 square nautical miles. Lobster traps would be prohibited within the proposed RFA for operational and navigational safety.

Other minor, non-substantive changes are proposed to subsection 29.80(a)(2) to fix a grammatical error (minor re-wording of text) and subsections 29.80(c)(2)-(c)(4) to remove the August 1, 2016, start date as these regulations are currently in effect.

Benefits of the Regulations

The proposed amendments related to lobster and crab gear marking would preserve accountable recreational gear use and allow the recreational sector to meet the gear marking requirements with minimal regulatory burdens. The modification to the Dana Point Harbor RFA will improve the efficiency and safety of the fairway while providing

additional commercial lobster fishing in an area that is currently restricted. The proposed Port Hueneme RFA would improve operational and navigational safety by decreasing the risk of commercial lobster gear fouling propellers as vessels enter and leave the port.

Consistency and Compatibility with Existing Regulations

The proposed regulations are neither inconsistent nor incompatible with existing State regulations. The Legislature has delegated authority to the Commission to adopt sport fishing regulations (Fish and Game Code, sections 200, 202 and 205) as well as the power to regulate the take of lobster for commercial purposes (Fish and Game Code Section 8254). No other state agency has the authority to regulate the recreational take of marine crustaceans or the commercial take of spiny lobster.

New Regulatory Language

Section 29.80, Title 14, CCR, is amended to read:

§ 29.80. Gear Restrictions.

(a) General Provisions.

[...No proposed changes to subsection (a)(1)]

(2) Nets, traps or other appliances may not be ~~not~~ used except as provided in this Section.

(3) It is unlawful to disturb, move, or damage any trap; or remove any saltwater crustacean from a trap, that belongs to another person without written permission including permission transmitted electronically, in possession from the owner of the trap. Any person with written permission from the owner of a crab trap will be in compliance with subsection (c)(3) if the written permission contains the owner's GO ID number that matches the GO ID number on the buoy of the crab trap being fished.

(b) Hoop nets may be used to take spiny lobsters and all species of crabs. Between Point Arguello, Santa Barbara County, and the United States-Mexico border, not more than five hoop nets, as defined in (b)(1)(A) or (b)(1)(B), shall be possessed by a person when taking spiny lobster or crab, not to exceed a total of 10 hoop nets possessed when taking spiny lobster or crab, per vessel. The owner of the hoop net or person who placed the hoop net into the water shall raise the hoop net to the surface and inspect the contents of the hoop net at intervals not to exceed 2 hours.

[...No proposed changes to subsections (b)(1) and (b)(2)]

(3) Hoop nets used south of Point Arguello, Santa Barbara County, shall be marked with a surface buoy. Except as provided in subsections (b)(3)(A) and (b)(3)(B), the surface buoy shall be legibly marked to identify the operator's GO ID number as stated on the operator's sport fishing license or lobster report card. This section does not apply to ~~H~~hoop nets deployed from by persons on shore or manmade structures connected to the shore, ~~are not required to be marked with a surface buoy.~~

(A) The surface buoy of hoop nets deployed from commercial passenger fishing vessels shall be legibly marked to identify the commercial boat registration number of the vessel.

(B) The surface buoy of hoop nets provided by a licensed guide to clients for use on guided trips shall be legibly marked to identify the guide license number of the accompanying guide.

(c) Crab traps:

[...No proposed changes to subsection (c)(1)]

(2) ~~Starting August 1, 2016, crab~~Crab traps shall contain at least one destruct device of a single strand of untreated cotton twine size No. 120 or less that creates an unobstructed escape opening in the top or upper half of the trap of at least five inches in diameter when the destruct attachment material corrodes or fails.

(3) ~~Starting August 1, 2016, every~~Every crab trap except those used under authority of subsection 29.85(a)(5) of these regulations shall be marked with a buoy. Each buoy shall be legibly marked to identify the operator's GO ID number as stated on his/her sport fishing license.

(4) ~~Starting August 1, 2016, crab~~Crab traps shall not be deployed and used in ocean waters seven days prior to the opening of the Dungeness crab season.

[...No proposed changes to subsections (d) through (j)]

Note: Authority cited: Sections 200, ~~202~~, 205, ~~215~~, ~~220~~, ~~265~~, ~~270~~, ~~275~~, 7075 and 7078, Fish and Game Code. Reference: Sections 110, 200, ~~202~~, 205, ~~206~~, ~~215~~ and ~~220~~, ~~265~~, ~~270~~, ~~275~~, 7050, 7055 and 7056, Fish and Game Code.

Section 122, Title 14, CCR, is amended to read:

§ 122. Spiny Lobster Permits and Restricted Areas.

[...No proposed changes to subsections (a) through (c)]

(d) Restricted Fishing Areas.

[...No proposed changes to subsection (d)(1)]

(2) No lobster traps shall be set or operated within 250 feet of the following specified navigation channels.

[...No proposed changes to subsection (d)(2)(A)]

(B) Dana Point Harbor entrance: This area is bounded by straight lines connecting the following points in the order listed:

~~33° 27.262' N. lat. 117° 41.492' W. long.;~~

~~33° 26.289' N. lat. 117° 41.721' W. long.;~~

~~33° 26.254' N. lat. 117° 41.509' W. long.;~~

~~33° 27.201' N. lat. 117° 41.286' W. long.;~~

~~33° 27.409' N. lat. 117° 41.522' W. long.; and~~

~~33° 27.262' N. lat. 117° 41.492' W. long.~~

33° 27.262' N. lat. 117° 41.492' W. long.;

33° 26.511' N. lat. 117° 42.061' W. long.;

33° 26.477' N. lat. 117° 41.850' W. long.;

33° 27.201' N. lat. 117° 41.286' W. long.;

33° 27.409' N. lat. 117° 41.522' W. long.; and
33° 27.262' N. lat. 117° 41.492' W. long.

[...*No proposed changes to subsection (d)(2)(C)*]

(D) Port of Hueneme entrance: This area is bounded by the mean high tide and straight lines connecting the following points in the order listed except where noted:

34° 8.639' N. lat. 119° 12.976' W. long.; thence northward along the mean high tide line onshore boundary to

34° 9.086' N. lat. 119° 13.112' W. long.;

34° 7.620' N. lat. 119° 14.417' W. long.;

34° 6.500' N. lat. 119° 15.000' W. long.;

34° 5.800' N. lat. 119° 13.380' W. long.;

34° 7.167' N. lat. 119° 13.330' W. long.;

34° 8.668' N. lat. 119° 11.958' W. long.; thence westward along the mean high tide line onshore boundary to

34° 8.586' N. lat. 119° 12.713' W. long.; and

34° 8.639' N. lat. 119° 12.976' W. long.

[...*No proposed changes to subsections (e) through (h)*]

Note: Authority cited: Sections 1050, 7075, 7078, 8254 and 8259, Fish and Game Code. Reference: Sections 1050, 2365, 7050, 7055, 7056, 7071, 7852.2, 8026, 8043, 8046, 8250, 8250.5, 8254, 9002, 9002.5, 9005, 9006 and 9010, Fish and Game Code.

Greetings,

The Dana Cove Commercial Fishermen's Association DCCFA is looking for your support in our request to the Department of Fish and Wildlife DFW that would move the current "no commercial trapping" Navigational Channel from a 180 degree heading to a 200 degree heading exiting the harbor.

The DFW is currently working on the final portions of a compressive Lobster Fishery Management Plan FMP. The plan is designed to ensure the health and sustainability of the lobster resource. The regulatory portion of this plan is scheduled for DFW Commission approval in June. This regulatory package includes new proposed regulations and rewording or retooling of existing regulations.

The previous regulation defining the no commercial trapping navigational channel was put into place over 30 years ago prior to GPS and other more sophisticated electronic equipment. Through my conversations with retired Lobster Fisherman and the DFW it seems that the original channel was designed by the use of only maps. The concept was negotiated between local veteran lobster fishermen and the DFW to allow for a navigational entry and exit from Dana Pt. Harbor that was free of lobster traps/buoys and to avoid capturing any viable rocky lobster habitat that would negatively impact the local commercial lobster fishing fleet. Unfortunately the maps used to originally design the channel DO NOT show the true location of the San Juan Creek Ocean Outfall Pipeline. The DFW wants to amend the existing antiquated regulations that were confusing and unplotable with current GPS coordinates. The use of GPS waypoints greatly increases the accuracy and understanding of where the navigational boundaries lie. I took it upon myself to plot and run the proposed GPS Waypoints and found that although they seem to properly reflect the existing regulations they unfortunately transect the outfall pipeline on the easterly channel line. The pipeline is very valuable and important lobster habitat, which is fished by vitally all the commercial lobster men out of Dana Pt. Harbor. We have all fished this pipeline since its construction and the adoption of the navigational channel unaware that it was technically off limits.

Although boats entering and exiting Dana Pt. Harbor come from every direction, the majority are usually headed west. The current navigation channel is pointed 180 degrees due south. The course to the most popular boating locations out of Dana Pt., I.E. San Clemente Is., Catalina Is., 14/209/277 banks and the coastline of Laguna Beach and Newport Harbor, are all significantly more westerly. Any negative boat/ lobster gear interactions generally take place on the edge of the westerly navigational channel boundary line.

By shifting the channels two outside GPS waypoints further west to allow for a 200 degree exit out of Dana Point Harbor we will retain our ability to legally fish the San Juan Creek Ocean Outfall. Commercial Lobster Fishermen would lose some fishing grounds on the westerly Channel line along

the jetty, but boaters would have a clearer approach in and out of the harbor from Catalina Is. and Newport Harbor. This compromise seems like a responsible solution that properly reflects the needs of all individuals out of Dana Pt. Harbor commercial and recreational.

Previously proposed GPS points;

(B) Dana Point Harbor entrance:

33 27.262'N - 117 41.492'W

33 26.289'N - 117 41.721'W

33 26.254'N - 117 41.509'W

33 27.201'N - 117 41.286'W

33 27.409'N - 117 41.522'W

33 27.262'N - 117 41.492'W

DCCFA proposed GPS points reflecting a 20 degree westerly shift in the outer two waypoints:

(B) Dana Point Harbor entrance:

33 27.262'N - 117 41.492'W

33 26.511'N - 117 42.061'W

33 26.477'N - 117 41.850'W

33 27.201'N - 117 41.286'W

33 27.409'N - 117 41.522'W

33 27.262'N - 117 41.492'W

Thank you for your time, feel free to contact me with any questions or concerns.

Rodger Healy

President DCCFA

President California Lobster and Trap Fishermen's Assoc.

To Sonke and Susan on May 16, 2016

Rodger and whom ever else this may concern:

Thanks for the update on the Nav Channel and the issues concerning our commercial fishermen. Your analysis and suggestions to change the channel heading to 200 degrees make perfect sense to me and I am in total support of your suggested changes. Please let me know how I can help to ensure the changes are actually made.

Best regards,

Brad Gross, Director
OC Dana Point Harbor

To whom it may concern,

My name is Eric Smith and I am a commercial lobster permit holder out of Dana Point. I would like to make it fully known that I support the movement of the navigational channel from 180 degrees to 200 degrees for entering and exiting the harbor. I feel that this is a fair heading and compromise for all concerned parties.

Thank you,
Eric F Smith

Rodger,

After speaking with you and hearing your proposed changes to the Navigational Channel from its current placement towards the West, I must agree that it makes more sense. This would align it with the majority of boating traffic coming and going from Dana Point Harbor.

The current Navigation Channel does not represent the current traffic patterns coming into or leaving Dana Point Harbor. Your proposed change is spot on and even lines up with the Catalina Express's daily route.

Thanks for keeping us in the loop,

Sergeant Mike Scalise
Dana Point Harbor Patrol



BOARD OF HARBOR COMMISSIONERS

Dr. Manuel M. Lopez President
Arlene N. Fraser Vice President
Jason T. Hodge Secretary
Jess Herrera Commissioner
Mary Anne Rooney Commissioner

PORT MANAGEMENT Mary Anne Rooney

Kristin Decas CEO & Port Director

Foreign Trade Zone #205



WORLD TRADE CENTER*
OXNARD

January 28, 2016

California Fish and Game Commission
1416 Ninth Street, Suite 1320
Sacramento, CA 95814

Dear Commissioners,

The Port of Hueneme (Port) is formally requesting the California Fish and Game Commission (Commission) to consider and approve regulation changes that will significantly improve the safety of vessel operations in the vicinity of the Port. The justification for this request is that the placement of commercial fishing equipment within operating areas at the Port currently poses a hazard to safe navigation.

The Port has been a popular location for the placement of fishing equipment, primarily lobster traps (pots) but also other various items. These items typically contain large amounts of line that attach the trap itself to a float. If this line becomes entangled in the propulsion or steering equipment of a vessel significant damage can occur which would require lengthy and costly repairs.

More importantly, the Port has a somewhat difficult approach and a narrow entrance channel. As a part of our routine operations, we receive ocean going vessels up to 230 meters (LOA). As these vessels enter or depart, our Harbor Safety Plan requires that they receive the assistance of two tugs to ensure safe transit. If one of these tugs should experience a propulsion or steering casualty while engaged in maneuvering a vessel into or out of the harbor, a significant safety hazard would occur since that tug would be unable to continue to provide vessel assistance. The presence of these fishing devices in the vicinity of the Port greatly increases the chance that a tug will experience a mechanical casualty, and creates the possibility of a collision, allision, or grounding, with the risk of significant damage to the vessel and surrounding structures and the possibility of environmental damage from a fuel or oil leak from the damaged vessel.

To date, the Port has tried to manage the situation by working with the local fishing community. Where that has not been fully successful, the Port has taken it upon itself to move traps into safer areas. This method has proven inadequate as the traps soon return. We have spoken with local Fish and Wildlife representatives, as well as the U.S. Coast Guard, who have both advised us that they are unable to provide assistance as there is not currently an enforcement mechanism. This situation has necessitated our request for regulatory changes.



To be more specific, the Port requests that the entirety of the safety fairway for the Port, as shown on NOAA chart 18724, be placed off limits for commercial fishing and fishing devices. In this manner we can ensure the continued safety of Port operations.

Should you have any questions, or require additional technical or operational information, I can be reached at JDemers@portofhueneme.org, or 805-754-0400.

Thank you for your attention to this matter.

Sincerely,

John Demers
Chief Operations Officer

jd

CC: California Department of Fish and Wildlife



Proposed Regulation Changes to Crab and Lobster Recreational Gear Marking Requirements and Commercial Lobster Harbor Restricted Fishing Area

**Fish and Game Commission Meeting
April 27, 2017**

**Cpt. Robert Puccinelli
Law Enforcement Division**



February Meeting Recap

Request Commission Authorization to Publish Notice

- Department presented proposed changes to sections 29.80 and 122, Title 14, CCR
- Port of Hueneme informed the Commission of plans to meet with commercial lobster fishermen regarding the Port Hueneme RFA boundaries
- Commission authorized publication of notice as originally proposed



Summary of Proposed Changes

- **Amend Section 29.80**
 - Clarify Recreational Crab Trap Buoy Marking Requirements
 - Clarify Hoop Net Buoy Marking Requirements for Commercial Passenger Fishing Vessel (CPFVs) and Licensed Guides
- **Amend Subsection 122(d)**
 - Modify Restricted Fishing Area (RFA) for Dana Point Harbor
 - Add RFA for Port Hueneme
- **Minor, non-substantive editorial fixes**



Next Steps

RULEMAKING TIMELINE

Public Outreach Meeting

January 10, 2017

Notice Hearing

February 9, 2017

Published Notice of Proposed Changes

April 7, 2016

➡ **Discussion Hearing**

April 27, 2017

Possible Adoption

June 22, 2017



Thank You

Cpt. Robert Puccinelli
Law Enforcement Division
robert.puccinelli@wildlife.ca.gov

From: [Coyne, Mike@Wildlife](mailto:Coyne.Mike@Wildlife)
To: [FGC](#)
Subject: OSPR Letter of Support for RFA - Port Hueneme
Date: Wednesday, April 12, 2017 2:52:21 PM
Attachments: [Port Hueneme RFA.PDF](#)

Dear Commissioners,

Please see attached file.

Best regards,

Michael P. Coyne
Oil Spill Prevention Specialist
Department of Fish and Wildlife
Office of Spill Prevention and Response
1700 K Street, Suite 250
Sacramento, CA 95811
Phone: (916) 324-5659

E-mail: mike.coyne@wildlife.ca.gov



State of California -The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Office of Spill Prevention and Response
1700 K Street, Suite 250
Sacramento, California 95811
Telephone: (916) 445-9338
www.wildlife.ca.gov/ospr

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



February 8, 2017

California Fish and Game Commission
1416 Ninth Street, Room 1320
Sacramento, CA 95814

Subject: Proposed Regulation Change to Add Port Hueneme Restricted Fishing Area

Dear Commissioners:

Pursuant to Government Code 8670.23, I am required to provide administrative oversight for five locally based Harbor Safety Committees, including the Port Hueneme Harbor Safety Committee (PH HSC). My appointment of committee members is representative of the diverse demographic of waterway users. Subsequently, they become my *de facto* local subject matter experts on a wide range of maritime and safe navigation topics. Pursuant to Government Code 8670.23.1(e), I am guided by their input when determining to support a new rule making effort that supports the effective implementation of a committees' Harbor Safety Plan.

The PH HSC has the responsibility for planning and providing for the safe navigation and operation of all vessels operating within the waters of Port Hueneme Harbor and the approaches thereto, including the Safety Fairway (as depicted on NOAA Chart 18724), and to address the prevention of oil spills and other mishaps that could endanger (pollute) the harbors, channels, and coast.

At recent PH HSC meetings, the issue of commercial lobster traps and their associated gear placed in the approach to Port Hueneme, known as the Safety Fairway, has increasingly become a nuisance that threatens to impede the safe navigation of large cargo ships. The intent of a Safety Fairway is to provide a safe route, free of obstructions, for these vessels. Commercial lobster traps placed within the confines of the Safety Fairway can become entangled in a vessel's propeller and thus compromise a vessel's maneuverability. Compromised maneuverability has long been known as a leading cause of vessels running aground and could, in a worst case scenario, result in an oil spill that pollutes beaches, water, and cause harm to wildlife.

It is for this reason, as stated above, that I am in support of the proposed rulemaking effort to add Section 122(d)(2)(D) to Title 14 of the California Code of Regulations (CCR). This proposed regulation would prohibit lobster traps within the Safety Fairway by designating it as a Restricted Fishing Area (RFA). In doing so, the RFA would promote safe navigation of large cargo ships and help prevent vessel casualties that could lead to groundings and subsequent oil spills.

The Office of Spill Prevention and Response (OSPR) has the mission to protect California's natural resources by preventing, preparing for, and responding to oil spills. Creating a RFA as detailed in the proposed rule Title 14 CCR, Section 122(d)(2)(D) supports the OSPR's mission and provides for vital protection to California's natural resources.

Sincerely,

A handwritten signature in blue ink, appearing to read "Thomas M. Cullen, Jr.", with a stylized flourish at the end.

Thomas M. Cullen, Jr.
Administrator
Office of Spill Prevention and Response



Coastside Fishing Club
P.O. Box 5501, San Mateo, CA 94402

RECEIVED AT

FEB 09 2017

8 February 2017

COMMISSION MEETING
AGENDA ITEM 30
George Osborn

Eric Sklar, President
California Fish and Game Commission
1416 Ninth Street, Suite 1320
Sacramento, CA 95814

Subject: Support for Recreational Crab Regulation Revisions

Dear President Sklar:

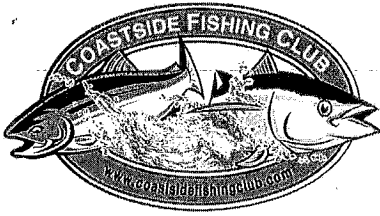
Coastside is pleased to support the Department's proposed revision to Title 14, Section 29.80(a)(2) that will facilitate the sharing of Dungeness crab traps and thereby reduce the number of traps deployed.

Coastside is disappointed, however, that the Department has not taken this opportunity to provide additional clarity in Section 29.80(c) relating to required destruct devices. The current regulations, as adopted in 2015, require "an unobstructed escape opening in the top or upper half of the trap of at least five inches in diameter when the destruct attachment material corrodes or fails" as the sole means of recreational compliance. The sportfishing regulations do not also allow for the use of a single loop of biodegradable cotton twine in the trap closure, along with a rubber strap and hook as is expressly found in the analogous commercial regulations. 14 CCR § 180.2(b)(5).

We appreciate the Department's internal guidance to wildlife officers that allows for the use of biodegradable cotton twine in the closure. As a matter of public policy, however, the regulations should reflect this means of compliance.

A further issue is that the previous changes to Section 29.80(c) were made without regard to the most commonly used - and most affordable - sport crab trap, which is sold under the Danielson brand. These traps have long been manufactured with a destruct device with an 8.5 inch by 3 inch opening. Since crabs present a flattened profile rather than a circular cross-section, the Danielson trap provides an opening more generous than the five inch diameter in the current regulations. Nevertheless, the Danielson trap's opening is deemed non-compliant. Even though the traps can be modified with some tools and effort to meet regulations, there would be no functional benefit whatsoever.

Washington State, like California, requires destruct devices on sport crab traps. Unlike



Coastside Fishing Club
P.O. Box 5501, San Mateo, CA 94402

California, Washington enacted regulations with the Danielson traps in mind. Absent some justification, Coastside believes that the California's regulations should also allow Danielson crab traps without the need for unwarranted modifications.

Coastside has worked directly with the Department on these issues for most of the last year and looks forward to continuing these efforts.

Dan Wolford, Science Director

A handwritten signature in black ink, appearing to read "D L Wolford".

Coastside Fishing Club

Copies to:

Fish and Game Commissioners
Director, California Department of Fish and Wildlife
Coastside Directors

State of the

California South Coast

Summary of Findings from Baseline Monitoring of Marine Protected Areas, 2011–2015



About This Report

This report provides a summary of ecological and socioeconomic conditions in the South Coast near the time of marine protected area (MPA) implementation in 2012. It provides key findings from South Coast MPA baseline monitoring projects, which occurred from 2011 to 2015. Each project included two to three years of data collection. This report also includes ecological, biological, oceanographic, and socioeconomic information and findings from key partners.

We acknowledge and are deeply appreciative of the work and input from our many partners and collaborators in the region. We thank everyone for their expertise, dedication, and generous time given to this project.

California Ocean Science Trust (OST), California Department of Fish and Wildlife (CDFW), California Ocean Protection Council (OPC), and California Sea Grant coordinated and collaborated in the implementation of South Coast MPA baseline monitoring, which was funded by OPC. This report was produced by OST working in partnership and collaboration with CDFW and OPC.

This report will be provided to the California Fish and Game Commission and relevant state agencies and entities, including the MPA Statewide Leadership Team, to help inform the MPA Management Program. It will also be presented to the broader South Coast ocean community through a series of community gatherings and other meetings.

Convening Editors

Benét Duncan, Sarah Finstad, Dina Liebowitz, Erin Meyer (OST)
Amanda Van Diggelen, Stephen Wertz, Adam Frimodig, Becky Ota (CDFW)
Cyndi Dawson (OPC)

Report Designed by

Clare McParland

Support for this Report Provided by

California Ocean Science Trust
California Department of Fish and Wildlife
California Ocean Protection Council
Resources Legacy Fund

Citation

State of the California South Coast: Summary of Findings from Baseline Monitoring of Marine Protected Areas, 2011–2015. California Ocean Science Trust, California Department of Fish and Wildlife, and California Ocean Protection Council, California, USA. March 2017.

OceanSpaces: The online community tracking California's ocean health

Everything in this report can be explored in more depth on OceanSpaces.org. Dive into the State of the California South Coast page on OceanSpaces.org for the full portfolio of scientific reports and analyses from MPA monitoring in the region.

OceanSpaces houses hundreds of data packages, projects, and synthesis products—a collective body of scientific knowledge to make science-informed decisions for our coast and ocean. Connect to a wealth of resources available on OceanSpaces, and join the online community to engage with the science and track the health of California's ocean.

Learn More

Throughout the report, you will find “Learn More” boxes that contain links to additional resources with numbered references within each section.

Also, check the back cover for a full list of common and scientific names of species mentioned in this report.





Photo: Colleen Wisniewski

Table of Contents

Highlights and Key Findings	1
Setting the Scene	4
Traditional & Cultural Connections	5
California's MPA Network	6
MPA Management in the South Coast	9
Timeline of Selected Regulations	11
Introduction to MPA Monitoring	15
Understanding the South Coast Setting	15
South Coast Baseline Monitoring	17
Physical Ocean Conditions	19
Establishing a Benchmark	22
Key Highlights from Baseline Monitoring	23
Human Activities in the South Coast	25
Sandy Beach Ecosystems	29
Creature Feature: Coastal & Island Breeding Seabirds	31
Rocky Intertidal Ecosystems	32
Creature Feature: California Spiny Lobster	34
Kelp Forest & Shallow Rocky Reef Ecosystems	36
Location Feature: The Channel Islands	40
Mid-Depth and Deep Ecosystems	43
Connections Among Ecosystems in the South Coast	47
Patterns of Biodiversity	49
Broadening Participation & Sources of Knowledge	51
Exploring Changes	53
Informing Ocean Management Decisions	56
Filling in the Gaps	57
Changing Ocean Conditions	57
Linking Natural Resource & Water Quality Management	58
Helping Decision-Makers Understand Unexpected Events	59
Leveraging Existing Capacity	59
Appendix	60
Collaborators	60
Species Names: Common & Scientific	60



Highlights and Key Findings

Photo: Jim Kirklin

Network of MPAs

With the passage of the Marine Life Protection Act in 1999, California became the first state in the nation to require a statewide network of marine protected areas (MPAs) to protect the state's marine life, habitats, and ecosystems. In 2012, 50 MPAs and two special closures were implemented in the South Coast, including new MPAs and pre-existing MPAs at the Channel Islands and mainland, some of which had their boundaries or take regulations modified.

Scientists, fishermen, coastal California Native American tribes, industry representatives, non-governmental organizations (NGOs), managers, and others participated in a unique, collaborative, and science based public planning process to design and implement these MPAs. This extensive effort set the stage for an informed community of participants and stewards interested in engaging in the implementation, scientific monitoring, and adaptive management of the region's MPAs.

Invaluable Benchmark of Conditions

Long-term scientific monitoring is essential to evaluate the effects of MPAs and inform ocean management. California's MPA Monitoring Program takes a two-phase approach: regional baseline monitoring (Phase 1) and statewide long-term monitoring (Phase 2). The goal of baseline monitoring is to establish a benchmark of ecological and socioeconomic conditions inside and outside MPAs around the time of MPA implementation, against which future changes can be measured.

The scientific data gathered and analyses conducted during South Coast MPA baseline monitoring add up to a detailed picture of ocean conditions in the region. This scientific benchmark provides a foundation for rigorous science-informed decisions for our coast and ocean, including MPA, fisheries, and water quality management and climate change adaptation.

Broadened Sources of Knowledge

California recognizes that implementing, monitoring, and managing California's MPA network requires coordination and collaboration. This is certainly the case for MPA monitoring in a region as large and diverse as the South Coast. The work summarized in this report represents partnerships among more than 40 academic institutions, state and federal agencies, coastal California Native American tribes, non-profit organizations, fishing groups, and citizen science groups.

Science to Support Management

Tracking Changing Ocean Conditions

Monitoring can inform ocean management beyond adaptive management of MPAs. For example, the Southern California Coastal Water Research Project's (SCCWRP) Bight '13 Regional Monitoring Program represents an important collaboration between MPA and water quality monitoring efforts. Continued collaboration with water quality and climate change managers will be key to identifying opportunities to leverage resources, capacity, and expertise.

Understanding & Responding to Unexpected Events

- Rocky intertidal baseline monitoring researchers expanded their sampling to include new locations after observing diseased sea stars in early 2014. By May, sea star populations at many sites across the United States West Coast were at or near zero. Continued data collection has shown recruitment of juvenile sea stars in the South Coast, a hopeful sign that populations could recover.
- In 2015, over 100,000 gallons of crude oil were released from a ruptured pipeline near Refugio State Beach in Santa Barbara County. Baseline data provided information about conditions at and near Refugio State Beach before the spill and are being used to help assess the impacts that occurred to marine ecosystems in the area. Continued monitoring will be key to tracking the recovery of coastal and ocean habitats in the area.



A Comprehensive View of the South Coast

Discovering the Unknown

Through baseline monitoring, researchers were able to:

- Explore and characterize new locations in rarely-monitored South Coast deep, canyon, and sandy beach ecosystems.
- Improve our understanding of ecologically and economically important species like the California spiny lobster, and protected species like the endangered California Least Tern.

Revealing Unique & Diverse Communities

The South Coast is distinguished by abundant and varied marine life, with community structure driven by a strong water temperature gradient. Researchers identified and characterized the following distinct communities, each with a particular composition of species:

- 17 kelp and shallow rock communities
- 9 rocky intertidal mobile invertebrate communities
- 14 rocky intertidal sessile invertebrate communities

Connected Ecosystems

Baseline research illuminated the many ways that coastal and marine ecosystems in the South Coast are connected:

- Kelp, other algae, and seagrass wash onto sandy beaches, forming wrack that supports abundant and diverse populations of macroinvertebrates and shorebirds.
- Estuarine and pelagic seabirds rely on different ecosystems—including estuaries, beaches, kelp forests, and nearshore pelagic—for activities such as breeding, feeding, and roosting.

Older MPAs Show Positive Trends

Consistent with other regions, marine communities are responding to older MPAs:

- Biomass of targeted fish species has increased in kelp and shallow rock ecosystems inside and outside of the northern Channel Islands MPAs (established in 2003).
- Biodiversity in rocky intertidal ecosystems is significantly higher in “old” MPAs (established before 2012) than outside, while “new” MPAs show intermediate and highly variable biodiversity.

Looking Forward—Leveraging Existing Capacity

As the state transitions from baseline to long-term monitoring, the South Coast Monitoring Survey provides a detailed picture of the current monitoring capacity in the region. Results from the survey identify the geographic and temporal coverage of monitoring activities inside and outside of South Coast MPAs, and the alignment of those activities with the State's MPA monitoring priorities. Results of the South Coast Monitoring Survey are publicly available in the interactive California Coastal Monitoring Dashboard.

Learn More

Learn more about South Coast MPA baseline monitoring, access data, and explore the California Coastal Monitoring Dashboard at oceanspaces.org/scsotr.



Photo: Stock/Sean Pavone



Setting the Scene

Stretching from the remote and windswept Point Conception and northern Channel Islands to the urban shorelines of Santa Monica and San Diego, California's South Coast is a region distinguished by its abundance and variety, both above and below the water. With its mild weather and easy to access coastline, the South Coast is an ideal location for ocean-related recreation, commerce, and research. The South Coast region encompasses 2,351 square miles of state waters, which extend from the mean high tide line to three nautical miles (nm) offshore from the mainland coast and the Channel Islands coast, bounded by Point Conception in the north and the California–Mexico border in the south.

Located at the confluence of two major current systems, South Coast marine and coastal ecosystems are characterized by extremely variable oceanographic conditions and a strong and persistent gradient in water temperature. Commercial fishing in the region primarily focuses on invertebrates such as California spiny lobster, market squid, and red sea urchin, while recreational fishing targets primarily finfish. The region supports over \$40 billion in ocean-dependent tourism and over 800,000 jobs, dozens of academic and research institutions, offshore oil extraction, multiple military installations, and one of the busiest ports in the world.



The Chumash community's annual crossing from the South Coast mainland to Santa Cruz Island (Limuw), the Chumash sacred place of creation. Paddlers pray with each "pull of the water" in the traditional tomol (redwood sewn-plank canoe). Photo: Robert Schwemmer.

Traditional & Cultural Connections

Since time immemorial, First Nations Peoples have lived in intimate relationship with California's South Coast. Core cultural values, sustainable reciprocity, and observance of natural laws inform all aspects of Coastal California Native tradition. The rich bounty provided by relationships with marine and coastal habitats supported the highest population density in Indigenous North America allowing the establishment of large, affluent, permanent villages with complex religio-socio-political systems, extensive trade networks, and sophisticated resource management regimes. Marine resources were, and continue to be, the foundation for traditional foods, medicines, ceremony, music, regalia, social ties, and trade economy.

Geographic resources are also integral to Indigenous heritage and cosmology including: traditional places of ceremony; centers of origin; the gateway to the afterlife; and ancestral villages and burial complexes (both coastal and submerged). Countless sacred sites exist throughout the South Coast, including the Channel Islands. These places continue to be honored by Coastal California Native Nations who work for their protection/preservation, and are central to traditions such as the Tongva and Chumash traditional redwood plank canoe journeys back to the ancestral islands of Pimu (Santa Catalina Island) and Limuw (Santa Cruz Island).

Despite historic intergenerational trauma, colonization, and legal disenfranchisement from land and water resources, California Native Nations maintain their traditional knowledge and reciprocal relationships with coastal and marine resources. Although California's complex history has resulted in lack of federal recognition for the majority of Coastal Native Nations, through partnerships with other First Nations, environmental organizations, academic institutions, and government agencies, Indigenous Californians actively protect ancestral village locations/sacred sites, preserve rights to continue traditional lifeways, restore coastal and marine habitats, and advocate for sustainable practices throughout the region.

The editors extend their gratitude to individuals, members, and/or leadership from the following Coastal Native Nations and organizations for working in collaboration with California Ocean Science Trust (OST) to develop the language in this section that highlights traditional and cultural connections to marine resources: Wishtoyo Chumash Foundation, Chumash Maritime Association, Coastal Band of the Chumash Nation, Ti'at Society Juaneño Band of Mission Indians Acjachemen Nation, and the United Coalition to Protect Panhe.

California's MPA Network

Taking a network-based approach to MPAs is relatively new in marine resource management. While individual MPAs function to protect organisms and ecosystems within a specific area, a network of MPAs can function to sustain marine life at multiple scales that cross ecosystem boundaries and span long distances. An MPA network includes individual MPAs of different sizes and degrees of protection, and is intended to complement fisheries management to maintain and improve ocean health.

The California Marine Life Protection Act (MLPA, Chapter 10.5 of the California Fish & Game Code, §2850–2863) was passed by the California legislature in 1999 and directed the state to reevaluate and redesign California's system of MPAs. Through the MPA network design and siting process, California implemented a science-based and stakeholder-driven, collaborative, multi-year public process to plan the new network of MPAs iteratively across four coastal regions. In September 2007, the Central Coast became the first region to implement a redesigned network of MPAs, followed by the North Central Coast in May 2010, the South Coast in January 2012, and the North Coast in December 2012, completing the statewide network.



The MLPA identifies six goals for the state's MPA network:

1. To protect the natural diversity and abundance of marine life, and the structure, function and integrity of marine ecosystems.
2. To help sustain, conserve and protect marine life populations, including those of economic value, and rebuild those that are depleted.
3. To improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and to manage these uses in a manner consistent with protecting biodiversity.
4. To protect marine natural heritage, including protection of representative and unique marine life habitats in California waters for their intrinsic value.
5. To ensure that California's MPAs have clearly defined objectives, effective management measures, and adequate enforcement, and are based on sound scientific guidelines.
6. To ensure that the state's MPAs are designed and managed, to the extent possible, as a network.

To help achieve these goals, the MLPA also required California Department of Fish and Wildlife (CDFW) to develop, and the Fish and Game Commission (FGC) to adopt, a "master plan" to guide the design, implementation, and management of the network. A draft Master Plan (2008 Master Plan) was adopted by the FGC in 2008 and guided the process for designing and siting MPAs through a regional approach. In August 2016, the FGC adopted the final Master Plan (2016 Master Plan) that sets a statewide foundation for the MPA Management Program to meet the goals of the MLPA.'



South Coast Protected Area Classifications	Number	Area (miles ²)	Percent of South Coast State Waters
State Marine Reserve (SMR)	19	242	10.3%
State Marine Conservation Area (SMCA)	21	80	3.4%
State Marine Conservation Area (no-take)	10	33	1.4%
Special Closure	2	2	0.1%
Total for South Coast Region*	50	355	15.1%

*Numbers for area and percentages are rounded values and totals do not include special closures.

Other Classifications in the South Coast

	Area of Special Biological Significance (ASBS)
	Federal Marine Reserve (FMR)
	Federal Marine Conservation Area (FMCA)
	National Marine Sanctuary
	National Park
	California State Waters

The South Coast extends from Point Conception in Santa Barbara County to the United States–Mexico border, and includes state waters around the Channel Islands. State waters extend from mean high tide to three nm from shore. The region’s 50 MPAs cover 921 km² (355 miles²) of ocean, or approximately 15% of the 6,089 km² (2,351 miles²) of state waters in the region, and are managed as part of a statewide network.² The South Coast includes a range of MPA classifications, each of which allow differing levels of take and other human activities.

In addition to the South Coast MPAs and special closures described above, the region also contains a number of other types of protected areas, including a National Marine Sanctuary, Federal MPAs, and Areas of Special Biological Significance.

Classifications in the South Coast

State Marine Reserve, Federal Marine Reserve

An area where all commercial and recreational damage or take of living, geologic, or cultural resources is prohibited. Scientific research and non-consumptive uses may be allowed.*

State Marine Conservation Area, Federal Marine Conservation Area

An area where select recreational and/or commercial take activities are allowed to continue. Scientific research and non-consumptive uses may be allowed.*

State Marine Conservation Area (no-take)

An area where all take and consumptive use is prohibited, except for the take incidental to existing permitted activities such as infrastructure maintenance or water quality operations. Scientific research and non-consumptive uses may be allowed.*

Special Closure

An area adjacent to seabird rookeries or marine mammal haul-out sites, where access or boating activities are restricted.

Area of Special Biological Significance

An area where discharge of waste is prohibited, except as permitted in the public interest. Discharges must be located a sufficient distance from designated areas to maintain natural water quality conditions in the areas.

** Unless specifically prohibited, non-consumptive activities such as diving, surfing, swimming, and boating are allowed within MPAs, as long as take restrictions are followed. A valid CDFW Scientific Collecting Permit is required for scientific research.*





Vantuna Research Group researcher monitors a shallow rocky reef ecosystem at Begg Rock. Photo: Jonathan Williams.

MPA Management in the South Coast

California's MPA network is managed collaboratively through the MPA Management Program, which includes four focal areas: policy and permitting; enforcement and compliance; outreach and education; and research and monitoring. The focus of this report is on monitoring, but this section provides an overview of the other three focal areas.

The MPA Management Program is led by CDFW, California Ocean Protection Council (OPC), OST, and FGC. The FGC is the primary decision-making authority for California's MPA regulations.

The FGC adopted the MPA Management Program (known as the Marine Life Protection Program in the MLPA), and the 2016 Master Plan (see page 6). CDFW is the lead managing agency for California's MPA network. CDFW implements and enforces the regulations set by the FGC, and their work spans all four focal areas of the MPA Management Program.³ OPC is the policy lead for California's MPAs and implementation of MLPA activities. OST is an independent non-profit partner organization that supports science informed decision making for California's coast and ocean.

A Partnership-Based Approach

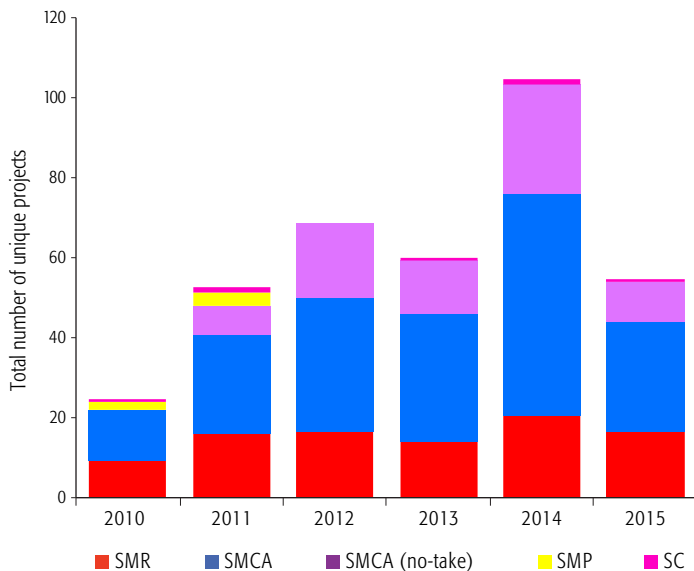
The Collaborative Approach: Marine Protected Areas Partnership Plan (Partnership Plan),⁴ adopted by the OPC in 2014, and the 2016 Master Plan (see page 6) both recognize that implementing and managing California's MPA network requires collaboration. For example, in April 2014, the MPA Statewide Leadership Team (Leadership Team) was convened by OPC as a standing body to ensure communication, collaboration, and coordination among entities that have significant authority, mandates, or interests that relate to California's MPA network. The founding members of the Leadership Team include state and federal agencies, departments, boards, and commissions with jurisdiction or management interests regarding California's MPAs. In addition to OPC, core members include the FGC, CDFW, and OST.

MPA monitoring in a region as large and diverse as the South Coast relies on collaboration and partnerships. The work summarized in this report represents partnerships among more than 40 academic institutions, state and federal agencies, coastal California Native American tribes, non-profit organizations, fishing groups, and community and citizen science groups.

Policy & Permitting

A Scientific Collecting Permit (SCP) issued by CDFW is required to take wildlife (including marine fishes, invertebrates, algae, and seagrasses) for scientific, educational, or propagation purposes. No permit is necessary when a researcher merely observes, records, or documents wildlife without direct physical interaction with the organisms or habitats.

The number of projects permitted annually within MPAs increased four-fold from 2010 to 2014, from 25 to 105 projects, respectively. The increase is related to South Coast baseline monitoring beginning in 2011, and an overall interest in studying MPA effects. The projects were split between no-take MPAs (SMRs and no-take SMCAs) and limited take SMCAs. SCPs were issued for a wide variety of projects, from MPA directed research such as the South Coast MPA baseline monitoring projects, to research into ecosystem resiliency within an MPA relative to climate change; docent-led educational trips; and research on the sex changing abilities and behavior of Blue-banded Gobies.⁵



Total number of unique projects permitted for work within MPAs and special closures in the South Coast, 2010–2015. The disappearance of SMPs after 2011 is attributed to the network redesign process which removed existing SMPs in the South Coast following the January 1, 2012 implementation date. Source: CDFW.



Blue-banded Goby. Photo: Sarah Finstad.

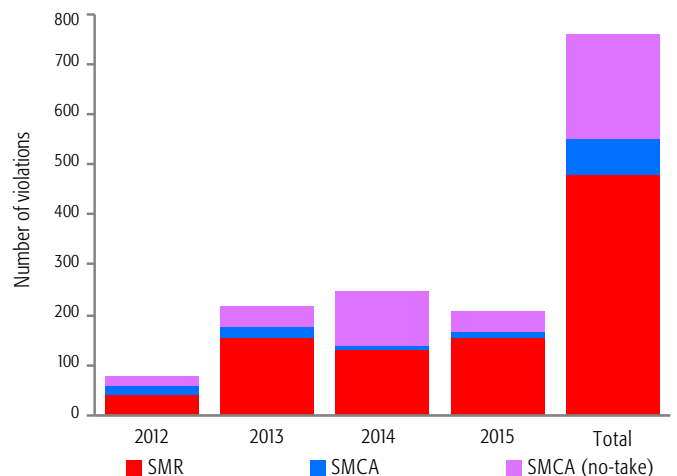
Enforcement & Compliance

The success of MPAs relies on both the users' compliance with and the proper enforcement of MPA regulations. A single poaching event can have significant detrimental effects on the success of the MPA network, highlighting the need for successful enforcement of these areas. For example, in 2012 CDFW enforcement officers caught a diver and his companion with 47 California spiny lobsters from the Laguna Beach SMR. Due to their intervention all 47 lobsters were safely returned to the ocean, and evidence of the poaching event led to the first successfully prosecuted MPA resource crime since the implementation of the South Coast MPAs.

CDFW is the primary agency responsible for enforcing MPA regulations, with occasional assistance from California State Parks, National Marine Fisheries Service, National Marine Sanctuaries, U.S. Coast Guard, National Park Service, Harbor Patrol, local police, sheriffs, lifeguards, and city resource officers. However, these agencies do not always have the necessary mandate, training, or resources to take independent action. In the South Coast, there are 42 CDFW enforcement officers poised to respond to MPA and other marine regulation violations. To augment their MPA patrol and detection efforts, a variety of nearshore and offshore watercraft assets are available for wardens to effectively patrol coastal ocean waters, including waters around the Channel Islands.

From January 2012 to December 2015, approximately 760 MPA-related violations (8% of the total violations in the region) were issued throughout five South Coast counties according to best available citation record information. Among the violations, noncompliance with MPA regulations and boundaries occurred within 24 of the 50 South Coast MPAs. Los Angeles County, which includes Santa Catalina Island, accounted for 60% of those total violations, 15% mainland and 85% Catalina Island, respectively.⁶

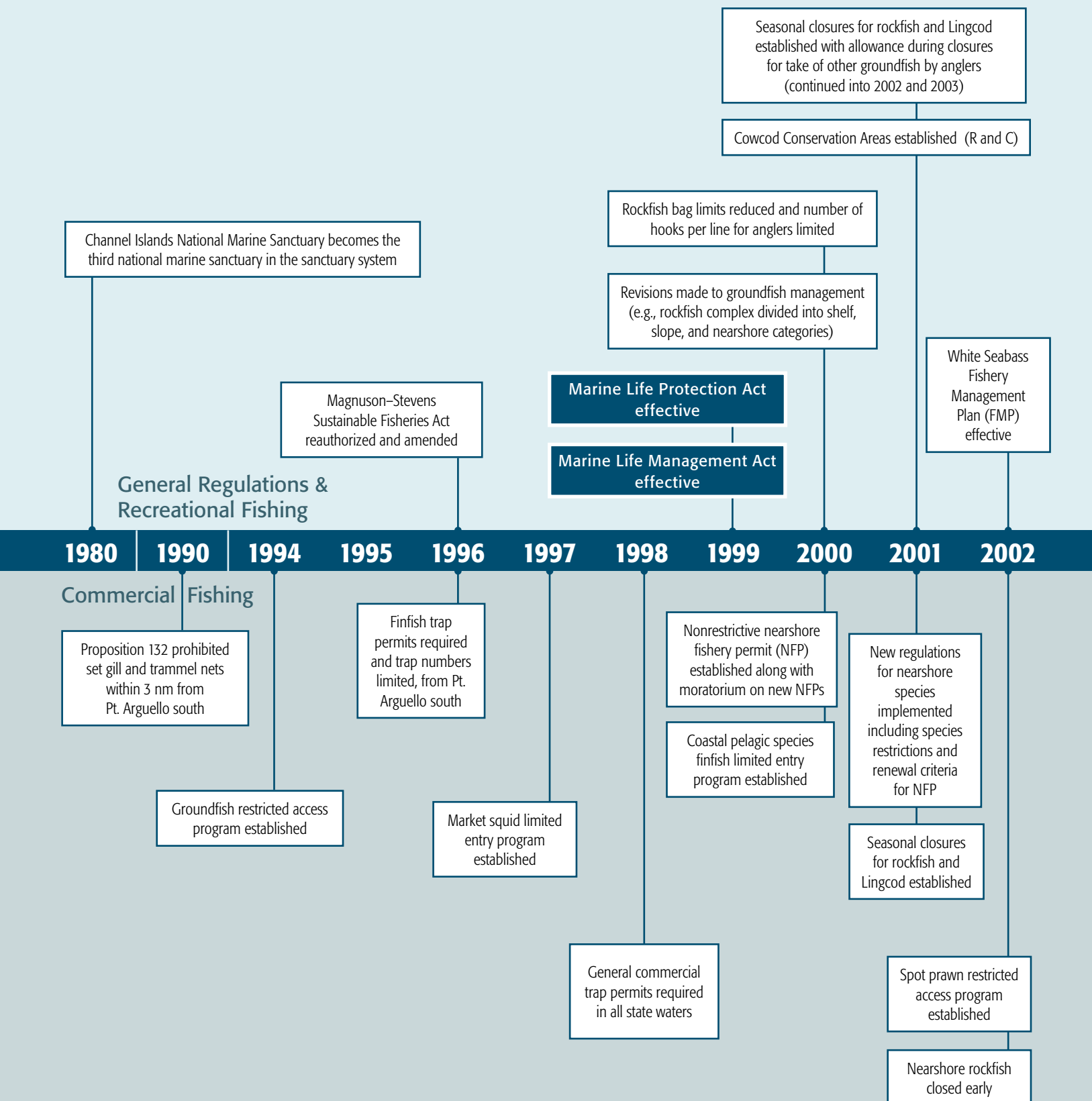
Better technology, public awareness, and community support will increase compliance through improved surveillance systems, detection, and interdiction. CDFW-Law Enforcement Division is advancing finer resolution analyses, to determine specific violation types and strategically plan continued enforcement efforts.

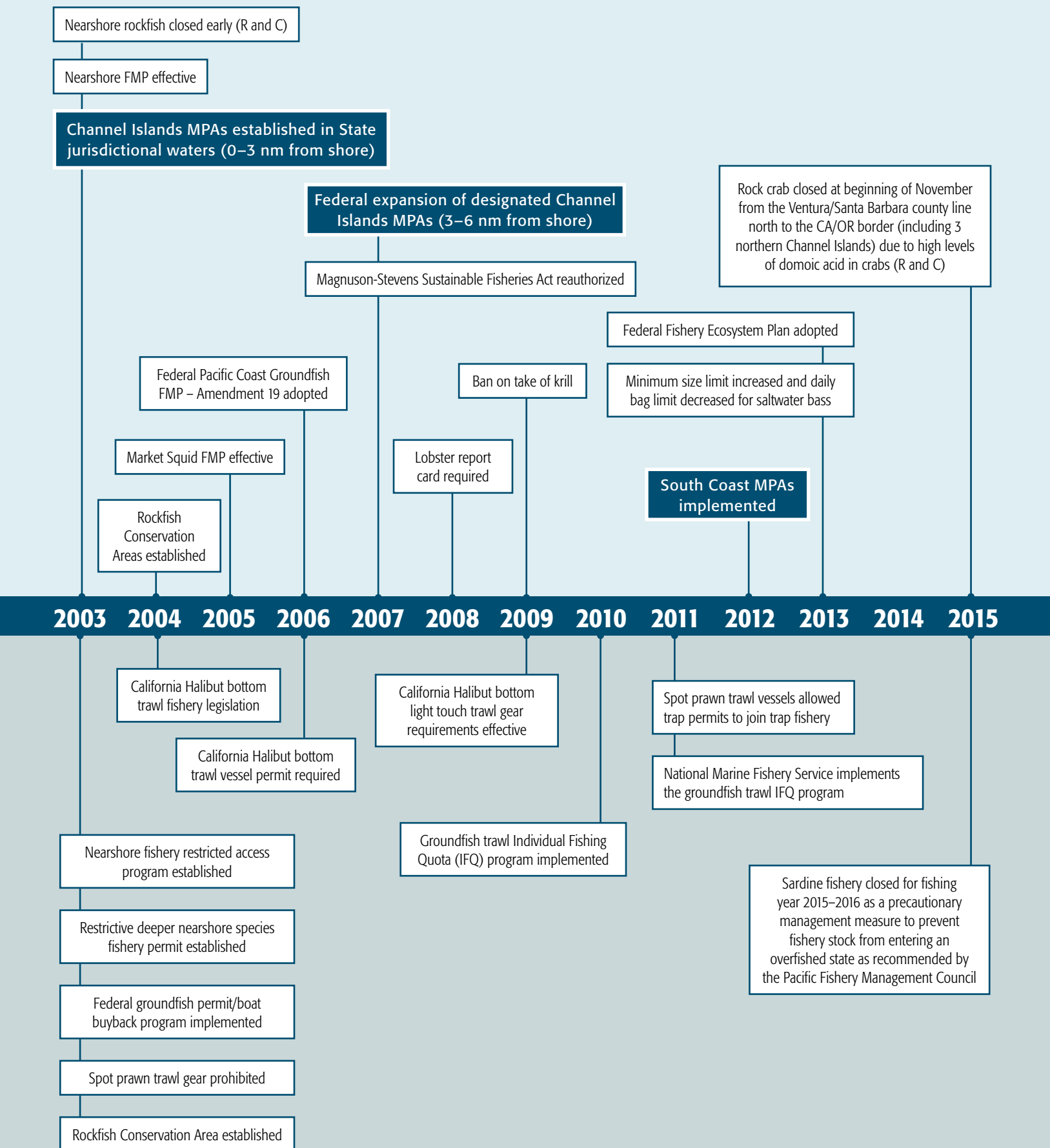


Number of violations in South Coast MPAs, January 2012–December 2015. Source: CDFW.

Select Events Affecting Ocean Resources in the South Coast

General Regulations and Recreational (R) and Commercial (C) Fishing





Outreach & Education

Education and outreach are important tools used to encourage compliance with MPA regulations and foster understanding of the statewide network. Initial outreach and education efforts led by CDFW focused on public awareness, understanding, and compliance with the region's newly implemented 50 MPAs and two special closures. CDFW funded the installation of 66 MPA regulatory and interpretive signs in the South Coast to help coastal users understand and comply with the MPA regulations. CDFW's goal is to cultivate stewards who understand the purpose of the individual and the statewide network of MPAs to protect marine species, biodiversity, and habitats.

CDFW has partnered with countless groups and organizations to expand the reach of their outreach efforts through the creations of printed, online and mobile, videos and training materials. A key partner in the outreach and education efforts in the MPA Collaborative Network. CDFW reviews partners' materials to help ensure accuracy and consistency in MPA information and regulatory messaging.⁷



For example, Wishtoyo Foundation's Chumash Tribal MPAs Program annually provides cultural and marine science education to approximately 6,000 K–12 students (75% from Title 1 schools) at its 8,000-year-old coastal village site in Malibu, overlooking the Pacific Ocean. Students learn about Chumash culture, marine conservation, MPAs, and the importance of relationship with the natural environment through traditional storytelling and hands-on experiences. Wishtoyo produces educational materials allowing schools to bring cultural science and a conservation ethic back to the classroom. Wishtoyo's Inter-Tribal Cultural and Marine Science Summer Field Study for Indigenous youth includes field work at Wishtoyo village and the UC Reserve Station at "Limuw," Santa Cruz Island. Visit OceanSpaces.org to learn more about Indigenous marine conservation and partnerships with coastal California Native American tribes.



Indigenous student researchers with Wishtoyo's Inter-Tribal Cultural and Marine Science Summer Field Study working from the Santa Cruz Island UC Reserve Field Station. Photo: Paul Novoa.



As part of Wishtoyo's Chumash Tribal Marine Protected Areas Education Program, Southern California students learn about marine conservation and the importance of their relationships with the natural environment and culture. Photo: Luhui Isha.



MPA Collaborative Network–Bringing a local voice to MPA implementation

The MPA Collaborative Network provides a framework for local stakeholders to engage in the MPA implementation process, including enhancing understanding and increasing compliance of MPAs. The MPA Collaborative Network consists of 14 regional MPA Collaboratives that are open to anyone and include members of diverse organizations including non-profits, fishing associations, coastal California Native American tribes, federal, state and county government agencies, municipalities, academic and research institutions, aquaria, and ocean businesses.

There are five active MPA Collaboratives in the South Coast region: Santa Barbara Channel, Los Angeles, Catalina Island, Orange County, and San Diego. Each Collaborative works with state partners to advance local priorities.⁸

Collaborative projects in this region have included:

- Educational and recreational programs and events to increase awareness of local MPAs
- Guides and brochures, including a brochure that highlights recreational opportunities in Santa Barbara MPAs, Spanish and English guides with boundary photos for fishing in and near MPAs in Los Angeles County, and MPA guides with maps in San Diego County, Orange County and Catalina Island
- Development and installation of regulatory signage and sign templates
- Enforcement trainings
- Citizen science projects
- Orange County research symposium highlighting local results from scientists involved in South Coast baseline monitoring



South Coast Collaboratives partner with the state to support MPA implementation. Photos: Calla Allison (top, middle), Michael Quill (bottom).



Introduction to MPA Monitoring

What is MPA Monitoring & Why Do We Do It?

The MLPA requires that the statewide network of MPAs be monitored to evaluate progress toward meeting specific goals (see page 6), and that the results of monitoring be disseminated to inform adaptive management decisions. Under the MLPA, adaptive management includes learning from program actions such as monitoring and evaluation of ecosystems, and management effectiveness.

Tracking Conditions in California's Coast & Ocean

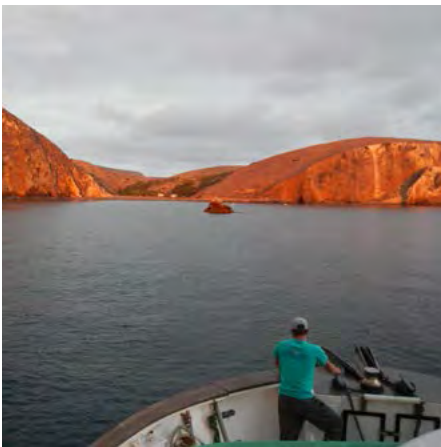
The Statewide MPA Monitoring Program takes an ecosystem-based approach that assesses the condition of California's coastal and marine ecosystems and how they change through time. Monitoring is conducted by fishermen, community or citizen groups, government agencies (local, state, federal, tribal), research institutions, coastal California Native American tribes, non-profit organizations, and private companies.



Key aspects of an ecosystem are identified that, when measured together, can indicate the condition of that ecosystem. For example, by monitoring populations of California Sheephead, a top predator in South Coast kelp forests, scientists can gain insights about the status of the sea urchins and other large invertebrates on which they prey, and thus of the ecosystem more broadly. Human activities and behaviors are indicators, too. For example, by monitoring where fishing occurs and what is being fished, and tracking changes for both factors over time, we can evaluate the influence of MPAs on particular fisheries.

Informing MPA Adaptive Management Decisions

Many decisions contributed to creating California's network of MPAs: How big should each MPA be? How far apart? What types of habitats should be included? What uses and activities should be allowed within the boundaries? MPA monitoring results, combined with additional sources of information, can inform the State's adaptive management process to help us learn and evaluate whether the MPA network is making progress towards meeting the goals of the MLPA.



Adding Data & Results to Understand the South Coast Setting

Establishing a benchmark, or baseline of conditions requires not only information on the ecology and socioeconomics of the region, but also an understanding of the broader physical habitat, oceanographic and socioeconomic context in which the MPAs are placed. Fortunately, the large human population in the South Coast supports dozens of research institutions and organizations, which contributes to the extensive research capacity in the region. In addition to the ten projects funded as part of baseline monitoring, this report brings together work supported by other state, federal, and private investments. For example, the Southern California Coastal Water Research Project (SCCWRP) and the Southern California Coastal Ocean Observing System (SCCOOS) collected and analyzed data on oceanographic conditions and water quality in the region, which provides important context for the interpretation of baseline data and contributes to developing a benchmark.

Reef Check California divers monitor South Coast kelp forest and shallow rocky reef ecosystems. Photos: Colleen Wisniewski (top & bottom), Michelle Hoalton (center).



Multi-Agency Rocky Intertidal Network (MARiNe) researchers monitor a rocky intertidal ecosystem on the Palos Verdes Peninsula. Photo: UCSC.

California's MPA Monitoring Program

California takes a two-phase approach to MPA monitoring: regional baseline monitoring (Phase 1) and statewide long-term monitoring (Phase 2).

Phase 1: Establishing a Benchmark Through Baseline Monitoring

Near the time of MPA implementation in each region, the state designed and implemented baseline monitoring to establish a regional benchmark of ecological and socioeconomic conditions, and document any initial changes resulting from MPA implementation. Baseline monitoring serves as an important set of data against which future conditions can be measured. The findings presented in this report are the outcome of baseline monitoring.

Phase 2: Supporting Decision-Making Through Long-Term Statewide Monitoring

As regional baseline monitoring nears completion, the State is designing and implementing long-term statewide monitoring. A Statewide MPA Monitoring Action Plan is under development, and is planned for release in 2018. It will reflect current State priorities and management needs, while building on the knowledge, capacity, and unique considerations for each region. With an efficient, leveraged, long-term monitoring program, California will provide access to data that support near-term and long-term decisions regarding coastal and marine ecosystem management.

South Coast MPA Baseline Monitoring Projects



Jessie Altstatt

Rocky Intertidal Ecosystems

Carol Blanchette from the University of California Santa Barbara (UCSB) and Pete Raimondi from the University of California Santa Cruz (UCSC), both with the Multi-agency Rocky Intertidal Network (MARiNe), led a team of marine ecologists who surveyed invertebrates and algae along the rocky shoreline in MPAs and associated reference sites. Researchers also collaborated with staff from the Long-term Monitoring Program and Experiential Training for Students (LiMPETS) citizen science program to evaluate their rocky intertidal monitoring protocol.



Jenny Dugan

Sandy Beach Ecosystems

Jenny Dugan and David Hubbard from UCSB led a team of scientists to survey sandy beach ecosystems in MPAs and adjacent reference sites on the mainland South Coast from Gaviota to San Diego. These researchers also collaborated with the LiMPETS program to evaluate their monitoring protocol for sandy beaches.



Colleen Wisniewski

Citizen Science Data Collection by Volunteer Divers

A network of highly-trained and tested volunteer divers led by Jan Freiwald from Reef Check California (RCCA) quantified fish, invertebrates, and algae in kelp and shallow rock ecosystems in MPAs and associated reference sites.



Jonathan Williams

Kelp and Shallow Rock Ecosystems

Dan Pondella and Jeremy Claisse from Vantuna Research Group (VRG) at Occidental College, and Jenn Caselle from the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) and UCSB led a team of research divers to quantify fish, invertebrates, and algae on shallow rocky reefs and kelp forests in MPAs and associated reference sites.



Tim Maricich

Remotely Operated Vehicle (ROV) Surveys

James Lindholm from California State University Monterey Bay (CSUMB) and Dirk Rosen from Marine Applied Research and Exploration (MARE) led a project that used an ROV equipped with video and still cameras to quantify fish and invertebrates over mid-depth rock, soft-bottom subtidal, and deep ecosystems at MPAs and associated reference sites.

South Coast Baseline Monitoring

Baseline monitoring in the South Coast began with a \$4 million investment by the State, and was implemented through a partnership among the OPC, OST, CDFW, and California Sea Grant. Ten projects—selected through a competitive process that included peer review of all proposals—covered a range of ecosystems and human activities in the region. These projects began data collection in 2011, before South Coast MPAs were implemented in January 2012, with data collection completed by 2014. Some projects incorporated historical datasets into their analyses. This suite of ecological and socioeconomic data provides a broad picture of the condition of South Coast coastal and marine ecosystems around the time of MPA implementation.⁹





Jessie Altstatt

Socioeconomics of Fisheries

Social science researchers, led by Cheryl Chen of Point 97/Ecotrust, conducted a socioeconomic survey and developed baseline estimates of the quantity, spatial distribution, and economic value of human activities in the South Coast, including recreation, commercial fisheries, and the commercial passenger fishing vessel (CPFV or “party boat”) fleet.



Abigail Cannon

Nearshore & Estuarine Seabirds

Dan Robinette from Point Blue Conservation Science (PBCS) led a team evaluating seabird use of nearshore habitats for breeding, roosting, and foraging at MPAs and associated reference sites.



Amalia Harrington

Spiny Lobster

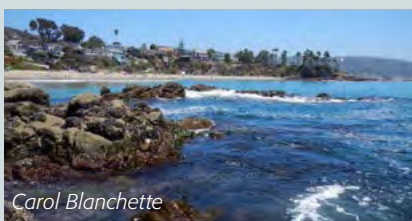
Kevin Hovel of San Diego State University (SDSU), Doug Neilson of CDFW, and Ed Parnell of Scripps Institution of Oceanography (SIO) led a study in collaboration with commercial lobster fishermen and trained volunteers to collect data on the abundance, size distribution, behavior, and consumptive use of California spiny lobster at MPAs and associated reference sites.



Ocean Imaging

Aerial Imagery

Jan Svejkovsky and Mark Hess from Ocean Imaging, Inc. created high-resolution maps for shallow subtidal and intertidal benthic habitats and analyzed changes in habitat types and extent over time.



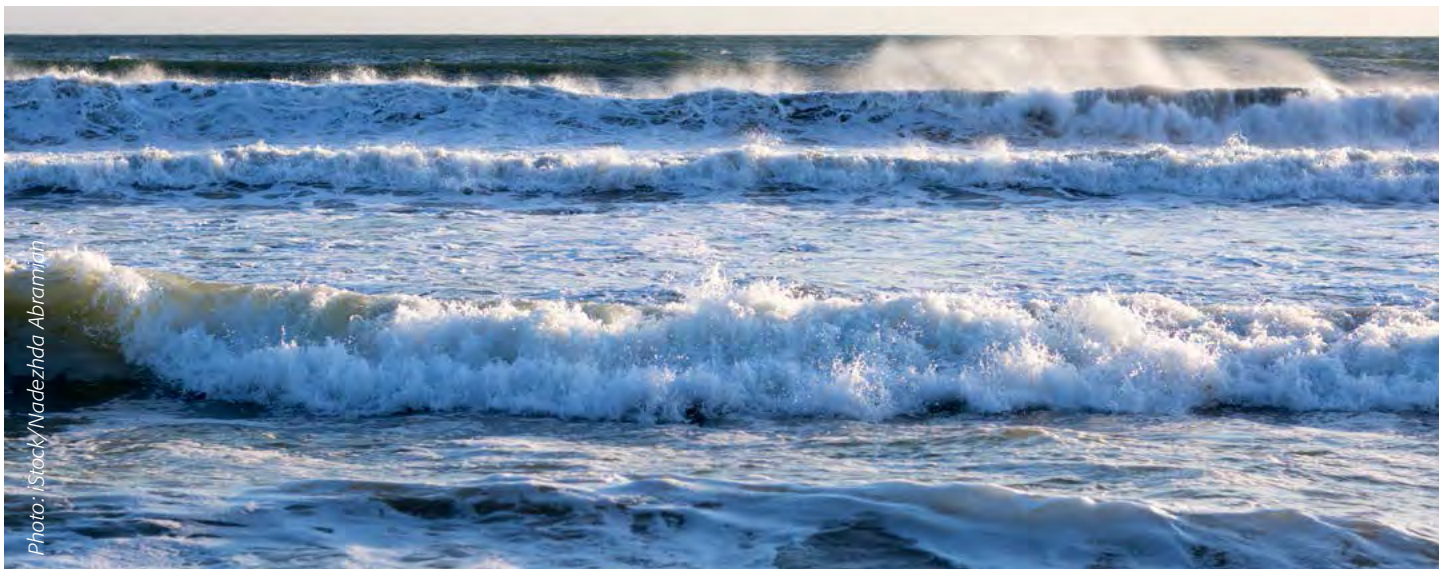
Carol Blanchette

Integrative Assessment

Jenn Caselle and Carol Blanchette of UCSB worked to coordinate monitoring across projects through workshops and working groups, and to facilitate products that synthesized results across ecosystem features.

Learn More: Setting the Scene

1. 2016 Master Plan: goo.gl/BYg7Ap
2. MPA Management Program, brochures, and maps: goo.gl/52N9Nx
3. MPA research and monitoring: goo.gl/wHkFD9
4. MPA Statewide Leadership Team and Partnership Plan: goo.gl/pG03yv
5. Summary of CDFW Scientific Collecting Permits: oceanspaces.org/sc-cdfw-scp
6. Summary of enforcement and compliance activities: oceanspaces.org/sc-cdfw-led
7. Summary of outreach and education activities: oceanspaces.org/sc-cdfw-outreach
8. MPA Collaborative Network: mpacollaborative.org
9. South Coast MPA baseline monitoring projects: goo.gl/x4ijg0

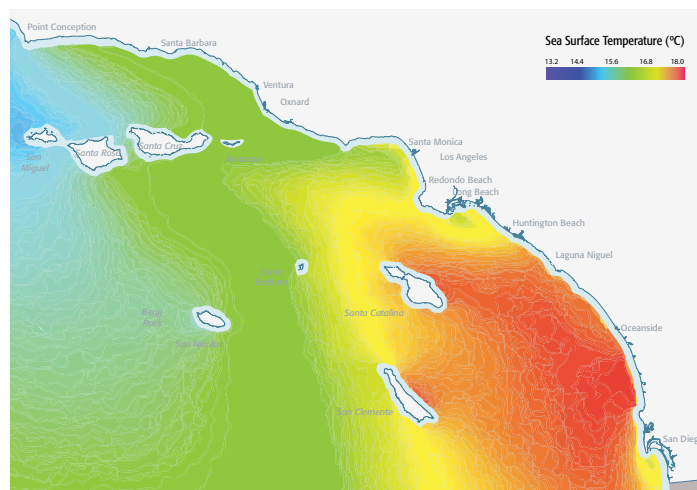


Physical Ocean Conditions

The South Coast is shaped by dynamic ocean conditions and a wide variety of human activities. Ocean conditions can vary over short and long timescales, due to natural seasonal and multi-year cycles (such as El Niño and the Pacific Decadal Oscillation), and human-caused impacts like climate change and impaired water quality. These driving factors have a profound impact on the marine algae, plants, and animals that call this region home, and by extension the humans who are part of, visit, and depend on these important ecosystems. Physical ocean conditions provide important context for understanding ecological and socioeconomic trends.

Unique Conditions

The South Coast is part of two important ocean features: the Southern California Bight and the California Current Large Marine Ecosystem. A bight is a curved stretch of coastline that forms an open bay, and the Southern California Bight extends from Point Conception to Baja Mexico. The California Current Large Marine Ecosystem (CCLME) extends along the West Coast of the United States, and is one of the most productive ecosystems in the world.



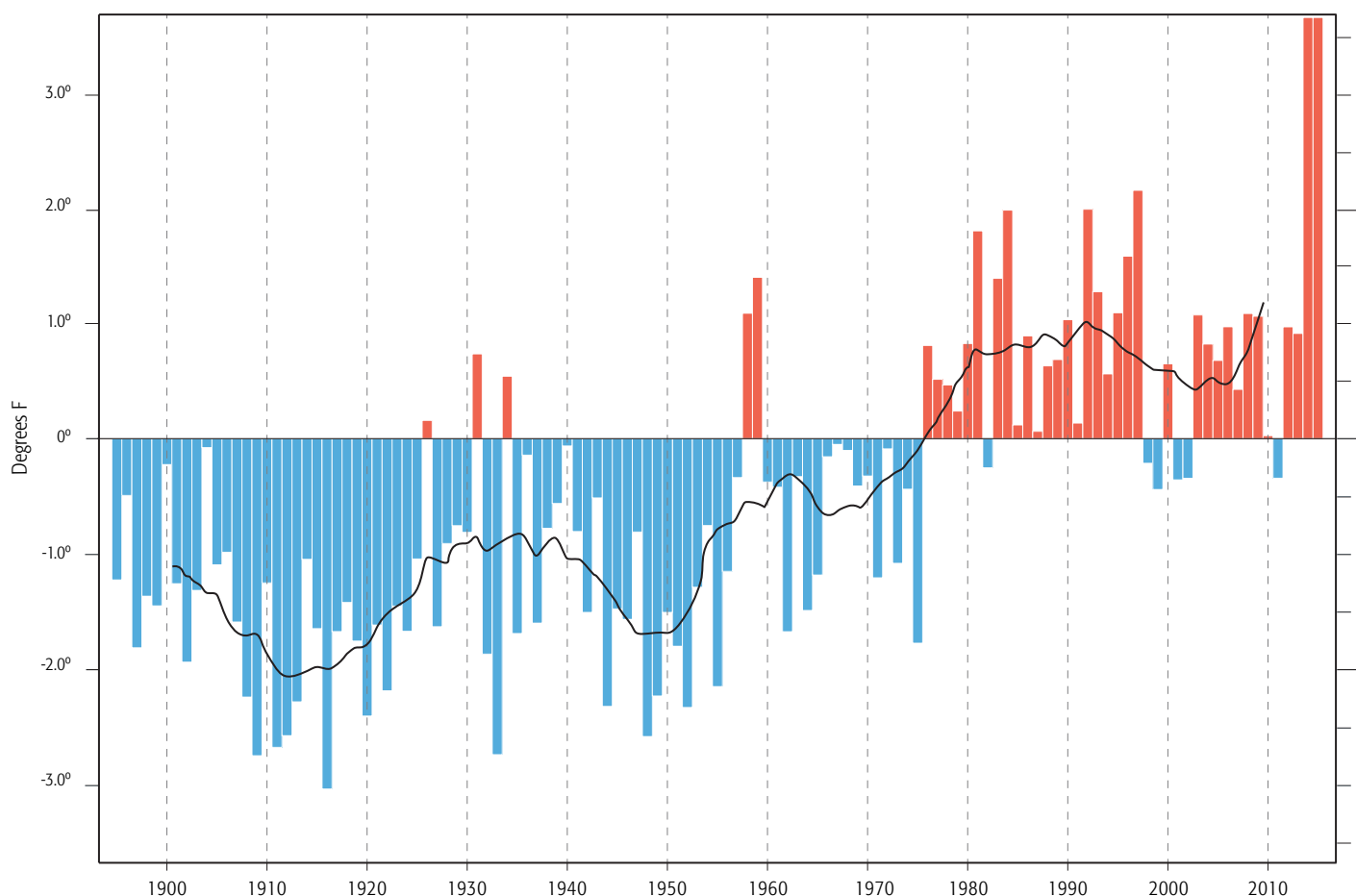
Spatial pattern of mean sea surface temperature from 2000 to 2012 in the South Coast. Source: South Coast Baseline Program Final Report: Integration.

During spring and early summer months, seasonal winds travel southward along the coast of California, and the rotation of the Earth pulls the surface water offshore. This causes coastal upwelling, which occurs when cool, nutrient-rich, deep water travels upward to replace the surface water that has been pulled offshore. Upwelled waters are an important source of nutrients that drive the food chain and make the CCLME so productive.

Upwelled waters are also an important driver of ocean chemistry. Deep waters contain dissolved carbon dioxide, which reacts with water to create acidic conditions. As a result, cool, upwelled water is typically more acidic than warmer water.

Adding to its uniqueness, the South Coast is located at the intersection of two major ocean currents: the southward-flowing California Current meets the northward-flowing Southern California Countercurrent at Point Conception. This leaves areas to the north of Point Conception strongly influenced by the cooler California Current, with consistently strong coastal upwelling. Areas south of Point Conception are influenced by the warmer Southern California Countercurrent, with seasonal upwelling during winter. As a result, the Channel Islands are influenced by both currents and experience strong gradients in oceanographic conditions.¹

Data reveal typical seasonal patterns and spatial gradients in winds, sea surface temperature, and upwelling. On average, sea surface temperatures are cooler in the northern portion of the region and warmer in the southern portion of the region. During spring and early summer, upwelling is stronger, with winds traveling from the northwest to the southeast. At the same time, even during upwelling periods, warm waters brought into the southern portion of the region keep temperatures from being as cool as in the northern portion of the region.



South Coast Region Mean Temperature Departure January–December

Mean monthly air temperature anomalies for 1895–2015. Shown are mean monthly temperatures that are below or cooler (blue bars) and above or warmer (red bars) than the historical mean, and the 11-year running mean (black line) showing a clear trend of warming sea surface temperatures. Anomalies are relative to the 1949–2006 base period. Source: Western Regional Climate Center.³

Detecting Regional Patterns

The South Coast is home to an abundance of researchers based at local universities and agencies who track physical conditions in the region. These researchers monitor the air and sea with sensors from piers, moorings, ships, and even gliders.

SCCOOS, a key partner in South Coast monitoring, provides near real-time data on waves, temperature, currents, and chemistry to inform decision-making and better understand changing conditions in the South Coast region.²

From 2014 to 2016, the entire West Coast of the U.S. experienced anomalously warm water conditions. Nicknamed ‘The Blob,’ this warm water anomaly can be thought of as a series of marine heat waves. SCCOOS and its partners at Northwestern Association of Networked Ocean Observing Systems (NANOOS) and Central and Northern California Coastal Ocean Observing System (CeNCOOS) are working closely with researchers and managers to explore the issue. While a full understanding of the event will take time, scientists have observed that seasonal upwelling continued at a near-normal intensity in the South Coast during the anomaly, despite the elevated temperatures.

Climate change is already impacting the South Coast, with increases in temperature and sea level, and ocean acidification expected to continue. Each of these physical changes can have profound impacts on marine life in the region. For example, increasingly acidic waters make it difficult for calcifying organisms to build shells, decreasing their survival. Mobile species that cannot tolerate warmer temperatures may migrate northward, while species that must live at rocky shores and sandy beaches may find that their habitat is less available to them as sea level continues to rise. Researchers have identified range extensions and unusual occurrences of several species of marine fish, algae, invertebrates, and birds.¹ Long-term monitoring is key to tracking these changes and identifying their impacts on marine life in the South Coast now and in the future.

Learn More: Ocean Conditions

1. South Coast Baseline Program Final Report: Integration: goo.gl/H5kkyT
2. SCCOOS: sccoos.org
3. Western Regional Climate Center: <http://www.wrcc.dri.edu/>
4. CNAP: cnap.ucsd.edu
5. CSCMP: goo.gl/Ose2l4
6. Santa Barbara Coastal LTER: sbc.lternet.edu



Photo: Michelle Hoolton

An underwater photograph of a rocky reef. The scene is dominated by green kelp with long, thin blades reaching upwards. In the lower left, there is a cluster of purple, branching coral. The rocks are covered in various marine life, including small fish and other invertebrates. The water is clear, and the lighting is bright, highlighting the textures of the kelp and coral.

Establishing a Benchmark

Marine ecosystems change over time, and these changes are driven by multiple factors. Baseline monitoring at or near the time of MPA implementation is a critical first step and provides an important reference of ecological and socioeconomic conditions in the region.

Beginning in 2011, academic, agency, and citizen scientists, fishermen, and volunteers, gathered baseline data in the region. By studying a range of ecosystems, from rocky shores and kelp forests to deep reefs, researchers documented patterns in marine life populations and communities throughout the South Coast. These ecological patterns, together with patterns of human activities, create a region-wide benchmark of ecological and socioeconomic conditions for examining future changes.



HUMAN USES: Consumptive & Non-Consumptive

- The South Coast supports a substantial proportion of statewide commercial fishing activity, contributing 68% of landings, 40% of ex-vessel revenue, and 37% of fishermen in 2012.
- Market squid harvested by purse seine gear was the most important commercial fishery in the region.
- San Diego was the most active port for CPFV fishing, with an annual average (2000–2012) of 94 vessels and 172,772 anglers.
- During the trips taken by CPFVs from 1992 to 2015, rockfish species were the most commonly landed marine finfish, followed by Barred Sand Bass, Kelp Bass, and California Scorpionfish.
- California spiny lobster, which support important commercial and recreational fisheries in the South Coast, tend to be larger and less abundant in the northern part of the region and smaller and more abundant in the southern part of the region.
- In 2012 and 2013, the majority of non-consumptive coastal trips in the region occurred in Los Angeles County and the fewest occurred in Ventura County, with beach going, scenic enjoyment, and biking or hiking as the most popular activities.
- The average non-consumptive survey respondent took seven trips to the coast each year, and spent around \$60 per trip.

KEY HIGHLIGHTS

from Baseline Monitoring

The ten state-funded projects, which together covered the region and described important ecosystem types and species found in the South Coast, produced peer-reviewed technical reports, and delivered 143 publicly accessible data packages. The results of many of these projects are provided in technical reports, and many are summarized in a series of Snapshot Reports; all reports are available at oceanspaces.org/scsotr.



ROCKY INTERTIDAL ECOSYSTEMS

- Species and sizes of individuals present at particular sites were influenced by the degree of human use of the intertidal.
- Researchers identified and characterized 14 distinct sessile (non-mobile) community groups and nine distinct mobile community groups.
- Community composition is driven by: water temperature, latitude and longitude, type and slope of substrate, and surrounding habitat.
- Biodiversity was highest at sites within old MPAs, and lowest at sites outside of MPAs.

Photos (clockwise from top left): Jessie Altstatt, Sarah Finstad, iStock, Jenny Dugan, Dan Robinette. Sarah Finstad, IfAME/MARE, Colleen Wisniewski, Sarah Finstad.



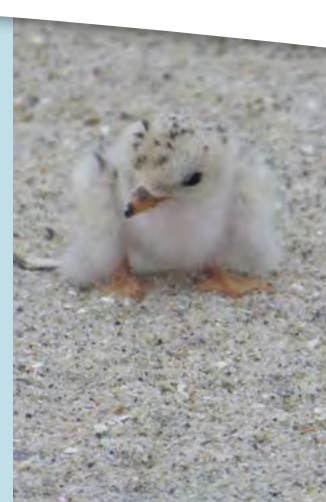
SOFT-BOTTOM INTERTIDAL & BEACH ECOSYSTEMS

- Wrack—algae and surfgrass washed ashore—is a key ecological connection between sandy beaches and nearby kelp forests and rocky reefs, providing food for macroinvertebrates.
- The South Coast may represent a biodiversity hotspot for sandy beach macroinvertebrates, due to high species diversity, abundance, and biomass when compared to global values.
- Suspension feeders (e.g., sand crabs and bean clams) dominate the macroinvertebrate community by weight.
- Shorebirds were the most abundant group of birds observed, supported by abundant macroinvertebrate prey.



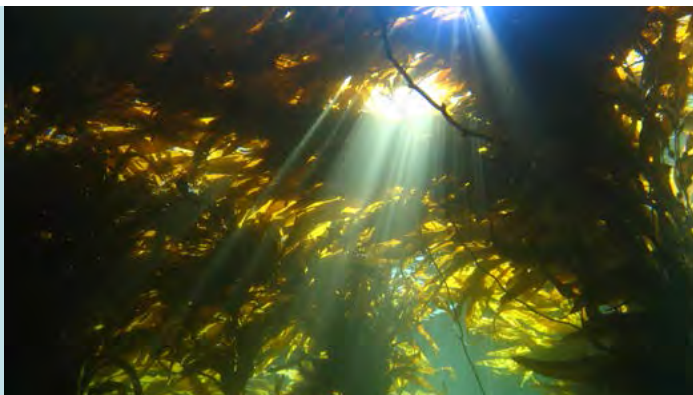
NEARSHORE PELAGIC ECOSYSTEMS

- Seabird diets often reflect patterns of fish recruitment.
- Monitoring seabirds can provide important insights into nearshore pelagic ecosystems, potentially acting as an indicator for systems that are challenging and costly to monitor.



ESTUARINE & WETLAND ECOSYSTEMS

- California Least Tern, an endangered species, utilizes MPAs encompassing estuarine habitat for breeding.



KELP & SHALLOW ROCK ECOSYSTEMS

- Reefs across the South Coast region group into 17 kelp forest community “clusters,” each with its own unique combination of fish, invertebrate, and algal species.
- Clusters are driven by a strong water temperature gradient and physical differences between mainland and rocky island reefs, and influenced on a local scale by site depth and substrate characteristics, including relief and proportions of sand and boulder cover.
- The biomass of reef-associated fish species targeted by commercial and recreational fishing has increased throughout the northern Channel Islands since 2003. Researchers detected biomass increases both inside and outside of northern Channel Islands MPAs, but the rate of change was much greater inside northern Channel Islands MPAs.
- High variability from year to year and site to site is the norm in these ecosystems in the South Coast.
- Kelp forests close to shore have greater interannual stability.



MID-DEPTH ROCK, SOFT-BOTTOM SUBTIDAL, AND DEEP ECOSYSTEMS

- Mid-depth and deep rocky ecosystems support a range of habitat-forming invertebrates, such as sponges, gorgonians, and hydrocorals.
- Soft-bottom ecosystems are the most abundant habitat type in the region, supporting a diverse assemblage of fishes and invertebrates, including flatfishes, dwarf rockfishes, ridgeback prawns, crabs, and octopuses.
- Over 90 species of fishes and 80 species of invertebrates were identified during ROV surveys.
- Fish populations in some locations were dominated by dwarf rockfishes (e.g., Halfbanded Rockfish), while invertebrate communities were often dominated by sea urchins.
- In La Jolla Canyon, biodiversity of fishes increased below 200m, while overall abundance declined.



Relative intensity of coastal recreation in the South Coast, based on phone surveys (n=9885). Source: Point 97/Ecotrust.

Human Activities in the South Coast: Consumptive & Non-Consumptive Uses

With a population of over 17 million people, a mild climate, and nearly 750 miles of coastline, it comes as no surprise that the South Coast has over 800,000 ocean-dependent jobs and supports \$41 billion in ocean tourism each year. However, these same factors contribute to the enormous pressure faced by coastal and ocean ecosystems, and the species that inhabit them.

As a part of South Coast MPA baseline monitoring, Point 97/Ecotrust conducted a region-wide analysis of coastal recreation, commercial fishing, and CPFV activity. In addition, CDFW also analyzed commercial and recreational fishing records from the South Coast.

Non-Consumptive Use: Coastal Recreation

Coastal recreation is an important component of both the economy and culture of the South Coast. Based on the Point 97/Ecotrust surveys conducted in 2012 and 2013, the majority of coastal trips in the region occurred in Los Angeles County (31%) and the fewest occurred in Ventura County (8%), with beach going, scenic enjoyment, and biking or hiking as the most popular activities. Point Dume SMR/SMCA was the most popular MPA destination for coastal recreation, and approximately 10% of all coastal recreation trips occurred within South Coast MPAs. The average survey respondent took seven trips to the coast each year, and spent around \$60 per trip.¹

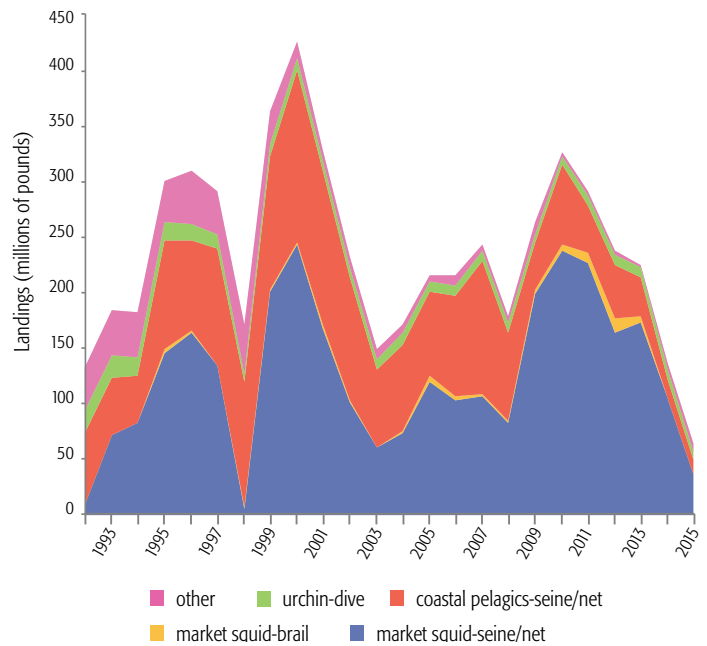


*A surfer walks along the La Jolla coast.
Photo: Jenny Dugan.*

Consumptive Use: Commercial Fisheries

From 1992 to 2015, reported total landings for all commercial fisheries in the South Coast region fluctuated, with a high of approximately 428 million pounds landed in 2000, and a low of less than 70 million pounds landed in 2015 (see page 53 for supporting figure). Reported ex-vessel revenue from landing receipts, adjusted for inflation (2010\$), also fluctuated with a low of approximately \$46 million in 1992 to a peak of approximately \$105 million in 1999.² Over the study period, the relative proportion of landings and ex-vessel revenue from state waters increased relative to federal waters, from 62% of revenue in 1992 to 98% of revenue in 2012.¹ Ex-vessel revenue was fairly stable during this time period (with an average of \$74 million), despite a decrease in the total number of fishermen. South Coast landings were a substantial proportion of statewide commercial fishing activity, contributing to 68% of landings, 40% of ex-vessel revenue, and 37% of fishermen in 2012 (see page 53 for reported South Coast annual commercial landings).¹

Market squid harvested by purse seine gear was a fishery of interest in the South Coast for both landings and ex-vessel revenue, with 90 participating fishermen in 2012. Coastal Pelagic Species (CPS—defined as Pacific Sardine, Northern Anchovy, Pacific Mackerel, Jack Mackerel, and unspecified mackerel) and sea urchins were the second and third most landed fisheries in 2012, respectively. Sea urchins and California spiny lobster were the second and third most lucrative fisheries in terms of ex-vessel revenue, and with 175 and 165 participating fishermen in 2012, respectively.



Reported commercial landings for fisheries of interest in the South Coast, 1992–2015. Highest volume commercial fisheries of interest and the “other category” which includes all additional species and fishing modes reported for South Coast commercial landings. Source: CDFW.

California’s Market Squid Fishery

The purse seine fishery for market squid is one of California’s most lucrative commercial fisheries. The success of the fishery depends upon targeting spawning aggregations of squid in cool (50–60°F), shallow waters over sandy substrate. Squid are sensitive to variable ocean conditions. Since the 2011/2012 season, landings and effort have decreased within the South Coast, coinciding with the warming of Eastern Pacific waters since 2012. Since squid is a highly mobile species with adults moving to spawn where ocean conditions are favorable, they receive little protection from established “no-fishing” areas within MPAs, with the exception of their spawning aggregation events.

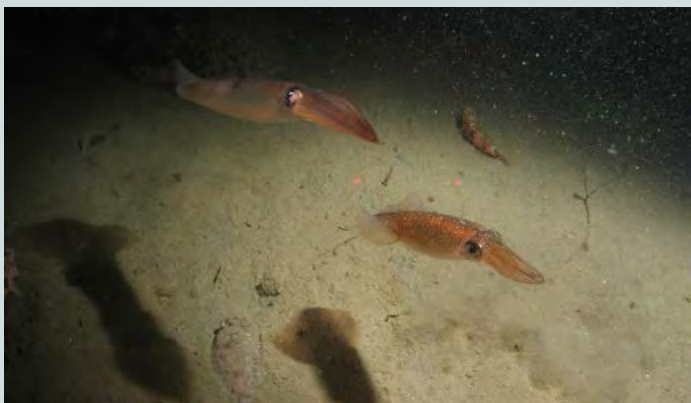
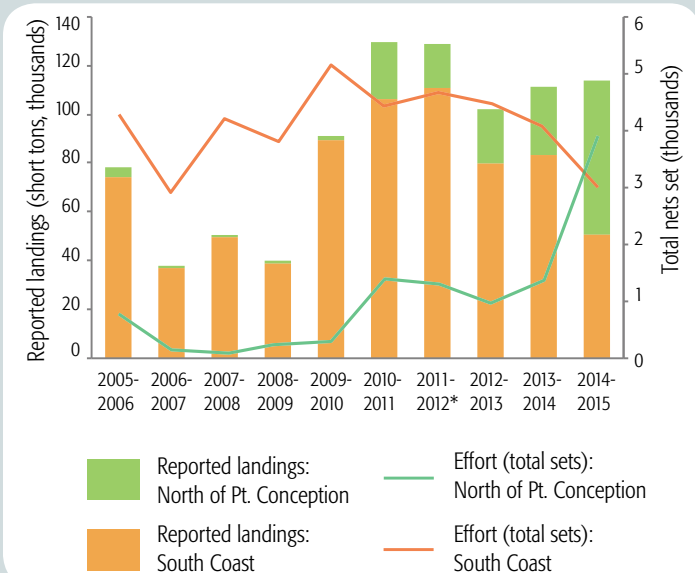


Photo: IfAME/MARE.

South Coast MPAs protect at a minimum 14.6% of available squid spawning grounds within no-take MPAs.³ While the contribution of these MPAs to squid spawning success and recruitment is not yet known, long-term monitoring can help us understand how MPAs might affect the squid population and the fishery.



Total reported seasonal commercial purse seine landings and effort for market squid 2005/2006 to 2014/2015 fishing seasons. *MPAs implemented January 1, 2012. Source: CDFW.

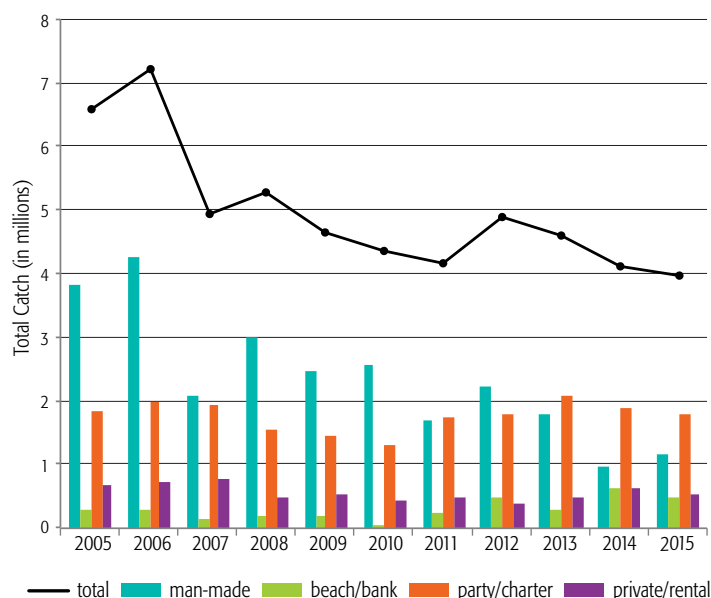


Consumptive Use: Recreational Fisheries

In California, recreational anglers can fish from beaches, piers, jetties, docks, and aboard private boats and CPFVs. Due to the numerous fishing areas available within the South Coast, sampling recreational anglers can be more difficult and time intensive than sampling their commercial counterparts. CDFW scientists collect estimates of effort and catch for four fishing modes: man-made structures (e.g., piers and jetties), beaches and banks, private/rental vessels, and CPFVs (through two different avenues, the California Recreational Fisheries Survey (CRFS) and the CPFV logbooks).⁴

Fishing Activity in the South Coast

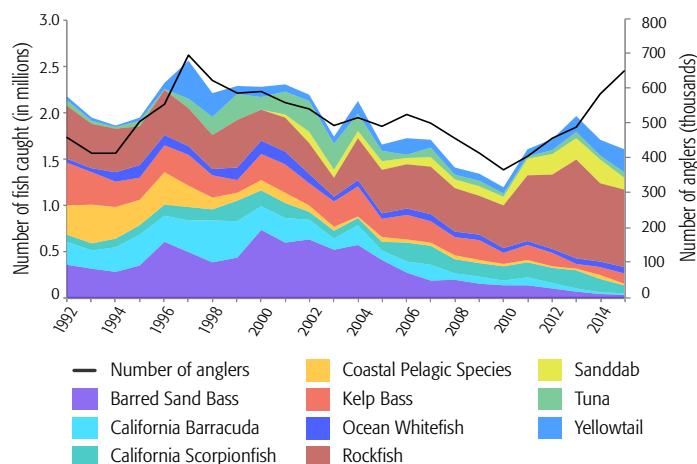
During the period of 2005–2015, estimated effort (number of angler trips) decreased from a region-wide high of approximately 2.5 million trips in 2006 to a low in 2011, with less than 1.7 million angler trips taken across all four fishing modes. While the number of angler trips rebounded in 2012, effort slightly declined from 2013 to 2015, with approximately 1.9 million total trips in the South Coast in 2015. The total estimated annual catch (number of fish examined and reported dead by angler) peaked at approximately 7.2 million fish in 2006 for all four fishing modes,⁵ then declined to a region-wide low of approximately 3.9 million fish in 2015. Estimates of total catch for the 2010 beach/bank mode and the 2011 man-made mode only account for part of the year due to curtailed sampling.



CRFS estimates regarding annual catch (number of fish examined and reported dead by angler) for shore-based fishing modes and private/rental vessels. Due to reduced CRFS sampler trips on CPFVs to accommodate paying passengers, CPFV logbook data was used to display catch for party/charter vessels. Southern California Region (ocean only), 2005-2015. Source: CDFW.



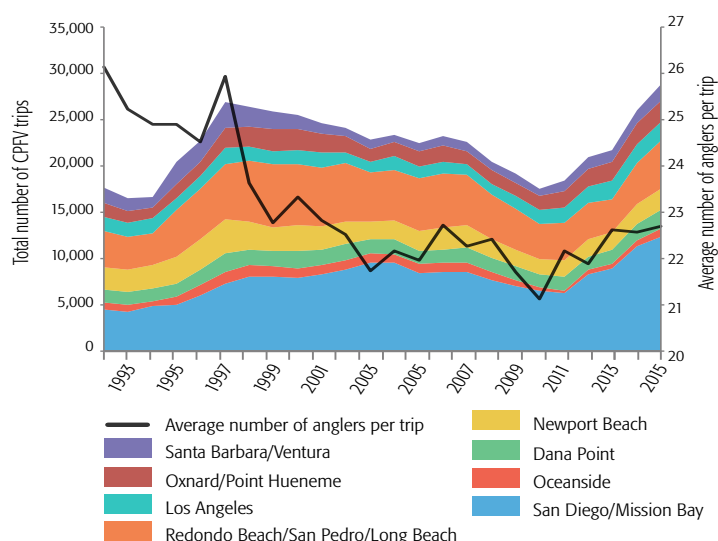
Blue Rockfish at Santa Rosa Island. Photo: Channel Islands National Park.



Total number of the top 10 species caught during CPFV fishing trips, and total number of anglers within the South Coast from 1992–2015. Data Source: CDFW.



Ocean Whitefish and Kelp Bass. Photo: Jim Kirklin.



Total effort and average number of anglers per CPFV trip within the South Coast from 1992 to 2015. Source: CDFW.

CPFV Activity

The total number of reported CPFV trips within the South Coast decreased steadily from a high of approximately 27,000 trips in 1997 to a low of approximately 17,500 trips in 2010. During this decline, the average number of anglers per vessel also decreased. The total number of CPFV trips then increased from 2011 to 2015, with the average number of anglers per vessel remaining around 22–23 anglers per trip. San Diego was the most active port for CPFV fishing, with an annual average (2000–2012) of 94 vessels and 172,772 anglers.

During the trips taken by CPFVs from 1992 to 2015, rockfish were the most commonly landed marine finfish, followed by Barred Sand Bass, Kelp Bass, and California Scorpionfish. While rockfish were caught region wide, CPFV anglers specialized in Barred Sand Bass, Kelp Bass, tuna, and Yellowtail in Oceanside, Dana Point, and San Diego, respectively. During this period, landings of Kelp Bass declined by approximately 76%, and landings of the following species declined by more than 90%: Barred Sand Bass, California Barracuda, and CPS. In contrast, landings of Sanddabs, Yellowtail, and Ocean Whitefish increased substantially.⁵

Learn More: Human Uses

1. Human Uses baseline monitoring project: oceanspaces.org/sc-human-uses
2. CDFW summary of commercial fishing: oceanspaces.org/sc-cdfw-commercial
3. CDFW Market Squid Fishery Spotlight: oceanspaces.org/sc-cdfw-squid-spotlight
4. CDFW summary of recreational fishing: oceanspaces.org/sc-cdfw-recreational
5. CDFW Mapping CRFS Catch Rates: goo.gl/Gf0Wzp
6. CDFW California Spiny Lobster Fishery Spotlight: oceanspaces.org/sc-cdfw-lobster-spotlight



Photo: Jenny Dugan.

Sandy Beach Ecosystems

Sandy beaches make up over a third of the South Coast shoreline and are among the most intensely used coastal ecosystems in the region. Although they are extremely important to coastal cultures and economies, the ecology of sandy beaches is not as well studied as many other marine ecosystems, and they are often overlooked in conservation and monitoring efforts. Sandy beach ecosystems extend from the breaking waves of the surf zone to the uppermost extent of unvegetated sandy habitat—this means this dynamic ecosystem often extends well above MPA jurisdiction, which ends at the mean high tide line.

Sandy beaches on the South Coast support high endemic biodiversity and provide a number of critical functions and services, including habitat and prey resources for wildlife such as pinnipeds, birds, and fishes, buffering of storm impacts, water filtration, and nutrient cycling. Despite these important functions, many South Coast sandy beaches, including those in MPAs, are often altered by activities such as grooming or raking, vehicle and heavy equipment driving, berm building, and beach filling.

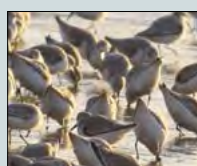
Sandy beaches rely on sediment inputs from rivers and coastal sources up-current to replace sand lost through wave action. These inputs have been severely restricted by dams and coastal armoring (e.g., seawalls, groins, revetments) in the region. In an attempt to compensate for this loss, millions of cubic meters of sand have been added to South Coast beaches over the last century.

Connected Ecosystems

In this project, researchers demonstrated a number of important relationships that shape South Coast sandy beach ecosystems and connect them to other ecosystems. Key connections exist between sandy beaches and nearby kelp forests and rocky reefs—algae and surfgrass wash ashore, forming ‘wrack’. Wrack supports a large and diverse macroinvertebrate community, which in turn supports a large and diverse shorebird community. This sets the scene for the high diversity of species that rely on South Coast sandy beach ecosystems for survival. For details on the connections between kelp forests, macroinvertebrates, and birds, explore the Connections Among Ecosystems section, pages 47-48.

Are South Coast Sandy Beaches Biodiversity Hotspots?

When compared to global values, the South Coast may represent a biodiversity hotspot for sandy beach macroinvertebrates, due to high species diversity, abundance, and biomass. A total of 87 macroinvertebrate types were observed during this study, with a peak of 45 species observed in a single survey at Isla Vista Beach (Campus Point no-take SMCA). More than 30 species were observed in a single survey at half of the 12 study beaches. Approximately 45% of the observed macroinvertebrate species found on any beach use wrack as food and/or habitat. South Coast beaches supported a total of 34 species of endemic beach beetles, several of which are flightless.¹



Key Players in Sandy Beach Ecosystems

Wrack in the South Coast consists primarily of giant kelp, feather boa kelp, and surfgrass. Wrack accumulation is highly variable from beach to beach and throughout the year, and is influenced by numerous factors, including proximity of kelp forests and rocky reefs and beach grooming. Peak wrack abundance is in fall and early winter.

Macroinvertebrates are animals without a spine that can easily be seen with the naked eye. On beaches all these animals are highly mobile, constantly moving up and down the beach to adjust changing tides and waves. Researchers found taxa ranging from tiny flies and mites to large Pismo clams on South Coast beaches. Wrack from kelp forests and reefs was an important food source for beach food webs. Beaches with finer sand grains and flatter slopes supported a greater abundance and diversity of macroinvertebrates, likely because more species can burrow easily and thrive on these beaches.

Shorebirds were the most abundant group of birds observed. Shorebirds utilizing South Coast sandy beach habitats spend the majority of their year in California, only leaving during the summer breeding months. Small, wrack-associated macroinvertebrates and swash-riding sand crabs are especially important prey for shorebirds. *Photos: Jenny Dugan.*



Photo: Jessie Altstatt.

Broadening Participation

Researchers worked with LiMPETS, a citizen science group that focuses on monitoring sandy beach and rocky intertidal ecosystems, primarily with middle and high school students. They compared the results of surveys conducted using a modified adaptive LiMPETS protocol developed for the baseline study with those conducted using the LiMPETS protocol. Recommended updates to the LiMPETS protocol would better incorporate the dynamics of mobile beach animals and enhance the rigor of this educational program. These modifications could potentially produce more scientifically rigorous data while still being appropriate for students with little to no data collection experience or knowledge of intertidal species.

Researchers are also collaborating with Pepperdine University, Surfrider Foundation, and other groups to develop “All Ashore,” a new citizen science program for monitoring a wide range of physical and biological beach metrics. As part of this new program, they are creating a website and iPhone/iPad application to aid with beach species identification.



Bean clams. Photo: Jenny Dugan.

Suspension Feeders on Sandy Beaches

Researchers found that by weight, the sandy beach macroinvertebrate community is dominated by suspension feeders. These animals sieve plankton from the surrounding water. The most abundant players in the South Coast are fast-moving sand crabs and colorful bean clams. Long-lived Pismo clams, a fished species that can reach large body sizes are also found on some of the fine sand beaches of the South Coast. Sand crabs made up an average of 50% of the biomass, making these highly mobile crabs a good indicator of food availability for shorebirds and fishes that forage in the surf zone. Seasonal declines in sand crab abundance were particularly striking in older MPAs, such as San Diego–Scripps Coastal SMCA, where fish were regularly observed feeding in the swash zone.



Sand crab. Photo: Jenny Dugan.

Aerial Imaging

Ocean Imaging, Inc. (OI) analyzed aerial imagery to classify sandy beach habitats in and around South Coast MPAs. They identified, for each MPA, the total and relative cover of sand and wrack.

The greatest extent (area and percent) of sandy beach in 2012 was observed at Gull Island SMR (551,383 m², 2%), Swami's SMCA (420,371 m², 10%), and Point Dume SMCA (24,440 m², 11%). The most wrack was observed at Matlahuayl SMR (21,402 m², 1%), Tijuana River Mouth SMCA (12,927 m², 0.4%), and Gull Island SMR (5,302 m², 0.01%).²

Learn More: Sandy Beaches

1. Sandy Beach baseline monitoring project:
oceanspaces.org/sc-sandy-beach
2. Aerial Mapping baseline monitoring project:
oceanspaces.org/sc-substrate-mapping

Creature Feature: Coastal & Island Breeding Seabirds



Seabirds are long-lived predators with key roles in many coastal and marine ecosystems. Many species exhibit high site fidelity, and specific requirements for breeding, roosting, and foraging habitat. In this baseline project, researchers from Point Blue Conservation Science monitored the use of coastal and nearshore habitats inside and outside of MPAs in 2012 and 2013 for breeding, roosting, and foraging by seven focal species: California Least Tern, Brandt's Cormorant, Pelagic Cormorant, Pigeon Guillemot, Western Gull, California Brown Pelican, and Black Oystercatcher.¹

Seabirds Benefitting from MPAs?

Researchers found that the majority of breeding populations for the monitored species were found outside of MPAs, with the exception of Western Gulls. Approximately 20% of the Least Tern breeding population was inside or near MPAs, especially those that contained estuary habitat. Roost utilization was the same inside and outside of MPAs for all focal species except Pelagic Cormorants, which were observed roosting more often outside of MPAs. Roost utilization was highest at Santa Cruz Island for all species. Overall abundance and biodiversity of foraging seabirds was also the same inside and outside of MPAs.



Black Oystercatcher. Photo: Sarah Finstad.

Above: Brandt's Cormorants at Santa Cruz Island. Photo: Cassie Bednar

Below: California Least Tern chicks at Batiquitos Lagoon. Photos: Dan Robinette.



Improving Understanding of an Endangered Species

This project examined the relationship between reproductive success and diet of the California Least Tern, an endangered species. During the two years examined, reproductive success was low compared to the long-term data, with breeding productivity ranging from 0.0 to 0.6 fledglings per breeding pair among the seven focal colonies. Comparably low rates have only been recorded a handful of times over the last four decades. Diet analysis showed that birds from the most successful colony, at Port of Los Angeles, tended to eat more Northern Anchovies and young-of-the-year rockfish, while birds at less successful colonies had a more varied diet that suggested feeding at multiple sites at greater distances from their colonies.

Sensitive Species

Some seabird species are known to be very sensitive to human disturbance, and may abandon nesting sites if a threat is perceived. This study suggests that disturbance rates in the South Coast are higher on average than other regions in the state, with birds at the San Diego study area experiencing an average rate of 0.35 disturbances per hour of observation. Matlahuayl SMR, in the San Diego study area, experienced the most disturbance (e.g. 0.19 disturbances per hour in 2013), mostly from people nearby. Matlahuayl SMR was the only mainland MPA with breeding seabirds in this study.

Learn More: Seabirds

1. Seabird baseline monitoring project:
oceanspaces.org/sc-seabirds



Cabrillo Beach Tidepools in San Pedro. Photo: Sarah Finstad.

Rocky Intertidal Ecosystems

Rocky intertidal ecosystems exist where the rocky shore meets the ocean, and are home to familiar species such as sea stars, limpets, mussels, anemones, snails, crabs, and surfgrass. In the South Coast, these ecosystems cover approximately one-quarter of the coastline, including rocky cliffs, boulder rubble, and wave-cut platforms.

By occupying the space between land and sea, rocky intertidal ecosystems are vulnerable to a wide range of threats, including sea level rise, increasing water and air temperatures, ocean acidification, oil spills, and coastal development. Along with sandy beaches, the rocky intertidal is also one of the most easily accessible marine environments for people. These visitors are attracted to the rocky

intertidal for a variety of activities such as tidepooling, scientific study, and harvesting organisms. People also pass through the rocky intertidal to pursue recreational activities in other habitats.

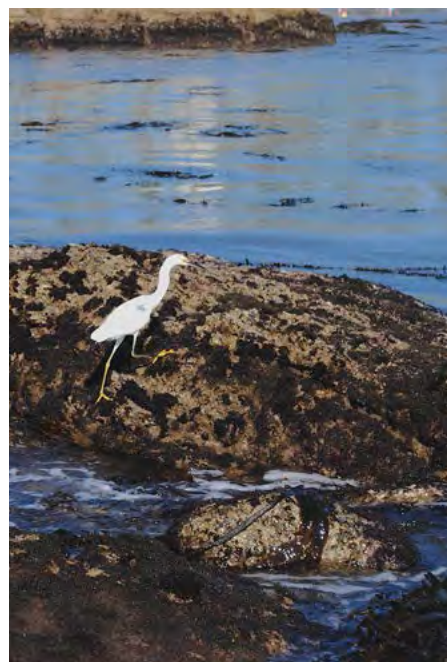
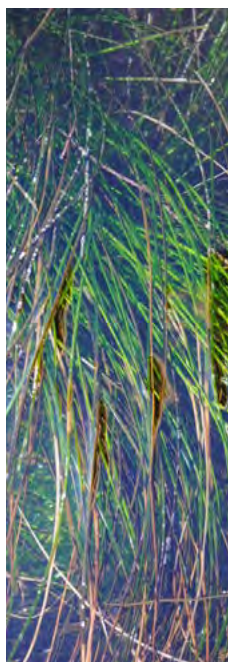
Building on Existing Programs to Create a Robust Baseline

The rocky intertidal baseline project extended pre-existing rocky intertidal monitoring programs (MARINE and PISCO) that have been monitoring sites from Alaska to Mexico for over three decades. This project had excellent spatial coverage, including study sites from Point Conception south to San Diego, as well as the Channel Islands. Monitoring sites were located inside and outside MPAs, including “old” MPAs that were designated prior to 2012.¹

Aerial Mapping

Ocean Imaging, Inc. (OI) analyzed aerial imagery to classify intertidal habitats in and around South Coast MPAs. By using baseline data collected in the field by rocky intertidal scientists, researchers at OI were able to ground-truth the computer-generated classification of the aerial images, and thus increase accuracy and precision. They identified, for a given region and MPA, the total and relative cover of: sand, bare rock, cobble, man-made, mixed rock/mussel/barnacle/anemone, green algae, mixed red/brown algae, blue-green algae, surfgrass, and eelgrass. The greatest coverage (in area

and percent) of the iconic rocky intertidal assemblage of mussels/barnacles/anemones in 2012 was found at Naples SMCA (10,805 m², 0.4%), Campus Point SMCA (2,253 m², 0.05%), and Anacapa Island SMR (1,862 m², 0.16%). One group of intertidal species of particular interest in the context of ocean acidification and hypoxia, surfgrass, was found in 2012 in greatest abundance at Gull Island SMR (249,524 m², 0.6%), Crystal Cove SMCA (117,720 m², 2.1%), and Point Conception SMR (96,800 m², 2%).²



Rocky intertidal communities in the South Coast are home to diverse organisms such as sea anemones, surfgrass, barnacles, mussels, and Snowy Egrets. Photos: Jessie Altstatt (left), Sarah Finstad.

Easily Accessible, Easily Impacted

The large number of visitors to the rocky intertidal inevitably leads to impacts, whether through physical disturbance or extraction. Researchers determined that the species and sizes of individuals present at particular sites were influenced by the degree of human access. For example, owl limpets were smaller at sites with high human use, regardless of whether the sites were inside or outside MPAs.

A Series of Distinct Communities

Previous research identified five ecologically and geographically distinct regions in the South Coast, called bioregions—baseline monitoring results are consistent with these. Within the bioregions, further analysis revealed 14 distinct sessile (non-mobile) community groups and nine distinct mobile community groups (see Patterns of Biodiversity, page 49-50).

The strong water temperature gradient in the South Coast, driven by the convergence of warm and cool currents, is a well-known driver of species distributions, including those in the rocky intertidal. Typical in many parts of the world, latitude and longitude were also found to be important predictors of community composition. On a local scale, the type and slope of substrate and surrounding habitat were also influential.

Broadening Participation



The researchers for this project worked with LiMPETS, a citizen science group that focuses on monitoring rocky intertidal and sandy beach ecosystems, primarily with middle and high school students. Researchers compared the results of MARine surveys with LiMPETS surveys and recommended updates to the LiMPETS protocol that would produce more scientifically rigorous data while still being appropriate for students with little to no data collection experience or knowledge of intertidal species.

Photos: Jessie Altstatt.

Learn More: Rocky Intertidal

1. Rocky Intertidal baseline monitoring project:
oceanspaces.org/sc-rocky-intertidal
2. Aerial Mapping baseline monitoring project:
oceanspaces.org/sc-substrate-mapping

Creature Feature: California Spiny Lobster



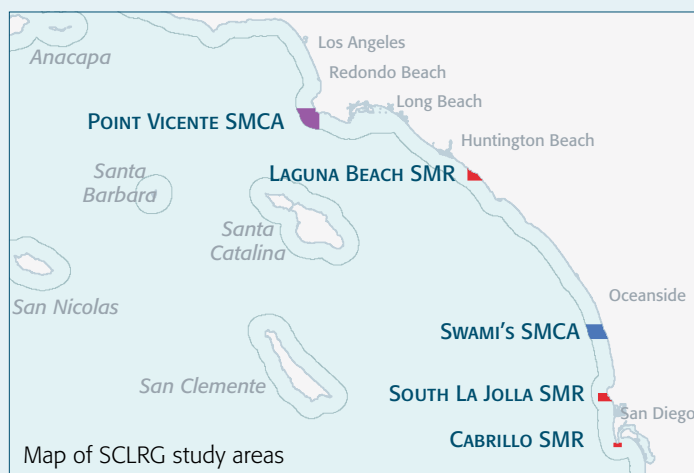
National Park Service Kelp Forest researcher, Kelly Moore, with a large California spiny lobster in the northern Channel Islands. Photo: NPS.

Nocturnal Kelp Forest Predators

California spiny lobsters are key members of marine ecosystems in the South Coast, serving critical ecological roles and supporting important commercial and recreational fisheries. These large, nocturnal invertebrates shelter in rocky crevices during the day and come out at night to hunt in kelp forests, rocky intertidal zones, seagrass beds, estuaries, and soft-bottom subtidal ecosystems. Spiny lobsters eat sea urchins and other benthic invertebrates, and are in turn eaten by large fishes and marine mammals.

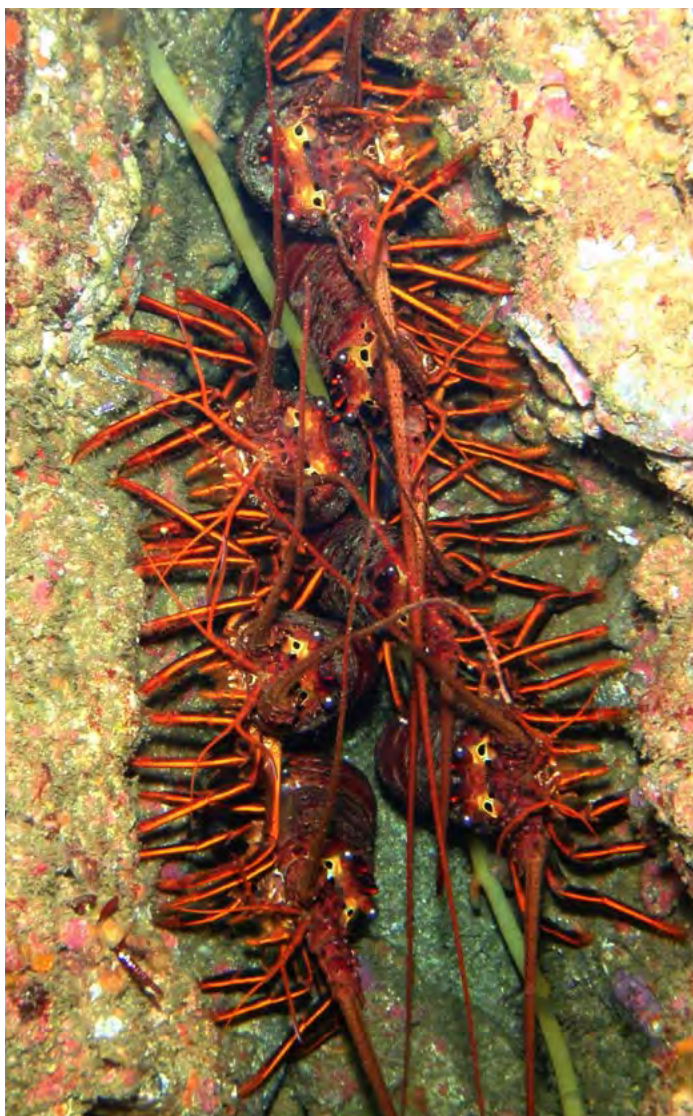
Patterns in Size & Abundance

During the study period, spiny lobsters were smaller but more abundant in the southern part of the region, and larger but less abundant in the northern part of the region.¹ Growth rates were variable throughout the region, averaging 3.22 mm/yr. Spiny lobsters at the Laguna Beach study area exhibited a higher growth rate than at other sites, and males grew faster than females at Laguna Beach and Swami's study areas. The Laguna Beach study area also had an unusually high number of larger lobsters, where legal-sized lobsters made up approximately 50% of the catch.² Researchers noted that it is too soon to detect impacts on lobster size and abundance resulting from MPA implementation because spiny lobsters have relatively slow growth rates and they do not reproduce until they are 3–7 years old.



Broadening Participation

As a part of the South Coast Lobster Research Group (SCLRG), scientists, resource managers, fishermen, and volunteers worked together from 2011 to 2013 to provide baseline information on the status of spiny lobsters in the region.² This work was part of South Coast MPA baseline monitoring. Five study areas were chosen to reflect some of the most productive fishing grounds with historical records of fishing effort. SCLRG collected field data from May–September in two ways: 1) tag-recapture studies for measurements of abundance, size, and movement (2011–2013), and 2) scuba-based surveys to explore habitat preferences and sheltering behavior (2012–2013). They also analyzed commercial fishing catch and effort before and after MPA implementation.



California spiny lobsters. Photo: Dan Pondella.

A Broad Range of Habitat Preferences

Spiny lobsters' habitat preferences were highly variable among study areas, and researchers did not find a single habitat characteristic or combination of characteristics that could be used to successfully predict the presence of lobsters. However, they did observe a sharp decline in abundance below 12m (40 ft), despite the presence of similar habitat across depths and the greatest fishing pressure in shallow waters.²

Researchers detected only a small amount of movement across MPA boundaries at all study areas except Point Vicente SMCA, where no movement was observed. This result was expected since lobsters have small home ranges.

Spiny lobster aggregation behavior may serve to protect them from predators. Locations with greater densities of large predatory fish were associated with larger aggregations of sheltering lobsters. Researchers expect that spiny lobster aggregation size and frequency could change as predatory fish species respond to MPAs.

Changes in Commercial Fishing

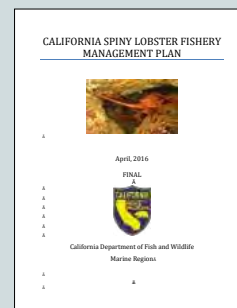
When South Coast MPAs were implemented, some lobster fishing grounds were closed to commercial fishing. While some fishermen relocated to adjacent fishing grounds, others were displaced. The degree of change before and after implementation varied by study area, with the greatest impacts at Point Vicente and Laguna Beach study areas.² Despite the displacement of some fishermen, when researchers analyzed landings and effort data for the years immediately preceding and following MPA implementation (2010/2011 and 2012/2013, respectively), they found an increase in both landings and effort, with no substantial change in regional catch-per-unit-effort.³

The California Spiny Lobster Fishery

The California spiny lobster is an important commercial and recreational fishery in state waters. CDFW has managed this fishery for over a century, and recently collaborated with many individuals and organizations to develop the California Spiny Lobster Fishery Management Plan (Lobster FMP).⁴ The Lobster FMP represents the first instances where CDFW has integrated MPAs into fisheries management through the use of a Spawning Potential Ratio model. The model accounts for the estimated 14.6% of lobster habitat protected by MPAs that prohibit the take of lobster; thus providing a reproductive benefit that reflects the importance of MPAs to the reproductive potential of lobster.



CDFW scientist, Travis Buck, with California spiny lobsters. Photo: CDFW.



Learn More: Spiny Lobsters

1. Spiny Lobster baseline monitoring project: oceanspaces.org/sc-spiny-lobster
2. Human Uses baseline monitoring project: oceanspaces.org/sc-human-uses
3. CDFW California Spiny Lobster Fishery Spotlight: oceanspaces.org/sc-cdfw-lobster-spotlight
4. Lobster FMP: goo.gl/f6yEMi
5. CDFW Spiny Lobster Report Card Program: goo.gl/B8vf2l



Black Perch in the kelp forest at Scorpion Anchorage, Santa Cruz Island. Photo: Colleen Wisniewski.

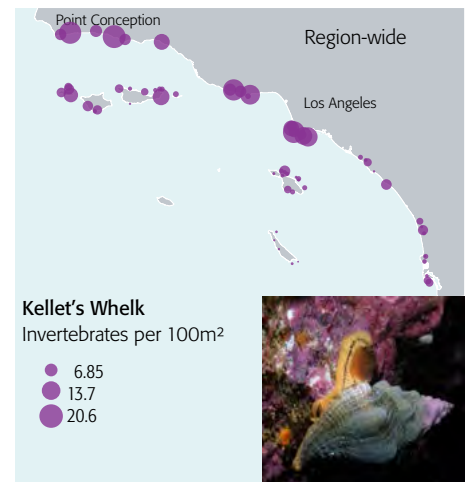
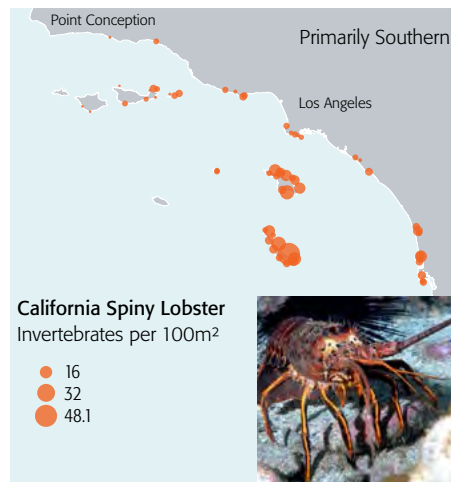
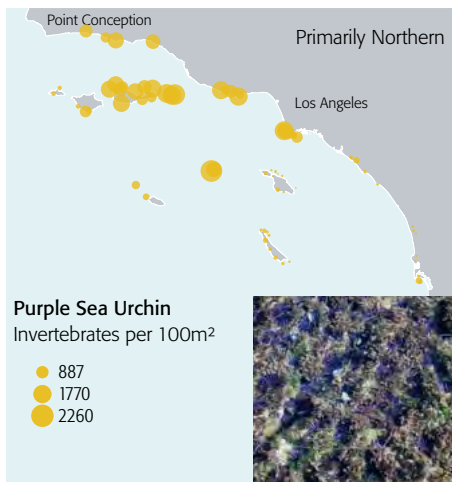
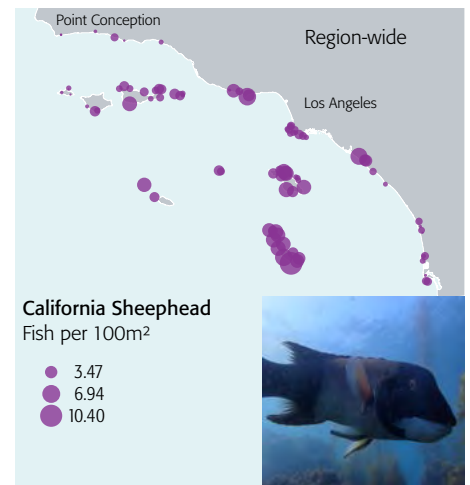
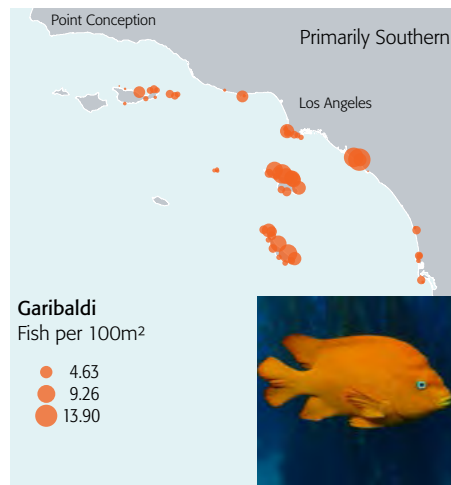
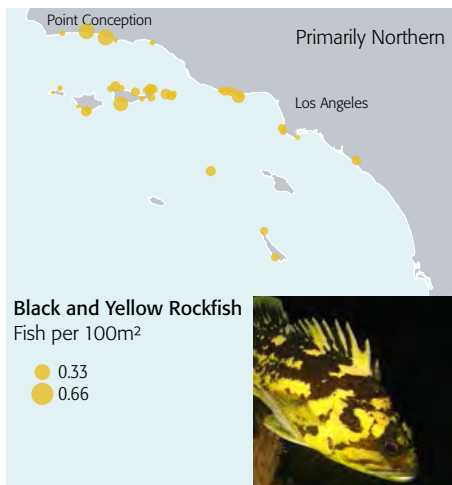
Kelp Forest & Shallow Rocky Reef Ecosystems

Shallow rocky reefs in the South Coast are diverse and highly productive ecosystems, hosting a variety of fish and invertebrate species as well as many marine birds and mammals. Large, canopy-forming kelps colonize rocks in some areas, while other areas lack a canopy and are instead dominated by understory algae or bare rock.

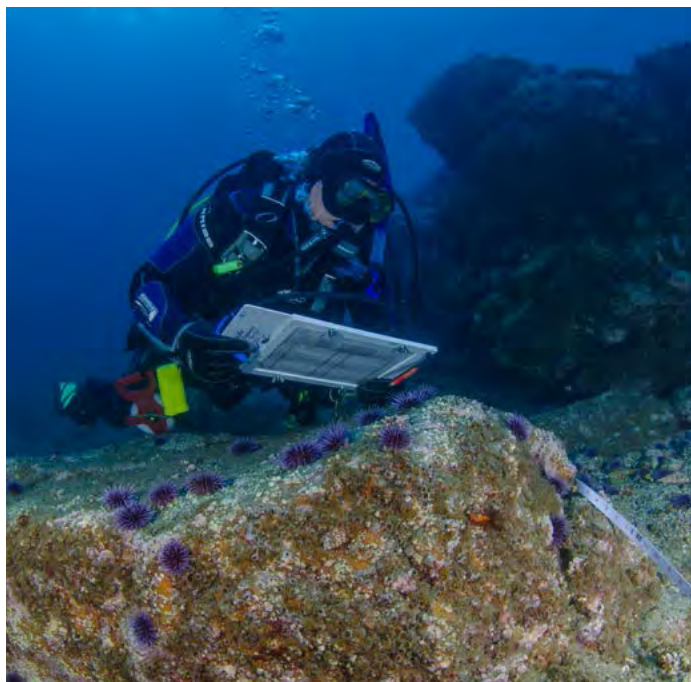
Rocky reefs and the kelp forests that attach to them support a range of human activities. Important South Coast recreational and commercial fisheries, including California spiny lobster, red sea urchins, California Sheephead, Kelp Bass, and a number of rockfish species, are dependent on healthy kelp forests.

These iconic California ecosystems are also a prime destination for recreational users, including scuba divers and snorkelers.

Kelp forests tend to thrive in the cool, nutrient rich waters brought to the surface by coastal upwelling. Upwelling occurs when winds from the north drive surface water away from shore, drawing deeper water upward to take its place. Kelp forests are sensitive to changes in environmental conditions, including decreased water quality and rising temperatures. Such changes are often associated with land-based pollution, climate change, and El Niño events.



Both fish and invertebrate species tended to show one of three general distributional trends: 1) primarily northern (colder waters), 2) primarily southern (warmer waters), or 3) region-wide. This information will be especially important in tracking emerging invertebrate fisheries and future shifts in species distributions due to climate change. Source: PISCO/VRG. Photos: Colleen Wisniewski, Sarah Finstad, Steve Lonhart.



A Reef Check diver surveys invertebrates in a sea urchin barren at Goldfish Bowl, Anacapa Island Photo: Michelle Hoalton.

Confirming & Expanding Knowledge

The two kelp and shallow rock baseline projects were incorporated into the well-established programs in the region. One project was a collaboration between PISCO and VRG, and the other was led by RCCA. Both projects built upon previous long-term studies in the region, enabling sites across the entire South Coast to be sampled in 2011 and 2012, including nearly every rocky reef MPA and comparable reference areas. In these projects, researchers studied kelp and shallow rock ecosystems from the surface down to 30 meters. Researchers confirmed previously identified patterns of regional fish species distributions, and substantially improved our understanding of algal and invertebrate species distributions throughout the South Coast region.^{1,2}

Broadening Participation

With its warm waters, good visibility, and easily accessible shorelines, the South Coast is a popular destination for local and visiting scuba divers. RCCA has mobilized scuba divers as citizen scientists to monitor rocky reefs in the region since 2006. RCCA trained or recertified 226 volunteer divers and had over 50% volunteer retention during the baseline monitoring period—a major programmatic success. RCCA attributes this retention to increased volunteer engagement when contributing to management-relevant MPA monitoring. Involving the public in robust, scientific resource monitoring leads to an engaged stakeholder community ready to contribute to MPA management. RCCA invests heavily in its volunteers, and increased retention from improved volunteer engagement is important to the program's long-term viability. Citizen science programs like RCCA that produce scientifically robust data will continue to be an important component of MPA monitoring in the future.



Photo: Colleen Wisniewski.

Targeted Species Responding to Older MPAs

Twelve MPAs were implemented within state waters at the northern Channel Islands in 2003, and a thirteenth was implemented in 2007, prior to the establishment of other South Coast MPAs in 2012. Eleven of the thirteen are SMRs, which restrict all take. The biomass of reef-associated fish species targeted by commercial and recreational fishing has increased throughout the northern Channel Islands since 2003.³ Researchers detected biomass (total weight in a given area) increases both inside and outside of northern Channel Islands MPAs, but the rate of change was much greater inside northern Channel Islands MPAs. The average size of individual Kelp Bass and California Sheephead was significantly larger inside northern Channel Islands MPAs than outside. The abundance of targeted invertebrate species, including California spiny lobster, warty sea cucumber, and red sea urchin, was higher inside northern Channel Islands MPAs. Non-targeted fish species also showed increases in biomass, but at similar rates inside and outside northern Channel Islands MPAs. While monitoring has not yet been conducted long enough to evaluate trends in the response of species to the recently implemented MPAs (2012), these findings point to the possibility of changes similar to those seen in northern Channel Islands MPAs occurring over comparable timescales.



California Sheephead at Diver's Cove in Laguna Beach. Photo: Sarah Finstad.

Unique Kelp Forest Community “Clusters”

The PISCO/VRG program demonstrated that reefs across the South Coast group into 17 kelp forest community “clusters,” each with its own unique combination of fish, invertebrate, and algae species (see Patterns of Biodiversity, page 49-50).² This high degree of community structure was shaped by a variety of physical factors. The strong water temperature gradient in the South Coast, driven by the convergence of cool currents from the north and warm currents from the south, is a well-known driver of species distributions. Differences between mainland and rocky island reefs also shape community structure. Mainland reefs tend to be flatter (have less relief), extend farther from shore than island reefs, and have more sediment inputs. Data collected by RCCA divers also show that, on a local scale, communities were influenced by site depth and substrate characteristics, including relief and proportions of sand and boulders at a reef. A detailed understanding of how kelp and shallow rock communities differ across the region can inform the selection of long-term monitoring sites, since MPAs in different parts of the region contain different kelp forest communities.

Supporting Lucrative Fisheries

Researchers analyzed South Coast fishing data from 1980 to 2009, which showed that the region's kelp forests and rocky reefs supported the largest recreational fishing industry on the West Coast and 10% of the state's commercial fishing revenue. During that time period, recreational fishermen in South Coast kelp and shallow rock habitats primarily landed finfish (e.g., Kelp Bass, California Sheephead) with catch concentrated on reefs close to mainland boat harbors and around Catalina Island. Commercial fishermen primarily landed invertebrates such as red sea urchin, rock crab, spiny lobster, and warty sea cucumber, with fishing effort focused at the northern Channel Islands and Point Loma. Due to the concentration of the commercial sector on invertebrates, PISCO and VRG have adapted their methods to include estimates of biomass for invertebrate species, such as spiny lobster, red sea urchin, and Kellet's whelk.

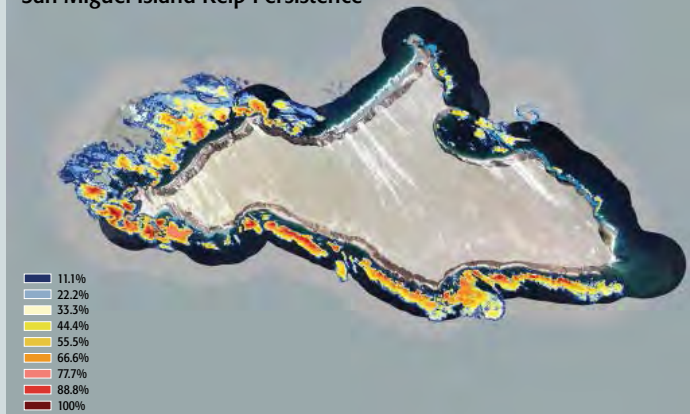
Aerial Mapping

Ocean Imaging, Inc. (OI) analyzed aerial imagery to identify kelp forest habitats in and around South Coast MPAs, and to track changes in the distribution of those habitats over time. When they assessed the entire study area, OI found that kelp/brown algae covered more than 2%, surfgrass covered more than 0.5%, and mixed red/brown algae covered more than 0.5%.

In 2012, the MPAs with the greatest amount of kelp cover (m²) included Dana Point SMCA (574,507 m²), Campus Point SMCA (567,567 m²), Naples SMCA (467,538 m²), and Swami's SMCA (456,018 m²). The MPAs with the greatest proportion of kelp cover (%) included Pt. Vicente SMCA (28%), Naples SMCA (17%), Judith Rock SMR (13%), and Campus Point SMCA (13%).

When OI compared historical aerial photos collected by CDFW with newly acquired imagery to track changes in kelp cover from 1999 to 2012, they observed a high degree of interannual variability. For example, the Point Conception SMR ranged from a high of 651,779 m² (0.25 miles²) in 2003 to low of zero kelp cover in 2011, and Gull

San Miguel Island Kelp Persistence



Island SMR ranged from a high of 1,221,690 m² (0.47 miles²) in 2004 to a low of 76,489 m² (0.03 miles²) in 2006. A greater degree of persistence was observed among kelp beds close to shore, as shown in the image above.⁴

Highly Variable Ecosystems

Researchers explored baseline data, the PISCO Northern Channel Islands dataset, and other historical datasets for geographic patterns of species abundance over different timescales. Analyses revealed no consistent regionwide abundance trends for any species, and both studies concluded that high variability from year to year and site to site is the norm in these ecosystems in the South Coast. Researchers noted that differences across the region are expected because it is so large. A primary driver of this pattern is the effect of oceanographic conditions on recruitment (individuals successfully joining a population) in a given year. For example, years with strong spring upwelling conditions are generally "good" for rockfish recruitment, which prefer colder water, and generally "bad" for Kelp Bass recruitment, which prefer warmer water.

Learn More: Kelp & Shallow Rock

1. PISCO/VRG Kelp Forest baseline monitoring project: oceanspaces.org/sc-kelp-pisco-vrg
2. RCCA Kelp Forest baseline monitoring project: oceanspaces.org/sc-kelp-reefcheckca
3. PISCO "A Decade of Protection": goo.gl/GaZ7BS
4. Aerial Mapping baseline monitoring project: oceanspaces.org/sc-substrate-mapping



Kelp Rockfish. Photo: Michelle Hoalton.

Location Feature: The Channel Islands

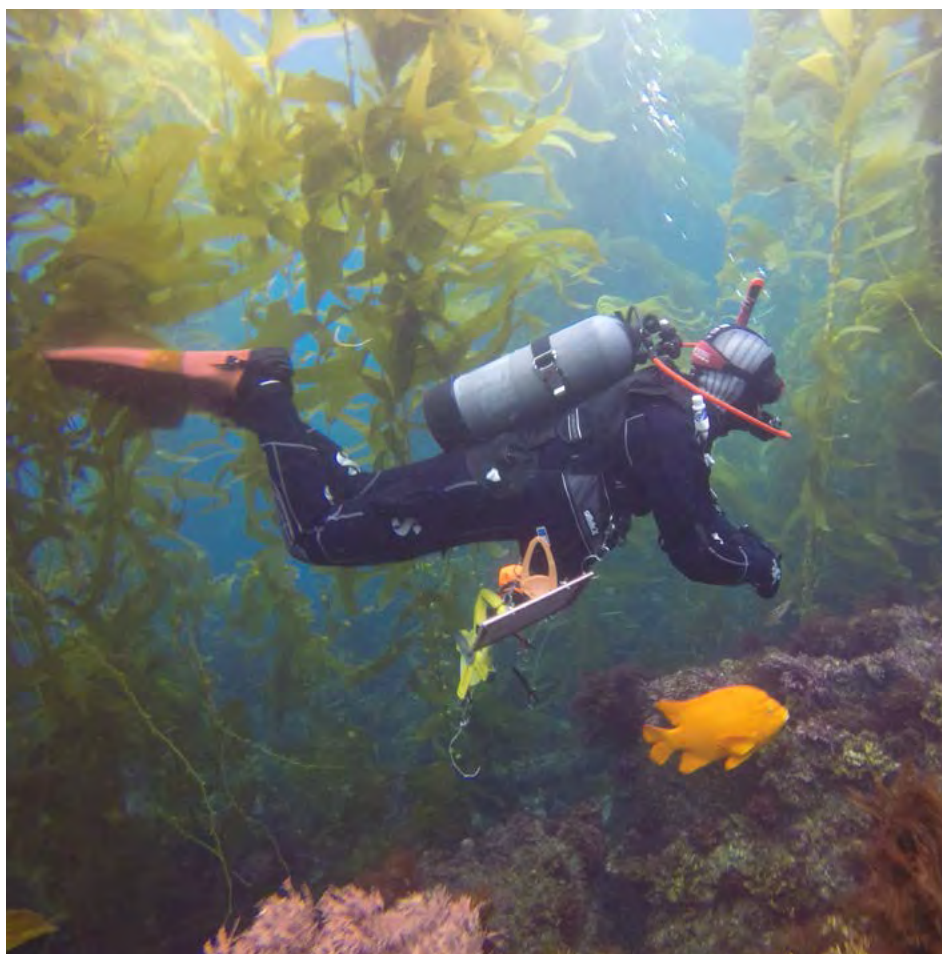


Photo: Sarah Finstad.

A Special Place

Located off the Southern California Coast, the eight Channel Islands are teeming with marine algae and animals in rich kelp forests and rocky shores. The islands are situated at the convergence of cool currents from the north and warm currents from the south. The resulting strong water temperature gradient is reflected in their ecology. The northernmost Channel Islands (San Miguel and Santa Rosa) experience cooler water temperatures and have different species compositions than the southernmost Channel Islands (Santa Catalina and San Clemente), which experience warmer water temperatures.

State and federal MPAs on and around the Channel Islands help to make them refugia for seabirds, pinnipeds, and other wildlife from human activity. With fewer stressors, species may be better able to adapt to changing ocean conditions.¹



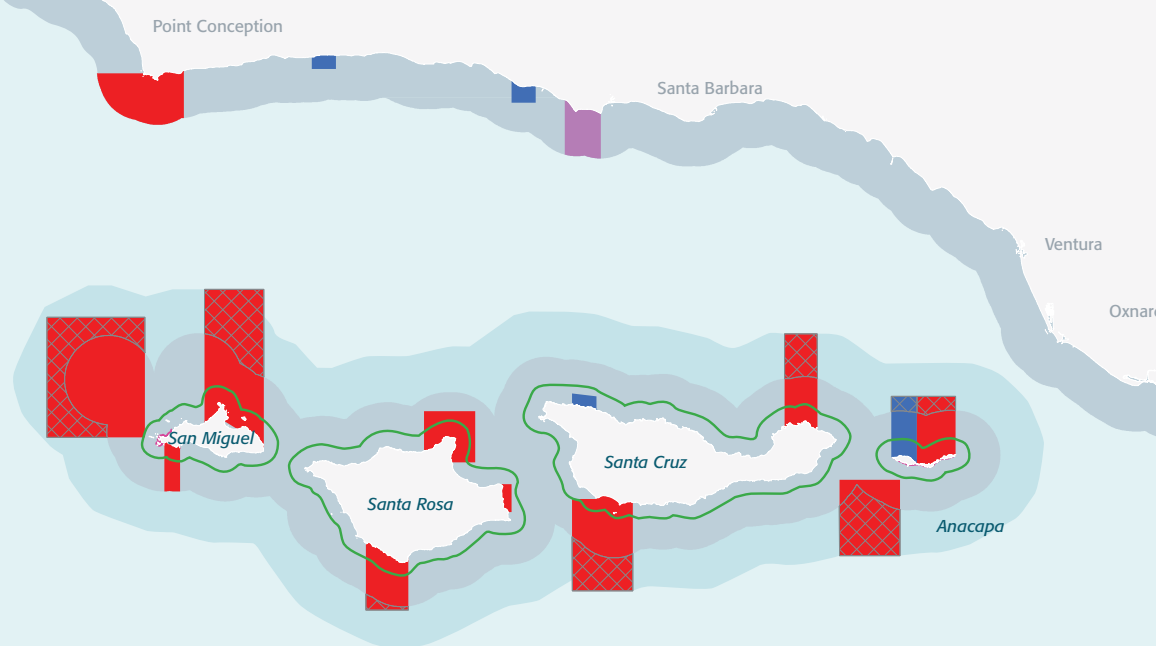
A Reef Check Diver completes his survey at Landing Cove, Anacapa Island. Photo: Colleen Wisniewski.



*California Gulls and Elephant Seals.
Photos: Jessie Altstatt.*

Tracking MPA Performance

Long-term monitoring by PISCO, RCCA, and CINP is being used to evaluate the impacts of MPAs on kelp and rocky reef ecosystems at the northern Channel Islands. These studies have found increased biomass of targeted and non-targeted fish species inside and outside of northern Channel Islands MPAs since implemented in 2003, though response varied across the different islands. (see “Exploring Changes” on page 53 for more information).²



Extensive Monitoring Grounded in Partnerships

The Channel Islands are home to a wide range of ecological monitoring by agency and academic scientists, led by several key partners:

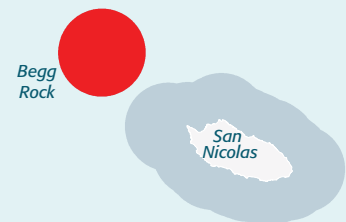
Channel Islands National Park (CINP) includes the land and ocean environments out to one nm around Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara Islands. Researchers at CINP have led a long-term ecological monitoring program in rocky intertidal and kelp forest ecosystems since 1982, and at sandy beach ecosystems on these islands since 1994. These data provide both an important baseline prior to establishment of protected areas, and insights on the effects of protected areas on the ecology of the Channel Islands.

Designated in 1980, **Channel Islands National Marine Sanctuary (CINMS)** encompasses federal waters around Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara Islands, out to 6 nm offshore. Sanctuary staff work in partnership with CDFW, CINP, the U.S. Navy, PISCO, MARINe, and others to support monitoring in federal and state protected waters around these islands. These collaborations often include sharing of staff expertise and operational support provided by research vessels.

CDFW conducts abalone, sea urchin, and sea cucumber studies at the Channel Islands in partnership with CINP and PISCO.

MARINe is a partnership of agencies, universities, and private organizations who collaborate to study rocky shores along the U.S. West Coast, including the Channel Islands. MARINe researchers monitor rocky shores across the Channel Islands. For more than 30 years, they have conducted monitoring within the northern Channel Islands, including as part of South Coast baseline monitoring.

PISCO is a long-term research and monitoring program designed to track changes in kelp forests, rocky shores, and coastal oceans along the entire U.S. West Coast. PISCO researchers have been monitoring kelp forests in and around the Santa Barbara Channel and the northern Channel Islands since 1999. The resulting long-term data are being used to track the impacts of protected areas and climate change on the ecology of the region.

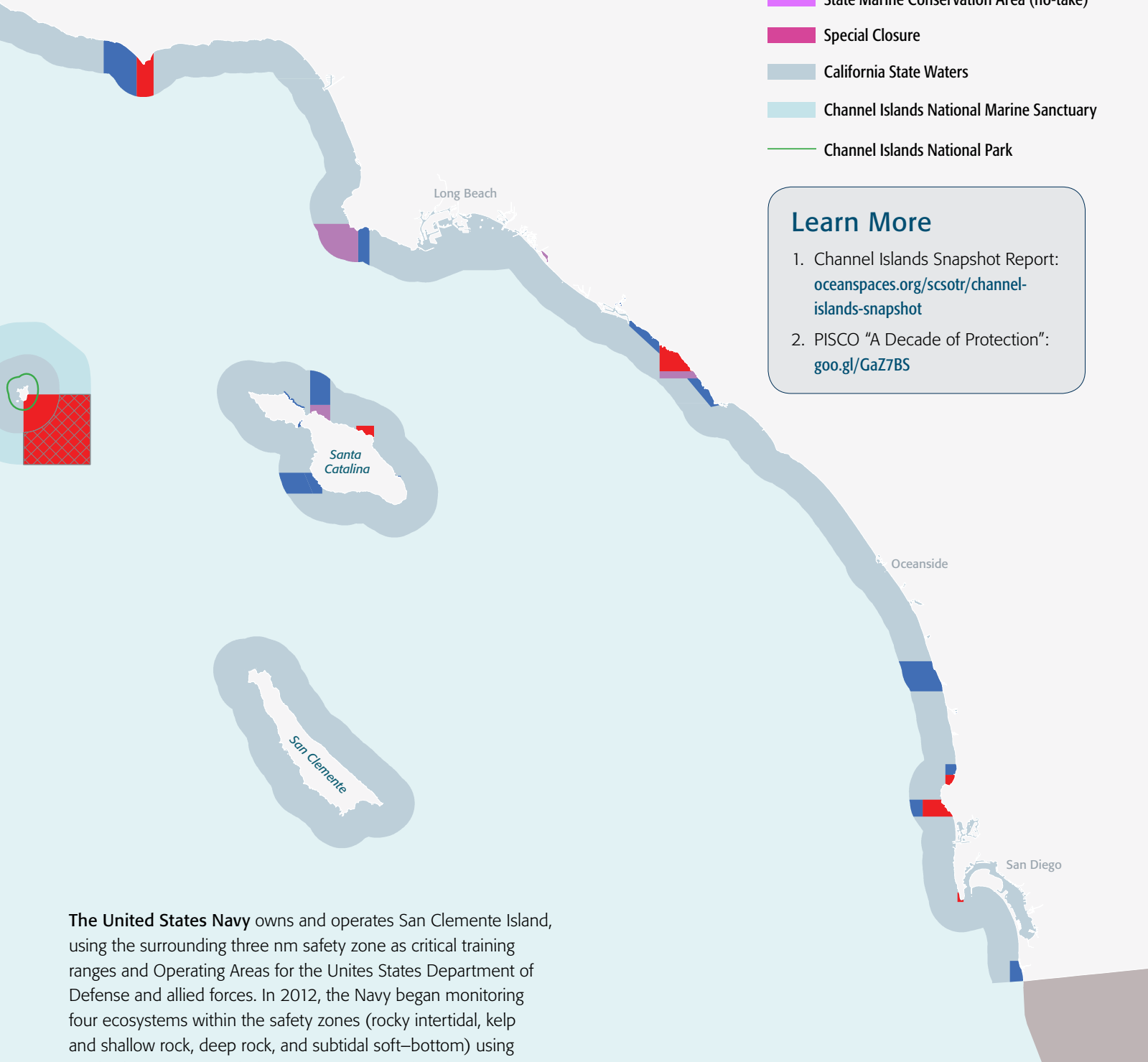


Reef Check California has worked with highly-trained volunteer divers to monitor rocky reefs and kelp forests within and around the northern Channel Islands MPAs since 2006, including as part of South Coast MPA baseline monitoring. In combination with its long-term monitoring data from other southern California sites, these data will be used to track the effects of MPAs in the region.

Based at Occidental College, **Vantuna Research Group** has monitored kelp forest, rocky reef and estuarine ecosystems in southern California since 1966. The research program features the longest continual time series studies of rocky reefs in the world.

Marine Applied Research and Exploration (MARE) uses ROVs to monitor mid-depth and deep ecosystems around the Channel Islands, at Anacapa, Santa Rosa, Santa Cruz, and San Miguel islands. Initial surveys were conducted with CDFW from 2004 to 2009, with return surveys conducted at ten of the historical sites in 2014 and 2015. MARE also convened an underwater researchers workshop to share information and track changes in the Channel Islands from scuba depths to deep water.

d



LEGEND

- State Marine Reserve (SMR)
- Federal Marine Reserve (FMR)
- State Marine Conservation Area (SMCA)
- Federal Marine Conservation Area (FMCA)
- State Marine Conservation Area (no-take)
- Special Closure
- California State Waters
- Channel Islands National Marine Sanctuary
- Channel Islands National Park

Learn More

1. Channel Islands Snapshot Report:
oceanspaces.org/scsotr/channel-islands-snapshot
2. PISCO "A Decade of Protection":
goo.gl/GaZ7BS

The United States Navy owns and operates San Clemente Island, using the surrounding three nm safety zone as critical training ranges and Operating Areas for the United States Department of Defense and allied forces. In 2012, the Navy began monitoring four ecosystems within the safety zones (rocky intertidal, kelp and shallow rock, deep rock, and subtidal soft-bottom) using methods consistent with the South Coast MPA baseline monitoring, in partnership with University of California Santa Cruz, Vantuna Research Group, and California State University Monterey Bay. The results will be a key component of the baseline characterization of the Channel Islands.



Photo: IFAME/MARE.

Mid-Depth and Deep Ecosystems

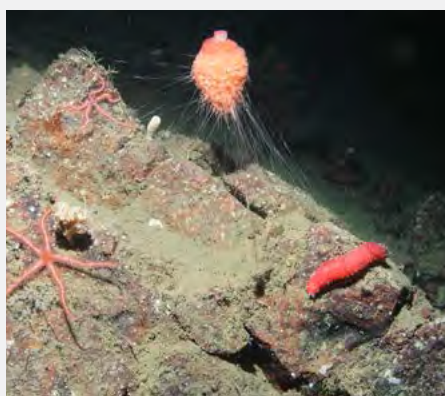
Characterizing Deep Ecosystems: Transects at Key Sites



Spotted Ratfish, Halfbanded Rockfish.
Photo: IFAME/MARE.

Point Vicente

Normal transects (transects at a constant depth) were conducted in and around Point Vicente and Abalone Cove SMCAs, over primarily soft substrate between 10 and 175 meters depth. Over 15,000 fish were identified from 37 species or species groups, at an average rate of over 1,000 fish and two species per kilometer surveyed. Halfbanded Rockfish was by far the dominant fish species, making up over 80% of identified fish. Commonly observed mobile and sessile invertebrates of interest include ridgeback prawns, octopuses, sea cucumbers, and sea pens/whips. The only Spotted Ratfish, English Sole, Bearded Eelpout and *Sebastolobus* spp. identified during this study were observed on Point Vicente transects.



Benthic siphonophore, sea cucumber, brittle star. Photo: IFAME/MARE.

Santa Catalina Island

Normal transects were conducted in and around Farnsworth Onshore and Offshore SMCAs, over soft, hard, and mixed substrate between 13 and 229 meters depth. Over 11,000 fish were identified from 52 species or species groups, including 30 rockfish species. The average rate of identification was over 300 fish and 15 species per kilometer surveyed. Blacksmith was the most abundant fish species, making up nearly 30% of identified fish. Commonly observed mobile and sessile invertebrates of interest include California hydrocoral, sea cucumbers, and gorgonians over hard/mixed substrate, and octopuses, crabs, sea pens/whips, basket stars, and *Dromelia* spp. (unusual benthic siphonophores) over soft substrate. There were 11 species of rockfish and three species of sharks and skates that were only identified on Santa Catalina transects, along with kelpfish, Cabezon, and Ocean Whitefish.



California Tonguefish. Photo: IFAME/MARE.

Laguna Beach

Normal transects were conducted in and around Crystal Cove and Dana Point SMCAs and Laguna Beach SMR and SMCA, over soft, hard, and mixed substrate between 10 and 107 meters depth. Over 900 fish were identified from 21 species or species groups. The average rate of identification was over 150 fish and 3.5 species per kilometer surveyed. Blacksmith was the most abundant fish species, making up 50% of identified fish. Commonly observed mobile and sessile invertebrates of interest include gorgonians, sponges, and anemones over hard/mixed substrate, and crabs, octopuses, and sea pens/whips over soft substrate. The only California Tonguefish and Barred Sand Bass identified during this study were observed on Laguna Beach transects.

Mid-Depth and Deep Ecosystems

Mid-depth and deep ecosystems are home to many commercially and ecologically important species. Rockfishes and Lingcod can be found over rocky substrate, and flatfishes and ridgeback prawns can be found over the more abundant soft substrate. Species that inhabit these dark waters, especially on rocky substrate, tend to be long-lived and slow-growing, including habitat-forming sessile invertebrates such as sea fans and corals that are especially sensitive to physical disturbance. We have only begun to explore and grow our understanding of these deep, dark ecosystems off the California coast.

These habitats often exist at depths that make exploration and research very difficult. Most scuba diving for research occurs shallower than 30m which limits direct human observation to a narrow band of habitats near shore. The ROV South Coast baseline monitoring project surveyed three South Coast ecosystem types that exist below depths that scuba divers can efficiently survey. Mid-depth rock ecosystems exist between 30 and 100m (98 and 328ft), while subtidal soft-bottom ecosystems extend from 0 to 100m (328ft), and deep and canyon ecosystems occur below 100m (328ft) and can have either rocky or soft substrates.¹



Rainbow gorgonians. Photo: IFAME/MARE.

La Jolla

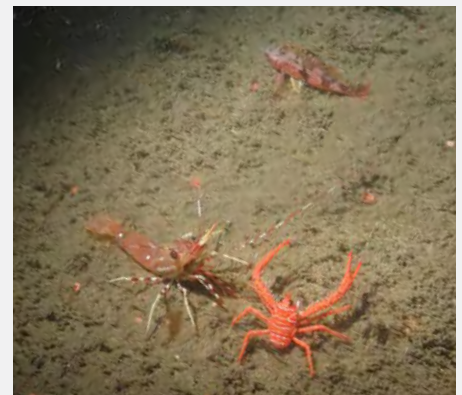
Normal transects were conducted in and around Matlahuayl SMR and San Diego–Scripps Coastal SMCA, over soft, hard, and mixed substrate between 10 and 252 meters depth. Over 15,000 fish were identified from 40 species or species groups, at an average rate of identification over 1,000 fish and nearly 3 species per kilometer surveyed. Halfbanded Rockfish was by far the dominant fish species, making up 80% of identified fish. Commonly observed mobile and sessile invertebrates of interest include sea cucumbers, spot prawns, sponges, and gorgonians over hard/mixed substrate, and ridgeback prawns, octopuses, and sea pens/whips over soft substrate. The only Brown Rockfish, Chilipepper Rockfish, Fantail Sole, and Rock Wrasse identified during this study were observed on La Jolla transects.



Vermilion and Halfbanded Rockfish. Photo: IFAME/MARE.

Exploring La Jolla Canyon with Elevator Transects

La Jolla Canyon is a key feature of the La Jolla Study Area. Researchers conducted special “elevator” transects straight up along the canyon walls, where they identified 37 fish species or species groups, including 15 rockfish species. They analyzed the data to see which physical factors were the best predictors of biodiversity and abundance. Depth is the most important predictor of biodiversity, while slope and ruggedness of the canyon walls were the best predictors of abundance. For example, the deepest portions of the canyon transects, which were over 200m below the surface, had the greatest species richness but the lowest overall abundance. Some species were evenly distributed across depth ranges, such as Halfbanded Rockfish and California Lizardfish, while some were only observed at the greatest depths, such as Hundred Fathom Codling.



Spot prawn, squat lobster, and Halfbanded Rockfish. Photo: IFAME/MARE.

Examining Depth Distributions with Vertical Transects

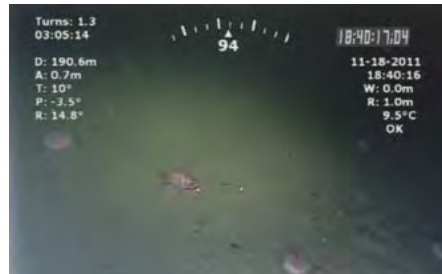
To explore the distribution of fishes and invertebrates across depths, additional “vertical” transects were conducted at all four study sites. These transects started at or near the edge of the continental shelf and extended up-slope, surveying depths ranging from 50 to 400m. Some fish were most common at the deepest parts of the transects, such as Aurora/Splitnose Rockfish and Dogface Witch-eels, which were observed at their greatest density between 300 and 400m. Other fish were more common in the shallower portions of the transects, such as Halfbanded Rockfish, which had their greatest density at 50m. Mobile invertebrates most commonly observed on the vertical transects included squat lobsters, octopuses, and prawns. Squat lobsters reached their peak density at 260m and were observed over a relatively narrow depth range, while octopuses were observed across the entire depth range but at low densities.

A Collaborative Effort

This project represents a successful collaboration between academic scientists at the Institute for Applied Marine Ecology (IfAME) at CSUMB, scientists and engineers at the non-profit organization MARE, and members of the commercial fishing community (F/V Donna Kathleen and her crew).¹ Together, researchers collected video and still imagery along transects using an ROV from four locations representing the biogeographic zones across the South Coast. By combining these images with map products from the CSCMP funded by OPC and others, researchers described the ecological characteristics inside and outside of selected SMRs and SMCAs at the time of South Coast MPA implementation.



ROV *The Beagle*, being deployed from the FV *Donna Kathleen* Photo: Tim Maricich.

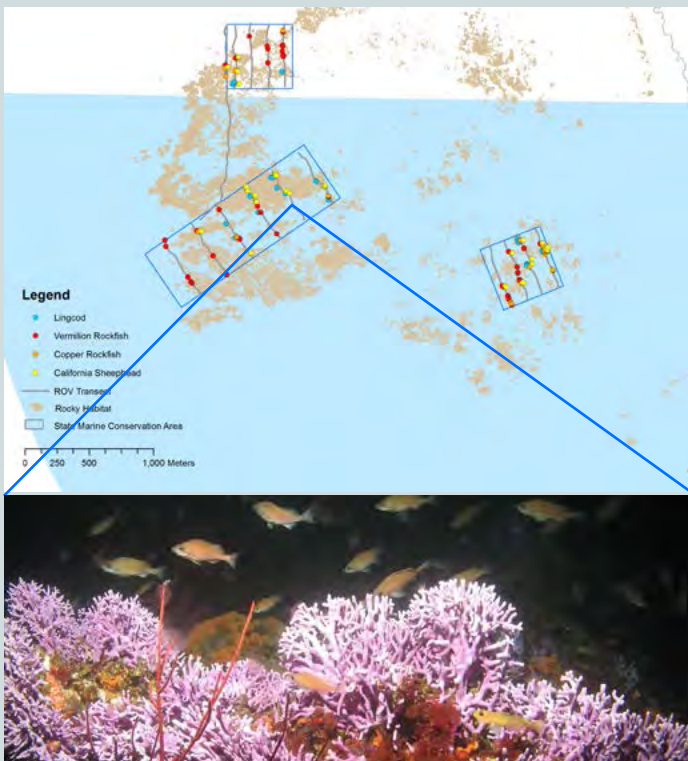


The above display is seen by operators when the ROV is in use, and this video footage is later watched by researchers who collect data on the species and habitats observed. The data is stored in a database, and the footage is archived for later use. Photo: IFAME/MARE.

Ups & Downs: Monitoring with ROVs

ROVs are a non-destructive way to observe species and communities at depths not easily accessible by divers. They create a permanent data archive through their real time video and photographic imaging and recording systems, which can be verified and re-evaluated at any time. They can also be outfitted with sensors to record associated data such as temperature, depth, and dissolved oxygen. However, researchers noted that ROVs can be expensive, and the deployment and analysis of footage is time- and labor-intensive. Their use can be complicated by entanglement risk (e.g., thick kelp or fishing gear), or by poor visibility. Both the strengths and challenges of using ROVs will be considered in planning for long-term monitoring.

CDFW Southern California Surveys of MPAs Using an ROV



Individual fish observations plotted over ROV transect lines for three sites at Farnsworth Offshore SMCA, near Catalina Island. Inset photo shows California hydrocoral, a red gorgonian coral, Squarespot Rockfish, and a Blackeyed Goby. Source: CDFW.

In 2014, building on the baseline ROV work, CDFW began a three year survey of California's MPA network to explore rocky habitats found in California's deep waters. The survey was divided into five separate deployments using MARE's ROV *The Beagle*. Led by CDFW scientists, MARE's team completed the first two deployments throughout the South Coast in 2014, conducting a total of 143 km of survey lines across 52 sites.

Over 451,000 invertebrates were identified from over 80 species and species groups. The most abundant invertebrates, collectively accounting for 93% of all invertebrate observations, were the white sea urchin, gorgonians (orange, purple, and red), and the California sea cucumber. Over 420,000 fish were observed throughout all the sites from 50 distinct species or species groups, 95% of which were rockfish.²

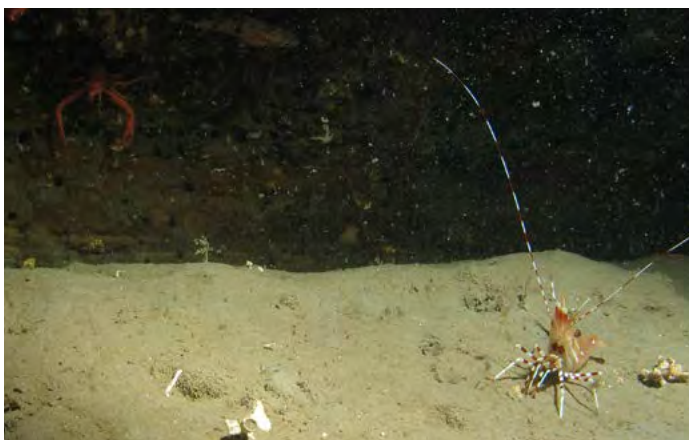
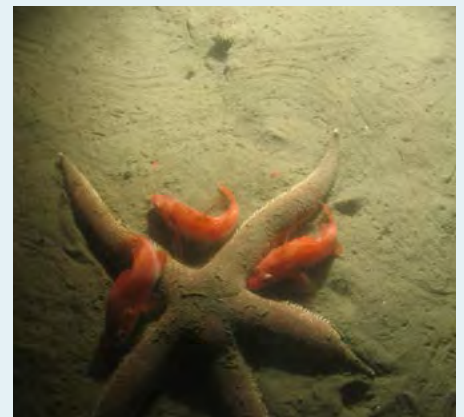
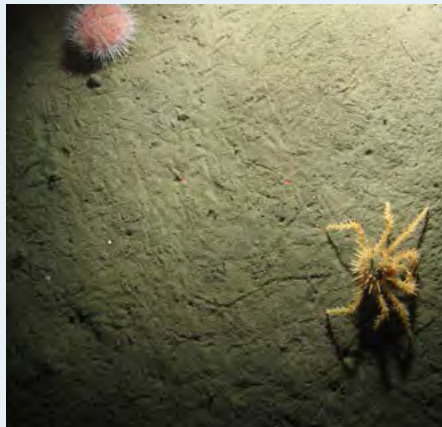
Densities (number of fish observed per 100 square meters) for four fish species were summarized and averaged for each site visited. Overall, for those fish summarized, densities were much higher at the Channel Islands sites than mainland sites.² Each individual site has unique habitat characteristics and human use patterns that may account for the differences in densities. Therefore, data from these index sites are most valuable when they are tracked over time.

Further analysis is underway to examine factors that may describe species association with habitat, and the relationship between protection afforded by MPAs and consumptive use of fisheries resources. The synthesis of all ROV statewide survey data will inform the development of long-term monitoring protocols and site selection, as well as provide a baseline for comparison into the future.

Southern California Trawl Surveys

OST and SCCWRP identified an opportunity to leverage existing data from the Bight Monitoring Program (described on page 58) to expand our understanding of soft-bottom subtidal ecosystems in the region. Researchers from VRG worked closely with SCCWRP to analyze data collected from 1994 to 2013 at 799 otter trawl sites throughout the South Coast. Of these sites, 72 were located within South Coast MPAs.³

Results show that soft-bottom fauna exhibit strong spatial differences in fish and invertebrate community structure with depth. There were also strong changes in soft-bottom fauna over time, largely due to significantly higher catch and lower biodiversity in the trawl surveys conducted in 2013. Researchers found few differences between areas inside of “new” South Coast MPAs that had been established in 2012 and areas outside of MPAs, indicating that the trawl sites would be appropriate for continued evaluation of MPA effects. *Photos: IFAME/MARE.*



Above: spot prawn. Right: ridgeback prawn and *Dromelia* sp.
Photos: IFAME/MARE.

Prawn Distributions: Steep & Deep

Spot prawns and ridgeback prawns are commercially important species. Researchers analyzed the distribution of prawns across all four study sites to characterize their habitat preferences. Ridgeback prawns were most commonly observed at depths of 140–200m and at slopes of 10–20°. Spot prawns seemed to prefer deeper and steeper conditions, and were most commonly observed at depths of 160–220m and slopes of 25–45°.

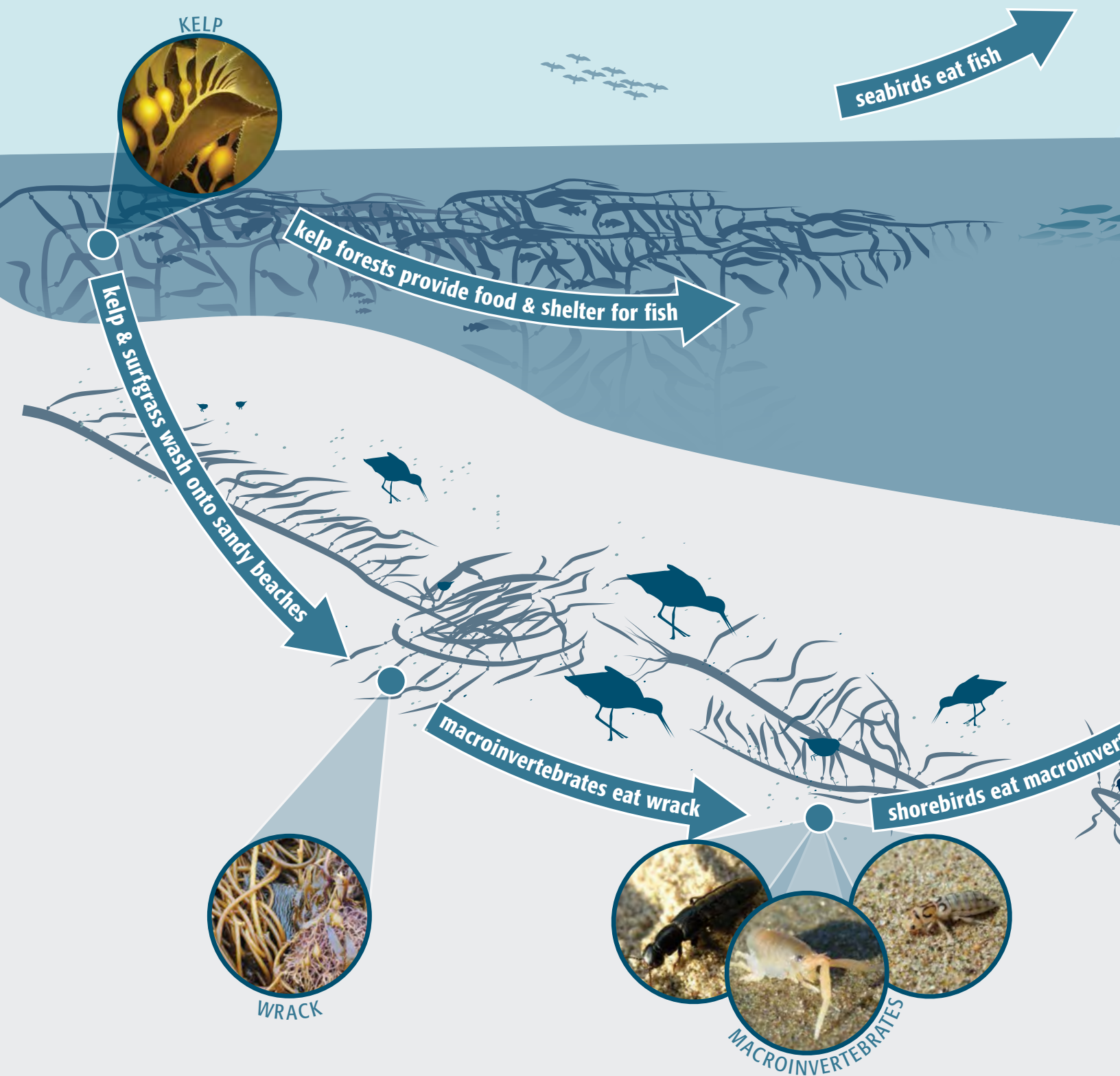
Learn More: ROV

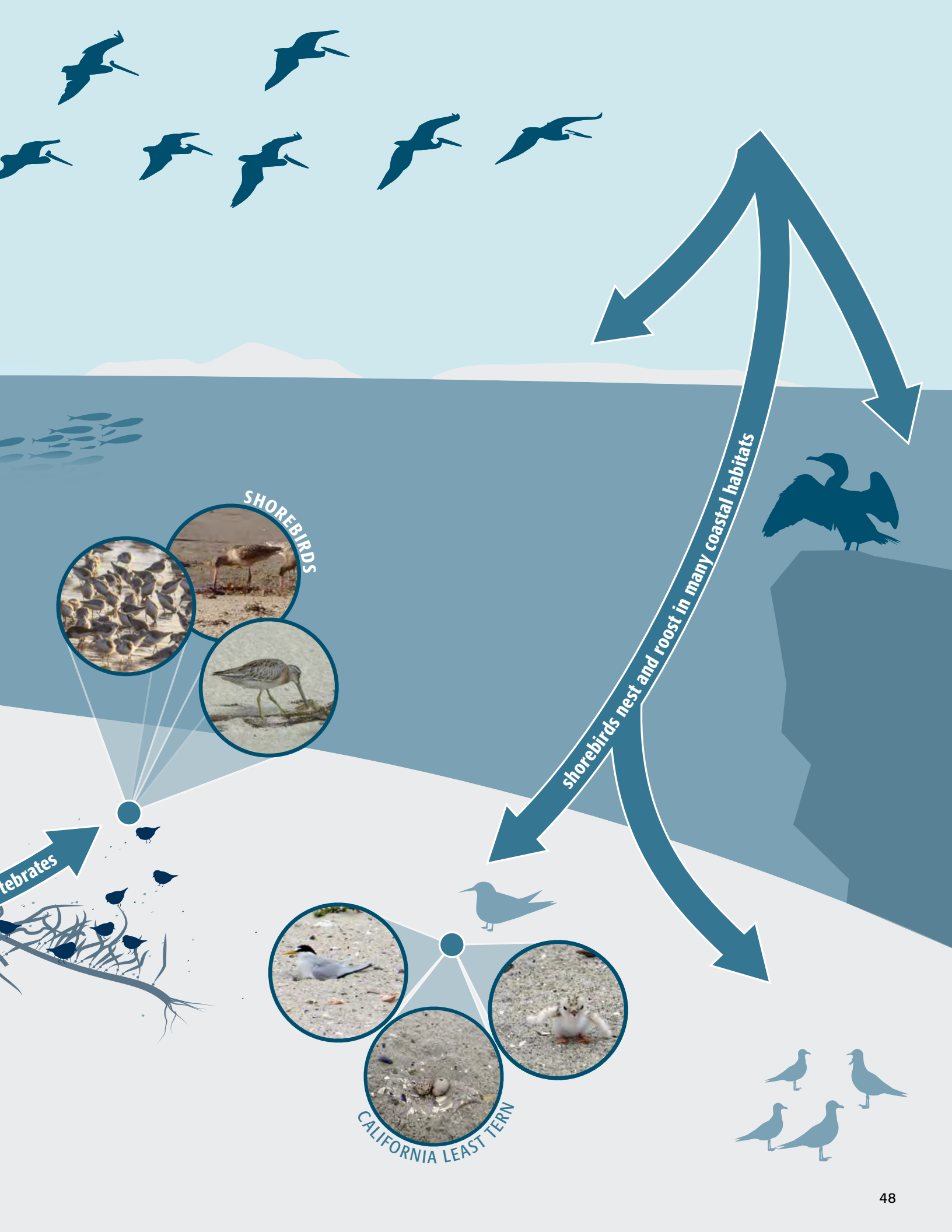
1. ROV baseline monitoring project:
oceanspaces.org/sc-deep
2. Summary of CDFW ROV monitoring:
oceanspaces.org/cdfw-rov
3. Southern California trawl survey analysis:
oceanspaces.org/sccwrp-trawl

Connections Among Ecosystems in the South Coast

South Coast ecosystems influence each other in a number of important ways. This diagram specifically highlights how kelp forests support beach ecosystems through “wrack.” Seabirds also act as important links among ecosystems, by eating fish from kelp forests and nearshore pelagic waters, and nesting and roosting on sandy beaches, rocky outcroppings, and coastal cliffs along the mainland and Channel Islands.

Photos: Jenny Dugan, Sarah Finstad, Dan Robinette.





SHOREBIRDS

shorebirds nest and roost in many coastal habitats

CALIFORNIA LEAST TERN



Patterns of Biodiversity

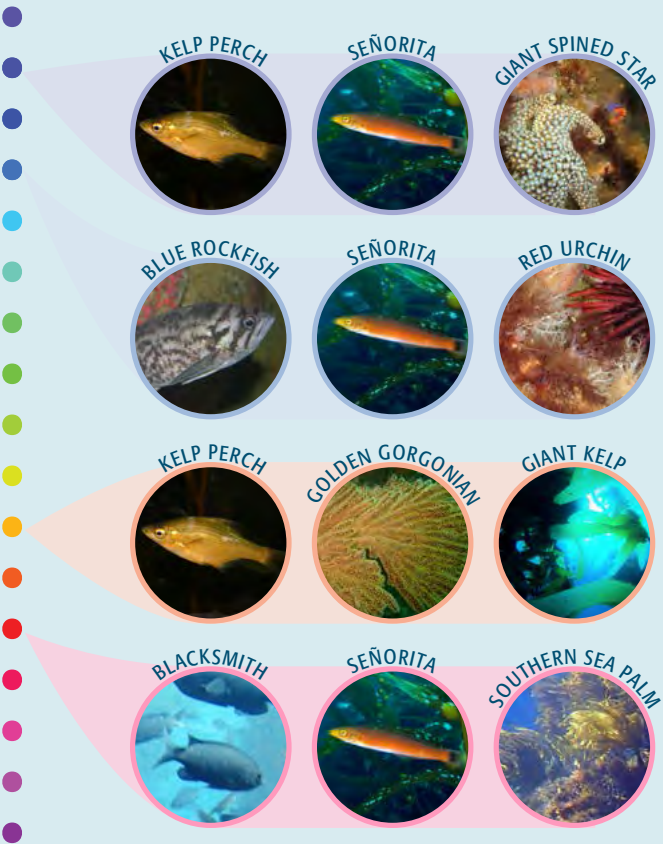
Prior to baseline monitoring, five ecologically and geographically distinct regions in the South Coast—called bioregions—were identified. Analyses of baseline data collected in rocky intertidal and kelp and shallow rock ecosystems revealed unique community groups consistent with these bioregions. The various communities were shaped by a variety of physical factors, including water temperature. The strong water temperature gradient in the South Coast, driven by the convergence of warm and cool currents, is a well-known driver of species distributions, including those in rocky intertidal and kelp and shallow rock ecosystems.

Kelp and shallow rock researchers from PISCO and VRG identified 17 kelp forest community groups, each with its own unique combination of fish, invertebrate, and algae species. In addition to water temperature, differences between mainland and rocky island reefs also shaped community structure. Data collected by RCCA divers also showed that communities were influenced by site depth and substrate characteristics as well.

Map of the South Coast, including the five bioregions, major warm and cool currents, and kelp forest community groups (colored dots). Each color represents a different group. Some common species are shown for a few selected groups. This figure was adapted from the PISCO/VRG project's technical report.

Photos: Sarah Finstad, Jim Kirklin, Steve Lonhart, Jonathan Williams.

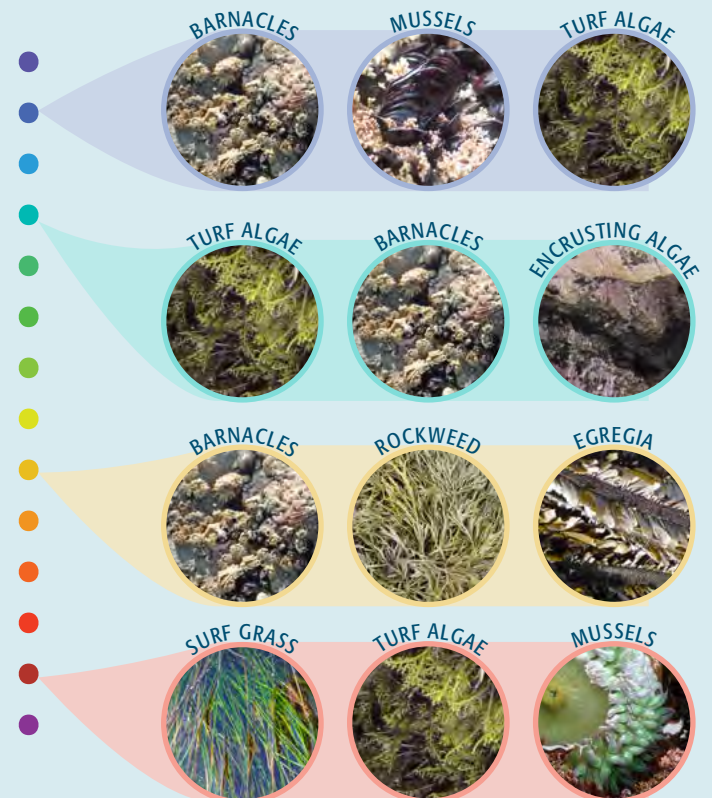
17 Kelp Forest Community Groups





Rocky intertidal researchers from PISCO and MARiNe identified 14 distinct sessile (non-mobile) community groups and 9 distinct mobile community groups. In addition to water temperature, latitude and longitude were also found to be important predictors of community composition, as is typical in many ecosystems globally. On a local scale, the type and slope of substrate and surrounding habitat also influenced community composition.

14 Rocky Intertidal Sessile Community Groups



Map of the South Coast, including the five bioregions, major warm and cool currents, and sessile community groups (colored dots). Each color represents a different group. Some prevalent and ecologically important sessile species are shown for a few selected groups.

Photos: Nate Fletcher, Dave Lohse, Sarah Finstad, Jessie Altstatt.

Broadening Participation & Sources of Knowledge

As described in OPC's Partnership Plan, California is committed to broadening participation and incorporating multiple sources of knowledge into MPA monitoring. This can include work with local experts and citizen scientists, collaborative fisheries research, and traditional knowledge—all of which can enhance our understanding of historical and current ocean conditions.¹

Citizen Science in the South Coast

The capacity for citizen science monitoring is great in the South Coast. In a survey of South Coast monitoring programs, 21 of 36 programs reported that their work involves volunteer data collectors.²



*Reef Check diver surveys fish at Cathedral Cove, Anacapa Island.
Photo: Michelle Hoalton.*

Local Experts & Citizen Science in South Coast MPA baseline monitoring

Four of the nine monitoring projects that participated in South Coast MPA baseline monitoring incorporated work with local experts and citizen scientists, through collaboration with three groups:

Reef Check California led monitoring of a kelp and rocky reef monitoring project, working with a team of highly-trained volunteer divers to collect data on the ecology of these iconic ecosystems. RCCA has mobilized this volunteer base to monitor South Coast kelp and shallow rock ecosystems since 2006.³

LiMPETS is a citizen science group that focuses on monitoring sandy beach and rocky intertidal ecosystems, primarily with middle and high school students. Researchers in both the sandy beach and the rocky intertidal monitoring projects collaborated with LiMPETS to evaluate the group's monitoring protocol.^{4,5}

The **South Coast Lobster Research Group (SCLRG)** led the spiny lobster research project (see page 34). The SCLRG is a collaboration among scientists, resource managers, fishermen, and volunteers. Members of the SCLRG collected data through tag-recapture and scuba studies from 2011 to 2013.



Left: Students monitor rocky intertidal ecosystems in Santa Barbara with the LiMPETS program. Photos: Jessie Altstatt.



Commercial fishing in the Channel Islands. Photo: Jessie Altstatt.

Fishermen's Knowledge

Fishermen spend much of their lives accumulating knowledge and skills related to marine ecosystems and fisheries. This includes ecological, social, and technical knowledge related to catching and handling fish and invertebrates. Three projects during the South Coast MPA baseline period incorporated fishermen's knowledge: SCLRG, Interpreting CPFV data with the Sportfishing Association of California, and Collaborative Fisheries Studies of Bass. OST convened conversations with South Coast fishing leadership to derive lessons learned from those experiences. This work highlights the roles that fishermen's knowledge can play, and potential challenges at various stages of the collaborative research process.⁶



Kelp Bass in the Channel Islands. Photo: Jim Kirklin.

Collaborative Fisheries Studies of Bass

From 2012 to 2014, Collaborative Fisheries Research West (CFR West) conducted a collaborative study in partnership with South Coast recreational fishermen to evaluate mortality and population abundance of three species of bass: Kelp Bass, Spotted Sand Bass, and Barred Sand Bass. In the project, which was funded by OPC, researchers and recreational fishermen conducted a catch-and-release study and a tagging study from chartered CPFV vessels off the coast of San Diego. Researchers attribute the success of this project to this close collaboration, which helped to create a two-way conversation between the recreational fishermen and scientists.⁷



MPA Watch volunteers in Los Angeles. Photo: MPA Watch.

MPA Watch

MPA Watch is a statewide citizen science initiative that conducts monitoring of consumptive and non-consumptive human uses along the coast, to track how usage is changing over time. The initiative represents a consortium of participating organizations, each of which provides training and support for volunteers to collect data that is relevant to managers, scientifically rigorous, and broadly accessible. From August 2011 to August 2016, MPA Watch worked with over 1,000 citizen science volunteers to conduct 8,677 land-based surveys and nearly 900 boat-based surveys. Over time, these data can help to track the impacts of MPA implementation on human activities in California.⁸

Learn More: Partnerships

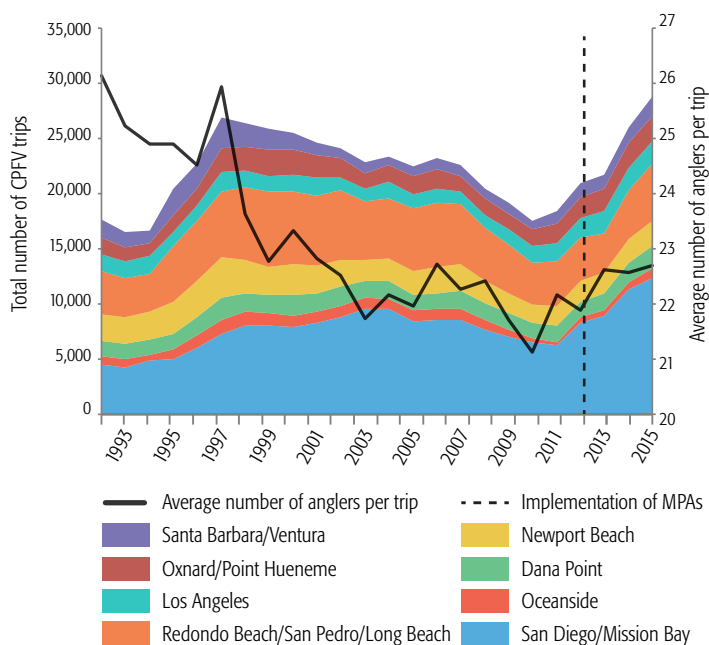
1. OPC Partnership Plan: goo.gl/IDRfKz
2. South Coast Monitoring Dashboard: tools.oceanspaces.org/dash#/welcome
3. RCCA Kelp Forest baseline monitoring project: oceanspaces.org/sc-kelp-reefcheckca
4. Sandy Beach baseline monitoring project: oceanspaces.org/sc-sandy-beach
5. Rocky Intertidal baseline monitoring project: oceanspaces.org/sc-rocky-intertidal
6. Summary of collaboration with South Coast fishermen's knowledge: oceanspaces.org/sc-fk
7. CFR West collaborative Bass study: oceanspaces.org/sc-cfr-bass
8. MPA Watch contributed snapshot report: oceanspaces.org/mpawatch

Exploring Changes

California's MPA network is designed to achieve the goals of the MLPA (see page 6)—to protect marine life and ecosystems, restore depleted populations, and provide recreational opportunities, among others. Deep and shallow reefs are inhabited by long-living and slow maturing rockfish, while algae and invertebrate populations on rocky shores fluctuate in response to wind and wave disturbance. Data from temperate ecosystems globally and in California suggest that most ecological changes happen slowly.

By comparison, change in human uses such as geographic patterns of commercial fishing or landings from CPFVs can be more readily observable over a shorter period. Examining initial ecological and socioeconomic changes in the first few years following MPA implementation sets the stage to document trajectories of marine life, habitats, and human activity over many years and begins to build the time series needed to evaluate MPA performance.

Baseline monitoring focused on conditions in the South Coast near the time of MPA implementation. However, we can also gain valuable insights from programs that have collected data at specific locations for many years. Significant changes in marine life populations were not expected to occur within five years, but some initial changes provide early hints of how ecosystems may change into the future.

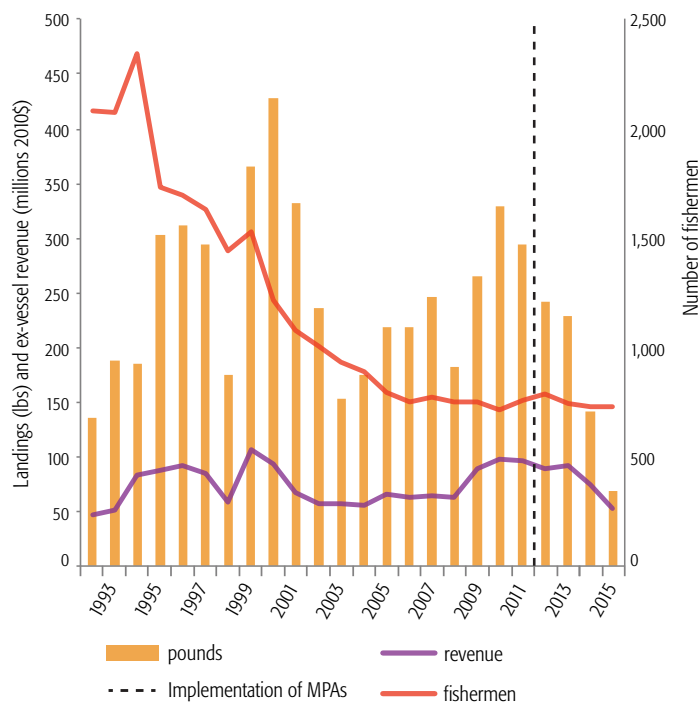


Total effort and average number of anglers per trip within the South Coast from 1992 to 2015. Port groups identified in supplemental report. Source: CDFW.

Socioeconomic Changes

Commercial Fishing

CDFW data reported on the landing receipts suggest that overall landings and revenue have decreased in the period following MPA implementation, while the number of fishermen has stayed relatively stable.¹ However, many factors beyond MPA implementation influence fisheries landings and revenue, including oceanographic and socioeconomic conditions as well as changing fishing regulations. Commercial fisheries can be impacted by regulatory changes if the quantity or quality of harvestable species changes in response to environmental conditions (e.g., El Niño), if there are changes in market value, if consumer demand and willingness to pay within an economy fluctuates, and if the cost of fuel increases or decreases. Landings were historically low in 2015, impacted significantly by the strong El Niño event and a shift in the market squid fishery north of Point Conception. However, the landings of some species, such as rock crab, have increased in the post-implementation period.¹ An analysis of the California spiny lobster fishery suggests that in the year immediately following MPA implementation, changes to participation and landings varied substantially by area, with slight increases in landings on a region-wide scale.²



Reported South Coast annual commercial landings (lbs), ex-vessel revenue (2010\$), and number of fishermen for all fisheries, 1992–2015. Source: CDFW.

Recreational Fishing

Recreational fishing catch from man-made structures has decreased since the implementation of MPAs, but catch from other types of recreational fishing have remained relatively constant.³ Participation in CPFV has increased since the implementation of MPAs, driven primarily by activity in the San Diego/Mission Bay region.

Ecological Changes

MPA Effects at the Northern Channel Islands

Twelve MPAs were implemented in state waters around the northern Channel Islands in 2003 with an additional MPA implemented in 2007. PISCO and CINP researchers have been monitoring kelp forest and shallow rocky reef ecosystems within those MPAs for over a decade. In 2008 (five years after implementation of the northern Channel Islands MPAs), PISCO identified that a number of positive trends were emerging, including increased density and biomass inside MPAs. Continued monitoring revealed that these trends have continued.⁴ In 2013, PISCO released a report, *A Decade of Protection: 10 Years of Change at the Channel Islands*, which summarizes the continued positive trends.⁵

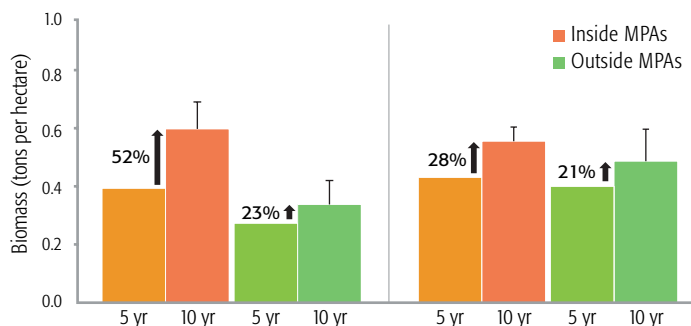
These trends are not uniform across all islands. For example, PISCO and CINP monitoring show that the percent increase in biomass of targeted fish species was greater inside MPAs at Anacapa than at other Channel Islands. Researchers suggest that this could be due to water temperature or changes in fishing pressure near mainland sites.

MPA Effects in Rocky Intertidal Ecosystems

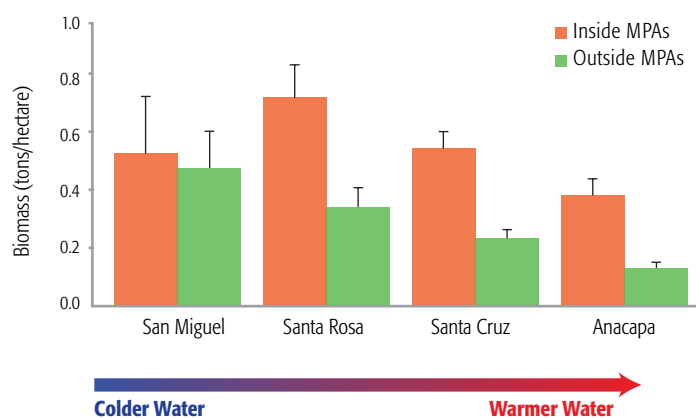
Researchers from PISCO/MARINE examined dozens of rocky intertidal study sites, some of which were designated as MPAs in 2012 (new) and some of which had been protected in some way prior to 2012 (old). They found that sites in “old” MPAs had significantly higher biodiversity than sites outside of MPAs. Sites in “new” MPAs showed intermediate and highly variable biodiversity.⁶



Researchers from Point Blue Conservation Science monitor seabirds at Santa Cruz Island. Photo: Abigail Cannon.



Average biomass increased inside and outside of MPAs, among both targeted (left) and non-targeted species (right), at northern Channel Islands 10 years after implementation. The greatest increases have been seen for targeted species inside MPAs. Source: PISCO.



Biomass of targeted species inside and outside northern Channel Islands MPAs has responded differently across islands, possibly due to difference in water temperature. Source: PISCO.

Learn More: Exploring Changes

1. CDFW summary of commercial fishing: oceanspaces.org/sc-cdfw-commercial
2. Human Uses baseline monitoring project: oceanspaces.org/sc-human-uses
3. CDFW summary of recreational fishing: oceanspaces.org/sc-cdfw-recreational
4. PISCO/VRG Kelp Forest baseline monitoring project: oceanspaces.org/sc-kelp-pisco-vrg
5. PISCO “A Decade of Protection”: goo.gl/GaZ7BS
6. Rocky Intertidal baseline monitoring project: oceanspaces.org/sc-rocky-intertidal



Photo: Stack/Ron Thomas



Informing Ocean Management Decisions

The wealth of knowledge about this region produced through MPA monitoring is useful for supporting decisions across a wide range of ocean resource management issues. From tracking the effects of a changing climate to managing fisheries and water quality, MPA monitoring results are serving California broadly.

Baseline monitoring in the South Coast has produced novel scientific findings, strengthened partnerships, and contributed to a benchmark of ecological and socioeconomic conditions that will be used to evaluate future MPA performance, progress toward MLPA goals, and track changing ocean conditions.

The data collected and lessons learned from South Coast baseline monitoring (Phase 1) and the work of partners will inform the approach to long-term monitoring (Phase 2), including the selection of metrics and sites.

Filling in the Gaps

The State's investment in coastal and ocean ecosystem monitoring went a long way toward filling in key gaps in scientific knowledge. Through baseline monitoring, researchers were able to add new study sites to existing programs, collect data from previously unexplored ecosystems, and improve our understanding of ecologically and economically important species.



Baseline monitoring in kelp forests expanded existing monitoring efforts.
Photo: Colleen Wisniewski.

Changing Ocean Conditions

Tracking the Impacts of a Changing Climate

Climate change is having a profound impact on coastal and marine ecosystems in the South Coast, including rising sea levels, warming water temperatures, and changes in ocean chemistry. Changes in ocean conditions affect the health of South Coast ecosystems. For example, warmer waters make it difficult for species that rely on cool water temperatures to survive. As a result, some mobile species are expected to shift their ranges to cooler waters in the north. Rising sea levels are expected to reduce the availability of sandy beach and rocky intertidal habitat for invertebrates, algae, and marine plants, making it difficult for them to survive. By reducing the pressure of fishing and harvesting on an ecosystem, MPAs may serve as refugia for species that are threatened by climate change. MPAs provide an important resource for understanding ocean health generally and as "living laboratories" to better understand the impacts of climate change on species and ecosystems.

Building Coupled Ocean Acidification & MPA Monitoring Programs

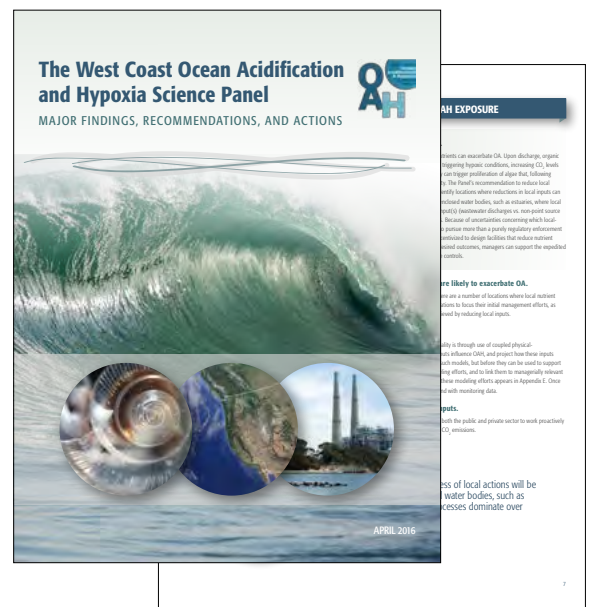
Ocean acidification refers to chemical changes that are occurring as increasing levels of carbon dioxide are dissolved into ocean and coastal waters. These changes result in increasingly acidic waters, which make it difficult for calcifying organisms to form their shells, and affect the growth, survival, and behavior of species throughout the food web.

In 2016, the West Coast Ocean Acidification and Hypoxia Science Panel (OAH Panel) released its major findings and recommendations report,¹ which included the following guidance:

- OAH will have severe environmental, ecological, and economic consequences for the West Coast and requires a concerted regional management focus;
- West Coast managers can manage for resilience using approaches already in place, including protected areas;
- Coupled ecological and ocean acidification monitoring can provide a crucial pathway to inform cross-jurisdictional adaptation and mitigation strategies.

Already, California has some key efforts in place. California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) is leading an effort with other state agencies and researchers to develop updated indicators of climate change in California, including indicators of ocean acidification.²

As part of the California Natural Resources Agency (CNRA), OPC is coordinating research for California's Fourth Climate Assessment. As part of that work, researchers at the University of California Davis Bodega Marine Laboratory are collaborating with OST to advance development and sharing of a mussel-based indicator of ocean acidification. OPC is also leading efforts to develop an inventory of state and federal OAH monitoring that will draw on the OEHHA indicators of climate change, and supporting work to incorporate ocean acidification monitoring into existing ecological research programs.



Linking Natural Resource & Water Quality Management

Bight '13 MPA/Rocky Reefs Project

The Southern California Coastal Water Research Project (SCCWRP) is an environmental research institute and public agency that works to provide a scientific foundation for informed water quality management. Since 1994, SCCWRP has coordinated the Bight Regional Monitoring Program. This program brings together over 100 agencies and organizations to conduct coordinated water quality-relevant assessments of the region on a five-year cycle. The most recent Bight Regional Monitoring Program in 2013 (Bight '13) focused on projects in five key areas: nutrients, contaminant impact assessment, shoreline microbiology, MPA/rocky reefs, and trash and debris.³

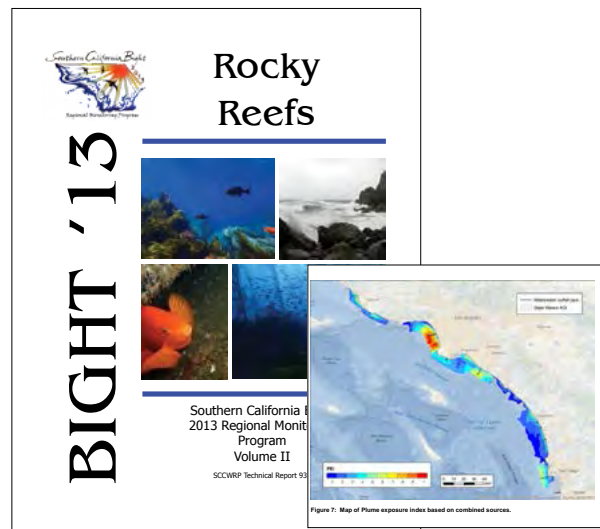
The Bight '13 MPA/Rocky Reefs project was the first of its kind in the Bight Regional Monitoring Program, and it was designed to assess the relative impacts of water quality and fishing pressure on the ecological health of rocky reefs. To do this, researchers from VRG, SCCWRP, and OST developed three indices:

- Fishing Pressure Index to identify areas with the highest fishing pressure
- Plume Exposure Index to estimate the likelihood of exposure of nearshore rocky reefs in the Bight to water-borne pollutants
- Biological Reef Response Index to estimate ecological health in rocky reef habitats (using MPA monitoring data)

Comparing the three indices suggests that rocky reef communities are sensitive to both fishing pressure and pollutants, and that these stressors can co-occur and cause cumulative effects. This issue was especially prevalent near urban centers in the region. Researchers emphasized the importance of future work to further develop and refine these indices, and the need for increasing alignment between MPA and water quality monitoring programs.



The rocky shoreline along the Palos Verdes Peninsula. Photo: Sarah Finstad.



A researcher collects water quality data. Photo: SWRCB.

Looking Forward

This work represented an important step forward in better understanding the impacts of both fishing pressure and water quality on rocky reefs in the South Coast. It also serves as the first step toward aligning MPA and water quality monitoring through collaborative efforts across jurisdictions. This connection was strengthened through a joint SCCWRP/OST Science Integration Fellow, who led development of the Biological Reef Response Index.

Leveraging connections between MPA and water quality monitoring will continue to be a priority. For example, OST and SWRCB, together with the Leadership Team, are working to identify opportunities to align monitoring programs for MPAs, water quality, and water quality protected areas like ASBSs to leverage resources, capacity, and expertise. This work is included in the first three-year work plan of the Leadership Team.⁴

Helping Decision-Makers Understand Unexpected Events

Data collected as part of South Coast MPA baseline monitoring has helped decision-makers to better understand the impacts of two different unexpected events: sea star wasting syndrome and the Refugio oil spill.



Healthy sea stars (left). Photo: Jessie Altstatt.

Sea stars with wasting syndrome (right). Photo: Jayson Smith.

Sea Star Wasting Syndrome

Beginning in June 2013, a massive die-off of sea stars spread down the U.S. West Coast, later dubbed “sea star wasting syndrome” (SSWS). South Coast rocky intertidal researchers from MARiNe monitored sites near Santa Barbara to look for the presence of diseased sea stars, and expanded their baseline sampling after observing diseased individuals in January 2014. By May 2014, sea star populations at many South Coast sampling sites were at or near zero, with northern portions of the region affected first.⁵

Researchers noted that SSWS is often preceded by warm water temperatures, and it can lead to death of infected individuals within days. The syndrome progresses so quickly that at some sites, all sea stars had died before researchers could return as part of their increased sampling.

Continued data collection has shown recruitment of juvenile sea stars in the South Coast, a hopeful sign that populations could recover. Today, the data allow us to explore the causes and assess the ecological consequences of this die-off on South Coast marine ecosystems. Data like these, and having boots in the water, better prepare us for capturing and learning from future events.

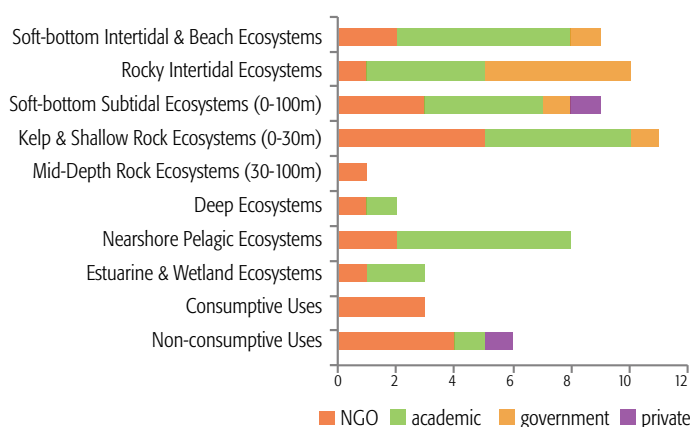
Learn More: Informing Management

1. OAH Panel major findings and recommendations report: westcoastoah.org/executivesummary
2. OEHHA Indicators of Climate Change in California report: goo.gl/h2M2Zn
3. Bight '13 MPA/Rocky Reefs Report: goo.gl/pxi9l0
4. MPA Statewide Leadership Team: goo.gl/pG03yv
5. Sea Star Wasting Syndrome: seastarwasting.org
6. Refugio Oil Spill: www.refugioresponse.com
7. CA Coastal Monitoring Dashboard: <http://tools.oceanspaces.org/dash#/welcome/>

Refugio Oil Spill

On May 19, 2015, approximately 101,000–140,000 gallons of crude oil leaked from a pipeline near Refugio State Beach in Santa Barbara, with an estimated 21,000 gallons reaching the ocean. South Coast MPA monitoring helped to build a network of researchers, many of whom mobilized immediately after the spill to conduct rapid monitoring of the affected areas.⁶

Data collected in the South Coast during baseline monitoring provided a wealth of information about conditions at and near Refugio State Beach before the spill. For example, Reef Check California volunteer divers surveyed kelp forests off of Refugio State Beach for the nine years prior to the spill, including during the baseline period. Their dataset provided important information about conditions in these ecosystems. Continued monitoring will be key to tracking the recovery of coastal and ocean habitats in the area.



Breakdown of monitoring projects by ecosystem from the South Coast Monitoring Survey. Source: OST.

Leveraging Existing Capacity

The South Coast Monitoring Survey is providing a detailed picture of the current monitoring capacity in the region. Results from the survey help identify the geographic and temporal coverage of monitoring activities inside and outside of South Coast MPAs, and the alignment of those activities with the metrics and priorities detailed in the South Coast MPA Monitoring Plan.

Results of the South Coast Monitoring Survey are publicly available in the interactive California Coastal Monitoring Dashboard, an online platform developed to share and connect the monitoring community.⁷ Through the dashboard, you can search for monitoring in specific ecosystems, learn what metrics a project is monitoring, and even find out how to access data.

Results from the South Coast Monitoring Survey are helping OPC, CDFW, OST, and other partners design and implement cost-effective, long-term statewide MPA monitoring, which will be guided by the Statewide MPA Monitoring Action Plan, to be led by CDFW and OPC.

Collaborators



Species Names: Common & Scientific

Common Name	Scientific Name
Abalone	<i>Haliotis</i> spp.
Aurora/Splitnose Rockfish	<i>Sebastes aurora/diploproa</i>
Barred Sand Bass	<i>Paralabrax nebulifer</i>
Basket star	<i>Euryalina</i>
Bean clam	<i>Donax gouldii</i>
Bearded Eelpout	<i>Lyconema barbatum</i>
Benthic siphonophore	<i>Dromelia</i> spp.
Black and Yellow Rockfish	<i>Sebastes chrysomelas</i>
Black Oystercatcher	<i>Haematopus bachmani</i>
Black Perch	<i>Embiotoca jacksoni</i>
Blacksmith	<i>Chromis punctipinnis</i>
Blue Rockfish	<i>Sebastes mystinus</i>
Bluebanded Goby	<i>Lythrypnus dalli</i>
Brandt's Cormorant	<i>Phalacrocorax penicillatus</i>
Brittle star	<i>Ophiurida</i>
Brown Rockfish	<i>Sebastes auriculatus</i>
Cabezon	<i>Scorpaenichthys marmoratus</i>
California Barracuda	<i>Sphyrna argentea</i>
California Brown Pelican	<i>Pelecanus occidentalis californicus</i>
California Halibut	<i>Paralichthys californicus</i>
California hydrocoral	<i>Sylaster californicus</i>
California Least Tern	<i>Sterna antillarum browni</i>
California Lizardfish	<i>Synodus lucioceps</i>
California Scorpionfish	<i>Scorpaena guttata</i>

Common Name	Scientific Name
California Sheephead	<i>Semicossyphus pulcher</i>
California spiny lobster	<i>Panulirus interruptus</i>
California Tonguefish	<i>Symphurus atricaudus</i>
Chilipepper Rockfish	<i>Sebastes goodei</i>
Dogface Witch-eel	<i>Facciolella gilbertii</i>
English Sole	<i>Parophrys vetulus</i>
Fantail Sole	<i>Xystreurus liolepis</i>
Garibaldi	<i>Hypsypops rubicundus</i>
Giant kelp	<i>Macrocystis pyrifera</i>
Giant spined sea star	<i>Pisaster giganteus</i>
Golden gorgonian	<i>Muricea californica</i>
Gorgonians	<i>Holaxonia</i>
Halfbanded Rockfish	<i>Sebastes semicinctus</i>
Hundred Fathom Codling	<i>Physiculus rastrelliger</i>
Jack Mackerel	<i>Trachurus symmetricus</i>
Kellett's whelk	<i>Kelletia kelletii</i>
Kelp Bass	<i>Paralabrax clathratus</i>
Kelp Perch	<i>Brachyistius frenatus</i>
Kelp Rockfish	<i>Sebastes astrovirens</i>
Kelpfishes	<i>Clinidae</i>
Lingcod	<i>Ophiodon elongatus</i>
Market squid	<i>Doryteuthis (Loligo) opalescens</i>
Mussels	<i>Mytilus</i> spp.
Northern Anchovy	<i>Engraulis mordax</i>
Ocean Whitefish	<i>Caulolatilus princeps</i>
Pacific Mackerel	<i>Scomber japonicus</i>

Common Name	Scientific Name
Pacific Sardine	<i>Sardinops sagax</i>
Pelagic Cormorant	<i>Phalacrocorax pelagicus</i>
Pigeon Guillemot	<i>Cephus columba</i>
Pismo clam	<i>Tivela stultorum</i>
Purple sea urchin	<i>Strongylocentrotus purpuratus</i>
Red sea urchin	<i>Mesocentrotus franciscanus</i>
Ridgeback prawn	<i>Sicyonia ingentis</i>
Rock crab	<i>Cancer</i> spp.
Rock Wrasse	<i>Halichoeres semicinctus</i>
Rockfish	<i>Sebastes</i> spp.
Sand crab	<i>Emerita analoga</i>
Sanddab	<i>Citharichthys</i> spp.
Señorita	<i>Oxyjulis californica</i>
Snowy Egret	<i>Egretta thula</i>
Southern sea palm	<i>Eisenia arborea</i>
Spot prawn	<i>Pandalus platyceros</i>
Spotted Ratfish	<i>Hydrolagus coliei</i>
Spotted Sand Bass	<i>Paralabrax maculatofasciatus</i>
Squat lobster	<i>Munida</i> spp.
Surfgrass	<i>Phyllospadix</i> spp.
Tuna	<i>Thunnus</i> spp.
Warty sea cucumber	<i>Parastichopus parvimensis</i>
Western Gull	<i>Larus occidentalis</i>
Yellowtail	<i>Seriola lalandi</i>



CALIFORNIA
OCEAN
SCIENCE
TRUST



MEMORANDUM

TO: Valerie Termini, Executive Director, California Fish and Game Commission
CC: Susan Ashcraft, Marine Advisor, California Fish and Game Commission
EC: Craig Shuman, Marine Region Manager, California Department of Fish and Wildlife
Becky Ota, Marine Habitat Conservation Program Manager, CDFW
FROM: Tom Maloney, Executive Director, California Ocean Science Trust
DATE: April 14, 2017
REGARDING: Engaging the South Coast ocean community about the South Coast marine protected areas (MPA) baseline information and the *State of the California South Coast* report

California Ocean Science Trust (OST), the California Department of Fish and Wildlife (CDFW), and the California Ocean Protection Council (OPC) (from this point forward collectively called the “Management Team”) developed the [State of the California South Coast report](#) (State of the Region). The State of the Region provides a snapshot of ecological and socioeconomic conditions in the South Coast (Point Conception to the United States-Mexico border, including state waters around the Channel Islands) to establish a baseline or “benchmark” of conditions near the time of marine protected area (MPA) implementation in 2012. The State of the Region draws on technical reports produced for state-funded baseline monitoring projects; a [series of Snapshot Reports](#) focused on specific baseline projects, key ecosystems, and special places; and a wide variety of products developed by over 45 South Coast MPA baseline monitoring partner agencies and organizations. The State of the Region is provided to the Commission and relevant state agencies and entities, including the MPA Statewide Leadership Team, to help inform the MPA Management Program. This scientific foundation is intended to inform the Fish and Game Commission’s five-year management review of the region’s MPAs, the approach to long-term monitoring, and future MPA adaptive management efforts, and serve as a public resource.

The Management Team is also committed to ensuring the MPA Management Program reflects local knowledge, expertise, and priorities by engaging the South Coast ocean community. All reports, data, and outreach products are shared publicly on OceanSpaces.org/scsotr. Beginning in 2015, the Management Team engaged with the South Coast ocean community to:

- Continue to support and maintain open lines of communication between the Management Team and members of the South Coast ocean community, including key leaders;
- Learn about the most effective ways to connect and communicate with target audiences (e.g., Tribes and tribal communities, fishermen, environmental nongovernmental organizations, citizen scientists, academic institutions, etc.), including how local community members would like to receive baseline information and products;
- Provide the South Coast community with a status of implementation, monitoring, and adaptive management of South Coast MPAs and help target audiences build an understanding and awareness of how baseline information will contribute to statewide, long-term monitoring;

- Present, review, and discuss the State of the Region including key findings from MPA baseline monitoring conducted in the region with the interested public; and
- Engage with researchers, managers, citizen scientists, fishermen, and others involved in monitoring and who participate in decision making about our ocean.

Over the past eighteen months, the Management Team designed and implemented a suite of formal and informal engagement strategies, including:

- Engaging with South Coast Tribes and Native American communities, including presenting to the Fish and Game Commission Tribal Committee in April 2016;
- Identifying and subsequently working with a group of community leaders, or “key communicators” to reach the broader South Coast ocean community;
- Conducting informal informational interviews with community leaders;
- Participating in state agency, local government, and community events, including on-the-ground engagement;
- Presenting at academic meetings and institutions;
- Hosting a series of community gatherings and small group discussions throughout the South Coast;
- Utilizing traditional media and social media to promote baseline information;
- Releasing a South Coast Monitoring Survey and interactive information dashboard to document South Coast monitoring efforts; and
- Providing an update to the Fish and Game Commission in December 2016 on the status of baseline monitoring in the South Coast.

(Each of the above activities is described below.)

Engaging with South Coast Tribes and Native American Communities

OST led tribal engagement activities in the South Coast to discuss plans for sharing South Coast MPA baseline monitoring data and information and to share the State of the Region.

South Coast Tribes

- Sent two separate letters to chairpersons of coastal Tribes in the South Coast (May 2015 and March 2017), including follow-up phone calls to all letter recipients.
- Met in-person with Tribal staff who expressed interest in connecting (June 2016-April 2017).
- Presented to the Southern California Tribal Chairmen’s Association as part of three meetings (September 2015, September 2016, April 2017) to provide an update on MPA baseline monitoring and share initial baseline monitoring information and reporting.
- Presented to the California Fish and Game Commission Tribal Committee in April 2016 to provide an informational update to the Tribal Committee regarding the status of MPA monitoring in the South Coast and to solicit guidance on engaging with South Coast Tribes.

Native American Communities

- Sent two separate letters in May 2015 and March 2017 to South Coast Native American communities, including follow-up phone calls to all letter recipients.
- Met in-person with Native leaders who expressed interest in connecting (June 2016-April 2017).
- Worked with Native communities and Native-led organizations who volunteered to help develop text for contribution to the State of the Region to provide cultural context on the current and historical connections between tribes and Native communities and coastal marine resources (pages 5 & 13).*
- One of the community gatherings was held at the Wishtoyo Chumash Village in Malibu, and a presentation was given by the Wishtoyo Foundation as part of this event, providing cultural context to MPA monitoring and broader implementation.

** This is the first region to include collaborative cultural content of this nature in a State of the Region report. OST welcomes continued opportunity to connect with South Coast Tribes and Native communities interested in sharing their cultural context on current and historical connections as they related to MPAs, MPA monitoring, and coastal marine resources more generally.*

Key Communicators

Guided by existing relationships and contacts in the region, as well as information gathered during initial scoping interviews conducted in 2015, the Management Team developed a list of over 75 active key communicators to support engagement efforts. These individuals have direct access to our target audiences and are willing to play a liaison role to disseminate information and encourage and coordinate involvement in community discussions. Key communicators helped to inform appropriate communications tools and pathways, identify local events to participate in, and provide feedback on materials development.

In January 2017, the Management Team hosted an informational webinar for South Coast key communicators, which was followed by a number of phone calls, to provide details about the status of baseline monitoring in the region and solicit input on planning a series of community events in March 2017. The Management Team maintained regular communication with this group, providing progress updates and requesting guidance and support for engaging in the region.

Informational Interviews

In early and mid- 2015, the Management Team conducted informal interviews with key communicators to (re)introduce the Management Team and share details about the status of baseline monitoring, learn how to engage and communicate with the local community, and identify community-led events that might be appropriate for the Management Team to participate in to share baseline information and products.

- 25 informational interviews were conducted and captured perspectives from a diverse range of target audiences, including tribal, state and local government, fishing (commercial and recreational), citizen science, academic, and ENGOS.

State Agency, Local Government, and Community Events

Prior to the completion and release of the South Coast State of the Region, the Management Team participated in 14 local government and community-led events. Participation in these events offered the Management Team the opportunity to share resources for the South Coast MPA monitoring work, announce the upcoming release of the State of the Region report, and engage informally to learn about the most effective ways to share baseline information and related products. These included:

- South Coast MPA Collaborative meetings, including the South Coast MPA Collaborative Forum, April 29, 2015; L.A. Collaborative meeting, June 30, 2016; and the San Diego Collaborative meeting, February 28, 2017
- Malibu City Council meeting, September 26, 2016 and April 24, 2017
- Honor the Ocean: A Celebration of Los Angeles' Indigenous Maritime Peoples and Marine Protected Areas, September 24, 2016
- Fred Hall Shows, March 1-5, 2017 in Long Beach and March 10-12, 2017 in Bakersfield
- Santa Barbara Harbor Commission meeting, March 16, 2017
- Fish and Game Commission Marine Resources Committee meeting, March 23, 2017
- Laguna City Council meeting, April 11, 2017
- Santa Ana Regional Water Quality Control Board staff meeting, April 24, 2017
- California Coastal Commission staff meeting, April 25, 2017
- Aquarium of the Pacific Lecture Series, April 25, 2017

The Management Team is scheduled to present South Coast MPA baseline information and products at four events after the April Fish and Game Commission meeting:

- State Lands Commission staff meeting, May 1, 2017
- California Coastal Commission, anticipated for May 11, 2017
- Oceanside Senior Anglers meeting, June 6, 2017
- San Diego Regional Water Quality Control Board meeting, June 21, 2017

Key communicators presented baseline information and products, as well as promoted the South Coast Community Gatherings at many local community events, including:

- Regular MPA Collaborative membership meetings, Summer 2016-Spring 2017 (and ongoing)
- Fred Hall Shows, March 1-5, 2017 in Long Beach and March 10-12, 2017 in Bakersfield
- Divers Day at Aquarium of the Pacific, March 11, 2017
- Malibu City Council meeting, March 13, 2017

- Channel Islands National Marine Sanctuary meeting, March 17
- Reef Check Volunteer Appreciation meeting, March 19
- Wishtoyo Chumash Village Spring Equinox event, March 19
- Climate Calling: Student and Community Response to Climate Change, April 12-14, 2017

Academic Meetings and Presentations

The Management Team participated in four academic meetings and two academic presentations from 2015-2017:

Academic Meetings

The Management Team participated in a panel discussion at the Santa Monica State of the Bay 2015 Conference on September 9, 2015 to discuss MPA monitoring in the region, including an overview about anticipated baseline information and products.

The Western Society of Naturalists (WSN) Meeting is an annual gathering of scientists and graduate students with a general focus on marine ecology. Over 600 attendees participated in the November 2015 conference, which was hosted by OST and included a specific focus on “Marine Science Informing Management”. This theme provided the opportunity to showcase some of the work produced for the State of the Region, including:

- 22 talks in MPA sessions, and 15 talks in Long-term Monitoring sessions
- 9 talks specific to the South Coast research, monitoring, and management (presented by CDFW, OST, and South Coast MPA Baseline Program researchers)

OST and CDFW returned to the WSN Meeting in November 2016 and co-presented details about the status of MPA monitoring in the South Coast, including how baseline information will contribute to long-term monitoring and inform management. The conference also provided an opportunity to share initial Snapshot Reports.

In October 2016, OST and CDFW co-tabled at the 9th California Islands Symposium as another opportunity to share information about baseline monitoring, including Snapshot Reports.

Academic Presentations

The Management Team conducted outreach to lead researchers involved in the baseline projects to inquire about opportunities to share baseline information and key findings from their research with their local academic institutions. Two seminars were conducted:

- Seminar, Occidental College on April 4, 2017
- Seminar, Scripps Institute of Oceanography on May 17, 2017

Community Gatherings and Small Group Discussions

A series of formal and informal gatherings were convened throughout the South Coast to continue building relationships with members of the local ocean community and to share baseline information and products.

Community Gatherings

The Management Team held a series of community gatherings throughout the South Coast to share South Coast MPA baseline monitoring information. Members of the South Coast ocean community were invited to gather in an informal setting to: learn about the status of MPA monitoring in the South Coast, including how baseline information will contribute to long-term monitoring and inform management; discuss the recently released [State of the California South Coast](#) report; and engage with researchers, managers, citizen scientists, fishermen and others involved in monitoring.

- Community gatherings were held in five locations:
 - San Diego (*March 20, 2017*)
 - San Pedro (*March 21, 2017*)
 - Malibu (*March 22, 2017*)
 - San Clemente (*March 23, 2017*)
 - Santa Barbara (*March 24, 2017*)

Almost 300 community members attended these events, including tribal members, commercial and recreational fishermen, citizen scientists, environmental organizations, educational institutions, researchers, and community members with general interest in MPA monitoring and ocean health.

Key themes from these meetings will be shared with attendees, and made available on OceanSpaces.org to help inform future community engagement and long-term MPA monitoring.

Small Group Discussions

The Management Team also met with community leaders for seven informal discussions as another opportunity to learn about monitoring interests and priorities, discuss specific projects and/or key findings of baseline monitoring, and discuss ways to maintain an open line of communication with target audiences.

Traditional Media and Social Media

Radio and newspaper coverage coupled with social media, OceanSpaces' Facebook and Twitter pages, and community calendars offered additional mechanisms to broadly share baseline information and products. Details include (as of April 7, 2017):

- 3 Radio broadcasts
 - KPCC (*March 13, 2017*)
 - KBU FM (*March 16, 2017*)
 - KBU FM (*March 22, 2017*)

- 13 Newspaper articles
 - BD Outdoors (*March 5, 2017*)
 - San Diego Union Tribune (*March 15, 2017*)
 - Newport Beach Indy (*March 17, 2017*)
 - Laguna Beach Indy (*March 19, 2017*)
 - OC Weekly (*March 20, 2017; March 31, 2017*)
 - San Diego Community Newspaper Group (*March 24, 2017*)
 - Malibu Surfside News (*March 27, 2017*)
 - The Orange County Register (*March 27, 2017*)
 - The Malibu Times (*March 30, 2017*)
 - San Diego Reader (*March 28, 2017*)
 - Laguna Beach Indy, letters to the editor (*March 30, 2017; March 30, 2017*)
- Social media coverage
 - The State of the Region information and stories, in addition to information about the community gatherings, were shared in blogs, e-newsletters, Facebook posts, Tweets, community calendars, email listservs, and other venues. Information was additionally shared via the website OceanSpaces.org, key communicator social media platforms, and the MPA Collaborative Network.
- OceanSpaces.org, the website which hosts the State of the Region, served as a resource for the public. Analytics describing site visitation as of April 5, 2017 include:
 - 814 individuals viewed the State of the Region.
 - 2,079 pageviews (across the 10 pages the comprise the State of the Region)
 - 469 downloads of the State of the Region report
- OceanSpaces also hosts the Snapshot Report series. Analytics describing site visitation from June 1, 2016 through April 10, 2017 include:
 - 3,541 pageviews (across 10 pages, including the landing page, “about the series”, and individual Snapshot report landing pages)
 - 1,743 downloads of Snapshot Reports

Conducted a Monitoring Survey and Released the Monitoring Survey information Dashboard

In July 2016, OST released the South Coast Monitoring Survey to help identify the geographic and temporal coverage of monitoring activities inside and outside of the region's MPAs, as well as assess the compatibility of those monitoring activities with the metrics and priorities outlined in the South Coast MPA Monitoring Plan. The Management Team will use the publicly available survey information to help design and implement a partnership-based approach to long-term, statewide monitoring inside and outside MPAs.

The Monitoring Survey was launched in July 2016. As of March 2017, it was completed by 26 organizations, with 37 projects, and a total of 3,311 sampling sites across all projects. The [Monitoring Survey information dashboard](#) hosts live updates as new survey information are added to the survey, allowing an accurate representation of the community as it grows.

Presentation to Fish and Game Commission, December 2016

CDFW and OST provided an informational update to the Fish and Game Commission at its December 2016 meeting in San Diego. This overview was intended to help inform Commissioners of the status of MPA implementation in the South Coast, including the first phase of monitoring, and act as a precursor to the Fish and Game Commission's five-year management review of the region's MPAs in April 2017.

Memorandum

Date: April 7, 2017

To: Valerie Termini
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director



Subject: **Management Review of Baseline Information for South Coast Marine Protected Areas**

Overview:

On December 15, 2010, the Fish and Game Commission (Commission) adopted regulations for 50 new and revised south coast marine protected areas (MPAs) and two special closures. These areas established by regulations, including 13 MPAs established in 2003 at the northern Channel Islands (retained without change), were implemented January 1, 2012. This region is part of a statewide network of 124 MPAs designed to meet the goals of the Marine Life Protection Act (MLPA), including protecting marine populations, habitats and ecosystems, improving sustainable human use of our ocean, and protecting marine natural heritage. The south coast MPAs encompass approximately 355 square miles or 15 percent of California's jurisdictional waters (0-3 nautical miles from shore) between Point Conception in Santa Barbara County and the US-MEX border, including state waters surrounding offshore islands. The MLPA requires monitoring, research, and evaluation to facilitate adaptive management of the network. The purpose of this memorandum is to transmit the Department of Fish and Wildlife's (Department) management review of the baseline information collected within the south coast following MPA implementation to the Commission.

The Statewide MPA Monitoring Program takes a two-phase approach to monitoring: regional baseline monitoring (Phase I) and statewide long-term monitoring (Phase II). The south coast is the third of four coastal regions to complete Phase I. A total of 10 regional projects were funded; nine monitored a broad range of species, habitats, human uses, and patterns of ocean currents, both inside and outside MPAs; and one was an integrative project meant to tie all nine research projects together. Data collected from these projects (2011-2013), and additional monitoring over the first five years of MPA implementation, provides a benchmark characterization of the region.

To help inform management recommendations following MPA implementation, the Department, Ocean Science Trust (OST), and the Ocean Protection Council (OPC) worked collaboratively to produce the "State of the California South Coast" report as was done in the central and north central coast regions. The report provides a summary of baseline monitoring and related information from other monitoring activities during the first five years of MPA implementation in the region (<http://oceanspaces.org/south-coast-state-region>).

The Department, OST, and OPC collaboratively shared this report and other baseline data with constituents throughout the south coast during community gathering events in March 2017.

Scientific Learning from Baseline Monitoring:

Baseline monitoring results indicate the south coast MPAs contain a variety of representative marine habitats and ecosystems with distinct biological communities, which contribute to achieving the ecological goals of the MLPA. Ongoing monitoring within "historic" MPAs, specifically northern Channel Island MPAs, reveals an increase in fish density and biomass inside and outside MPAs, for targeted and non-targeted species; targeted species inside MPAs demonstrate the greatest biomass increases.

Environmental conditions in the region can fluctuate from year to year. However, the last several years have been marked with unusual oceanographic conditions across the eastern Pacific. Beginning in 2013, a mass die-off of sea stars took place from the Gulf of Alaska to Baja California. The 2015-2016 El Niño event rivaled sea surface temperature anomalies set during the 1982-1983 and 1997-1998 El Niño events. Additionally, in May 2015 over 100,000 gallons of crude oil leaked from a pipeline near Refugio State Beach in Santa Barbara county, with approximately 21,000 gallons reaching the ocean. Data collected during baseline monitoring provided a wealth of information about conditions at or near Refugio State Beach before the spill.

Recreational and commercial fishermen reported the loss of some traditional fishing grounds, traveling farther to fish, and increased fishing pressure in the remaining open fishing areas due to MPAs. Despite this, an analysis of landings and revenue reported on landing receipts and Commercial Passenger Fishing Vessel logbooks showed fishing continues to be an integral part of the regional ocean economy. A survey, conducted by Point 97/Ecotrust in 2012 and 2013, shows beach going, scenic enjoyment, biking, and hiking as the most popular non-consumptive coastal activities.

Management Recommendations:

California's MPAs were designed, and now managed, to the extent possible, as a statewide network. Management of the network is informed by lessons learned and best management practices from statewide, regional, and local scales. While regulatory changes based on baseline monitoring data are not recommended at this time, opportunities exist to improve the MPA Management Program through four focal areas: monitoring and research, enforcement and compliance, outreach and education, and policy and permitting. Based on experience gained over the last five years managing the south coast MPAs and input from core partners, Tribes and Tribal governments, and stakeholders, the Department recommends the following:

Monitoring and Research

- Continue supporting a partnership-based monitoring approach to leverage cost-effective/sustainable long-term MPA monitoring practices.
- Implement a Statewide MPA Monitoring Program that gathers information from regional activities to evaluate the statewide network relative to the MLPA goals.

- Improve approaches for communicating monitoring information and results to broad audiences about the efficacy of the MPA network relative to MLPA goals.
- Explore how MPA science and management can align with other management efforts such as fisheries, water quality, and climate change.

Enforcement and Compliance

- Use available technology to make regulatory activities more efficient and effective, including identifying high priority enforcement areas (e.g. Santa Catalina Island MPAs had 51 percent of the recorded south coast violations from 2012-2015).
- Maintain and enhance cooperative interagency MPA enforcement efforts.
- Continue exploring new and emerging technology for increased MPA enforcement efficiency; identify metrics to collect in the field to better track MPA compliance.
- Change or adopt regulations as needed to simplify or clarify specific language to improve compliance.

Outreach and Education

- Continue working with partners to improve public awareness, understanding, and compliance of California's MPA network through outreach, education, communication, and interpretation activities (e.g. 195 regulatory and interpretive signs installed statewide; 66 installed in the south coast.)
- Continue communicating directly with the public, and developing outreach materials and resources (e.g. over 200,000 MPA regulatory guidebooks and brochures distributed statewide; approximately 60,000 distributed in the south coast.)
- Continue working with partners on educational programs that support MPA goals, and reach out to various age groups and cultural backgrounds in communities inland and along the coast (e.g. PORTS [Parks Online Resources for Teachers and Students] program in partnership with State Parks brings MPA messaging into K-12 classrooms for free.)

Policy and Permitting

- Continue to provide expertise to inform the Commission's policies, adaptive management, and regulatory decision-making processes.
- Continue planning with the MPA Statewide Leadership Team to increase coordination between permitting agencies to improve governance.
- Continue working with the OPC Science Advisory Team to develop an ecological impact assessment tool to identify cumulative impacts within MPAs prior to issuing a scientific collecting permit.

Adaptive management, as defined by the MLPA is an ongoing process which seeks to improve management by learning from program actions such as monitoring, evaluation, and other management actions that affect the MPA network (Fish and Game Code, § 2852[a]).

Valerie Termini, Executive Director
Fish and Game Commission
April 7, 2017
Page 4

For example, to improve MPA compliance and enforceability across the MPA network, the Commission took action to amend regulations to clarify regulatory language, correct existing errors, and update allowable activities within MPAs. The Department will continue to use the best available science to make well-informed adaptive management recommendations into the future.

If you have any questions or need additional information, please contact Dr. Craig Shuman, Regional Manager of the Marine Region, at (805) 568-0216.

cc: Stafford Lehr
Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@Wildlife.ca.gov

Craig Shuman, D. Env.
Region Manager
Marine Region
Craig.Shuman@wildlife.ca.gov

David Bess, Chief
Law Enforcement Division
David.Bess@wildlife.ca.gov

Mike Stefanak, Assistant Chief
Law Enforcement Division
Mike.Stefanak@wildlife.ca.gov

Bob Puccinelli, Captain
Law Enforcement Division
Robert.Puccinelli@wildlife.ca.gov

Becky Ota, Program Manager
Marine Region
Becky.Ota@wildlife.ca.gov

Stephen Wertz
Senior Environmental Scientist
Marine Region
Stephen.Wertz@wildlife.ca.gov

Amanda Van Diggelen
Environmental Scientist
Marine Region
Amanda.VanDiggelen@wildlife.ca.gov



South Coast Marine Protected Area (MPA) Five-year Management Review

Amanda Van Diggelen, California Department of Fish and Wildlife
Erin Meyer, California Ocean Science Trust

Fish and Game Commission Meeting
Van Nuys, California
April 27, 2016

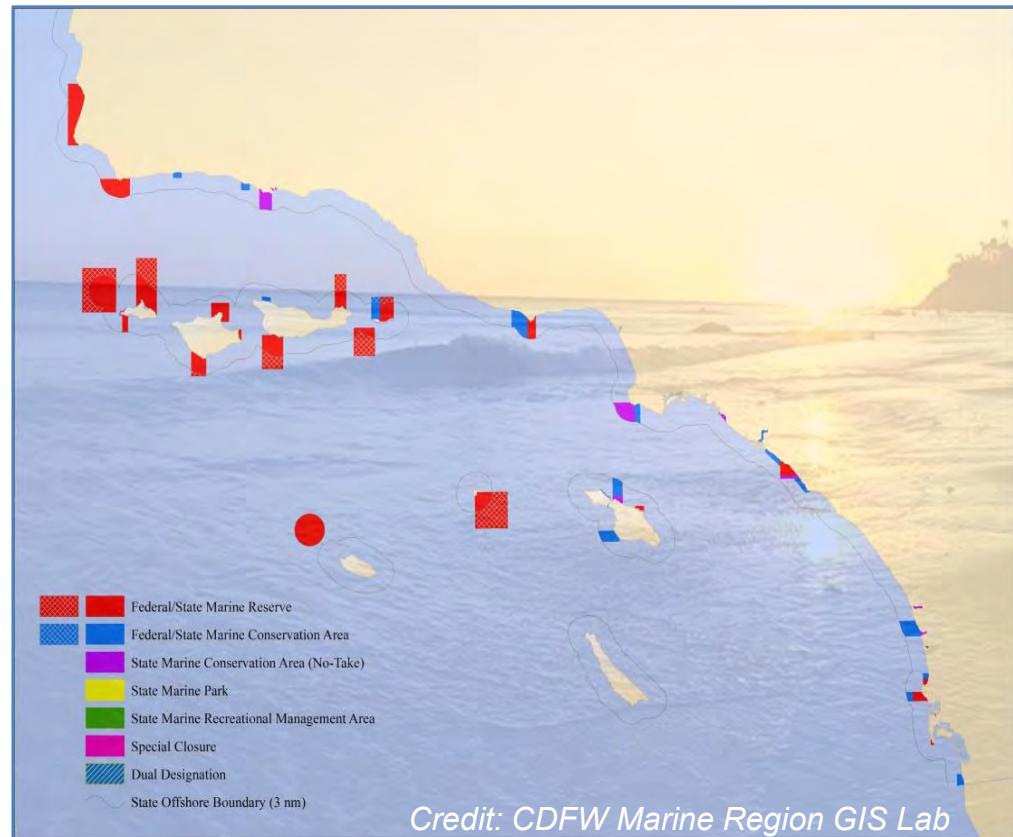


Presentation Topics

- **California's South Coast MPAs**
- **MPA Management Program**
- **MPA Monitoring Program**
- **Baseline Monitoring**
- **Management Recommendations and Updates**

South Coast Region

- Implemented January 1, 2012
- Point Conception to US-MEX border
 - 2,351 square miles
 - 1,063 sq mi-Mainland
 - 1,288 sq mi-Islands
 - 15 percent in MPAs
 - 12 percent-Mainland
 - 18 percent-Islands
- Re-designed Network
 - 50 MPAs
 - 2 special closures



MPA Management Program



Outreach and Education



Research and Monitoring



Enforcement and Compliance

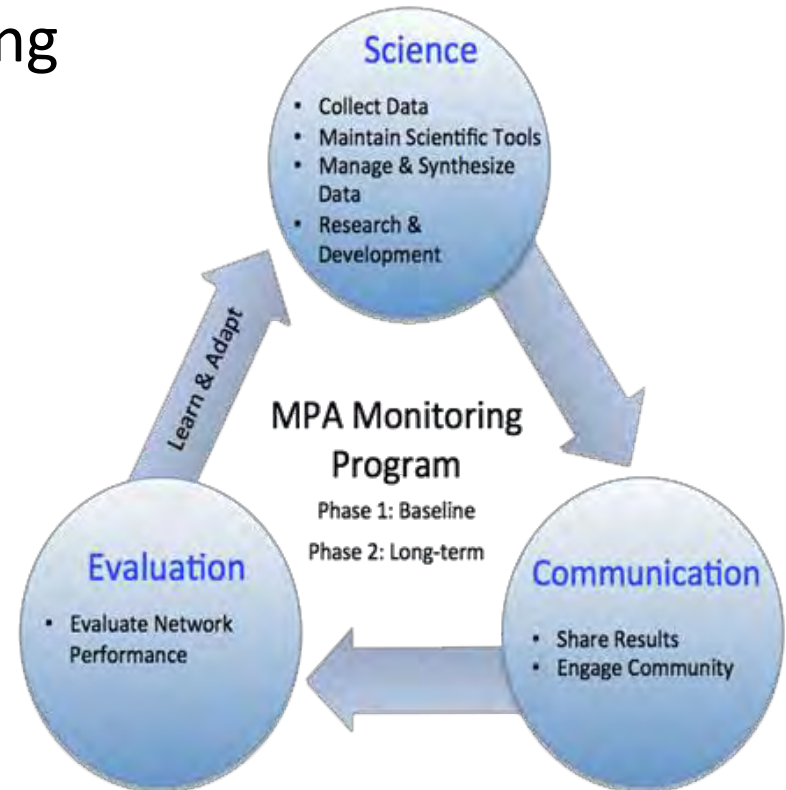


Policy and Permitting

Statewide MPA Monitoring Program

Two-phase Approach

- Phase 1: Baseline monitoring
- Phase 2: Long-term monitoring, guided by the Statewide MPA Monitoring Action Plan (in development)



Phase 1: Baseline Monitoring

10
Ecosystem
Features



CONSUMPTIVE
USES



NON-CONSUMPTIVE
USES



MID-DEPTH
ROCKY
ECOSYSTEMS



ROCKY
INTERTIDAL
ECOSYSTEMS



KELP &
SHALLOW ROCK
ECOSYSTEMS



ESTUARINE &
WETLAND
ECOSYSTEMS



SOFT BOTTOM
INTERTIDAL & BEACH
ECOSYSTEMS



SOFT BOTTOM
SUBTIDAL
ECOSYSTEMS



DEEP
ECOSYSTEMS &
CANYONS



NEARSHORE
PELAGIC
ECOSYSTEMS

COASTAL REGION	Review & Select Projects	Collect & Analyze Data	Synthesize & Share Results	5-year Review
Central Coast	2007	2007-2012	2012-2013	2013
North Central Coast	2010	2010-2014	2014-2015	2016
South Coast	2011	2011-2015	2016-2017	2017
North Coast	2013	2014-2017	2017-2018	2018



= completed

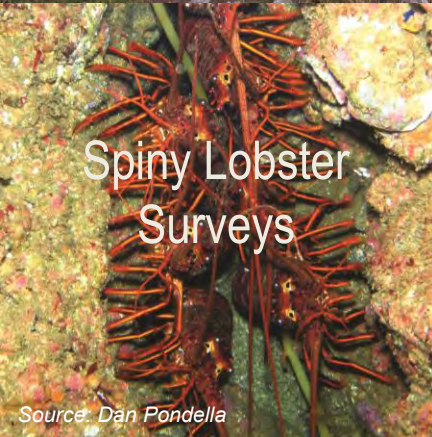
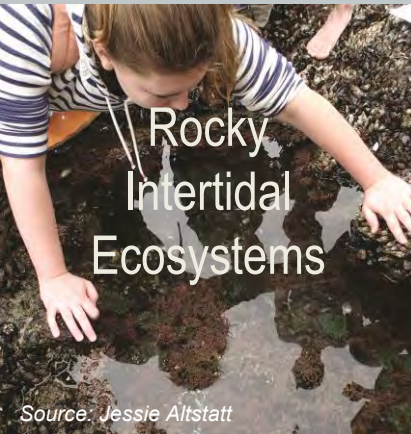


= underway



= year complete

WHAT: 10 State-funded Projects



WHO: Academics, Citizens, Fishermen, Tribes...

a partnership-based approach to monitoring



Highlights from Baseline Monitoring

- **Supporting a large proportion of statewide commercial fishing:** 68% of landings, 40% of ex-vessel revenue, 37% of fishermen (2012).
- **Highly diverse ecosystems:** e.g., biodiversity hotspot for sandy beach macroinvertebrates (87 types; 134,649 individuals at a 1 site; & 5,000g/m at 4 beaches)
- **Capturing key habitats:** >90 fish species and 80 invertebrate species identified in mid-depth and deep ecosystems via ROV
- **Integrating and synthesizing across habitats and disciplines:** Ecosystem structure and distribution is driven by physical conditions (e.g., water temp, substrate characteristics)

Learning from Baseline Monitoring

- **First comprehensive benchmark of conditions in the region**
- **Collaborations built foundation for success**
 - Citizen Science projects delivered education (~500 volunteers) and scientifically rigorous data
- **Helping decision-makers understand unexpected events**
 - Spread of and recovery from sea star wasting
 - Conditions prior to Refugio oil spill
- **Understanding Changing Ocean Conditions**
 - Tracking the Impacts of Climate Change
 - Building Coupled Ocean Acidification and MPA Monitoring Programs

Building on Baseline Monitoring

California Coastal Monitoring Survey and Dashboard



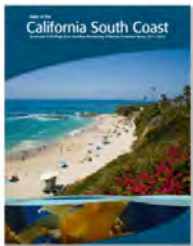
Sharing Information, Connecting Communities



your one-stop shop for community, data, & reports



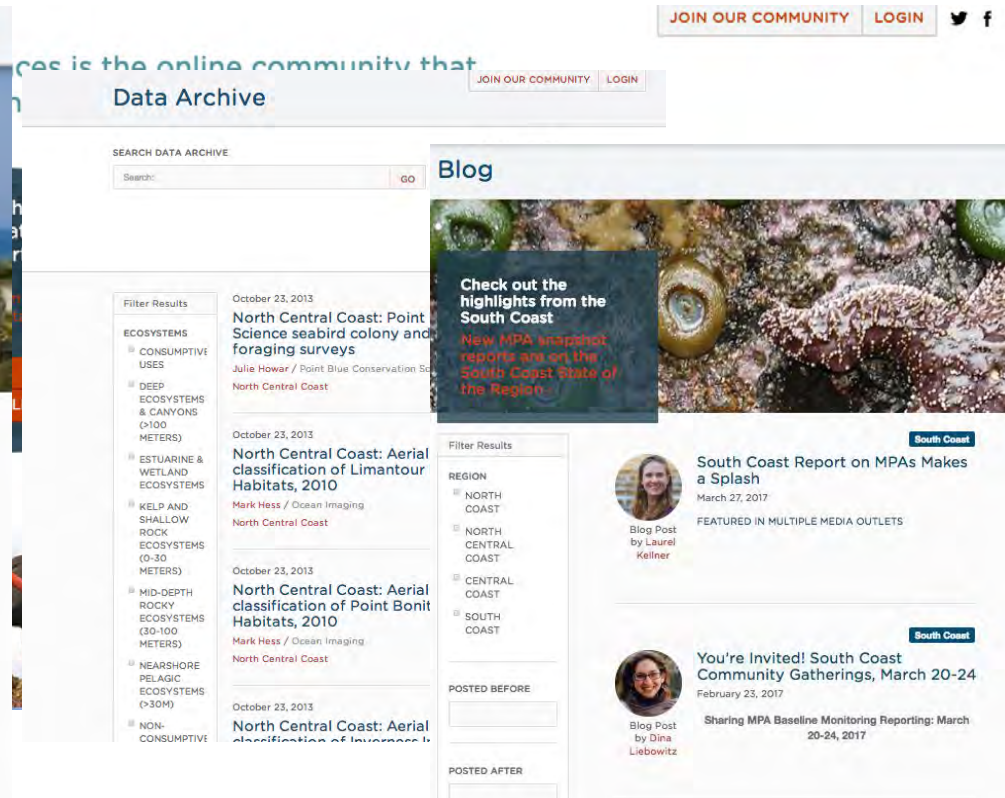
SOUTH COAST STATE OF THE REGION



The *State of the California South Coast (State of the Region)* report provides a summary of ecological and socioeconomic conditions in the South Coast near the time of marine protected area (MPA) implementation in 2012. It provides key findings from South Coast MPA baseline monitoring projects, which occurred from 2011 to 2015. Each project included two to three years of data collection. This report also includes ecological, biological, oceanographic, and socioeconomic information and findings from key partners.

This report will help inform the MPA Management Program and will be presented to the broader South Coast ocean community through a series of **community gatherings** and other meetings.

Photo credit: May Bay Butter / Laguna Beach Resort / Getty Images; Sarah Finstad



OceanSpaces.org/scsotr

Sharing Information, Connecting Communities

Reports and data widely available

- Website **viewed by >800 people**
- State of the Region **report downloaded ~500 times** (*since March 13*)

Broad community engagement

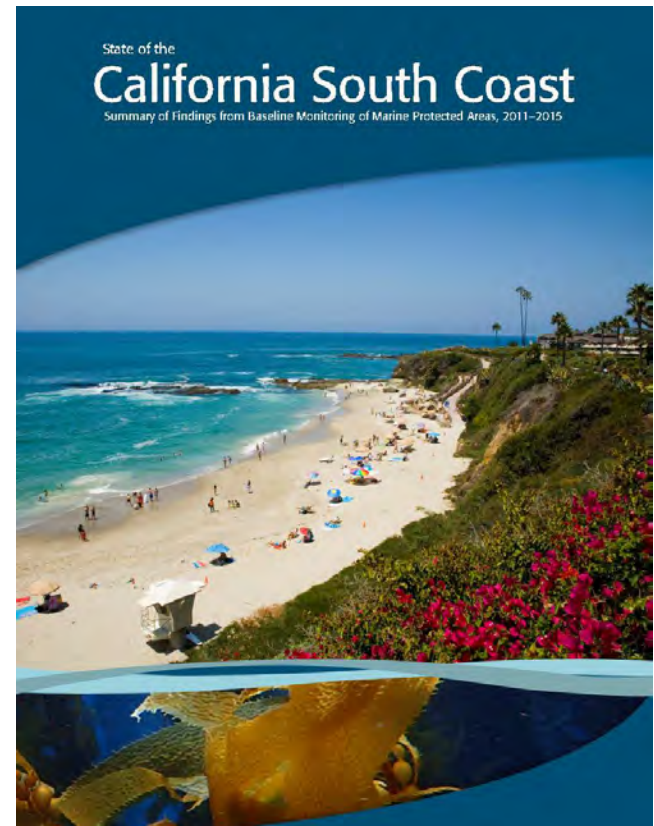
- Meetings & correspondence with **39 Tribes & tribal communities**
- **27 community events/meetings** hosted by agencies, local governments, academic institutions, and others
- **1-week tour**: 5 Community Gatherings, 7 small group meetings, reaching **>300 people**

Diverse media coverage

- **3 radio broadcasts** and **13 newspaper articles**
- Social media coverage, including blogs, tweets, & Facebook posts

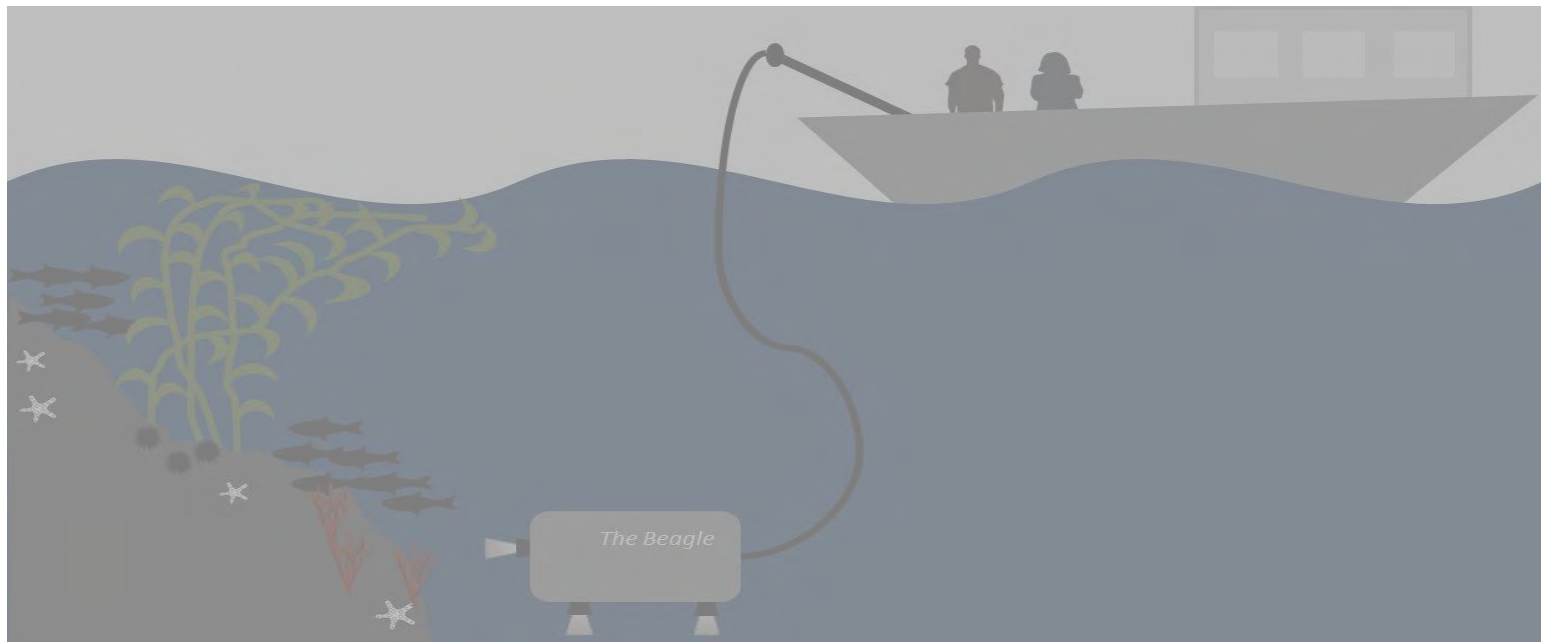
Management Recommendations

- No regulatory changes recommended at this time
- Opportunities exist to continually inform MPA Management Program components
 - Monitoring and Research
 - Enforcement and Compliance
 - Outreach and Education
 - Policy and Permitting



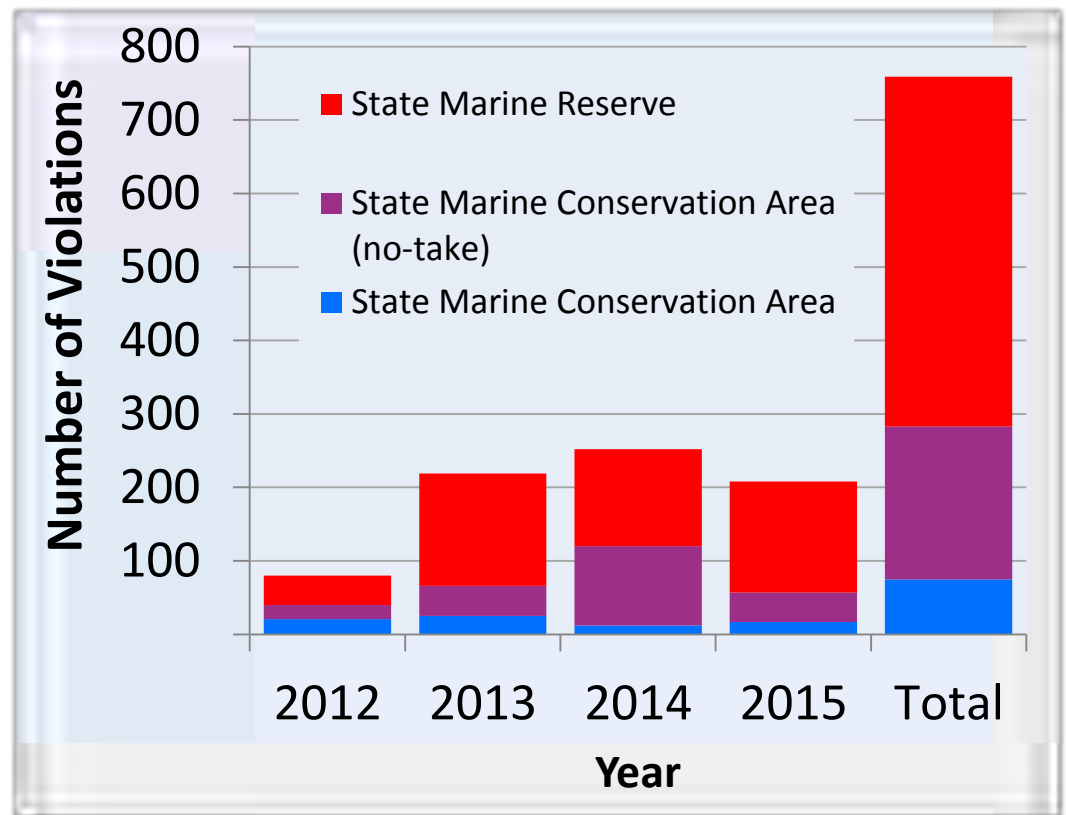
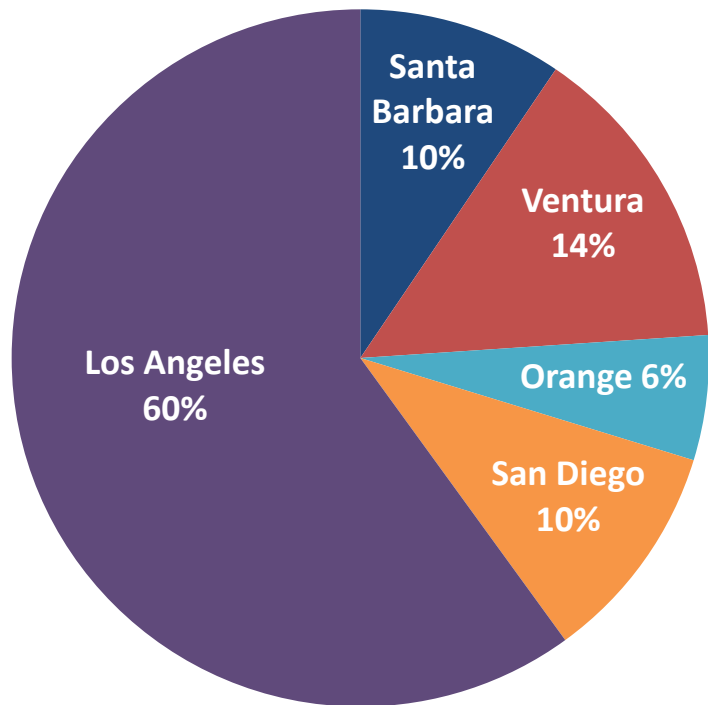
Monitoring and Research

- Support a partnership-based approach to monitoring and research
- Improve approaches to communicate monitoring information to broad audiences
- Inform fisheries management, water quality, and climate change



Enforcement and Compliance

South Coast MPA-Related Citations, 2012-2015



Outreach and Education

- Coordinated consistent and accurate messaging
 - Interpretive and regulatory signs: 195 statewide, and 66 South Coast
- Collaborate with programs that support MPA goals (PORTS)
- Communicate MPA regulation information
 - Guidebooks and Brochures: 200,000+ statewide, and 60,000+ South Coast



Policy and Permitting

- Provide best available science to inform decision-making
- Develop ecological impact assessment tool
- Engage with MPA Statewide Leadership Team



Underwater View of MPAs



Summary

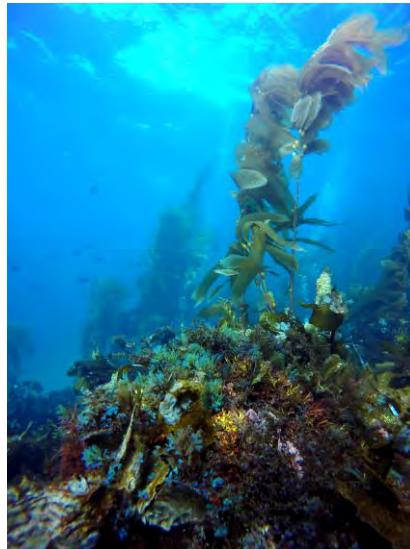
- No regulatory changes recommended at this time
- Use baseline monitoring data to inform adaptive management
- Support four components of MPA management program



Thank You • Questions?

Amanda Van Diggelen, California Department of Fish and Wildlife,
amanda.vandiggelen@wildlife.ca.gov

Erin Meyer, California Ocean Science Trust,
erin.meyer@oceansciencetrust.org



From: [Parker House](#)
To: [FGC](#)
Cc: [Pope, Elizabeth@Wildlife](#); [Ashcraft, Susan@FGC](#)
Subject: April FGC meeting - The Bay Foundation
Date: Tuesday, March 28, 2017 3:21:21 PM
Attachments: [TBF Presentation FGC 2017.pptx](#)

Hello,

I would like to submit a request for The Bay Foundation to give a short presentation at the April FGC meeting. The presentation was approved by Executive Director Valerie Termini for the March MRC meeting. However, we would like to present at the FGC meeting to give an update on the south coast MPAs as there will be a specific agenda item at the FGC meeting. The presenter will be our Executive Director Tom Ford.

Thank you,

Parker

Parker H. House
Marine Programs Field Technician

The Bay Foundation
T: 310.873.3910
phouse@santamonicabay.org
www.santamonicabay.org
[@thebayfoundation](#)
[@kelpqueso](#)



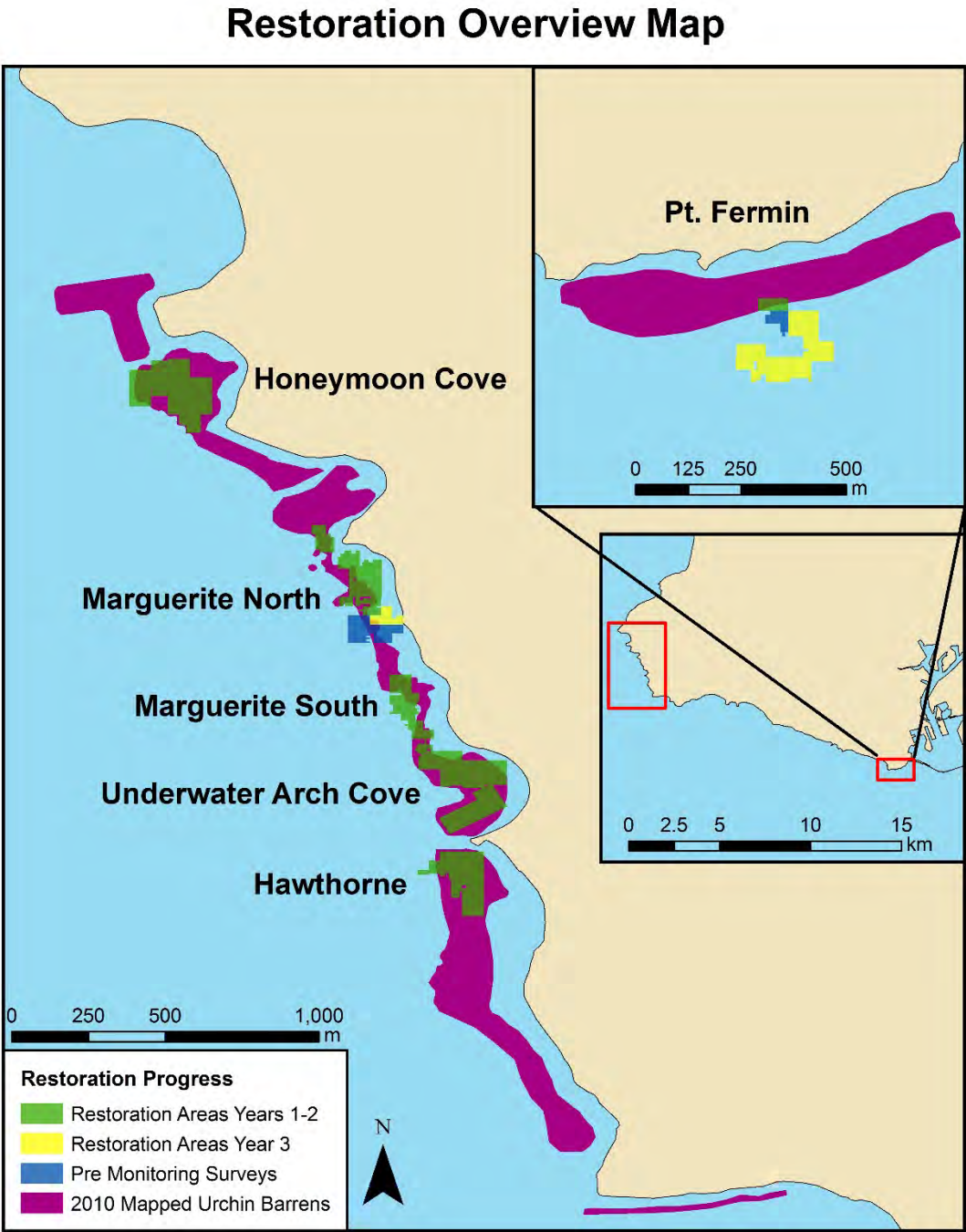
Palos Verdes Kelp Forest Restoration Project



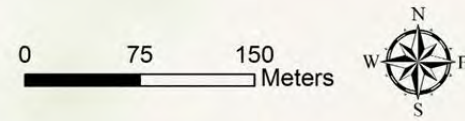
PV Kelp Project Restoration Area

Restoration Efforts July 2013 – February 2016	
Total Area Restored	39.7 Acres
Estimated Number of Urchins Removed	3.3 million

Average Purple Urchin Density	
Pre-Restoration Density	25.99/m ²
Post-Restoration Density	1.5/m ²

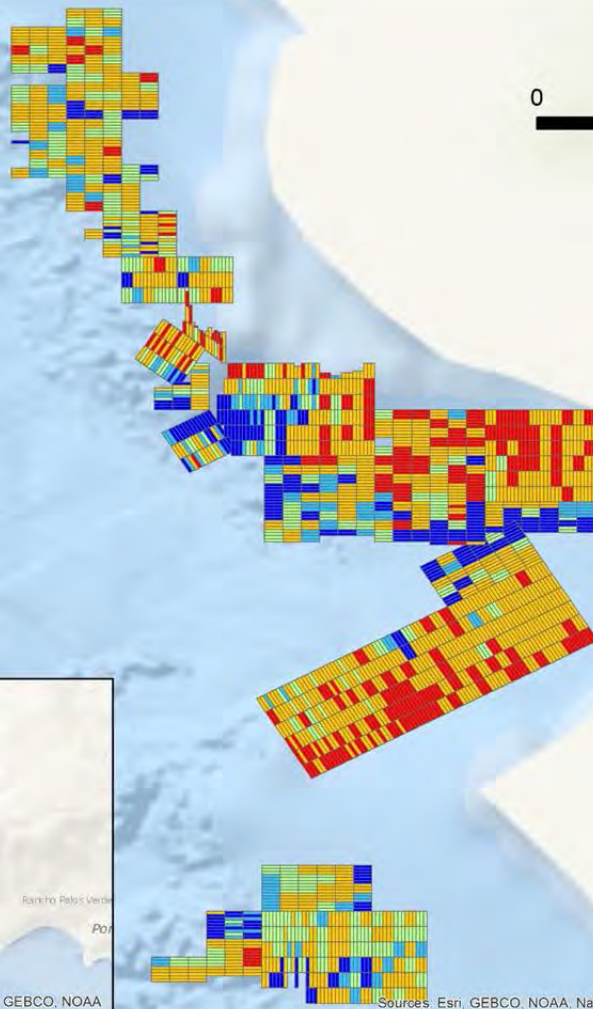


Marguerite South Underwater Arch Cove and Hawthorne Reef



Pre restoration

Urchins per m2



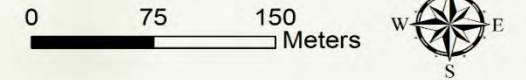
Palos Verdes Point

Resort Point

Long Point

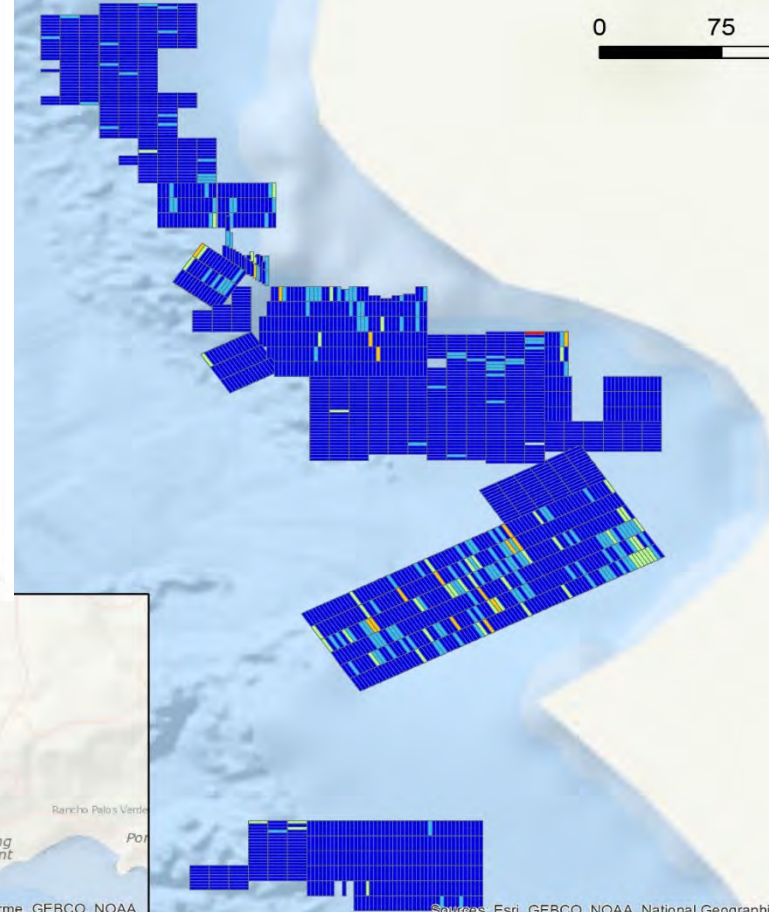
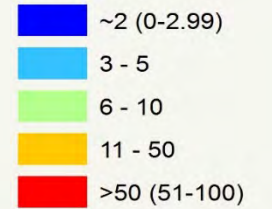
Esri, DeLorme, GEBCO, NOAA
NGDC, and other contributors

Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, NAVTEQ, Geonames.org, and other contributors



Post restoration

Urchins per m2



Palos Verdes Point

Resort Point

Long Point

Esri, DeLorme, GEBCO, NOAA
NGDC, and other contributors

Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, NAVTEQ, Geonames.org, and other contributors

February 2014



March 2014



Honeymoon Cove
Palos Verdes



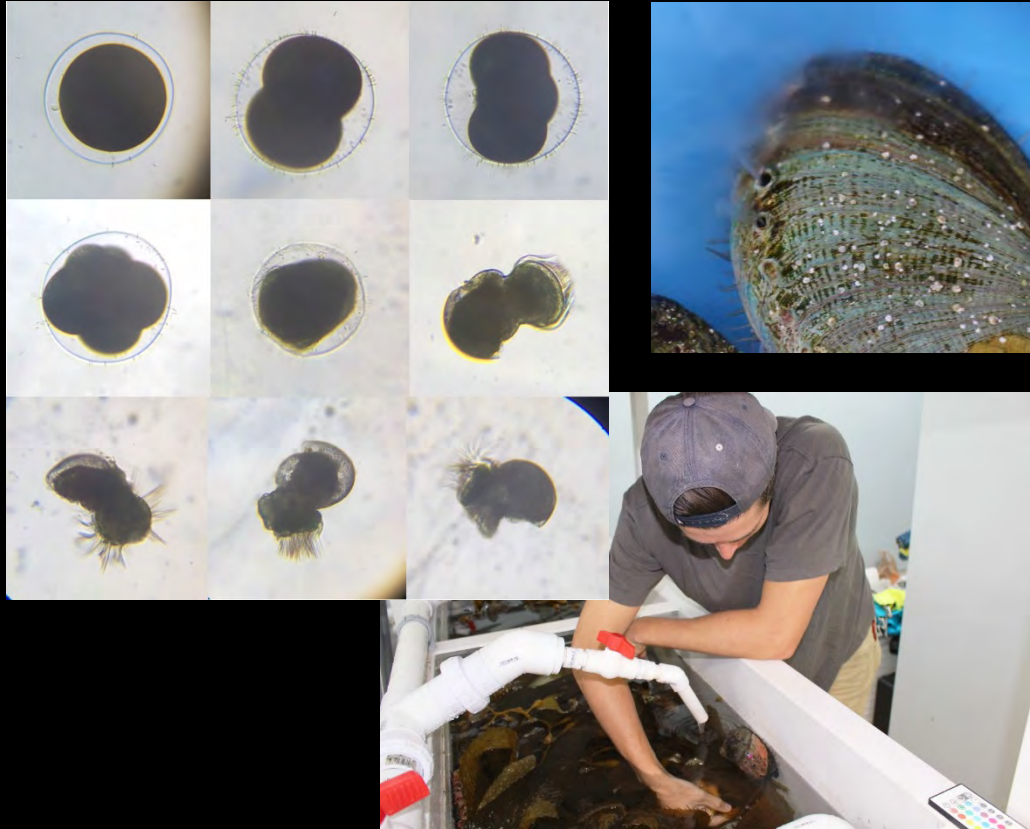
July 2016



Southern California Abalone Restoration Project



Spawning



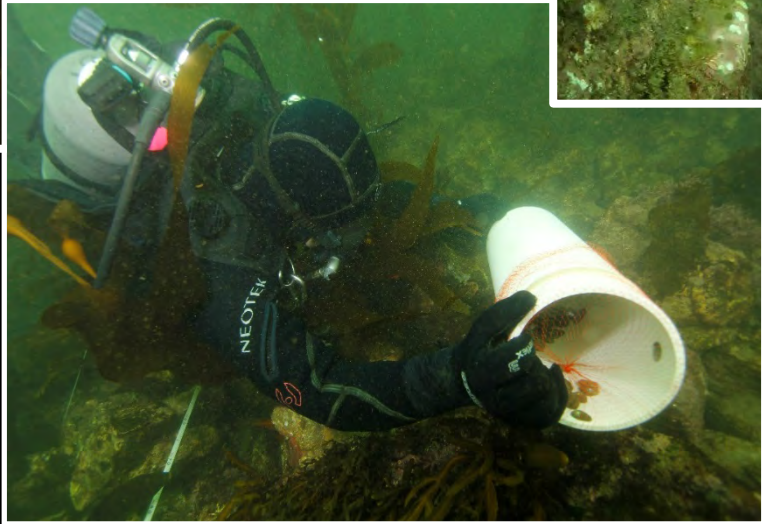
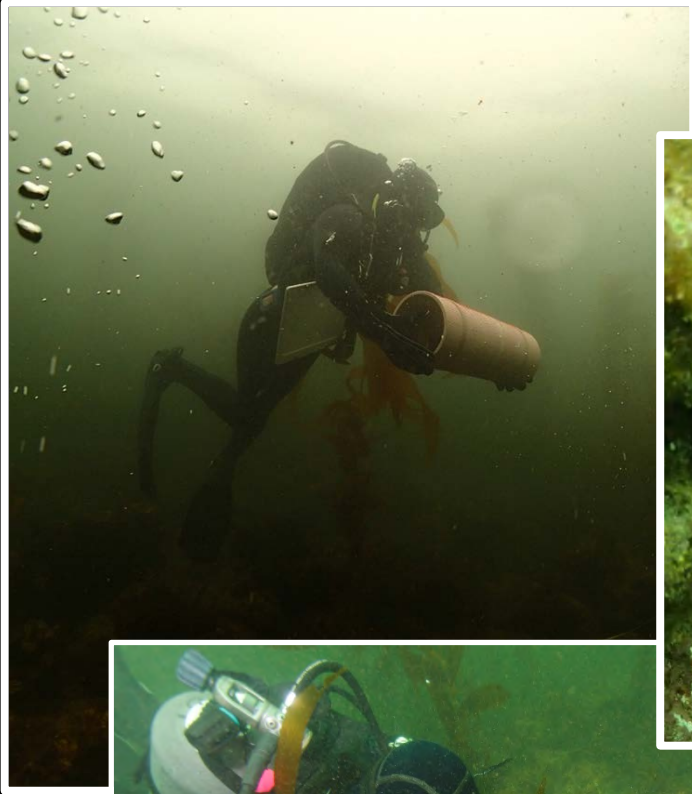
Laboratory spawning



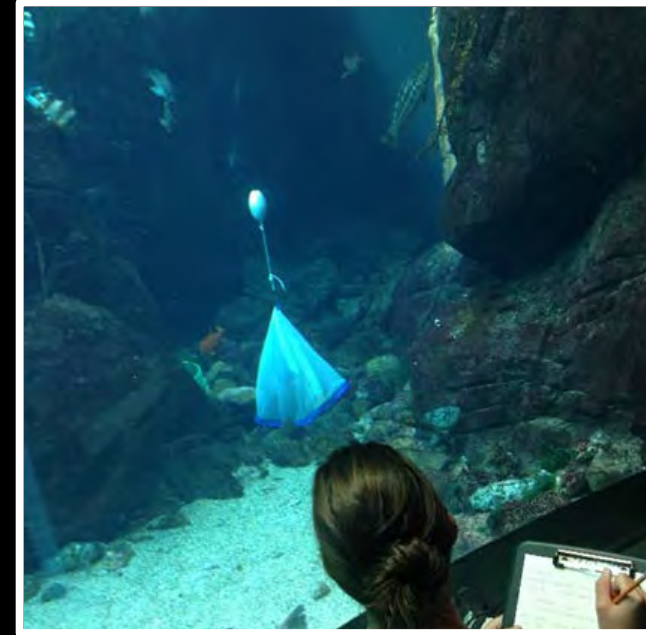
Deck spawning experiments



Juvenile Outplanting



Larval Outplanting Trials



Aerial Monitoring of Ocean Vessels in Southern California

Surveys conducted from
2008 – 2017 (110 flights)

Encompassing 990 square miles
from US Mexican Border to
Point Conception

Over 14,000 data points to describe location
activity and vessel type



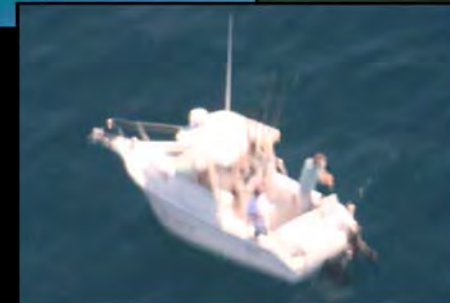
Aerial Survey Methodology



Pilot, Spotter and GPS Technician

Altitude 500-1000ft

Survey duration 2 to 2.5 hours





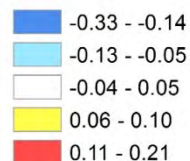
Change in Fishing Effort From Point Mugu to Point Dume Before and After MPA Implementation

Pre-MPA surveys conducted 2008-2011

Post-MPA surveys conducted 2012-2017

MPA Boundary

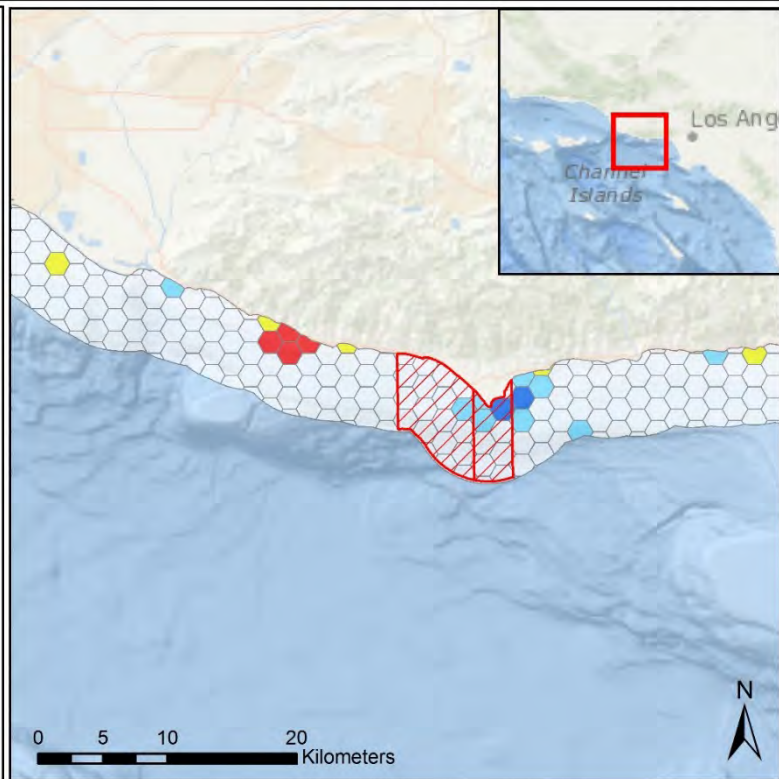
Change in number of boats per transect per polygon



Polygon Sides = 1 km

Project Partners:
Campbell Foundation
Lighthawk
Vantuna Research Group

Service Layer Credits: Esri,
DeLorme, GEBCO, NOAA
NGDC, and other
contributors



Change in Fishing Effort From Palos Verdes to Long Beach Before and After MPA Implementation

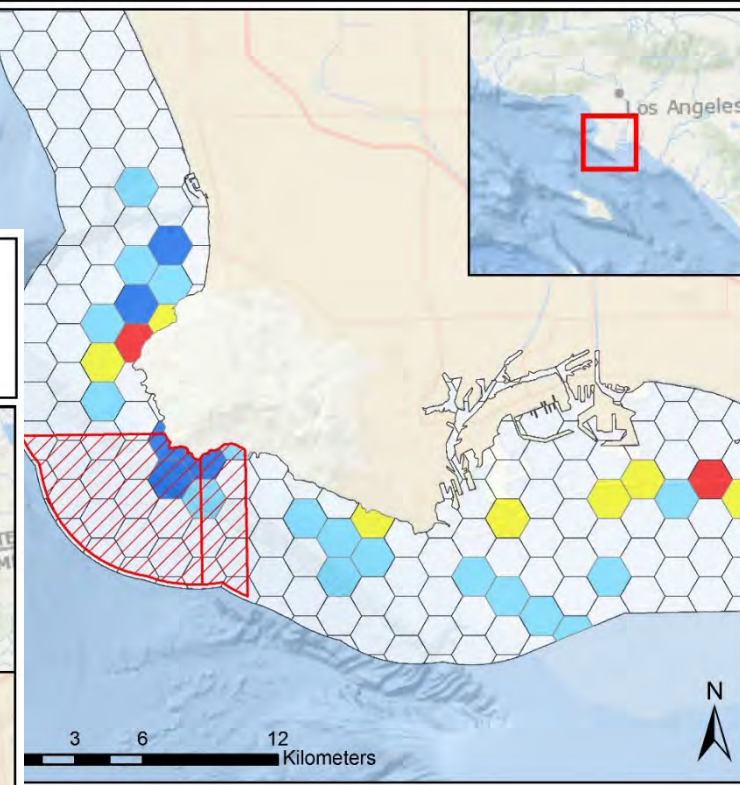
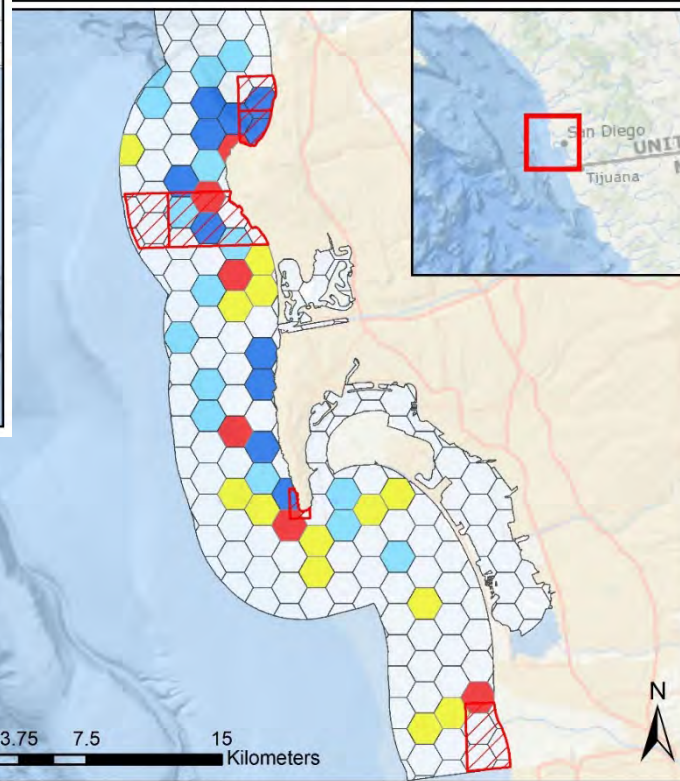
Pre-MPA surveys conducted 2008-2011

Post-MPA surveys conducted 2012-2017

MPA Boundary

Change in

Change in Fishing Effort From La Jolla to San Diego Before and After MPA Implementation



Project Partners:
Campbell Foundation
Lighthawk
Vantuna Research Group

Service Layer Credits: Esri,
DeLorme, GEBCO, NOAA
NGDC, and other
contributors



**UNSOLICITED APPLICATION FOR AN OUTER CONTINENTAL SHELF
RENEWABLE ENERGY
COMMERCIAL LEASE
UNDER 30 CFR 585.230**

*Morro Bay Offshore
A Trident Winds' project*



Submitted To:
U.S. Department of the Interior
Bureau of Ocean Energy Management (BOEM)
Pacific Region

770 Paseo Camarillo, Second Floor Camarillo, CA 93010

January 14, 2016

Submitted By:
Trident Winds LLC; 113 Cherry Street, #34912 Seattle, WA 98104 2205



**UNSOLICITED APPLICATION FOR AN OUTER CONTINENTAL SHELF
RENEWABLE ENERGY
COMMERCIAL LEASE
UNDER 30 CFR 585.230**

*Morro Bay Offshore
A TRIDENT WINDS' PROJECT*

TABLE OF CONTENTS

1	OVERVIEW	1
2	INFORMATION REQUIRED FOR AN UNSOLICITED REQUEST FOR A COMMERCIAL LEASE	5
2.1	Area Requested for Lease - 30 CFR 585.230(a)	5
2.1.1	Screening Process Used to Select Site	6
2.2	General Description of Objectives and Facilities	11
2.2.1	Objectives	11
2.2.2	Offshore Production Facilities and Substations	11
2.2.3	Power Transmission and Grid Interconnection	11
2.2.4	Onshore Facilities and Staging Areas (Ports)	13
2.3	General Schedule of Proposed Activities	16
2.3.1	Phase 1: Site Assessment Plan (SAP) – Development/Survey	17
2.3.2	Phase 1: Construction & Operation Plan (COP)	17
2.3.3	Phase 6: Construction	17
2.3.4	Phase 7: Commercial Operations	17
2.4	Renewable Energy Resource and Environmental Conditions in Area of Interest	18
2.4.1	Energy Resource	18
2.4.2	Environmental Resources	20
2.5	Conformance with State and Local Energy Planning Initiatives	37
2.6	Documentation of Lessee Qualifications	38
2.6.1	Legal Qualifications	38
2.7	Technical Capability	39
2.7.1	Project Participants	39
2.7.2	Experience with Similar Project	41
2.8	Project Financial Projections	43
3	REFERENCES	44



**UNSOLICITED APPLICATION FOR AN OUTER CONTINENTAL SHELF
RENEWABLE ENERGY
COMMERCIAL LEASE
UNDER 30 CFR 585.230**

*Morro Bay Offshore
A Trident Winds' project*

1 OVERVIEW

Trident Winds LLC (TW, or Trident) is pleased to submit this unsolicited request for a United States Outer Continental Shelf (OCS) commercial lease in accordance with the requirements of 30 CFR § 585.230.

Trident has initiated development of a commercial scale offshore wind farm off the coast of Pt. Estero, California with a grid connection in Morro Bay (MBO). The initial project is planned with the nameplate capacity of 765 megawatts (MW), and a net capacity of 650 MW. The wind farm capacity may be expanded to 1,000 MW at a later date, if additional transmission capacity and market off take can be obtained. The MBO Project will consist of approximately 100 floating offshore wind systems (FOWS) that will harvest the vast offshore wind resources for the benefit of the California electric consumers. The exact nameplate capacity and the corresponding number of FOWSs will be determined during the development phase of the Project

The MBO Project will be deployed in deep waters, allowing development to occur in the area with reduced environmental or commercial conflicts. Preliminary analysis of known environmental and stakeholder constraints suggests that the proposed location is favorable for the Project development and provides for reduced or no visual impacts.

The Project will deploy FOWSs consisting of competitively selected and commercially available floating support structures with large offshore wind turbine generators (OWTG). Each FOWS is moored using conventional properly sized, vertical load, drag imbedded, or torpedo anchors, a technology that requires no piling and is well suited for deep and variable seabed conditions. The installation is completely reversible, i.e. no permanent infrastructure is left on the sea bed upon decommissioning and performed with minimal acoustic disturbances. Individual FOWS are electrically interconnected with inter array cables to form an offshore wind farm.

The exact number of FOWS will be defined at a later date as it will depend on a) confirmation of the available capacity in the California Independent System Operator (CAISO) transmission lines, and b) the nameplate capacity of the selected OWTG. The competitive selection of the floating support structure supplier will be conducted in parallel with the development of the Site Assessment Plan (SAP), i.e. within 12 months after receipt of the non competitive lease; while competitive selection of the OWTG supplier will be conducted during Construction and Operation Plan (COP) development – see Project schedule, Figure 9.

On October 7 2015, the California legislature passed SB 350, known as the Clean Energy and Pollution Reduction Act that requires 50% of the state's generation to come from renewable energy by 2030. The Chairman of the California Energy Commission (CEC), Robert Weisenmiller, has stated that the State needs to reach an interim goal of 40% renewable energy as soon as 2020. While filings and reports prepared for and by the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) show that the state utilities will meet the current Renewable Portfolio Standard (RPS) requirements, substantial additional renewable energy supplies are needed to meet RPS requirements in the future. Projections indicated that over 15,000 MW of additional renewable capacity would be needed to meet the SB 350 requirements by 2030.

The MBO Project stands on the shoulders of the DOE's offshore wind demonstration projects, which paved the way and demonstrated a well defined permitting regime for offshore wind installations in Federal waters. The Project schedule coincides with the floating foundations technology maturity and the market demand for additional renewable energy sources in California. The Project is poised to be the first floating, commercial scale installation on the West Coast of the US, which could lead to further exploitation of the unlimited offshore wind resources, while creating a new industry.

The MBO offshore wind farm is planned to be located approximately 33 miles offshore, taking advantage of a consistent wind resource with an average speed of 8.5 miles/sec. The proposed site location is in a vicinity of the ODAS buoy 46028. Based on over 27 years of data from the buoy, the expected energy generation from the offshore resources could surpass 50% capacity factors. The MBO Project will be sited in 800 1,000 meters (400 – 500 fathoms) of water approximately 26 nautical miles (nmi) (48 km) from Point Estero, California. Each FOWS is spaced approximately 1,000 meters (0.54 nmi) a part to reduce, or eliminate, the wind shadow effects. Energy produced from all FOWSs is brought to an offshore, floating substation and delivered to shore via one or more (for redundancy purposes) export cable(s) using the same cable route and connecting to the Morro Bay substation owned by Pacific Gas and Electric (PG&E) Figure 1.



Figure 1 - MBO Export Cable will use the Existing Discharge and connect to the PG&E Substation

Trident Winds will seek a long term power purchase agreement or a build own transfer transaction with one or more load serving utilities. Initial commercial operation for the project is expected in the 2025 time frame.

Location selection for the final assembly, hull load out, turbine installation, and future maintenance base will be performed during COP as such is dependent on the chosen OWTG and the floating support structure.

Today, two OWTG suppliers, Siemens and MHI Vestas, have commercially available large, 7 MW and 8 MW respectively, OWTGs. Two floating support structures, Statoil's Hywind and Principle Power's WindFloat, are expected to be available for commercial use after 2020.

The Hywind, outfitted with Siemens 2.3MW OWTG has been in operation since October 2009 (Figure 2) off the coast of Norway. In November 2015, Statoil announced a 30MW project in Scotland that will see deployment of Hywind systems using 5 Siemens 6 MW OWTGs (Statoil, 2015).



Figure 2 - Hywind Prototype



Figure 3 - WindFloat Prototype

The WindFloat (Figure 3), outfitted with Vestas V 80, 2MW OWTG, has been in operation since October 2011 off the coast of Portugal. In November 2015, Principle Power announced a 25MW project in Viana do Castelo, Portugal that will see deployment of 3 to 4 MHI Vestas 8MW OWTGs (PrinciplePower, 2015).

Either the Hywind, or the WindFloat floating support structure, is suitable for the deployment in the MBO Project.



Trident Winds has conducted broad initial stakeholder outreach during the pre submittal phase of the Project and will conduct comprehensive stakeholder outreach and environmental/existing use analyses prior to final site selection.

Once assembled, the final Project team will include participants from the shipbuilding and high tech manufacturing industries, offshore construction, and offshore O&G. The proposed Project will leverage the collective know how of these industry professionals.

Trident Winds has actively engaged in communications and information exchange with federal and state agencies and stakeholders regarding the development of the Project near Morro Bay, CA. To date, Trident Winds has either met or conducted telephone discussions with several California state agencies, including CPUC, CEC, CA Coastal Commission (CCC) and the Ocean Protection Council.

Representatives of Trident Winds have also held a number of conversations with the Morro Bay Commercial Fishing Organization (MBCFO), whose inputs were taken into consideration in selecting the proposed project area. Based on the input from MBCFO, Trident Winds has relocated the MBO site area further offshore past 800 meter (400 fathoms) water depth.

The Trident Winds team has initiated discussions with non governmental organizations (NGO) interested in the intersection of energy development and environmental protection in California, including the Audubon Society, the Sierra Club, the Natural Resources Defense Council (NRDC), the Nature Conservancy, the Environmental Defense Fund (EDF), the Ocean Conservancy and the Community Environmental Council of Santa Barbara.

2 INFORMATION REQUIRED FOR AN UNSOLICITED REQUEST FOR A COMMERCIAL LEASE

Regulations of the Bureau of Ocean Energy Management (BOEM) allow for the submission of an unsolicited request for a commercial lease. The following information addresses each of the elements required, under 30 CFR 585.230, for a commercial lease. Trident Winds will establish a Project company, Morro Bay Offshore LLC to which the requested lease may be assigned in the future.

2.1 Area Requested for Lease - 30 CFR 585.230(a)

The MBO Project proposes the deployment of a multi turbine floating wind farm off the coast of Morro Bay, California, at a location that is approximately 800 to 1,000 meters (400 to 500 fathoms) deep and approximately 25 nmi (46.3 km) from Pt. Estero (Figure 4). A more detail map is included in the confidential Annex B.

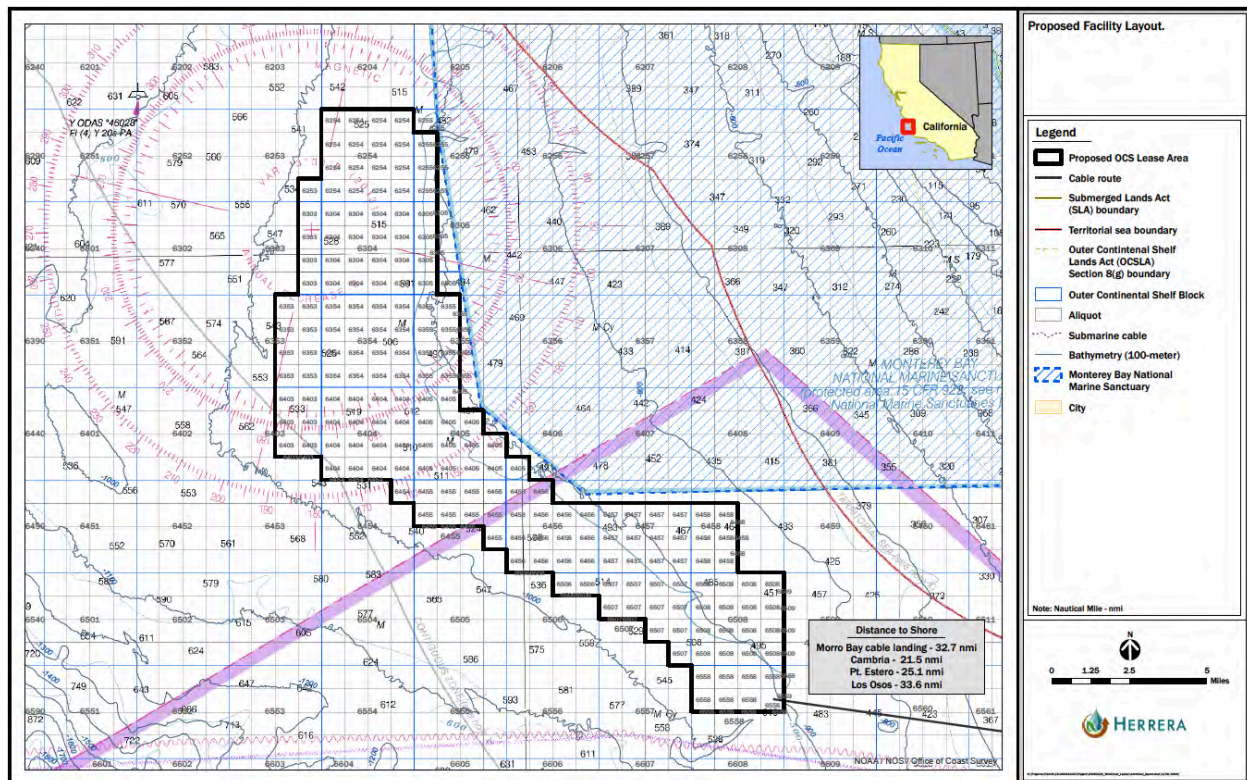


Figure 4 - Proposed MBO Project Site location

Table 1 provides the legal description of the proposed area for the lease within the OCS official Protraction Diagram NK10 01. The actual aliquots from the following blocks are included in the spatial file compatible with ArcGIS 9.3 (geographic information system shape files) in a geographic coordinate system (North American Datum of 1983 [NAD 83]) that forms part of this submittal.

Table 1 OCS Lease Area Blocks (Partial and Full)

Block Number	Partial Block (Aliquot) Designation	Qty of Alqts
6253	P	1
6254	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P	16
6255	E, I, M	3
6303	D, H, L, P	4
6304	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P	16
6305	A, E, I, M	4
6353	C, D, G, H, K, L, O, P	8
6354	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P	16
6355	A, B, E, F, I, J, M, N	8
6403	C, D, G, H, K, L	6
6404	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P	16
6405	A, B, E, F, G, I, J, K, L, M, N, O, P	13
6406	M	1
6454	D	1
6455	A, B, C, D, E, F, G, H, L	9
6456	A, B, E, F, G, H, I, J, K, L, M, N, O, P	14
6457	E, F, G, H, I, J, K, L, M, N, O, P	12
6458	E, F, I, J, M, N	6
6506	C, D	2
6507	A, B, C, D, E, F, G, H, K, L, P	11
6508	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P	16
6558	A, B, C, D, E, F, G, H	8
Total quantity of Aliquats		191

The gross size of the area consists of 191 aliquots corresponding to 275.04 km² (106.17 sq mi or 67,962 ac). The area will be reduced in size by approximately 50% following the completion of the detailed assessments of geophysical, oceanographic, and seabed conditions. The final wind farm size will be approximately 144 km² (55.58 sq mi or 35,582.40 ac).

2.1.1 Screening Process Used to Select Site

Trident Winds has followed a systematic effort to select the site for the MBO Project. The site selection included the following approach:

- Assessment of wind resources, met ocean conditions, and sea floor profile;
- Assessment of the available on shore infrastructure;
- Proximity to existing interconnection facilities with CAISO and minimal need for development and construction of new, land based transmission lines and facilities;
- Assessment of environmental conditions and conflicting uses of space;
- Consultation with local stakeholders and the City of Morro Bay officials.

2.1.1.1 Wind and Infrastructure Resources

The site selection process was based on applying a number of filters that eventually led to the selected site. Specifically, the site selection process started with a wind resource characterization along California coast, followed by the availability of an existing substation and CAISO grid interconnection capable of delivering 1,000 MW and the local infrastructure capabilities/constraints.

The top level assessment of the California wind data was compiled by NREL specifically for Trident Winds under a Cooperative Agreement put in place in August 2015. Though the assessment indicated that the strongest wind resources are present in northern California, that area lacks transmission lines suitable for delivering 1,000 MW of energy to the CAISO backbone.

Elimination of the northern California locations was then followed by a closer look at Central California coast, with a specific focus on areas with greater than 8.5m/sec wind regime, proximity to coastal thermal plants that were being shutdown as a result of Once Through Cooling regulations – see Figure 5. Out of the seventeen coastal sites with retired generation facilities, Trident Winds selected the Morro Bay location.

In July and August 2015 Trident Winds met with various elected officials from the City of Morro Bay to present the proposed project. These meetings and discussions culminated in approval by the City Council of a Cooperation Agreement dated October 5, 2015 between Trident Winds and the City of Morro Bay.

At the same time, Trident Winds has initiated discussions with the Morro Bay Commercial Fishermen's Organization (MBCFO, 2015) that since 1972 has been the voice for the commercial fishing industry in San Luis Obispo County. Trident Winds continued an active dialog with MBCFO to incorporate their inputs to the site location and to ensure that the site area would be least intrusive on the productive fishing grounds.

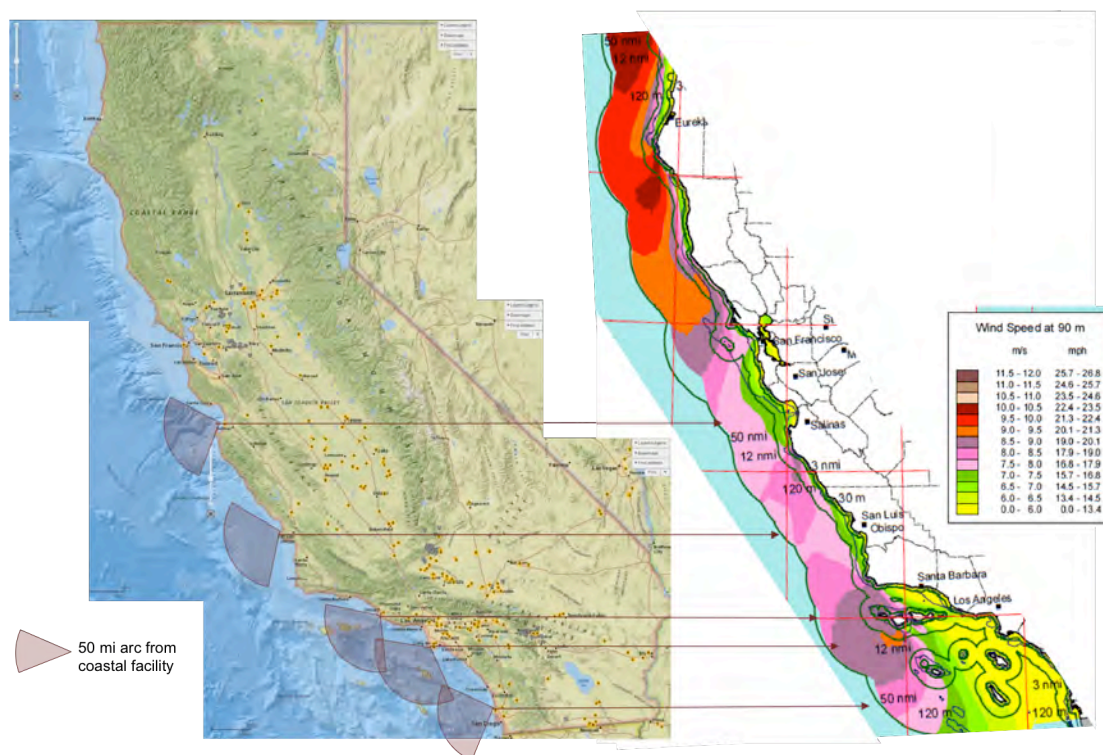


Figure 5 - Central California potential sites



Both floating offshore wind systems, the Hywind and the WindFloat, offer flexibility in micro siting at a selected location. In addition to the wind resource and availability of transmission lines, considerations of local socioeconomic and environmental issues were performed at the top level and will be further refined through the leasing and permitting process.

The Morro Bay location was selected following assessment of potential locations at Moss Landing, Diablo Canyon off Santa Barbara and Pt. Conception off Lompoc. Due to environmental sensitivities at Moss Landing, visual issues at Pt. Conception, and operational period life extension uncertainties of the Diablo Canyon site, Morro Bay was chosen as the preferred location for the MBO Project.

In addition to the good wind resource, the availability of a high voltage transmission line and a substation owned and operated by PG&E, the MBO site offers an existing cooling water discharge tunnel with direct entrance from the ocean on the North side of Morro Rock that makes this an ideal shore landing point for the export (interconnection) cable. The tunnel entrance is already available on marine charts and its existence is well known by local ocean users. The cable beach crossing will be installed using horizontal directional drilling techniques. From the water discharge tunnel entrance the cable will use the existing tunnel that connects directly to the Morro Bay power plant. The city of Morro Bay owns part of the water discharge structure and the associated easement (Figure 7). The tunnel, partially owned by the City of Morro Bay and Dynegy, connects to the non operating Morro Bay Power Plant (MBPP) owned by Dynegy that in turn, connects to the PG&E substation. Trident Winds is in discussions with the City of Morro Bay and Dynegy to arrange for use of the tunnel and the grid connection at the substation.

2.1.1.2 Environmental Resources

Trident Winds examined nautical charts featuring the Project area and relied on the expertise of the City of Morro Bay staff and consultations with local experts, including representatives of the MBCFO and NOAA, to determine the viability of the Project area. In addition, Trident Winds reviewed the California Marine Maps (OCMP 2013) and Multi Purpose Marine Cadastre (BOEM 2013) and consulted the staff of the California Coastal Commission. After these consultations, and because the floating foundations can be secured in various water depths and sea bottom conditions, Trident Winds is confident in the proposed location for the MBO Project.

Pacific Northwest National Laboratory (PNNL) examined studies of biological resources in the coastal and marine environments of northern California, California, and Washington for the *Updated Summary of Knowledge: Selected Areas of the Pacific Coast* (Kaplan et al. 2010). This report also contains information on oceanography, geology, cultural, and socioeconomic resources that cover the area of interest for the seabed lease.

Drawing from the 2014 report (Feinberg, L. 2014) Trident Winds examined and identified the issues that will likely drive the environmental permitting process and has initiated discussions with the key federal and state regulatory and resource agencies, as well as with important stakeholder groups. The baseline and post installation monitoring are expected to address the present uncertainty of impacts to seabirds and marine mammals that stems from lack of data on species distribution. The Project, once in operation, will offer the ability to collect data previously unobtainable, as the installed floating OSW systems may be used as monitoring stations.

2.1.1.3 Outreach, Coordination and Engagement Efforts – chronological list of meetings and outreach

Trident Winds has conducted an extensive outreach to the public, state and federal agencies, NGOs and other stakeholders regarding the development of the Project near Morro Bay. As the Project is the first of its kind, Trident Winds has conducted the initial outreach as wide as possible through in person meetings and phone calls to provide an overall overview of the MBO Project and to receive feedback on potential permitting issues that may arise. Discussions have focused on the issues anticipated to be of concern, prior to formal federal and California State permitting activities, including compliance with the National Environmental Policy Act (NEPA).

Since the inception of the project, Trident Winds has been engaged in discussions with the MBCFO, representing interests of the local fishermen and has relocated the MBO Project area further offshore, to the water depth of 800 to 1,000 meters (400 to 500 fathoms) to consider their inputs Figure 6.

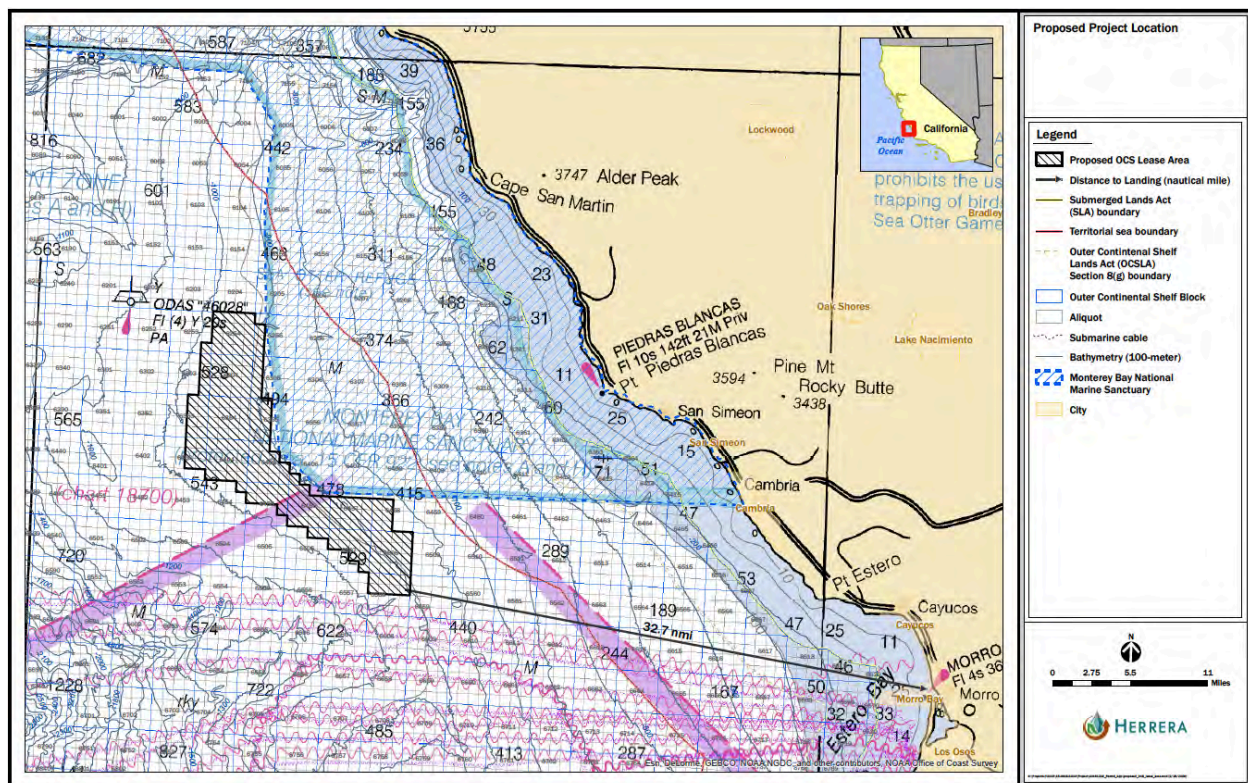


Figure 6 – MBO Project Site Location resulted from discussions with MBCFO

Table 2 provides a summary of the initial outreach to the community entities, the City of Morro Bay, and the local chapters of the non governmental environmental organizations (NGOs). Trident Winds has contacted California State agencies such as CEC, CCC, CLC, CPU and CAISO regarding the MBO Project's cable routing plans and consistency and compliance with the Coastal Zone Management Act and the California Clean Air Act.



These initial engagements have primarily focused on informing stakeholder groups of the MBO Project including the proposed Project area, answering Project specific questions, and seeking input on areas or issues that may be of concern. A complete list of all the agencies, NGOs and community groups that have been contacted can be found in Table 2. Research results and the outcome of discussions with regulatory agencies, as well as important stakeholder groups, will be documented for the NEPA process.

On October 5, 2015, Trident Winds and the City of Morro Bay executed Memorandum of Cooperation that calls for Trident Winds to conduct project development in an open, cooperative and transparent manner (Morro Bay, October 5, 2015).

On December 10, 2015, Trident Winds held a public information session to provide an open forum for the public, stakeholders and the NGO's. The video recoding of the public information session is available on YouTube (Morro Bay, December 10, 2015).

Table 2 Stakeholders Outreach

Government	Economic and Development	Fishing Community & Native Americans	Environmental Groups
BOEM	City of Morro Bay	MBCFO	The Sierra Club
NOAA	PG&E		The Audubon Society
NOAA Fisheries	Dynegy		The Nature Conservancy
U.S. Coast Guard			The Environmental Defense Fund
U.S. Army Corps of Engineers	SLO Community Choice Aggregator	The Northern Chumash Tribal Council	Natural Resources Defense Council
Ocean Protection Council U.S DOE	California Polytechnic Institute (CalPoly)		Center for Biological Diversity
U.S. Department of Energy	San Luis Obispo (SLO) County		Community Environmental Council of Santa Barbara County
CEC			Ocean Conservancy
CPUC			
CCC			
CLC			
CAISO			



2.2 General Description of Objectives and Facilities

2.2.1 Objectives

The objective of the MBO Project is to install and operate a commercial 1,000 MW offshore wind farm that opens the vast offshore wind resources for the benefit of the California ratepayers. The MBO Project stands on the shoulders of the DOE's offshore wind demonstration projects, which paved the path and demonstrated a well defined permitting regime for offshore wind installations in Federal waters. MBO Project is poised to be the first floating, commercial scale installation on the West Coast of the US, which could lead to further exploitation of the unlimited offshore wind resources, while creating a new industry.

The Project schedule coincides with the floating foundations technology maturity post 2020 and the market demand for new renewable energy sources in California.

2.2.2 Offshore Production Facilities and Substations

The MBO offshore wind farm is planned to be located 35 miles offshore off the water discharge tunnel off the coast of Morro Bay in a 800 to 1,000 meters (400 – 500 fathoms) water depth, taking advantage of a consistent wind resource with an average speed of 8.5 m/sec.

The proposed site location is in a vicinity of the ODAS buoy 46028 (Figure 6). Forristall Ocean Engineering was contracted by Trident Winds to examine the available data. Based on over 27 years of wind data from the buoy, the expected energy generation from the offshore resources would surpass 50% capacity factor.

The offshore wind farm will deploy approximately 100 FOWSs, each consisting of a competitively selected and commercially available floating support structures with a large, 7 or 8 MW, or larger (if commercially available) offshore wind turbine. Each FOWS is moored to the ocean floor using conventional properly sized anchors. Mooring lines consists of chains, polyester lines, steel wires, shackles, fairleads and chain stoppers. Individual FOWSs are electrically interconnected with inter array cables to form an offshore wind farm. Since the competitive selection of the foundations and turbines will be done at a later date, the farm layout configuration will be developed at a later time as well. Each FOWS (unit) is planned to be spaced approximately 1,000 meters (0.54 nmi) apart to reduce, or eliminate, the wind shadow effects. Energy produced from all units is brought to an offshore, floating substation and transmitted to shore via one or more (for redundancy purposes) export cable(s) using the same cable route.

2.2.3 Power Transmission and Grid Interconnection

The subsea export cable(s) will be used to export produced electricity to the PG&E high voltage substation located adjacent to the Morro Bay power plant (MBPP). The MBPP was built in 1953 as an oil fired plant cooled with seawater. The plant was subsequently converted to utilize natural gas as a boiler fuel. The seawater was brought to the plant through an discharge structure located on the North side of Morro Rock and discharged through a tunnel to the North side on MBPP. The MBPP was decommissioned in February 2014 and is no longer operating. The MBO subsea export cable will be brought using the existing water discharge structure and the tunnel as a cable route to the PG&E substation to connect to the high voltage transmission lines.



2.2.3.1 Electrical connection interface and load study

Delivery of electricity to the PG&E substation via the export cable(s) and the existing onshore infrastructure will require further study and design, securing interconnection rights from CAISO, commercial agreements with the City of Morro Bay and possibly the incumbent power plant owner. The design of the offshore cable infrastructure and connections, cable protection systems, and subsea connections will be developed during the project's design phase as such systems require inputs from site characterization and the project's operational characteristics. Inter array cables configuration and loading calculations require consideration of the dynamic motions of the floating offshore wind system. Cable connection systems, cable entry systems, and protection requirements will also be determined at the design phase.

2.2.3.2 Offshore grid requirement identification and design specification

Design of the offshore electrical grid will focus on the inter array cables connections and the overall farm layout configuration. Due to the water depth of 400 500 fathoms (800 1,000 meters), it is not practical to route cables to the ocean floor. Inter array cables will use subsurface buoys to achieve the proper banding radius and will be submerged to the depth that would provide for the safe operation of the offshore wind farm. Details of the offshore grid design will be developed during the design phase.

2.2.3.3 Offshore electrical network preliminary design concept including metocean, seabed, and geotechnical considerations

The offshore electrical network design will be developed based on metocean, seabed, and geotechnical data collected during SAP implementation and will be included in COP.

2.2.3.4 Integration of cable entry and sub-structure engineering

The outlined design of the inter array cables and the floating foundation will be defined during the design phase. Since both the Hywind and the WindFloat are undergoing cluster of multi units design and installations prior to the design phase of the MBO Project, either of the foundation would have a field tested approach to the inter array cable and sub structure interconnection.

2.2.3.5 Dynamic cable configuration design, installation/connection and fatigue study

The dynamic cable configuration design will undergo an installation/connection and fatigue study during the COP development and the design phase.

2.2.3.6 Offshore interconnection and load study

Trident Winds will perform the offshore interconnection and load study based on cable specifications and the site requirements. The study will concentrate on: 1) interconnection between export cable and the floating substation/hub, 2) interconnection between the inter array cable(s) and the termination/hub, and 3) interconnection at each unit. This work will be performed during COP and will result in the cables specifications that will be used during the design phase.

2.2.3.7 Proposed offshore route for the power cable

The proposed route of the offshore power cable will travel from the SE corner of the MBO wind farm in a generally straight line to the existing water discharge structure (Figure 7) located on the north side of the Morro Rock.

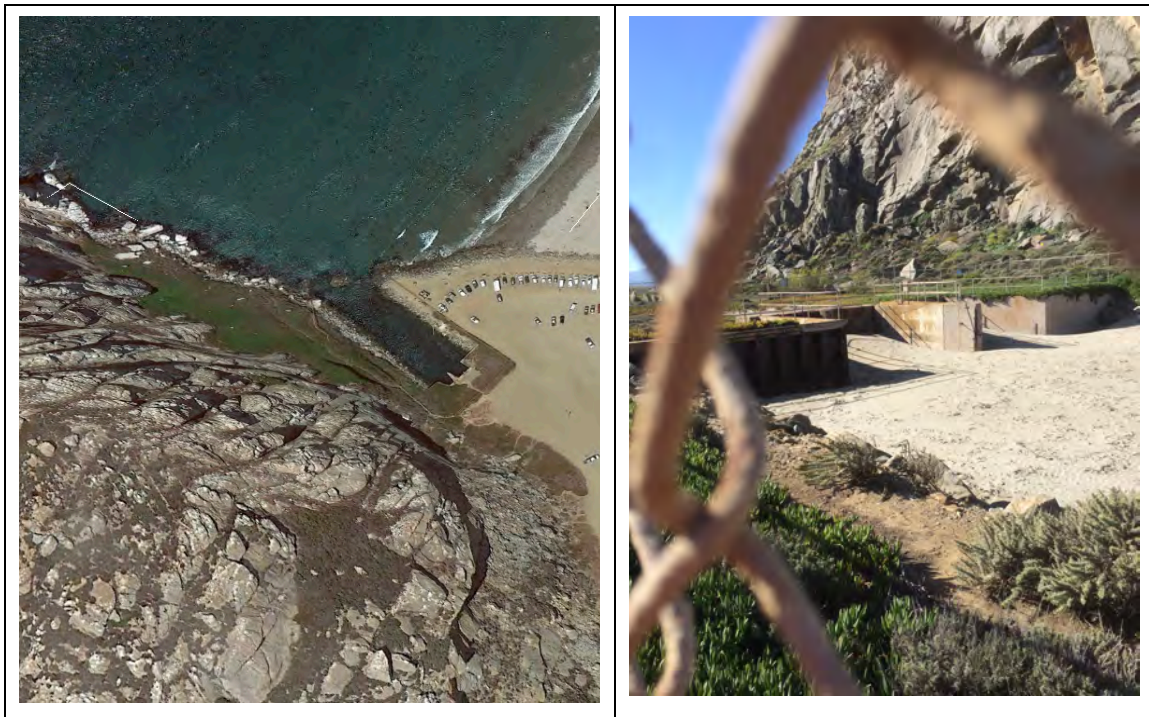


Figure 7 - Morro Rock and the Existing Water Discharge Structure

The power cable route will be horizontally directionally drilled offshore to avoid sensitive near shore areas. The exact export cable route and the approach of securing cable to the ocean floor will be determined during COP development based on the subsea conditions determined during SAP implementation. In cases where sensitive or hard bottom habitat is identified, Trident Winds has the flexibility to route the power cable around any sensitive areas.

2.2.4 Onshore Facilities and Staging Areas (Ports)

2.2.4.1 Ports

Preliminary analysis of the potential construction and O&M needs indicate that ports of Hueneme, CA (Oxnard) and Long Beach, CA would have the necessary capabilities for the construction of the FOWS. The detail analysis of the actual location for the construction, assembly and deployment of the offshore wind units will be conducted during COP and will be based on prior analysis conducted in support of the offshore wind demonstration projects co funded by the DOE.

The Port of Morrow Bay is a working waterfront servicing a vibrant commercial fishing industry that makes up the backbone of a robust and diverse economy of Morro Bay. The industry represented by the MBCFO. The Port is home to two aquaculture businesses, nine charter vessels that conduct recreational and commercial trips, one marine construction operator, marine chandlery /marine supplies stores and seafood processing facilities (Lisa Wise Consulting, 2015).

Though the Port of Morro Bay would not have an adequate staging area for the offshore wind units assembly and deployment, it could serve a good location for the maintenance facility. Trident Winds has established open channels of communications with MBCFO and plans to continue close working relationship with an overarching objective to integrate the MBO Project with the local marine related businesses.



2.2.4.2 Discharge structure and transmission corridor

MBO Project will re use the existing, and presently unused cooling water infrastructure by using the discharge structure and the underground tunnel (Figure 8) for the export cable route to connect to the PG&E substation. The connection to the PG&E substation, either underground or overhead, will be approximately 0.06 km (200 feet). Trident Winds is in discussions with Dynegy on the specifics of the grid connection and the CAISO re powering study initiated by Dynegy in April 2015.



Figure 8 - Water Discharge Structure and the Underground Tunnel location



2.3 General Schedule of Proposed Activities

The illustrative MBO Project schedule (Figure 9) follows NREL's criteria for the offshore projects status depicted in Table 3 (2014 2015 Offshore Wind Technologies & Market). The MBO Project schedule assumes a non competitive process and the issuance of a non competitive lease. In the event of the expression of interest by other parties, Trident Winds will revise the project schedule to account for the auction process at that time.

Table 3 Summary of Criteria for Reporting on Offshore Wind Project Status

Step	Phase Name	Phase Start Criteria	Phase End Criteria
1	Planning – Early Stage	Starts when developer or regulatory agency initiates formal site control process	Ends when a developer obtains exclusive development rights to a site (e.g., through competitive auction or a determination of no competitive interest in the United States)
2	Planning – Site Control	Begins when the developer obtains exclusive development rights to a site (e.g., through competitive auction or a determination of no competitive interest in the United States)	Ends when the developer files major permit applications (e.g., a construction operations plan for projects in federal waters in the United States)
3	Major Permits Submitted	Starts when the developer files major permit applications (e.g., construction operation plan for projects in federal waters in the United States)	Ends when a regulatory body(s) grants authorization to proceed with construction; a rejection may cause the project sponsor to appeal (still permitting phase), place the project on hold, or cancel
4	Approved	Starts when project has been approved by the relevant regulatory bodies and is fully authorized to proceed with construction	Ends when sponsor announces Final Investment Decision (FID), and has signed unconditional contracts for major construction work packages; achievement of this milestone generally requires that a project has secured sufficient revenue mechanisms (e.g., power offtake contracts, subsidies, or tax incentives) to be financially viable
5	Financial Close	Begins when sponsor announces FID and has signed unconditional contracts for major construction work packages; achievement of this milestone generally requires that a project has secured sufficient revenue mechanisms (e.g., power offtake or balance on transfer contracts) to be financially viable	Ends when project begins offshore construction work
6	Under Construction	Starts when offshore construction work is initiated	Ends when project has been connected to the power grid and all units fully commissioned; Commercial Operation Date (COD) marks the official hand over from construction to operations
7	Operating	Commences when project has been connected to the power grid and all units fully commissioned; COD marks the official hand over from construction to operations	Ends when the project has begun a formal process to decommission and stops feeding power to the grid
8	Decommissioning	Starts when the project has begun a formal process to decommission and stops feeding power to the grid	Ends when the site has been restored and lease payments are no longer being made, or if the site has been repowered

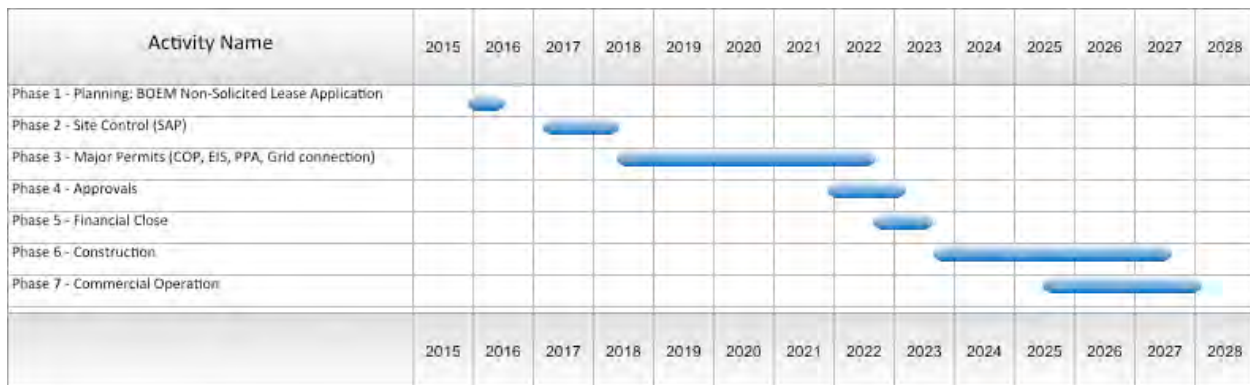


Figure 9 - MBO Project Schedule (represents a non-competitive process)

2.3.1 Phase 1: Site Assessment Plan (SAP) – Development/Survey

Should BOEM determine that the proposed location is not subject to competitive interest, Trident Winds will immediately initiate development of the Site Assessment Plan to define the surveys and studies that will be conducted the necessary studies and collect required supporting data for BOEM to comply with the National Environmental Policy Act. At the same time Trident Winds will initiate competitive process to select the floating support structure. Site specific data is necessary for the offshore wind farm design and installation. In addition, collected and evaluated marine flora and fauna data establishes the baseline for the future monitoring of projected and real environmental impacts from the offshore wind farm. The SAP will undergo public scoping and commenting period prior to its submittal to BOEM for approval. The Pre Front End Engineering Design (Pre FEED) will be conducted during SAP development process and will result in a preliminary level offshore wind farm layout. In addition, early in the process, Trident Winds will engage in the CAISO interconnection request process to secure the interconnection rights now assigned to the Dynegy power station and to begin to negotiate access to the City owned water discharge structure and the associated tunnel, and such other agreements as may be necessary to have unimpeded access the CAISO grid system.

2.3.2 Phase 1: Construction & Operation Plan (COP)

Following BOEM's approval of the SAP, Trident Winds will proceed with the site characterization outlined in the SAP. In parallel Trident Winds will initiate development of COP and location selection for the construction/fabrication/final assembly and deployment. It is expected that SAP implementation will span over a 24 month period. At the completion of SAP implementation adequate data will be available to initiate FEED, supplier selection and contract for the sale of energy from the MBO Project.

2.3.3 Phase 6: Construction

Construction and deployment is planned to take place once all permits have been secured and the overall project financing has been arranged. It is anticipated that project financing will include equity and debt.

2.3.4 Phase 7: Commercial Operations

Full commissioning and commencement of operations is planned for mid 2025. The MBO Project is projected to have a 25 year life with a decommissioning or repowering to occur post 2050.



2.4 Renewable Energy Resource and Environmental Conditions in Area of Interest

2.4.1 Energy Resource

The National Renewable Energy Lab (NREL) first estimated the offshore wind resources of the United States in 2003 (Musial and Butterfield, NREL, 2004). Since then, updated offshore wind mapping projects (Elliott and Schwartz, 2006) are gradually being completed. Wind speed maps for California were available at heights of 50 m and 70 m off the coast in California. To calculate wind speeds at 90 m high, it was assumed that the speed shear exponent calculated between heights of 50 m and 70 m was also valid for wind speeds between at the heights of 70 m and 90 m (Elliott et al. 1987; NREL 2010). Table 4 shows the estimated wind speeds at different distances from shore based on these calculations.

NREL Wind Prospector (NREL, 2015) was used along with the ODAS buoy 46028 data to determine the site location.

Prior to design and coupled numerical modeling of global system response and motions, a suitable dataset of wind and wave data is required. The dataset will be compiled from existing historical sources as well as project specific measurements. Statistical analyses will yield extreme events for both wind and wave criteria to be used in the project design basis and engineering.

The COP will include the results of site characterization surveys and describe all the activities associated with installation and operation of the wind farm, maintenance, and decommissioning. The activities associated with siting, installing, operating, and removing the system will be integrated in time and space with potential environmental effects, ensuring that the federal and state permitting processes accurately reflect the activities and potential risks in a realistic manner.



Table 4 California Offshore Wind Resource by Wind Speed Interval, Water Depth, and Distance from Shore within 50 nm of Shore (DOE EERE, 2015)

	Distance from Shore (nmi)								
	0 - 3			3 - 12			12 - 50		
Depth Category	Shallow (0 - 30 m)	Transitional (30 - 60 m)	Deep (> 60 m)	Shallow (0 - 30 m)	Transitional (30 - 60 m)	Deep (> 60 m)	Shallow (0 - 30 m)	Transitional (30 - 60 m)	Deep (> 60 m)
90 m Wind Speed Interval (m/s)	Area km ² (MW)	Area km ² (MW)	Area km ² (MW)	Area km ² (MW)	Area km ² (MW)	Area km ² (MW)	Area km ² (MW)	Area km ² (MW)	Area km ² (MW)
7.0 7.5	266 (1,331)	236 (1,181)	257 (1,287)	101 (504)	457 (2,284)	4,554 (22,770)	8 (38)	23 (115)	5,537 (27,684)
7.5 8.0	239 (1,196)	257 (1,285)	190 (948)	79 (394)	596 (2,978)	3,855 (19,273)	0 (0)	33 (165)	19,616 (98,080)
8.0 8.5	125 (626)	178 (891)	282 (1,409)	7 (36)	106 (529)	4,539 (22,695)	0 (0)	0 (0)	17,822 (89,111)
8.5 9.0	43 (216)	142 (708)	176 (882)	1 (3)	38 (190)	4,560 (22,799)	0 (0)	0 (0)	17,892 (89,460)
9.0 9.5	2 (10)	19 (94)	15 (74)	0 (0)	1 (4)	988 (4,940)	0 (0)	0 (0)	12,160 (60,801)
9.5 10.0	0 (0)	6 (30)	14 (69)	0 (0)	0 (0)	656 (3,280)	0 (0)	0 (0)	14,555 (72,774)
>10.0	0 (0)	0 (0)	0 (1)	0 (0)	0 (0)	288 (1,441)	0 (0)	0 (0)	6,638 (33,188)
Total >7.0	676 (3,379)	838 (4,189)	187 (937)	187 (937)	1,197 (5,985)	19,440 (97,198)	8 (38)	56 (279)	94,220 (471,098)

nmi = nautical miles

m = meters

m/s = meters per second

km² = square kilometers

MW = megawatts



2.4.2 Environmental Resources

2.4.2.1 Marine geology

Topography in this area includes the Santa Lucia Bank, Santa Lucia Escarpment, the Arguello Canyon, and the Rodriguez Seamount. The complex topography is the result of the meeting place of three major tectonic plates: the Farallon Plate, the North American Plate, and the Pacific Plate. The Santa Lucia Bank is a cetaceous uplift block that rises to within 400 meters of the surface from the north face of the Arguello Canyon to offshore Morro Bay (from about latitude 35°27'N to 33°51'N). The Arguello Canyon runs in a northeast to southwest direction, and is approximately 3,000 meters deep. The Rodriguez Seamount, a volcanic geological formation, is about 90 miles offshore in the southern area of the opening of the Arguello Canyon.

The unique oceanographic combination of the mile deep canyon and current conditions leading to persistent upwelling flows create the favorable conditions for diverse density of sea life. Flora and fauna of the area are associated with two distinct oceanographic and climatic provinces: the habitat is the southern boundary of the range for many northern species, and the northern boundary for southern species. The Santa Lucia Bank area is frequently visited year round by cetaceans, hosts numerous fish species in the area that are important for commercial harvests, and supports a diverse benthic community. Further research is needed to study the number of bird and fish species found at the Santa Lucia Bank during different seasons.

2.4.2.2 Marine biological resources

2.4.2.2.1 Threatened and endangered species

A number of species that are listed as threatened or endangered under the federal Endangered Species Act may occur in the project area. Listed species and designated Critical Habitat are under the jurisdiction of either the USFWS or NOAA Fisheries. Table 5 and Table 6 show federally listed threatened and endangered species that may occur in San Luis Obispo County.

Table 5 Threatened and Endangered Species for San Luis Obispo County under USFWS Jurisdiction

Species	Scientific Name	Status	Range
Marbled murrelet	<i>Brachyramphus marmoratus</i>	Threatened	Known to occur in California, Oregon, and Washington.
Western snowy (coastal) plover	<i>Charadrius alexandrinus nivosus</i>	Critical Habitat Threatened	Known or believed to occur in California, Oregon, and Washington. Critical Habitat designated in Morro Bay Beach.
Short tailed albatross	<i>Phoebastria albatrus</i>	Endangered	Known to or is believed to occur in Alaska, California, Hawaii, Oregon, Washington.
Loggerhead sea turtle	<i>Caretta caretta</i>	Endangered	See Table 4
Green sea turtle	<i>Chelonia mydas</i>	Threatened	See Table 4
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	See Table 4
Olive (Pacific) Ridley sea turtle	<i>Lepidochelys olivacea</i>	Threatened	See Table 4

Source: USFWS 2015.

**Table 6** Endangered and Threatened Species under NOAA Fisheries Jurisdiction

Species	Scientific Name	Status	Critical Habitat Designation	Recovery Plan	Range
Marine Mammals					
Blue whale	<i>Balaenoptera musculus</i>	Endangered	n/a	final	In the North Pacific Ocean, the blue whale's range extends from Kamchatka to southern Japan in the west and from the Gulf of Alaska and California south to Costa Rica in the east. They occur primarily south of the Aleutian Islands and the Bering Sea.
Fin whale	<i>Balaenoptera physalus</i>	Endangered	n/a	final	Fin whales are found in deep, offshore waters of all major oceans, primarily in temperate to polar latitudes, and less commonly in the tropics.
Gray whale, Western North Pacific DPS	<i>Eschrichtius robustus</i>	Endangered	n/a	n/a	Gray whales are found mainly in shallow coastal waters in the North Pacific Ocean. The California coast is part of the Eastern North Pacific gray whale migratory route between Baja California and the Arctic.
Humpback whale	<i>Megaptera novaeangliae</i>	Endangered	n/a	final	Humpback whales live in all major oceans from the equator to sub polar latitudes.
Right whale, North Pacific original listing as "northern right whale"	<i>Eubalaena japonica</i>	Endangered	Final	no	North Pacific right whales inhabit the Pacific Ocean, particularly between 20° and 60° latitude. Sightings have been reported as far south as central Baja California in the eastern North Pacific
Southern sea otter	<i>Enhydra lutris nereis</i>	Threatened	n/a	final	The southern sea otter ranges along the mainland coastline from San Mateo County to Santa Barbara County and San Nicolas Island, Ventura County.



Species	Scientific Name	Status	Critical Habitat Designation	Recovery Plan	Range
Sea Turtles					
Note: USFWS has lead responsibility on nesting beaches, NMFS in marine waters					
Loggerhead turtle, North Pacific Ocean DPS	<i>Caretta caretta</i>	Endangered	n/a	n/a	In the eastern Pacific, loggerheads have been reported as far north as Alaska, and as far south as Chile. In the U.S., majority of recorded sightings are of juveniles off the coast of California.
Leatherback turtle	<i>Dermochelys coriacea</i>	Endangered	final	final	Leatherbacks are commonly known as pelagic (open ocean) animals, but they also forage in coastal waters. In fact, leatherbacks are the most migratory and wide ranging of sea turtle species.
Green turtle	<i>Chelonia mydas</i>	Threatened	final	final	In the eastern North Pacific, green turtles have been sighted from Baja California to southern Alaska, but most commonly occur from San Diego south.
Olive ridley turtle	<i>Lepidochelys olivacea</i>	Threatened	n/a	final	This species does not nest in the United States, but during feeding migrations, olive ridley turtles nesting in the East Pacific may disperse into waters off the US Pacific coast as far north as Oregon.
Marine and Anadromous Fish					
Chinook salmon, California Coastal ESU	<i>Oncorhynchus tshawytscha</i>	Threatened	final	draft	Chinook salmon are found from the Bering Strait in Alaska to Southern California. California Coastal Chinook salmon includes all natural spawned populations of Chinook salmon from rivers and streams between the Klamath River in Humboldt County to the Russian River in Sonoma County, California.
Chinook salmon, Central Valley spring run ESU	<i>Oncorhynchus tshawytscha</i>	Threatened	final	final	Chinook salmon are found from the Bering Strait in Alaska to Southern California. Central Valley Chinook salmon current spawn in several tributaries to the Sacramento River, and are confined below the dams.



Species	Scientific Name	Status	Critical Habitat Designation	Recovery Plan	Range
Chinook salmon, Sacramento River winter run ESU	<i>Oncorhynchus tshawytscha</i>	Endangered	final	final	Chinook salmon are found from the Bering Strait in Alaska to Southern California. The Sacramento River winter run Chinook salmon current spawn in the Sacramento River downstream of the Shasta Dam.
Coho salmon, Central California coast ESU	<i>Oncorhynchus kisutch</i>	Endangered	final	final	Coho salmon are historically distributed throughout the North Pacific Ocean from central California to Point Hope, Alaska, through the Aleutian Islands, south to Hokkaido, Japan. The Central California Coast coho salmon range from Punta Gorda in Humboldt County south to Aptos Creek in Santa Cruz County.
Coho salmon, Southern Oregon/ Northern California Coasts ESU	<i>Oncorhynchus kisutch</i>	Threatened	final	final	The species was historically distributed throughout the North Pacific Ocean from central California to Point Hope, Alaska, through the Aleutian Islands, south to Hokkaido, Japan. Coho probably inhabited most coastal streams in Washington, Oregon, and central and northern California.
Steelhead, Central California Coast DPS	<i>Oncorhynchus mykiss</i>	Threatened	final	draft	In the U.S., steelhead are found along the entire Pacific Coast, and may use the waters along the entire coast during their oceanic residence. The Central California Coast steelhead spawn in rivers and streams around San Francisco Bay, from the Upper Russian River to the Guadalupe River.
Steelhead, Southern California DPS	<i>Oncorhynchus mykiss</i>	Endangered	final	final	In the U.S., steelhead are found along the entire Pacific Coast, and may use the waters along the entire coast during their oceanic residence. The Southern California steelhead spawn in the Santa Maria, Santa Ynez, Ventura, and Santa Clara Rivers and their associated tributaries in southern California.
Steelhead, Northern California DPS	<i>Oncorhynchus mykiss</i>	Threatened	final	draft	In the U.S., steelhead are found along the entire Pacific Coast, and may use the waters along the entire coast during their oceanic residence. The Northern California steelhead spawn in rivers and streams along the California coast from Redwood Creek to Gualala River.



Species	Scientific Name	Status	Critical Habitat Designation	Recovery Plan	Range
Steelhead, South/Central California Coast DPS	<i>Oncorhynchus mykiss</i>	Threatened	final	final	In the U.S., steelhead are found along the entire Pacific Coast, and may use the waters along the entire coast during their oceanic residence. The South Central California Coast steelhead spawn in the Pajaro, Salinas, Carmel, Little Sur, and Big Sur Rivers and their tributaries.
Steelhead, California Central Valley DPS	<i>Oncorhynchus mykiss</i>	Threatened	final	final	In the U.S., steelhead are found along the entire Pacific Coast, and may use the waters along the entire coast during their oceanic residence. The Central Valley steelhead current spawn in tributaries to the Sacramento and San Joaquin rivers, confined below river dams.
Green sturgeon, Southern DPS	<i>Acipenser medirostris</i>	Threatened	final	in process	The critical habitat for the green sturgeon includes nearshore oceanic waters, bays, and estuaries from San Francisco north to Washington. The green sturgeon ranges from Mexico to at least Alaska in marine waters, and is observed in bays and estuaries up and down the west coast of North America
Marine Invertebrates					
Black abalone	<i>Haliotis cracherodii</i>	Endangered	final	final	Approximately 360 square kilometers of rocky intertidal and subtidal habitat within five segments of the California coast between the Del Mar Landing Ecological Reserve to the Palos Verdes Peninsula, as well as on the Farallon Islands, Año Nuevo Island, San Miguel Island, Santa Rosa Island, Santa Cruz Island, Anacapa Island, Santa Barbara Island, and Santa Catalina Island. Black abalone range from about Point Arena, CA, to Bahia Tortugas and Isla Guadalupe, Mexico. Black abalone are rare north of San Francisco and south of Punta Eugenia.

Source: NOAA Fisheries 2015.



2.4.2.2.2 Avian resources

The central California coast supports many habitats for a variety of avian species. The Morro Bay Wildlife Area provides a coastal estuary habitat where eelgrass and mud flats provide feeding areas for migrant and wintering shorebirds and waterfowl. Thousands of shorebirds utilize this estuary, including godwits, sandpipers, and grebes. Morro Bay also provides rocky shoreline habitat for nesting and wintering shorebirds, such as herons, cormorants, pigeon guillemots, black oystercatchers, black turnstones, and surfbirds. Other birds are commonly seen flying along the coast, including pelicans and gulls. Morro Rock is also a known location of a peregrine falcon roost. There are relatively few data on bird populations 26 nmi off the coast of Morro Bay, in the vicinity of the proposed development site.

Several species of bats occur in San Luis Obispo County. To date no studies have been done on bats' use of the ocean areas off the California coast. A study in Sweden showed that many species of bats hunt for insects in offshore areas. They have also been found to use offshore turbines for roosting (Ahlen et al. 2007). Bat studies on the West Coast indicate that bats may use the offshore areas when an offshore location (such as an island) guides them (Tenaza 1966; Cryan & Brown 2007).

2.4.2.2.3 Benthic habitat

The California seafloor is structurally complex and geographically variable. It can be divided into a variety of habitats, each with unique physical and biological characteristics. Mud can be a more pronounced bottom type in areas receiving less energy from water movement (i.e., isolated and sheltered embayments) and in deeper waters. Subtidal, soft bottom habitats are diverse, as a result of distinct organism assemblages that are influenced by differences in substrate type (sand versus mud), organic content, and bottom depth. Although the California Seafloor Mapping Program is creating a comprehensive coastal/marine geologic and habitat base map series for all of California's State waters, the maps offshore of Morro Bay have not yet been published (Golden 2013), and is therefore not well described. According to the USGS SEABED Interactive Map, the substrate in the nearshore habitat near Morro bay is composed of sand and a mixture of clay and silt (USGS 2015). Further offshore, the substrate becomes finer, and is composed of clay and a silty clay (USGS 2015).

Species associated with soft-bottom, subtidal habitats provide a spectrum of ecosystem services. Most widespread but least apparent would be nutrient cycling by deposit feeders and microbes living within the sediments. Soft bottom communities are commonly named or described based on the species or species groups that are most apparent. Most of these communities are dominated by burrowing invertebrates such as polychaete worms; but other organisms, such as crustaceans, echinoderms, and mollusks, may be locally abundant. Common organisms on the sediment surface can include species of shrimp, crabs, snails, bivalves, sea cucumbers, and sand dollars. Dungeness crabs are important components of sandy bottom communities and are found both on the surface and buried in the sand. Sea pens are common on more muddy bottoms.

2.4.2.2.4 Rocky Reefs

Rocky reef habitat is designated as a Habitat Area of Particular Concern by the National Marine Fisheries Service (NMFS) for its importance as Essential Fish Habitat and its rarity, sensitivity, and/ or vulnerability (Oceana 2011). A large, deep rocky reef, approximately 87 miles long and 10 miles wide, is located approximately 35 miles west of Morro Bay and a smaller rocky reef, approximately 12 miles long and 2 miles wide, is located 28 miles southwest of Morro Bay (NMFS 2015).



Ecotypes of rocky subtidal habitats include:

- Shallow rocky reefs [less than 80 feet (25 meter depth)] with kelp beds,
- Shallow rocky reefs [less than 80 feet (25 meter depth)] without kelp beds,
- Deep rocky reefs [greater than 80 feet (25 meter depth)], and
- Subtidal artificial substrate (Oceana 2011).

Subtidal rocky reefs are known for their abundant and diverse biological communities. Habitat forming organisms, such as kelp or large invertebrates, grow attached to the reef substrate, providing additional structures and types of microhabitats used by reef species. Biological communities using reefs include algae and other marine plants, attached and mobile invertebrates, fish, marine mammals, and sea birds. Many reefs have extensive growths of attached invertebrates, often covering nearly every square inch of rock surface. Common types of organisms include sponges, anemones, barnacles, bryozoans, tunicates, and coldwater corals. The rocks, algae, and attached invertebrates provide homes for a variety of mobile invertebrates such as crabs, snails, sea stars, urchins, brittle stars, nudibranchs, chitons, and worms. Free swimming invertebrates, such as shrimps, and drifting (planktonic) invertebrates also are common on reefs. Reef fish include the more familiar types such as rockfish, perch, lingcod, and greenlings, and a large variety of smaller sculpins, gunnells, poachers, and blennies, among others. Many fish species are entirely dependent on reefs for parts of their life cycle, while others are visitors. Common visitors include herring, smelt, sharks, ratfish, and salmon. Marine mammals, especially seals and sea lions, and seabirds often feed on the abundant fish and invertebrates on rocky reefs.

The benthic habitat and rocky reef provide food and refuge to a great diversity of fishes, invertebrates, and other marine life off the coast of California (Whiteman et al. 2013).

2.4.2.2.5 Fish species and Essential Fish Habitat

Essential Fish Habitat (EFH) is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (NMFS 2004). NOAA further clarified the terms associated with EFH (50 CFR 600.05 through 600.930) by the following definitions:

- Waters – Aquatic areas and their associated physical, chemical, and biological properties that are used by fish and, where appropriate, may include aquatic areas historically used by fish;
- Substrate – Sediments, hard bottoms, structures underlying the waters, and associated biological communities;
- Necessary – The habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and
- Spawning, breeding, feeding, or growth to maturity – Stages representing a species’ full life cycle.

The Pacific Fishery Management Council (PFMC) manages four groups of species (i.e., Fishery Management Units) that occur along the California coast and have designated EFH: Pacific coast groundfish, Pacific coastal pelagic species, Pacific salmon, and Pacific highly migratory species.



There are over 90 species of Pacific Coast groundfish that are segregated into four general categories; 1) sharks, skates, chimaeras; 2) roundfish; 3) rockfish; and 4) flatfish. Many of the Pacific Coast groundfish species use a portion of the project area for all or a portion of their life cycle. EFH for groundfish is designated along the entire continental shelf in the project vicinity and includes all waters from the high tide line (and parts of estuaries) to 1,914 fathoms (3,500 meters) in depth. The rocky reefs to the west and southwest of Morro Bay are designated as Habitat Areas of Particular Concern, which are discrete subsets of EFH that provide extremely important ecological functions or are especially vulnerable to degradation (BOEM 2013).

The coastal pelagic species (CPS) fishery includes four finfish (Pacific sardine, Pacific [chub] mackerel, northern anchovy, and jack mackerel), and market squid. CPS finfish generally live nearer to the surface than the sea floor. The definition of EFH for CPS is based on the temperature range where they are found and on the geographic area where they occur at any life stage. This range varies widely according to ocean temperatures. The EFH for CPS also takes into account where these species have been found in the past and where they may be found in the future (PFMC 2012). The east west boundary of CPS EFH includes all marine and estuary waters from the coasts of California, Oregon, and Washington to the limits of the exclusive economic zone (the 200 mile limit) and above the thermocline where sea surface temperatures range between 10° and 26° C (PFMC 2012).

Pacific salmonids are anadromous, meaning the salmon spend the majority of their life in saltwater, but spawn in freshwater. Salmonid populations are separated into evolutionarily significant units (ESUs) and the populations are evaluated based on historical returns to determine if the population is in decline or is healthy. Pacific salmon ESUs include Chinook salmon, chum salmon, coho salmon, pink salmon, sockeye salmon, and steelhead. Salmon range from more than 1,000 miles (1,600 km) inland to thousands of miles out at sea. In estuaries and marine areas, salmon habitat extends from the shoreline to the 200 mile limit of the exclusive economic zone and beyond (PFMC 2012).

Highly migratory and schooling species are typical of the waters and biological communities living in the water column over the continental shelf. Defining EFH for highly mobile species such as tuna, swordfish, and sharks is a challenging task as these species range widely in the ocean, both in terms of area and depth. Highly migratory species are usually not associated with the features that are typically considered fish habitat (such as seagrass beds, rocky bottoms, or estuaries). Their habitat may be defined by temperature ranges, salinity, oxygen levels, currents, shelf edges, and seamounts (PFMC 2012).

2.4.2.2.6 Skates

Several species of skates live along the California coast, including the big skate, longnose skate, and thornback skate (CDFW 2015). The warmer waters of California also include rays, such as the bat ray and the Pacific electric ray (CDFW 2015).

2.4.2.2.7 Marine mammals

At least 30 different species of marine mammals occur along the California coastal waters, including many cetaceans (whales, dolphins, and porpoises) and pinnipeds (Daugherty 1972). Six species of pinnipeds frequent the California mainland and Channel Islands for breeding and/or resting. These include Guadalupe fur seals, Northern (Alaska) fur seals, Steller sea lions, California sea lions, northern elephant seals, and Pacific harbor seals (Daugherty 1972). The California coast also hosts the southern sea otter (Daugherty 1972).



2.4.2.3 Physical oceanography and meteorology

The California Current System, which comprises the California Current, the Davidson Current, and the California Undercurrent, drives the general ocean current system along the California coast. The California Current is a surface current that flows toward the equator along the entire West Coast of the United States between the shelf break and 540 nautical miles (1,000 km) offshore. The Davidson Current is a seasonal surface current that manifests itself as a poleward flowing countercurrent to the California Current during the fall and winter months over the continental slope and shelf. The California Undercurrent is a poleward subsurface flow that follows the continental slope. Since currents are strongly influenced by wind stress, demonstrating a seasonal variability. During the spring/summer, strong upwelling favorable winds drive the currents toward the equator along the California and Oregon coasts while flow is driven by a sea surface pressure gradient toward the equator off the Washington coast (Kaplan et al. 2010). The result is high production of phytoplankton from April through September fueled by a nearly continuous supply of nutrients and concomitant high biomass of zooplankton during summer (NWFSC 2013). During the winter months off the California and Oregon coasts, the upwelling favorable winds “relax” and allow a sea surface pressure gradient to drive the flow toward the poles (Kaplan et al. 2010). Episodic phenomenon such as the Pacific Decadal Oscillation and ENSO can interrupt and/or intensify currents and upwelling (Kaplan et al. 2010).

The coastal zone is characterized by wet winters, relatively dry summers, and mild temperatures throughout the year. Occasional strong winds strike the California Coast, usually in advance of winter storms. Wind speeds can exceed hurricane force. Such events are typically short lived, lasting less than one day. Annual precipitation totals in excess of 50 inches per year are characteristic of the west slope of the Sierra Nevada north of Stockton, the west slope of the Coast Range from Monterey County northward, and parts of the Cascades (Western Regional Climate Center 2015). Exceptions to this include the Monterey Bay area parts of the San Francisco Bay area, where totals decrease to about 20 inches (Western Regional Climate Center 2015). Southern California receives much less precipitation, averaging less than 15 inches per year in most counties (Western Regional Climate Center).

2.4.2.4 Geology – terrestrial

No onshore areas would be included in the area requested for lease. The following description of terrestrial geology is included only for background information.

Morro Bay is located along the central California coast and the southern portion of the northwest trending Coast Range. Morro Bay and Estero Bay are located along the Franciscan Formation, a geologic formation that is described as a mix of oceanic and terrestrial rocks, with characteristic marine sandstone, volcanic rocks, and serpentine rocks making up the Coast Range. The coastal areas of Morro Bay are overlaid with marine sediments, sandstone, and sediment from higher elevations delivered to the ocean by creeks throughout the watershed. The alluvial deposits form mud flats at the mouth of Morro Creek in Morro Bay. Morro Rock is a 581 foot high sea stack and is the dominant geologic feature of the city. It is one of several volcanic plugs in the area which extend about twenty miles southeast from Morro Rock (Shaw 2007).



2.4.2.5 Air quality

The California Coast enjoys good air quality due to the proximity to the ocean, lack of large pollution producers, and prevailing winds. The San Luis Obispo Air Pollution Control District reports annually on the air quality throughout the county and notes any exceedances of air quality standards. An air quality monitoring station is maintained in Morro Bay where nitrogen dioxide (NO₂) and ozone (O₃) are monitored, in addition to recording wind speed and direction. Little is known about the air quality in the open ocean at the proposed lease site; no known sources of contamination are likely to degrade air quality in the area.

Air quality indices (AQIs) are numbers used by government agencies to characterize the quality of the air at a given location. As the AQI increases, an increasingly large percentage of the population is likely to experience increasingly severe adverse health effects. Air quality index values are divided into ranges, and each range is assigned a descriptor and a color code. Standardized public health advisories are associated with each AQI range. The AQI for Morro Bay in 2015 showed that no air pollutants were rated as unhealthy or hazardous. Levels of ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, PM_{2.5} (particles of 2.5 micrometers or less), and PM₁₀ (particles of 10 micrometers or less) were rated “good” (Homefacts 2015).

2.4.2.6 Water quality

2.4.2.6.1 Pollutants

Marine pollutants along the western coast of the US in the Pacific Ocean include oil, sewage, garbage, chemicals, radioactive waste, thermal pollution, and eutrophication. No data on these pollutants were found for the offshore project vicinity.

The San Luis Obispo County Environmental Health Services Department collects ocean water samples at eighteen locations along the coast on a weekly basis, including one location at Morro Bay City Beach. California has established standards for bacteria present at beaches, and the samples taken within the county are compared against these standards. A Health Advisory is issued if standards are exceeded. Beaches can be closed when health risks due to bacteria levels, hazardous waste spills, or untreated sewage impacts recreational waters (SLO County 2015).

The Morro Bay watershed consists of two tributaries, Chorro Creek and Los Osos Creek, which combined cover approximately 76 square miles of San Luis Obispo County. Land uses include ranchland, brushland, urban areas, agriculture, and woodland. Environmental concerns within the watershed include sedimentation in Morro Bay, elevated amounts of pathogens and nutrients, and reduced amounts of dissolved oxygen. The California Central Coast Regional Water Quality Board and the US Environmental Protection Agency approved four Total Maximum Daily Load (TMDL) designations for the watershed to address environmental concerns. The TMDLS include (EPA 2015):

- Morro Bay Sediment TMDL, covering Chorro Creek, Los Osos Creek and the Morro bay Estuary (approved January 2004)
- Morro Bay Pathogen TMDL, covering Chorro Creek and Los Osos Creek, and the Morro Bay Estuary (January 2004)
- Chorro Creek Nutrients and Dissolved Oxygen TMDL (July 2007)
- Los Osos Creek, Warden Creek and Warden Lake Wetland Nutrient TMDL (March 2005)



2.4.2.6.2 *Water column characteristics*

An assessment of the status of the ecological condition of soft sediment habitats and overlying waters along the western United States continental shelf, between the target depths of 30 and 120 m (10 and 40 feet), was conducted during June 2003 (Nelson et al. 2008). The assessment included vertical water column profiles of conductivity, temperature, chlorophyll a concentration, transmissivity, dissolved oxygen, and depth. Results showed that surface salinity was generally less than 33 practical salinity units (psu) to the north of Cape Blanco, Oregon, and greater than 33 psu to the south of Cape Blanco. Mean surface water temperature of California marine waters was approximately 59 F (15°C). The range of dissolved oxygen concentrations in the surface waters of the West Coast shelf (data available for 140 stations) was 4.1 milligrams per liter (mg/L) to 13.3 mg/L with lower values observed in California compared to Oregon and Washington. US EPA proposed that a dissolved oxygen value below 2.3 mg/L is harmful to the survival and growth of marine animals. Water column stratification was reduced in the central California region, likely due to high winds inducing upwelling. Total suspended solids in surface waters of the West Coast Shelf ranged from 0 to 10 mg/L (137 stations with data available). The characteristics of the open ocean area of the proposed project are expected to be similar to those seen at the deeper site examined.

2.4.2.7 *Noise and visual resources*

Natural noise sources in the offshore and onshore areas include wind, waves, birds, and other wildlife. Human caused noise sources offshore include ship motors and horns and aircraft. Onshore noise sources include motor vehicles, aircraft, construction equipment, and industrial activity.

Visual resources for the coastal area inshore of the proposed project site include scenic views from popular viewpoints near Morro Bay including Morro Rock and Hearst Castle. Other public parks on near Morro Bay, along the coastal bluffs, and mountain foothills are popular sites for observing scenery, whales, seals, other marine life, and birds. Natural elements of the viewscape include the shoreline, Morro Rock, and the open ocean.

The scenery along the coast is spectacular, so oceanfront viewsheds may be highly sensitive to visual changes offshore. In addition, seaside residents would potentially be very sensitive to changes visible from the shore; hence viewsheds from seaside residences are of particular concern in analyzing potential visual impacts of offshore energy structures (Norman et al. 2006).

2.4.2.8 *Marine transportation and commerce*

Morro Bay Harbor supports recreational and commercial vessel traffic. Commercial traffic includes commercial fishing vessels, for which the city maintains 50 slips in the harbor. Other main ports along the central California coast are Monterey, Santa Barbara, Oxnard, and Los Angeles, California. The majority of commercial vessel traffic along the central California coast is further offshore from Morro Bay and the proposed project area (BOEM 2015).



2.4.2.9 Military and Coast Guard operations

There are no areas mapped as Navy Operation Areas off the coast of Morro Bay. There is an offshore area mapped as a danger zone and restricted area, approximately 60 km south of Morro Bay, associated with Vandenberg Air Force Base (BOEM 2015).

The United States Coast Guard (USCG) operates Coast Guard Station Morro Bay, located adjacent to the Harbor Office. The USCG maintains a 27 person National Security Base and Search and Rescue Station at Morro Bay Harbor to provide the Coast Guard services for the entire Central California Coast, including port safety coverage for the Diablo Canyon Nuclear Power Plant and Vandenberg Air Force Base and search and rescue (Morro Bay 2015). The USCG Base Los Angeles Long Beach provides Military Funeral Honors to recently passed retired or honorably discharged Coast Guard veterans and serves Morro Bay in San Luis Obispo county (USCG 2015).

2.4.2.9.1 Airspace utilization – civilian and military

Morro Bay and surrounding communities are served by San Luis Obispo County Regional Airport in San Luis Obispo, California. The airport is open for public use with flights to Los Angeles, Phoenix, and San Francisco. The airport is also home to full service general aviation and corporate facilities. Commercial flights are provided by United Airlines and American Airlines. Local airspace surrounding the airport is designated as Class E Airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. Also in this class are federal airways, airspace beginning at either 700 or 1,200 feet above ground level used to transition to and from the terminal or en route environment, and en route domestic and offshore airspace areas designated below 18,000 feet mean sea level (MSL). Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 NM of the coast of the 48 contiguous states and Alaska, up to but not including 18,000 feet MSL, and the airspace above FL 600 (FAA 2014). San Luis Obispo County outlines airport rules, regulations, and the airport overlay zone in the municipal code (17.57).

An active military aviation restricted zone exists off the California coast approximately 60 kilometers south of the proposed project area, which is associated with Vandenburg Airforce Base. (FAA 2015).

2.4.2.10 Commercial and recreational fishing

Commercial fishing is an important element of California's economy, and Morro Bay in particular. The harvest value of California onshore landings has increased from \$136.3 million for 553.5 million pounds of fish harvested in 2000 to \$235.2 million for 357.6 million pounds of fish harvested in 2014 (CDFW 2015). The revenue from California commercial fisheries is not generated principally from the harvest of one target species, but instead is a balance of several fisheries that include the groundfish fishery, highly migratory species fishery, the coastal pelagic species fishery, and the Dungeness crab fishery. Although total landings in weight has decreased since 2000, the total revenue generated from the harvest has increased by 58 percent. The major regional fishing centers in California are Eureka, Fort Bragg, Bodega Bay, San Francisco, Monterey, Morro Bay, Santa Barbara, Los Angeles, and San Diego. Revenue from the port of Morro Bay accounted for approximately 4.4 percent of the overall revenue from commercial ocean catch (CDFW 2015).

Table 7 shows typical distances from shore and/or depths for each fishery, preferred habitat type, and revenue from the 2014 harvest.



Table 7 Depths and Distances from Shore and Revenue for California (and Morro Bay) Commercial Fisheries

Fishery	Distance/Depth of Harvest¹	CA Revenue from 2014 Harvest²	Morro Bay Revenue from 2014 Harvest²
Tuna	Generally near surface, 30 nm or more from shore at 50 to 100 fathoms up to 500 to 2,000 fathoms	\$4,793,386	\$47,471
Salmon	Breakers to 200 fathoms; sometimes up to 650 fathoms	\$12,120,121	\$138,679
Crab	Breakers to 130 fathoms and up to 700 fathoms in some years; around tops of canyons, high spots	\$70,517,956	\$3,817,799
Shrimp	30 to 150 fathoms; 90 percent in 60 to 140 fathoms; muddy, soft, flat bottom	\$4,824,385	\$0
Groundfish	Breakers to 400 to 700 fathoms; 1,200 fathoms for midwater, but nets are not this deep	\$10,116,998	\$1,220,735
Sablefish	100 to 500/650 fathoms	\$8,962,574	\$2,066,392
Halibut	22 nm at 100 to 125 fathoms	\$2,126,431	\$47,292

¹ Source: Industrial Economics, Inc. 2012.

² Source: CDFW 2015.

Morro Bay is one of the state's smaller commercial fishing ports. The primary commercial fishing activity off Morro Bay is groundfish trawl, Dungeness crab (pot; mostly in state territorial sea), and sablefish (Table 5; CDFW 2015). The top fishery group coming into the port of Morro Bay based on economic value is the crab fishery (CDFW 2015).

Charter fishing businesses offer overnight trips as well as day trips. Charter operations are dependent on access to particular habitats for some target species (e.g., rocky structures and reefs for bottom fishing, sandy or muddy bottom for crabbing) and on particular water column and current conditions for others (e.g., salmon and tuna) (Industrial Economics, Inc. 2012.). There were eleven charter vessels operating out of Avila Beach and Morro Bay in 2014 that hosted 23,651 fishers, and caught 204,832 fish (CDFW 2015). The total landings by charter vessels in 2014 represent 16.5 percent of the total charter landings in California.

Recreational boaters (many of whom are also recreational fishermen) travel anywhere from 3 to 40 nm (75 km) from shore. In 2004, the California Recreational Fisheries Survey was created to estimate total marine recreational finfish catch and effort in California. The primary recreational fishing off central California (San Luis Obispo to Santa Cruz) targets mackerel and rockfish (PSMFC 2015).



2.4.2.10.1 Historic and cultural resources

The Obispeño Chumash originally inhabited Northern Channel Island area, including Morro Bay. The area has provided natural resources to local inhabitants for centuries. People lived as far inland as the San Joaquin Valley, along rivers, and along the Pacific coast where they were hunters, gatherers, and fishermen. They gathered food throughout the year in the mild Mediterranean climate and stored food through the winter. They built domed houses of willow branches, whale bones, and woven mats. The Chumash were excellent boat makers and advanced trades such as basket weaving, stone cookware, and beads (Chumash 2015). The earliest European contact at Morro Bay came in 1595, when Sebastian Rodriguez Cermeno put in at Estero Bay. This contact was followed by the explorations of Sebastian Vizcaino in 1602 and Gaspar de Portola in 1769. Mission San Luis Obispo was established in 1772, thus ending traditional Native American village life at Morro Bay. Mission records indicate the first Native American baptism from the Morro Bay village of Chotcagua occurred in 1773. The last person to leave Chotcagua and move to the mission was baptized in 1803 (Gibson 1993).

The California State Historic Preservation Office (SHPO) maintains a database of known cultural or archaeological sites (OHP 2015). Historic sites (eligible listed and unlisted) along the coast north and south of Morro Bay within the project vicinity with publically available records include:

- Morro Rock – Morro Bay, San Luis Obispo County
- Hearst San Simeon Estate – San Simeon, San Luis Obispo County
- Hearst San Simeon State Historic Monument – San Simeon, San Luis Obispo County
- Piedras Blancas Light Station – San Simeon, San Luis Obispo County
- Old Santa Rosa Catholic Church and Cemetery – Cambria, San Luis Obispo County

Specific cultural resource information is confidential. A records search and literature review would need to be conducted at the appropriate California Historical Resources Information System Information Center located at the Central Coastal Information Center at the University of California, Santa Barbara to determine the types, sizes, and quantity of known cultural resources (prehistoric archaeological resources, historic period archaeological resources, and built environment resources) in the immediate vicinity of the project area.

The National Oceanic and Atmospheric Administration's (NOAA) Office of Coast Survey charts known shipwrecks and other navigational obstructions through the Automated Wreck and Obstruction System (AWOIS). Shipwrecks near Morro Bay include an unnamed vessel within Morro Bay that is always visible above the water surface (BOEM 2015; NOAA 2015)

2.4.2.10.2 Tourism and recreation

The central California coast and Morro Bay offer a variety of outdoor activities including fishing; kayaking; sailing and bay cruises; wildlife, bird, sea lion, and whale watching charter tours, cycling, and many more activities. State parks in the project vicinity include Morro Bay State Park, Morro Strand State Beach, and Montaña de Oro State Park. Local parks managed by the city include Anchor Memorial Park, Bayshore Bluffs Park, Centennial Parkway, City Park, Cloisters Park, Coleman Park, Del Mar Park, Lila Keiser Park, Mariner Memorial Park, Monte Young Park, Morro Rock Beach, North Point, and Tidelands Park. The city parks have a variety of amenities ranging from trails, vistas, picnic tables, child play areas, beach access, open space, barbecues, and restrooms. Morro Bay State Park has amenities for tent camping and RV hookups. Morro Bay Natural Preserve is located along the spit that separates Estero Bay from Morro Bay.



2.4.2.10.3 Socioeconomics and environmental justice

According to data from the State of California Employment Development Department (EDD 2015a), the unemployment rate in San Luis Obispo County, as of November 2015, was 4.4 percent, while that of California, as a whole, was 5.7 percent. Total nonfarm employment in the County was 116,900 in November 2015, up 3.7 percent from November 2014. The 2010 US Census reports median household income for California in 2009 at \$61,094, and the poverty rate at 15.9 percent (US Census Bureau 2015a).

The largest industry sectors in San Luis Obispo County, based on 2014 data, are: healthcare; education; government; trade, transportation, and utilities; professional and business services; and leisure and hospitality (EED 2015b).

The 2010 US Census (US Census Bureau 2015b) reports the population of San Luis Obispo County as 369,637. The median age was 39.3 years; 18.1 percent of the population was under the age of 18, and 17.5 percent of the population was over 65. Race and ethnic groups are reported as shown in Table 8.

Table 8 San Luis Obispo County Race/Ethnic Groups, 2014

Race/Ethnic Group	Percent of Population
Non Hispanic	
White	69.5 %
Black	2.2%
American Indian	1.4%
Asian	3.8%
Pacific Islander	0.2%
Two or More Races	3.4%
Hispanic	19.5%

Source: US Census Bureau 2015b

2.4.2.10.4 Public services, infrastructure, and utilities

Morro Bay is accessible via air, sea, and road. The San Luis Obispo County Regional Airport is used for air transportation. The major roads connecting Morro Bay to nearby communities are California State Routes 1 and 41, which connect to US Route 101. Three bus companies operate in Morro Bay: City of Morro Bay Transit, San Luis Obispo Regional Transit Authority, and Greyhound. There is no commercial freight rail service to Morro Bay and the closest passenger service is provided by Amtrak located in San Luis Obispo, California (Caltrans 2015).

The City of Morro Bay, Harbor Department manages the Morro Bay Harbor. The harbor operates the North and South T piers, a floating dock, and anchorage area for temporary vessels. Approximately 50 slips and 70 moorings are provided by the city for local recreational and fishing vessels (World Port Source 2015).



San Luis Coastal Unified School District consists of ten elementary schools, two middle schools, and three high schools in the region. Within Morro Bay there is Del Mar Elementary, Los Osos Middle School, and Morro Bay High School. Cuesta College has multiple campuses throughout the County. California Polytechnic State University is the nearest university and is in San Luis Obispo, California.

The City of Morro Bay provides water and sewer services to local residents. AT&T Communications provides telephone communications, and electric power is administered by Pacific Gas and Electric (PG&E).

Public safety is provided by the Morro Bay Police Department. The Morro Bay Fire Department responds to fire and safety calls from on fully staffed fire station and one unstaffed fire station. The Fire Department has a mutual aid agreement with neighboring communities, the Morro Bay Harbor Patrol, and the US Coast Guard. Local hospitals include an urgent care facility in Morro Bay, the Sierra Vista Regional Medical Center in San Luis Obispo, and the Atascadero State Hospital in Atascadero, California.

Offshore utility infrastructure includes approximately ten east west submarine cables south of Morro Bay within Estero Bay (BOEM 2015).

2.4.2.10.5 Natural hazards, hazardous materials, offshore dump sites, unexploded ordinance and artificial reefs

The primary natural hazards that could affect Morro Bay and San Luis Obispo County include coastal erosion, drought, earthquake, flood, landslide, tsunami, wildfire, and wind storms. Coastal erosion occurs throughout the year, but is accelerated during the winter months when storms increase the rate of erosion. Winter wind storms can also cause heavy damage on shore to buildings, utilities, and transportation systems. Tsunamis can result from either local earthquake events or distant earthquake events. Historic tsunamis occurred in the Morro Bay area in 1878, 1953, 1960 and 1964, which resulted in localized damage to piers, wharves and buoys in Morro Bay Harbor (Morro Bay 2008).

The potential for earthquake hazard comes from the four known seismically active faults that run through San Luis Obispo County and adjacent offshore areas. These include the San Andreas Fault approximately 50 miles inland from Morro Bay, the Los Osos Fault approximately 8 miles southeast of Morro Bay, the Hosgri Fault approximately 8 miles offshore to the west of Morro Bay, and the San Simeon Fault approximately 30 miles north of Morro Bay. Seismic activity within the offshore basin area is mainly from the Hosgri Fault which is primarily a reverse and thrust fault with some right lateral slip. It is approximately 140 kilometers long, trending north south with the shoreline of San Luis Obispo County, and is a complex zone of interlaced and parallel fault segments. The last earthquake along this fault was in 1927 and was recorded at a magnitude of 6.5 7.5. Small earthquakes from the other faults in inland San Luis Obispo County occur frequently (CalTech 2013).

Rainfall and inclement weather occur seasonally from November through March. Several creek drainage systems, including Chorro Creek, the Morro/Little Morro Creek convergence, No Name Creek, Alva Paul Creek, Toro Creek, and San Bernardo Creek flow into and/or near the City. Flooding may occur when storms bring rainfall that exceeds the conveyance capacity of the creeks and stormwater infrastructure throughout the city. Potential flood hazard areas within Morro Bay include: the South Bay Boulevard area between Highway 1 and State Park Road; the area between Highway 41/Atascadero Road and Radcliff Avenue; low lying sections of Island Street and Beachcomber; Highway 1, at the northern City limits; and, Highway 1 south of the City limits.



Wildfire is a potential hazard in Morro Bay residential, industrial, commercial, harbor front, and wildland areas. Fires are fanned by ocean or Santa Ana winds, making them spread quickly and difficult to control. Homes and businesses within Morro Bay are built close together and offer little defensible space for fighting fire. Furthermore, homes on the hillsides of Morro Bay are on the border of the urban wildland interface and face the threat of large scale wildland fire. The T pier fire of 1988 and the Highway 41 Fire in 1944 were examples of the threat of fire from development within the city and wildfire from adjacent wildlands (Morro Bay 2008).

Potential manmade hazards include the Diablo Canyon Nuclear Power Plant, unexploded ordnance, obstructions, and shipwrecks. The Diablo Canyon Nuclear Power Plant is operated by the Pacific Gas and Electric Company (PG&E) and located approximately 10 miles southwest of Morro Bay. There is no known unexploded ordnance in the project vicinity. However the unexploded ordnance data is not complete. The presence and locations of the unexploded ordnance have been derived from graphical representations recorded on NOAA Raster Navigation Charts. There is one artificial reef consisting of 3,500 tons of quarry rock along the shore, north of Morro Rock, in the project vicinity. There is one visible shipwreck within Morro Bay. Eight submerged obstructions and three partially submerged rocks obstructions are associated with an old pipeline, sunken mooring buoys, a sewer outfall, and submerged pilings north of Morro Rock along the shore, and two partially submerged rock obstructions south of Morro Rock along the Morro Bay spit (BOEM 2015).

Onshore hazards include hazardous material sites registered in and around Morro Bay under the US EPA reporting requirements. The identified sites include multiple toxic release sites, hazardous waste sites, water discharges, and brownfields around Morro Bay (US EPA 2015).



2.5 Conformance with State and Local Energy Planning Initiatives

The California Legislature recently adopted a requirement that 50% of all retail electric energy sales in the state must come from renewable sources by the end of 2030 (State of California, 2015). The Chairman of the California Energy Commission (CEC), Robert Weisenmiller, has stated that the State needs to plan on 40% as soon as 2020.

- Under 2006 Senate Bill (SB) 107, Public Utilities Code Section 399.11 – 399.19 was modified to require that investor owned utilities (IOUs), electric service providers (ESPs) and community choice aggregators (CCAs) regulated by the CPUC procure 20% of annual retail electricity sales from eligible renewable sources by 2010. The percentage of retail sales required from renewable sources is known as a renewable portfolio standard (RPS).
- Assembly Bill (AB) 32, signed by Governor Arnold Schwarzenegger during October 2006, required that statewide greenhouse gas (GHG) emissions be reduced to 1990 levels by 2020. GHG reductions increase the need for electricity from renewable sources.
- Executive Order (EO) S 14 08 issued on November 17, 2008, and EO S 21 09 issued on September 15, 2009, set an RPS goal of 33% renewable energy by 2020.
- During 2011, Governor Jerry Brown signed SB 2 making the 33% RPS a legal requirement.
- During 2015, Governor Brown signed SB 350. SB 350 requires that all retail sellers of electricity meet a 50% RPS by the end of 2030. In addition, SB 350 contains provisions that reduce GHG emissions, in part, by promoting electric vehicles. Those provisions, and similar provisions in SB 32 that remain under consideration, are likely to further increase the demand for electricity from renewable sources.

Three California authorities administer the RPS and GHG programs summarized above.

- California Public Utilities Commission (CPUC) administers the RPS compliance required under SB 107, SB 2 and SB 350 for IOUs, ESPs and CCAs.
- CEC administers the RPS compliance required under SB 107, SB 2 and SB 350 for Publicly Owned Utilities (POUs).
- California Air Resources Board (CARB) is responsible for implementing the GHG reductions required under AB 32 and SB 350.

While filings and reports prepared for and by the CPUC and CEC show that IOUs, ESPs, CCAs and POU's will meet current RPS requirements, substantial additional renewable energy supplies are needed to meet RPS requirements in the future. In summary, assuming that existing utility procurement plans will meet the 33% RPS by 2020, over 17 gigawatts (GW) of additional renewable capacity are needed to meet a 50% RPS by 2030.

- Energy + Environmental Economics (E3) reports that, depending on the scenario, another 14 GW to 24 GW of new renewable capacity are necessary to obtain 50% rather than 33% RPS in 2030 (E3 2014, p. 55). Those totals include another 3 GW to 5 GW of wind project capacity.
- California Wind Energy Alliance (CalWEA, 2015, p. 1) estimates that an additional 10 GW of wind alone will be needed after 2015 to obtain 50% in 2030.



2.6 Documentation of Lessee Qualifications

2.6.1 Legal Qualifications

Trident Winds is a Washington limited liability company headquartered in Seattle, WA. Trident is authorized under its Operating Agreement dated October 15, 2015 to operate an energy development business, including but not limited to, the ability to hold and operate leases, right of way grants, or right of use and easement grants for activities that produce, or support production, transportation or transmission of, energy from sources other than oil and gas on the OCS, and right of use and easement grants for the alternate use of OCS facilities for energy or marine related activities.

Confidentila Annex A includes copies of Trident Winds' registration documentation.



2.7 Technical Capability

Trident Winds team's experience spans industries from high tech manufacturing to offshore construction to electric generation facilities and financial services. The MBO Project will leverage the collective know how of these industry professionals through all phases of the project development.

2.7.1 Project Participants

Trident Winds, and prospective partners and project participants who have expressed an interest in the MBO project, listed below in alphabetical order, are committed to the success of the Project. Individual organizational staffing levels and resources will be allocated to meet the development process needs in accordance with the Project schedule.

Trident Winds (<http://tridentwinds.com>)

Trident Wind LLC was founded in 2015 with a focus on the deep water offshore wind project development. Trident Winds will lead the MBO Project and through project management and subcontracting to the competitively selected vendors for all project phases.

Bodington & Company (<http://www.bodingtonandcompany.com/who.html>)

B&Co's team has deep experience in the finance, business, engineering and operations aspects of the electric power industry. Each of B&Co's staff has more than 30 years experience. This breadth and depth enables B&Co to provide cost effective solutions to small and middle market clients. B&Co consults with engineering experts from one of several firms with extensive experience in the technology under evaluation. Black & Veatch, Brown Vence & Associates, Christensen Associates and Intertie are examples of firms Bodington & Company has retained to provide information on engineering and other technology related issues.

City of Morro Bay (<http://www.morro-bay.ca.us>)

Incorporated in 1964 and nestled on the Central Coast of California, Morro Bay is the "gateway to the north coast". Just 12 miles north of San Luis Obispo, Morro Bay sits along a natural estuary. Morro Bay is a natural embayment with an artificial harbor constructed by the U.S. Army Corps of Engineers. It is the only all weather small craft commercial and recreational harbor between Santa Barbara and Monterey. Morro Rock was originally surrounded by water, but the Army built a large artificial breakwater and road across the north end of the harbor, linking Morro Rock and the mainland. The bay extends inland and parallels the shore for a distance of about 6.4 km (4 miles) south of its entrance at Morro Rock. Morro Bay is recognized for protection by the California Bays and Estuaries Policy

Morro Bay's working waterfront is a source of tourism and home for a vibrant marine based economy that includes commercial fishing, aquaculture, seafood processing, chandlery, commercial passenger fishing activities and marine construction.

The 650 megawatt power plant, presently owned by Dynegy, played a large role in Morro Bay and in providing electricity to the Central Coast and the Central Valley of California. The plant operated around the clock during the 2000 energy crisis, but the plant has operated at just one sixth of that capacity in recent years. The plant was built in the 1950s but was never modernized. The plant was closed in February 2014 and still contains connection to the water discharge infrastructure suitable for the use by the MBO Project.

***DP Energy*** (<http://www.dpenergyp.com>)

DP Energy is a renewable energy and sustainable development specialist operating in sites across the world. DP Energy has developed over 260MW of built wind energy projects, with a further 154MW permitted & with grid, 405MW with permits lodged, and a further 300MW at a late stage of development including some 330MW of tidal energy projects across both Europe and Canada. DP Energy has acted both as an early stage and late stage developer and built and operated a number of wind farms in Ireland and is currently developing a number of additional large scale wind and solar projects across Australia, Canada and the UK.

Enpower (<http://www.enpowercorp.com>)

Enpower Corp. is an energy facility owner and highly skilled business and operations management company to energy and process industries. Management services are provided through Enpower Management Corp. and Enpower Operations Corp., its wholly owned subsidiaries. Enpower Corp. owns energy assets and provides goal driven management services to energy and process industries in California and throughout the lower 48 states.

Forristall Ocean Engineering (<http://www.forocean.com>)

George Forristall, the principal of Forristall Ocean Engineering is well known amongst the oil and gas industry for over 30 years of work specific to the generation of metocean design basis. Forristall Ocean Engineering is a subcontractor with Trident Winds to provide the metocean conditions for the design basis for the MBO Project.

Herrera Environmental Consultants (Herrera) (<http://www.herrerainc.com>)

Established in 1980, Herrera's interdisciplinary teams of scientists, engineers, planners, and regulatory specialists provide scientifically defensible and realistic solutions to complex resource challenges facing businesses, municipalities, utilities, and government agencies. Herrera has the specific expertise necessary to address key challenges facing ocean energy development and is experienced with marine environmental compliance. Herrera offers complete permitting, planning, and environmental services to support energy developments.

National Renewable Energy Lab (<http://www.nrel.gov>)

National Renewable Energy Lab (NREL) is the only national laboratory solely dedicated to advancing renewable energy and energy efficiency technologies from concept to commercial application. NREL has over 20 years of experience in the wind industry relative to wind turbine design, power prediction, and wind resource assessment. NREL's participation in Trident Winds's MBO Project offers access to the extensive knowledge base that will be using in the development of the MBO Project. NREL is participating in the MBO Project wind resource characterization, wake/performance modeling, and techno economic analysis.

Pacific Northwest National Laboratory (<http://www.pnnl.gov>)

Pacific Northwest National Laboratory (PNNL) is one of ten DOE national laboratories managed by DOE's Office of Science. Pacific Northwest National Laboratory leads the identification and risk based assessment of environmental effects of ocean energy development and offers significant resources in the study of atmospheric sciences. Pacific Northwest National Laboratory will participate in permitting activities with a specific focus on the marine flora, fauna and birds through its Marine Science Lab.

**Quanta Services** (<http://www.quantaservices.com>)

Quanta Services safely provides engineering, procurement and construction (EPC) services for comprehensive infrastructure needs in the electric power and oil and natural gas industries. With a workforce of over 25,000 and offices across North America and abroad, Quanta is the premier provider of specialized contracting services for the electric power and oil and gas industries, both onshore and offshore.

2.7.2 Experience with Similar Project

Principals of Trident Winds have extensive experience with greenfield and wind project development.

The company founder, Ms. Alla Weinstein has founded and financed two marines renewables companies AquaEnergy Group, LTD that was the first in the US to receive a FERC permit for the installation of a hydrokinetic project in Makah Bay, WA within the OCNMS, and Principle Power Inc. the developer of the WindFloat floating support structures technology (<http://principlepowerinc.com>).

While she was a CEO and President of Principle Power, the company raised over \$30M for the engineering design, fabrication and installation of its prototype WindFloat off the coast of Portugal. She was the project manager for the prototype installation and negotiated and awarded four contracts for the WindFloat prototype implementation:

- A turbine supply contract including engineering, procurement, installation with Vestas;
- A turbine operation and maintenance contract with Vestas;
- A Turnkey contract for the WindFloat system, including hull, mooring and electrical cable design, procurement, fabrication, installation;
- A WindFloat operation and maintenance contract.

The company co founder, Eric Markell, served is several executive capacities at Puget Sound Energy in Bellevue, WA., including EVP and Chief Financial Officer, Chief Resource Officer and Chief Strategy Officer. During his tenure his teams acquired, developed and financed numerous energy supply facilities including three utility scale land based wind projects and two major expansions of such projects while securing the development rights to an additional 1200 MWs of wind power.

Company co founder Brian Walshe has spent his entire 30 year career in the engineering, construction, and operation of electric power facilities. He founded two companies (Altera Energy and ION Consulting) that provided strategic and financial advisory services to utilities, Independent Power Producers (IPPs) , and regulators relatd to power project valuations, generation resource planning, and project development. Mr. Walshe has provided operational and advisory services to over 250 electric generating facilities in 11 countries. He was a founding member of the Colorado Wind Working group, and authored "The Guidebook to evaluate the role of renewable Energy" for the American Public Power Association (APPA) and "The Strategic Transmission and Renewable Strategy" (STAR Report) for the Colorado Governor's Energy Office.



Trident has retained Bodington & Company (B&Co) as its financial advisor and to lead the financing final development, construction and long term operation of the Project. B&Co, founded in 1990, provides investment banking services to the electric power generation industry in North America. It is a member of the Financial Industry Regulatory Authority and is a Broker/Dealer regulated by the U.S. Securities and Exchange Commission. B&Co has advised clients on over 200 transactions with an aggregate value over \$8 billion. In particular, B&Co has arranged development stage and construction stage financing for wind energy projects in California, Maine, Vermont and Washington. Concerning Trident and the Project, financing discussions are underway with the leading wind energy companies in the U.S. and the leaders in offshore wind project development in Europe, Asia and the U.S.

Other Project participants bring extensive experience in resource analysis, project development, energy infrastructure asset management, and transmission and electrical services.



2.8 Project Financial Projections

The overall cost for the initial 650 MW net capacity MBO Project permitting, development and construction is estimated at \$3,230,118,000 in 2015 dollars. Project costs will be refined during the COP preparation based on subcontractor and vendors quotes. Proforma financial projections are included in the confidential Annex E.



3 REFERENCES

- Ahlén, Ingemar, L. Bach, H.J. Baagøe, J. Pettersson. 2007. *S. Bats and offshore wind turbines studied in southern Scandinavia*. Swedish Environmental Protection Agency. Stockholm, Sweden.
- BOEM. 2015. Multipurpose Marine Cadastre. Bureau of Ocean Energy Management and National Oceanic and Atmospheric Administration. Accessed December 21, 2015.
<http://marinecadastre.gov/nationalviewer/>
- California, State of. 2015. Senate Bill 350. Summary prior to SB 350 in 2015. Available at:
<http://www.cpuc.ca.gov/PUC/energy/Renewables/>
- California Ocean Protection Council. 2011. "California Permitting Guidance for Ocean Renewable Energy Test and Pilot Projects." December 16, 2011. Available at:
<http://www.opc.ca.gov/2011/12/california-permitting-guidance-for-ocean-renewable-energy-test-and-pilot-projects/>
- CalTech. 2013. Southern California Earthquake Data Center, Significant Earthquakes and Faults. Hosgri Fault Zone. Accessed December 17, 2015. <http://scedc.caltech.edu/significant/hosgri.html>
- Caltrans. 2015. California Department of Transportation, Freight Rail. Accessed December 17, 2015.
http://www.dot.ca.gov/hq/tpp/offices/ogm/freight_rail.html
- CDFW. 2013. Status of the fisheries report: An update through 2011. Report to the California Fish and Game Commission, prepared by California Department of Fish and Wildlife.
- CDFW. 2015. Final California Commercial Landings for 2014. State of California, the Natural Resources Agency, Department of Fish and Wildlife.
- Chumash, Santa Ynez Band. 2015. Chumash History. Accessed December 21, 2015.
<http://www.santaynezchumash.org/history.html>
- Cryan, P.M. & Brown A.C. 2007. Migration of bats past a remote island offers clues towards the problem of bat fatalities at wind turbines. *Biological Conservation*, 139: 1 11
- Daugherty, A.E. 1972. Marine mammals of California. Department of Fish and Game. 90 p.
- DOE EERE. 2015. Offshore wind resource by state.
http://apps2.eere.energy.gov/wind/windexchange/pdfs/offshore/offshore_wind_potential_table.pdf
- EED. 2015a. Unemployment Rate and Labor Force. State of California Employment Development Department. Accessed December 18, 2015.
<http://www.labormarketinfo.edd.ca.gov/data/unemployment-and-labor-force.html>
- EED. 2015b. Industry Employment Data. San Luis Obispo County, California. State of California Employment Development Department. Accessed December 18, 2015.
<http://www.labormarketinfo.edd.ca.gov/county/slo.html#IND>
- Elliott, D.; Holliday, C.; Barchet, W.; Foote, H.; Sandusky, W. (1987). Wind Energy Resource Atlas of the United States. DOE/CH 10093 4, Golden, Colorado: Solar Energy Research Institute.
- Elliott, D.; Schwartz, M. (2006). Wind Resource Mapping for United States Offshore Areas: NREL/CP 500 40045. Golden, Colorado: NREL, 12 pp



EPA. 2015. Watershed Priorities, Morro Bay, California, Watershed. US Environmental Protection Agency, Pacific Southwest, Region 9. Accessed December 21, 2015.

<http://www3.epa.gov/region9/water/watershed/morrobay.html>

Feinberg, L., et.al. 2014. "Evaluating Offshore Wind Energy Feasibility off the California Central Coast" Bren School of Environmental Science and Management

http://www.bren.ucsb.edu/research/2014group_projects/documents/20140402_calwind_final2_mt_yx.pdf

FAA. 2014. Federal Aviation Administration Pilot's Handbook of Aeronautical Knowledge. Chapter 14, Airspace. Accessed December 21, 2015.

https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/pilot_handbook/media/PHAK%20%20Chapter%2014.pdf

FAA. 2015. Federal Aviation Administration Special Use Airspace and Air Traffic Control Assigned Airspace Mapper. Accessed December 21, 2015. <https://sua.faa.gov/sua/siteFrame.app>

Gibson, Robert O. Ethnogeography of the Salinan People. Master Thesis, California State University, Hayward. 1983.

Golden, N.E. (compiler). 2013. California State Waters Map Series Data Catalog. U.S. Geological Survey Data Series, 781. <http://pubs.usgs.gov/ds/781/> (Accessed 13 November 2015).

Homefacts. 2015. "Morro Bay Air Quality." Accessed on December 18, 2015.

[http://www.homefacts.com/airquality/California/San Luis Obispo County/Morro Bay.html](http://www.homefacts.com/airquality/California/San_Luis_Obispo_County/Morro_Bay.html)

Industrial Economics, Inc. 2012. "Identification of Outer Continental Shelf renewable energy space use conflicts and analysis of potential mitigation measures." OCS Study BOEM 2012 083. US Department of the Interior, Bureau of Ocean Energy Management, Herndon, VA.

Kaplan, B., C. J. Beegle Krause, D. French McCay, A. Copping, S. Geerlofs, eds. 2010. "Updated Summary of Knowledge: Selected Areas of the Pacific Coast." OCS Study BOEMRE 2010 014. US Dept. of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region, Camarillo, CA.

Morro Bay, City of. 2008. Multi Hazard Emergency Response Plan. Developed by the Morro Bay Fire Department. October 2003, Revised 2008.

http://www.morro_bay.ca.us/DocumentCenter/Home/View/793

Morro Bay, City of. October 5, 2015. Memorandum of Cooperation between the City and Trident Winds.

http://www.morro_bay.ca.us/documentcenter/view/9132

Morro Bay, City of. December 10, 2015.

<https://www.youtube.com/watch?v=GnZYURYdOi0&feature=youtu.be&t=29s>

Morro Bay, City of. 2015. Coast Guard. Accessed December 21, 2015. <http://www.morro-bay.ca.us/168/Coast-Guard>

MBCFO. 2015 <http://www.mbcfo.com/>

Musial and Butterfield. 2004. Future for Offshore Wind Energy in the United States. NREL/CP 500 36313 in Energy Ocean Proceedings. Palm Beach, Florida.

Nelson, W. G., J. L. Hyland, H. Lee II, C. L. Cooksey, J. O. Lamberson, F. A. Cole, and P. J. Clinton. 2008. *Ecological Condition of Coastal Ocean Waters along the U.S. Western*



Continental Shelf. 2003. EPA 620/R 08/001, US Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory,

Western Ecology Division, Newport, OR 97365; and NOAA Technical Memorandum NOS NCCOS 79, NOAA National Ocean Service, Charleston, SC 29412 9110.

NMFS. 2015. Habitat Protection: EFH Text Descriptions & GIS Data Inventory. National Marine Fisheries Service, Habitat Protection, <http://www.habitat.noaa.gov/protection/efh/newInv/index.html> (Accessed 12 November 2015).

NOAA. 2015. "AWOIS Download: Region 13." Automated Wreck and Obstruction System. National Oceanic and Atmospheric Administration, Office of Coast Survey. Accessed December 21, 2015. http://www.nauticalcharts.noaa.gov/hsd/wrecks_and_obstructions.html

NOAA Fisheries. 2015. "Endangered and Threatened Marine Species." Last update October 8, 2015. National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Accessed November 12, 2015: <http://www.nmfs.noaa.gov/pr/species/esa/>

Norman, K., J. Sepez, H. Lazrus, N. Milne, C. Package, S. Russell, K. Grant, R. Petersen, J. Primo, M. Styles, B. Tilt and I. Vaccaro. 2006. "Community Profiles for West Coast and

North Pacific Fisheries: Washington, Oregon, California, and Other U.S. States." NOAA Fisheries, Northwest Fisheries Science Center website. Accessed December 21, 2015. http://www.nwfsc.noaa.gov/assets/25/499_01082008_153910_CommunityProfilesTM85WebFinalSA.pdf

NREL. 2010. Assessment of Offshore Wind Energy Resources for the United States. Technical Report NREL/TP 500 45889. Prepared by M. Schwartz, D. Heimiller, S. Haymes, and W. Musial National Renewable Energy Laboratory. Golden, Colorado.

NREL. 2015. Wind Prospector https://mapsbeta.nrel.gov/windprospector/?visible=wind_3tier_site_metadata#/?aL=UuhMF_%255Bv%255D%3Dt%26HHMA_g%255Bv%255D%3Dt%26HHMA_g%255Bd%255D%3D1&bL=groad&cE=0&IR=0&mC=44.10336537791152%2C118.67431640625&zL=5

NWFSC. 2012. "Physical Oceanographic Considerations." Last modified July 31, 2012. NOAA Fisheries Service, Northwest Fisheries Science Center. Accessed March 19, 2013. <http://www.nwfsc.noaa.gov/research/divisions/fed/oeip/ja-physical-oceanographic-factors.cfm>

NWFSC and OSU. 2013. "PaCOOS: West Coast Habitat Portal." NOAA Fisheries, Northwest Fisheries Science Center, and Active Tectonics Seafloor Mapping Lab, Oregon State University. Accessed March 19, 2013. <http://pacoos.coas.oregonstate.edu/MarineHabitatViewer/viewer.aspx>

Oceana. 2011. *Protecting the Oregon Coast – Identifying and Protecting Important Ecological Areas*. Oceana. Washington D.C.

OCMP. 2013. "Oregon MarineMap," Oregon Coastal Management Program. Accessed March 12, 2013. <http://oregon.marinemap.org>

OHP, California State Parks. 2015. California Historical Resources of San Luis Obispo County. Office of Historic Preservation. Accessed December 21, 2015. <http://ohp.parks.ca.gov/listedresources/>



Pacific Energy Ventures et al. 2012. West Coast Environmental Protocols Framework: Baseline and Monitoring Studies Final Report. Prepared for Bureau of Ocean Energy Management by Pacific Energy Ventures, Portland, Oregon.

PFMC. 2012. "Habitat and Communities: Habitat." Last update September 4, 2012. Pacific Fishery Management Council. Accessed March 22, 2013. <http://www.pcouncil.org/habitat-and-communities/habitat/>

PSMFC. 2015. RecFIN: Tabulate Recent Estimates (2004 to Current). Pacific States Marine Fisheries Commission. <http://www.recfin.org/data/estimates/tabulate-recent-estimates-2004-current/> (Accessed 16 November 2015).

Principle Power Inc, Press Release, November 16, 2015.

<http://principlepowerinc.com/en/news-press/press-archive/2015/11/16/edp-renewables-mitsubishi-corp-chiyoda-corp-engie-and-repsol-create-a-consortium-to-implement-a-floating-offshore-wind-farm-in-portugal-using-principle-powers-windfloat-technology>

Shaw, Charles E. 2007. California Coastal National Monument Geologic Characterization. US Department of the Interior, Bureau of Land Management. Accessed December 18, 2015.

http://www.blm.gov/style/medialib/blm/ca/pdf/coastal_monument.Par.83740.File.dat/geology.pdf

SLO County. 2015. Ocean Water Monitoring Results. San Luis Obispo County Environmental Health Services. Accessed December 21, 2015.

<http://www.slocounty.ca.gov/health/publichealth/ehs/beach.htm>

STATOIL Press Release, November 03, 2015.

http://www.statoil.com/en/NewsAndMedia/News/2015/Pages/03Nov_HywindScotland_news_page.aspx

Tenaza, R.R. 1966. Migration of Hoary Bats on South Farallon Island, California. *Journal of Mammalogy*, 47:533-535

US Census Bureau. 2015a. Quick Facts, California. Accessed December 18, 2015.

<http://quickfacts.census.gov/qfd/states/06000.html>

US Census Bureau. 2015b. Quick Facts, San Luis Obispo County, California. Accessed December 18, 2015.

<http://quickfacts.census.gov/qfd/states/06/06079.html>

USCG. 2015. US Coast Guard Base Los Angeles Long Beach (LA/LB) San Pedro, California. Accessed December 21, 2015. <http://www.uscg.mil/baselalb/personnel/DecedentAffairs.asp>

USFWS. 2015. Endangered Species: U.S. Species. U.S. Fish and Wildlife Service, last update October 15, 2015. Accessed November 12, 2015: <http://www.fws.gov/endangered/species/us-species.html>

USGS. 2015. US SEABED Interactive Map. U.S. Geologic Survey.

<http://coastalmap.marine.usgs.gov/FlexWeb/national/usseabed/> (Accessed 13 November 2015).

Western Regional Climate Center. 2015. Western Regional Climate Center: Climate of California.

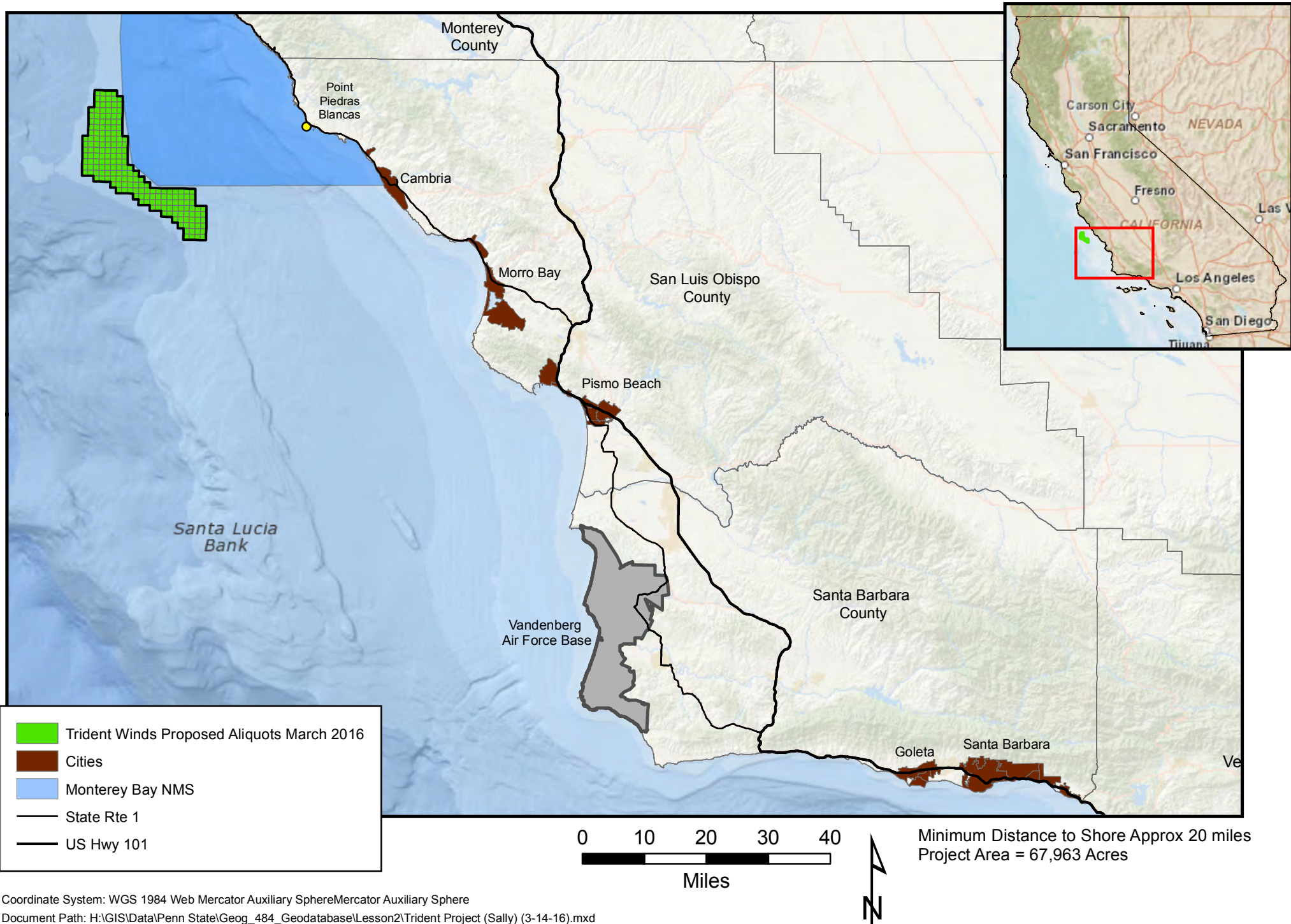
<http://www.wrcc.dri.edu/narratives/california/> (Accessed 16 November 2015).

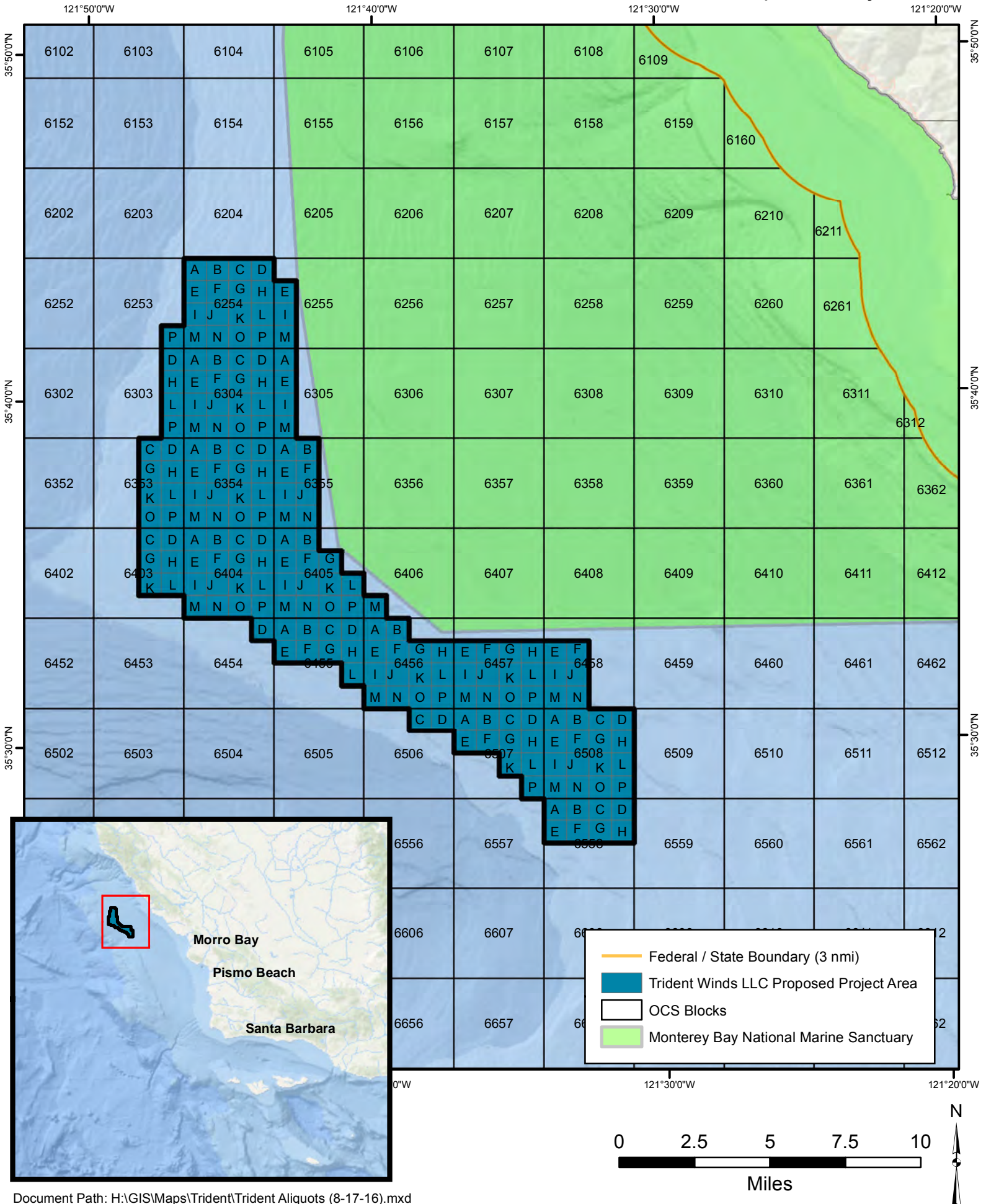
Whiteman, L., E. Meyer, T. Freidenburg, H. Rindge, R. Meyer, A. Pribyl, M. Colton, and T. Mason. 2013. State of the California Central Coast: Results from Baseline Monitoring of Marine Protected Areas 2007-2012. California Ocean Science Trust and California Department of Fish and Wildlife.



World Port Source. 2015. Morro Bay Harbor. Accessed December 17, 2015.

http://www.worldportsource.com/ports/review/USA_CA_Morro_Bay_Harbor_1580.php





California –

Trident Winds Offshore Wind Unsolicited Lease Request

What is an unsolicited lease request?

Receipt of an unsolicited lease request by BOEM is the earliest step in a process that includes environmental analysis and stakeholder engagement.

The Energy Policy Act of 2005 granted BOEM authority to issue leases for renewable energy projects on the Outer Continental Shelf (OCS), which generally begins 3 nautical miles offshore California. An unsolicited lease request is a submission received by BOEM that is not in response to a Call for Information and Nominations issued by BOEM. The first step in reviewing an unsolicited lease request is for BOEM to review the applicant's legal, technical, and financial qualifications to hold an OCS renewable energy lease. On March 21, 2016, BOEM made the determination that Trident Winds, LLC (Trident Winds) is legally, financially, and technically qualified to hold an OCS lease.

What is the unsolicited lease request proposing?

Trident Winds submitted a lease request for an area offshore Morro Bay, California. The project proposes an offshore wind facility with a nameplate capacity of up to 800 megawatts (MW) of renewable energy generated by approximately 100 floating foundations with up to 8 MW wind turbines. The project's anticipated net generation capacity is approximately 650 MW, which takes into account offshore transmission line losses and other losses associated with suboptimal wind conditions, equipment downtime, and other operating constraints. The energy generated by the project would be transmitted to shore by an undersea power transmission cable.

The project is proposed to be located approximately 33 nautical miles northwest of Morro Bay, California, in water depths of approximately 2,600-3,300 feet. The proposed lease area is 67,963 acres.

What happens next?

After coordination with the State of California and other stakeholders, BOEM will publish a *Federal Register* Notice to publicly announce the proposed lease area and to invite submission of expressions of interest from other parties for wind projects in the same area. The Notice will also request the public and interested stakeholders to comment and provide information about site conditions and other uses of the requested area. While there is no regulatory requirement on the timing of the Notice, BOEM expects publication 4 to 6 months after the determination that Trident Winds is legally, financially, and technically qualified to hold an OCS lease.

(more)

The unsolicited lease request proposes an offshore wind project adjacent to Monterey Bay National Marine Sanctuary; can BOEM issue a lease adjacent to a designated sanctuary?

Yes. BOEM can issue a renewable energy lease adjacent to a national marine sanctuary. BOEM's leasing process incorporates extensive consultation and coordination with key federal, state, and local stakeholders. Additionally, provisions in the National Marine Sanctuaries Act require formal federal consultation for actions that are likely to affect a national marine sanctuary resource. BOEM will work closely with all of our partners, including Monterey Bay National Marine Sanctuary, in reviewing this lease request and will comply with any required consultations.

The Trident Winds unsolicited lease request is for an area that partially falls within the area nominated as the Chumash Heritage National Marine Sanctuary. If BOEM issues a renewable energy lease to Trident Winds, can the Chumash Heritage National Marine Sanctuary still be designated?

Yes. BOEM's leasing authority does not prevent the designation of a national marine sanctuary on the OCS. BOEM and NOAA's ONMS would work closely to ensure compatibility of OCS renewable lease activities and the new sanctuary if ONMS were to move forward with the designation process.

Could BOEM issue a lease in the proposed Chumash Heritage National Marine Sanctuary after it is designated?

No. Under its existing leasing authority, BOEM is restricted from issuing renewable energy leases in designated national marine sanctuaries on the OCS. Should the proposed Chumash Heritage National Marine Sanctuary be designated, BOEM could not issue a lease within the sanctuary. If the Chumash Heritage National Marine Sanctuary is designated, the regulations NOAA would adopt for that area would determine if NOAA could consider permits or other regulatory mechanisms to allow construction of renewable energy projects inside the sanctuary.

For More Information

Overview of BOEM's leasing process: [Wind Energy Commercial Leasing Process Fact Sheet](#).

Renewable Energy Program Regulations: [30 CFR 585](#)

BOEM's Renewable Energy Program in California: [BOEM California Activities](#).

To be added to BOEM's Hawaii Stakeholders distribution list, please send an email with your contact information and a valid email address to pacificrenewables@boem.gov.

For further questions, contact:

Jean Thurston, Renewable Energy Specialist, Jean.Thurston@boem.gov, 805-384-6303

John Romero, Public Affairs Officer, John.Romero@boem.gov, 805-384-6324

YOU'RE INVITED TO THE CA OCEAN LITTER STRATEGY WORKSHOP

Workshop participants will have the opportunity to provide input on the state's current and future priorities for ocean litter work and strategies to meet these priorities.

WHAT: The Ocean Protection Council and the National Oceanic and Atmospheric Administration's Marine Debris Program are leading the effort to update and expand California's 2008 Strategy. The Strategy will be expanded to include fishing gear, as well as suggestions for projects of a variety of scales and scopes so that entities including tribes, government agencies, industry, and nonprofits can make a meaningful contribution towards reducing ocean litter in California.

WHERE: Ronald V. Dellums Federal Building, 1301 Clay Street, Oakland, CA 94612

WHEN: MAY 2-3, 2017 (8am to 5pm)

If you or someone from your organization is interested in attending, please fill out this short [form](#) by **Friday, March 24**. Please contact Miho Ligare at mligare@ucsd.edu if you have any questions. We look forward to seeing you at the workshop. Thank you.

For additional information go to <http://www.opc.ca.gov/2017/02/litter-strategy-update/>

From: [Ligare, Miho](#)
Cc: [Sherry Lippiatt - NOAA Affiliate](#); [Nina E Venuti](#); [Wyer, Holly@CNRA](#); [Schwartz, Eben@Coastal](#); [Angela Howe](#)
Subject: Save the Date: CA Ocean Litter Strategy Workshop on May 2 - 3, 2017
Date: Friday, March 10, 2017 4:22:22 PM
Attachments: [5A81E839-1CC1-4BD0-8897-DF8473D07CD9\[19\].png](#)
[opc_ocean_litter_final_strategy.pdf](#)
[Ocean Litter Strategy Workshop Flyer.pdf](#)

Hello,

You are invited to the upcoming California Ocean Litter Strategy Workshop. Workshop participants will have the opportunity to provide input on the state's current and future priorities for ocean litter work and strategies to meet these priorities.

BACKGROUND: Ocean litter is an ongoing problem of international scale; researchers estimate that 8 million metric tons of plastic enter the ocean from land each year (Jambeck et al. 2015), and ocean-based debris contributes to this problem. To start addressing the ocean litter problem, the Ocean Protection Council adopted its original [Implementation Strategy to Reduce and Prevent Ocean Litter \(Strategy\)](#) in 2008. This Strategy focused on policy actions that state and local government could take to reduce and prevent marine litter. Progress has been made on a number of these actions, as in the cases of the statewide plastic bag ban and the adoption of the State Water Resources Control Board's trash amendments. Given that a number of priorities identified in the 2008 Strategy have been accomplished or are in progress and new information about ocean litter has come to light since 2008 (see the "Why" section below), the Strategy is due for an update.

WHAT: The [Ocean Protection Council](#) and the [National Oceanic and Atmospheric Administration's Marine Debris Program](#) are leading the effort to update and expand California's 2008 Strategy. The Strategy will be expanded to include fishing gear (and possibly other ocean-based debris), as well as suggestions for projects of a variety of scales and scopes so that entities including tribes, government agencies, industry, and nonprofits can make a meaningful contribution towards reducing ocean litter in California.

This will be the first of two workshops focused on developing and executing California's Ocean Litter Strategy. The goal of the first workshop is to develop a draft Strategy with proposed actions for review, and the goal of the second workshop is for stakeholders to commit to taking the lead on implementing proposed actions.

WHY: Since the original Strategy was developed, many of the actions described in the document have either been accomplished or are in progress. In addition, some forms of ocean litter, such as microfibers, are not covered in the existing Strategy, but are areas of interest to current and future research. Updating and expanding the Strategy will enable us to assess what has been accomplished so far, seek input and provide direction for the state and stakeholders, and track progress over time. Participation in this workshop will

provide you and your organization with opportunities to identify and shape California's ocean litter priorities, and perhaps take a leading role in addressing these priorities. Projects identified in the collaboratively developed Strategy document may be more appealing to funding organizations.

WHEN: May 2 and 3, 2017 (8am to 5pm)

WHERE: Ronald V. Dellums Federal Building, 1301 Clay Street, Oakland, CA 94612

Agenda and additional information will be forthcoming.

If you are interested in attending, please fill out this [form](#) by March 24, 2017.

For additional information, please go to: <http://www.opc.ca.gov/2017/02/litter-strategy-update/>

Feel free to contact me at mligare@ucsd.edu if you have any questions. Please let me know if you'd like to forward this invitation to someone else from your organization.

Only one attendee per organization should plan to attend.

If you are interested in reviewing the draft Strategy but unable to attend the workshop, please let me know and I can add you to our Ocean Litter Strategy e-mail list.

Thank you and we look forward to having you at the workshop.

Kind Regards,

Miho Ligare

(on behalf of the Workshop Organizing Team)

Holly Wyer, CA Ocean Protection Council
Sherry Lippiatt, NOAA Marine Debris Program
Eben Schwartz, CA Coastal Commission
Angela Howe, Surfrider Foundation
Nina Venuti, CA Sea Grant

—
Miho Ligare | Research & Fellowship Coordinator
California Sea Grant
University of California, San Diego
Scripps Institution of Oceanography

9500 Gilman Dr., 0232
La Jolla, CA 92093-0232
(858) 534-1160
mligare@ucsd.edu
<https://caseagrant.ucsd.edu>



CALIFORNIA FISH AND GAME COMMISSION
DECISION LIST FOR MARINE NON-REGULATORY REQUESTS THROUGH FEB 9, 2017
Revised 04-11-2017

FGC - California Fish and Game Commission **DFW** - California Department of Fish and Wildlife **WRC** - Wildlife Resources Committee **MRC** - Marine Resources Committee

Date Received	Name of Petitioner	Subject of Request	Short Description	Staff Recommendation	FGC Decision
2/9/2017	Josh Russo	Abalone and enforcement	(1) Requests FGC add discussion of abalone regulations to the agenda for the Mar 2017 MRC meeting; and (2) Requests FGC look into funding a special prosecutor for fish and game crimes.	(1) Grant; this was discussed at March 2017 MRC meeting; (2) Deny; FGC does not have authority to fund positions in other government agencies. However, FGC is working with DFW to encourage prosecution of fish and wildlife crimes.	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017
2/9/2017	Ashley Lou Gibbs, West Marin Environmental Action Committee	Aquaculture	Requests establishment of a formal work group to develop best management practices for aquaculture growers.	Deny; best management practices are being developed through a public process and vetted through MRC. However, DFW will coordinate with West Marin Environmental Action Committee.	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017
2/9/2017	Richard James	Aquaculture	Requests FGC address the legacy marine debris associated with oyster aquaculture leases.	Refer to FGC staff.	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017
2/9/2017	Paul Weakland	Abalone	Request FGC address the mismanagment of the abalone fishery.	Deny; FGC adopted the Abalone Recovery and Management Plan in 2005 to ensure proper management and recovery of abalone resources, and a red abalone fishery management plan is currently under development to further inform red abalone management under changing ocean conditions.	RECEIPT: 2/8-9/2017 ACTION: Scheduled 4/26-27/2017



2015-006
Tracking Number: (Click here to enter text.)

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, 1416 Ninth Street, Suite 1320, Sacramento, CA 95814 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

- 1. Person or organization requesting the change (Required)**
Name of primary contact person: Dennis Thibeault, Vice President Forestry, Mendocino Redwood Company, LLC
Address: P.O. Box 996/ 850 Kunzler Ranch Road, Ukiah, CA 95482
Telephone number: 707-463-5112
Email address: dthibeault@mendoco.com
- 2. Rulemaking Authority (Required)** - Reference to the statutory or constitutional authority of the Commission to take the action requested: California Fish & Game Code § 1580; California Fish & Game Code § 2855; California Public Resources Code § 36600, 36700 , 36725[(a),(e)]
- 3. Overview (Required)** - Summarize the proposed changes to regulations: Remove special closure regulations for Rockport Rocks in 14 CCR § 632 (b)(17)
- 4. Rationale (Required)** - Describe the problem and the reason for the proposed change: The above-mentioned special closure was enacted on a parcel private property owned by Mendocino Redwood Company, LLC (MRC). The special closure as currently written prohibits complete access to this parcel of land from March 1 to August 31. MRC was never informed—neither verbally nor in writing—by the California Department of Fish and Wildlife or the North Coast Regional Stakeholders Group about including Rockport Rocks in a special closure when formally proposed in 2010. Evidence from historical documents establishing the North Coast Marine Protected Area (MPA) indicate that the designation of Rockport Rocks as a special closure area was an unintentional error because it was mistakenly assumed to be a part of the Coastal National Monument managed by the Bureau of Land Management. The CDFW is also on record stating that MPAs “will not affect private property rights” and that the “MPA designation process must take into account existing California State Lands Commission leases, California Fish and Game Commission state water bottom and kelp leases, tide and submerged lands grants, private tidelands, and any other legal entitlements.” Overall, had these facts been disclosed during the MLPA process, this area would have been removed from the original proposal prior to the Commission’s vote on the matter.



SECTION II: Optional Information

5. **Date of Petition: November 17, 2015**

6. **Category of Proposed Change**

- ☐ Sport Fishing
- ☐ Commercial Fishing
- ☐ Hunting
- ☒ Other, please specify: Special Closure Area for

7. **The proposal is to:** *(To determine section number(s), see current year regulation booklet or <https://govt.westlaw.com/calregs>)*

- ☐ Amend Title 14 Section(s): Click here to enter text.
- ☐ Add New Title 14 Section(s): Click here to enter text.
- ☒ Repeal Title 14 Section(s): 14 CCR § 632 (b)(17)

8. **If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition** Click here to enter text.

Or ☒ Not applicable.

9. **Effective date:** If applicable, identify the desired effective date of the regulation.

If the proposed change requires immediate implementation, explain the nature of the emergency: As soon as possible; the designation of Rockport Rocks special closure area was an unintentional error as all the facts of ownership were neither made available to the CDFW nor the Commission during the special closure designation process.

10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: Supplementary information including a cover letter substantiating MRC's case is attached to this petition.

11. **Economic or Fiscal Impacts:** Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: Designation of Rockport Rocks as a special closure is a potential encumbrance to MRC being able to sell the parcel or sell a conservation easement to an interested party.

12. **Forms:** If applicable, list any forms to be created, amended or repealed:

Click here to enter text.

SECTION 3: FGC Staff Only

Date received: Click here to enter text.

FGC staff action:

☒ Accept - complete



- ☐ Reject - incomplete
- ☐ Reject - outside scope of FGC authority

Tracking Number

Date petitioner was notified of receipt of petition and pending action: 11/24/15

Meeting date for FGC consideration: Receive 12/9/15, Action 2/10/16

FGC action:

- ☐ Denied by FGC
- ☐ Denied - same as petition _____

Tracking Number

- ☐ Granted for consideration of regulation change



November 23, 2015

Mr. Jack Baylis, President
California Fish and Game Commission
1416 Ninth Street, Suite 1320
Sacramento, CA 95814

Dear Mr. Baylis

We have recently been made aware a parcel of our property, referred to as "Rockport Rocks," was included in a special closure area during the Marine Life Protection Act (MLPA) designation process. Unfortunately this occurred without any type of notification to us from the California Department of Fish and Wildlife (CDFW) or the North Coast Regional Stakeholders Group (NCRSG). MRC's ownership of Rockport Rocks (aka "Sea Lion Rock") is well-established by a patent, grant deed, and numerous historical documents and photographs spanning nearly a century and are available upon request.

This special closure, 14 CCR § 632(b)(17), inhibits our private property rights and our ability to enjoy our property. We provide limited public access to Rockport Beach and the beach is visited and enjoyed by hundreds of employees, family and friends every year. The seasonal closure, which goes from March 1 to August 31, effectively prohibits access to this parcel of land by the property owner, and potentially limits recreational and educational activities (e.g., fishing, abalone diving, kayaking, kelp harvesting, bird watching, tidepooling, etc.) in nearshore waters historically enjoyed by visitors to Rockport Beach.

The public nature of the special closure has also created a potential encumbrance to MRC's ability to sell the parcel or negotiate a conservation easement with an interested party should it ever decide to do so. In 2011, the Bureau of Land Management (BLM) and the United States Fish and Wildlife Service indicated interest in acquiring Rockport Rocks for conservation purposes in the Report "Potential Murre Restoration Projects Northern California".

Our investigation into this matter leads us to conclude that the inclusion of MRC property in a special closure was done in error. First, documents for the MLPA process suggest that the CDFW and the NCRSG assumed that Rockport Rocks were part of the publically owned California Coastal National Monument system administered by the BLM. Secondly, the CDFW stated in a memorandum dated 1/31/08 from John Ugoretz to the MLPA Stakeholder Group that MPAs "will not affect private property rights" and that the "MPA designation process must take into account existing California State Lands Commission leases, California Fish and Game Commission state water bottom and kelp leases, tide and submerged lands grants, private tidelands, and any other legal entitlements". In fact, the Vizcaino Rocks special closure, located 0.6 miles to the south of Rockport Rocks, clearly embodies this philosophy as it has a modified boundary that extends 300' from only the seaward side of the rock, presumably because a buffer around the entire rock would overlap with a private beach owned by the Save-the-Redwoods League.

We conclude had CDFW, NCRSG, or the Commission known MRC was the owner of Rockport Rocks, this special closure would not have been included in the final rulemaking package that was eventually adopted. Based on the facts presented here, we kindly request that the Commission remove the special closure regulations on Rockport Rocks.



If you have any questions, would like documentation of the above statements or would like to discuss the matter further, please give me a call at (707) 463-5112 or email me at dthibeault@mendoco.com.

Sincerely,

Dennis Thibeault
Vice President Forestry

ABOUT MRC

Mendocino Redwood Company (MRC) was created in 1998 from lands purchased in Mendocino and Sonoma counties with the publicly declared mission to be good stewards of the forest and at the same time run a successful business. We have made significant progress in that regard:

- 1. Adopting policies to make MRCs forestlands FSC certified (since November 2000);*
- 2. Adding more than 1 billion board feet of redwood and Douglas fir trees by lowering the rate of harvest;*
- 3. Defining of old growth down to the level of an individual tree, along with implementation of a policy to protect all individual old growth trees across our property;*
- 4. Elimination of traditional clear cutting from our property;*
- 5. Long term investments to improve habitat for fish across the property by controlling or holding back more than 1 million cubic yards of sediment (more than 100,000 dump trucks of dirt) from the coastal streams flowing through our forest;*
- 6. Removal of more than 36 long time fish barriers, increasing fish bearing streams by more than 20 miles.*
- 7. Operating as an open and transparent business; including an open invitation to take interested individuals anywhere in the forest;*
- 8. Completing a substantial rebuild of our Ukiah sawmill, assuring that Mendocino County will have infrastructure in the processing of wood products for many years to come; and*
- 9. Employing about 300 skilled employees in Mendocino County earning family-level wages and benefits.*

2017 APR 19 10 37 AM

Memorandum

Date: April 11, 2017

To: Valerie Termini
Executive Director
California Fish and Game Commission

From: Charlton H. Bonham
Director



Subject: **Petition #2015-006: Remove Regulations for Rockport Rocks Special Closure**

On February 10, 2016 the California Fish and Game Commission (Commission) reviewed a petition from the Mendocino Redwood Company, LLC to remove the Rockport Rocks Special Closure located offshore of Mendocino County. During the Marine Life Protection Act Initiative Process for the designation of Marine Protected Areas (MPAs), Special Closures were used as a management tool to protect sea bird rookeries and marine mammal haul-out sites by restricting ocean-based access to these areas. Information on the use of MPAs on private lands was provided to the North Central Coast Regional Stakeholder Group by the Department of Fish and Wildlife (Department) in a memo dated January 31, 2008.

The North Coast Regional Stakeholders Group proposed the Rockport Rocks Special Closure during the MLPA Initiative process. The proposal was adopted by the Commission in June 2012 and implemented into regulations December 2012. The Rockport Rocks Special Closure seasonally protects more than 2,500 breeding and nesting seabirds, including Black Oystercatcher, Brandt's Cormorant, Common Murre, Pelagic Cormorant, Pigeon Guillemot, Rhinoceros Auklet, and Western Gull. It is also linked with the Vizcaino Rock Special Closure which as a complex protects 11,500 breeding seabirds.

The Mendocino Redwood Company supported their petition with their historical documents and the Department's memo dated January 31, 2008. They believe these documents demonstrate their private ownership of the parcel of land that is encompassed by the Rockport Rocks Special Closure. The Commission referred the petition to the Department for evaluation and recommendation.

The Department's Marine Region and Office of General Counsel began review of the petition and associated documents late February 2016. After reviewing the historical documents submitted by the Mendocino Redwood Company, Department documents, and existing laws and regulations associated with the Special Closure, it was clear that consultation with the California State Lands Commission (SLC) was needed to determine whether the submerged lands around the Special Closure were sovereign lands of the State of California. Department staff contacted SLC in May 2016 and again in September 2016, provided the historical documents, and requested their input. SLC responded with the following information in October 2016:

- *The Rockport Rocks are located within lands the State did not acquire or patent and are federal lands patented by the U.S. as SCRIP Patent, Serial No, 999436, Dated 4/1/1927 (Lots 5,6, & 7, Sec. 23 and Lot 5, Sec. 26, T22N, R18W, MDM). The Pacific Ocean surrounding these rocks (islands) is within ungranted sovereign land.*

Given the information received from SLC, and the potential overlap with the federal Coastal National Monuments, the Department contacted the Bureau of Land Management's (BLM), California office in November 2016 to determine whether the rocks or adjacent submerged lands were under federal jurisdiction. BLM reviewed the historical documents submitted by the Mendocino Redwood Company and provided the following information in December 2016:

- *Our State Office has confirmed that the BLM patented the islands in 1927.*

The patent on the islands in 1927 deeded ownership of the islands to the Mendocino Redwood Company. As a result of the Department's analysis, in conjunction with the state and federal agencies with potential jurisdiction over sovereign lands, the Department concludes that the Mendocino Redwood Company is in private ownership of Rockport Rocks. Given this finding, the Department recommends the Rockport Rocks Special Closure be removed from regulation.

If you have any questions or need additional information, please contact Dr. Craig Shuman, Regional Manager of the Marine Region, at (805) 568-1246.

Attachment

ec: Craig Shuman, D. Env., Region Manager
Marine Region
Craig.Shuman@wildlife.ca.gov

Mike Stefanak, Assistant Chief
Law Enforcement Division
Mike.Stefanak@wildlife.ca.gov

Becky Ota, Program Manager
Marine Region
Becky.Ota@wildlife.ca.gov

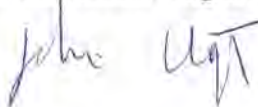
State of California

2017 APR 10 4 09:25

Memorandum

Date: January 31, 2008

To: Marine Life Protection Act North Central Coast Regional Stakeholder Group

From: **John Ugoretz**
Department of Fish and Game 

Subject: **Private Land Ownership and Marine Protected Areas**

As the North Central Coast Marine Life Protection Act process develops, three questions have been posed concerning private land ownership and marine protected areas (MPAs). The Department of Fish and Game (Department) is providing these general responses to help respond to the issues.

1. **Will MPAs change existing property ownership?** No. The MLPA is an ecosystem-based conservation and management act for public trust resources that does nothing to affect private property rights. MPAs only exist seaward of the mean high tide line¹, so the potential for overlap with other property interests is very limited. If such overlap occurs, the MPA designation process must take into account existing California State Lands Commission leases, California Fish and Game Commission state water bottom and kelp leases, tide and submerged lands grants, private tidelands, and any other legal entitlements. The state marine reserve prohibition on "other activities that upset the natural ecological functions of the area" is limited to activities within the authority of the Fish and Game Commission².
2. **How would MPAs affect access from private properties?** The MLPA does not change any existing authority governing how an MPA may be accessed through adjacent private property³. In any case, no Department employee, agent, or licensee has a special right or privilege to knowingly enter private land without either the consent of the owner or a warrant⁴. This provision does not apply in cases of an emergency or for law enforcement. However, ownership of adjacent property does not confer any special right or privilege of access to an MPA or resources within an MPA. Conversely, the MLPA in no way diminishes the right of adjacent property owners to exclude the public from accessing an MPA through their land.

¹ Fish and Game Code §2852(c).

² Fish and Game Code §2852(d).

³ As a practical matter, management and enforcement activities would ordinarily be undertaken by boat.

⁴ Fish and Game Code §857.

With regard to access from sea, the general regulation for State MPAs is that transit across or through an MPA is allowed⁵. While access may be restricted in special cases, this would only occur where a specific resource concern warrants such restriction and where the restriction has been reviewed in public process.

3. **How will marine stewardship be addressed along private properties if MPAs are established there?** Resource stewardship under the MLPA is no different than in any other fish and game context, particularly when Department-managed areas lie adjacent to private lands. It is well-settled that fish and wildlife are public trust resources, and the Department retains jurisdiction over these resources even when they are on private property⁶. The conditions under which the Department may enter onto private lands in the exercise of that jurisdiction are statutorily defined. The MLPA additionally encourages public participation in the management of MPAs, and this includes cooperation with adjacent landowners through the regional planning process⁷.

cc: Secretary Mike Chrisman, California Resources Agency
President Richard Rogers, California Fish and Game Commission
Executive Director John Carlson, California Fish and Game Commission
MLPA Blue Ribbon Task Force
MLPA Initiative staff
MLPA Master Plan Science Advisory Team
MLPA Statewide Interests Group

⁵ Title 14, California Code of Regulations, §632(a)(8)

⁶ Fish and Game Code §§ 711.7(a), 1802.

⁷ Fish and Game Code §§ 2853(c)(4); 2855(c)(4).



2016-013

Tracking Number: (Click here to enter text.)

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, 1416 Ninth Street, Suite 1320, Sacramento, CA 95814 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

1. **Person or organization requesting the change (Required)**
Name of primary contact person: April Wakeman, The Sportfishing Conservancy
Address: 200 Nieto Avenue, Suite 207, Long Beach, CA 90803
Telephone number: (714) 686-6548
Email address:
2. **Rulemaking Authority (Required)** - Reference to the statutory or constitutional authority of the Commission to take the action requested: Regulation requested to be amended: Title 14 Section 28.80 Authority: Pursuant to Fish and Game Code section 200, power is "delegated to the commission...to regulate the taking or possession of birds, mammals, fish, amphibian, and reptiles..."
3. **Overview (Required)** - Summarize the proposed changes to regulations: Regulations provide that cast nets may only be used north of Point Conception and specify certain species that may be taken by cast net by recreational anglers. We request that: cast nets be allowed in all state marine waters.
4. **Rationale (Required)** - Describe the problem and the reason for the proposed change: There appears to be no rationale for the distinction between using cast nets north or south of Point Conception. While we anticipate use of cast nets to be mostly limited to private boaters, cast nets are appropriate for only certain species. We request that regulatory authority be expanded to cover all of these species. At this time commercial bait boats generally use massive seine nets to harvest these same species. The cast net impact would be limited as currently recreational fishermen would acquire [though not as easily] the same bait by fishing sabiki rigs, squid jigs, brailles, dip nets, or by purchase from the bait haulers.



SECTION II: Optional Information

5. **Date of Petition:** June 23, 2016
6. **Category of Proposed Change**
☒ Sport Fishing
☐ Commercial Fishing
☐ Hunting
☐ Other, please specify: Click here to enter text.
7. **The proposal is to:** *(To determine section number(s), see current year regulation booklet or <https://govt.westlaw.com/calregs>)*
☒ Amend Title 14 Section(s): 28.80 Dip nets of any size and baited hoop nets not greater than 36 inches in diameter may be used to take herring, Pacific staghorn sculpin, shiner surfperch, surf smelt, topsmelt, anchovies, shrimp and squid. ~~Hawaiian type throw nets may be used north of Point Conception to take such species.~~
☐ Add New Title 14 Section(s): Click here to enter text.
☐ Repeal Title 14 Section(s): Click here to enter text.
8. **If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition** Click here to enter text.
Or ☒ Not applicable.
9. **Effective date:** If applicable, identify the desired effective date of the regulation.
If the proposed change requires immediate implementation, explain the nature of the emergency: Click here to enter text.
10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: Click here to enter text.
11. **Economic or Fiscal Impacts:** Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: There should be no or minor cost to DFW and would reduce costs of anglers south of Point Conception. Should the department incur costs in implementing this regulation a license stamp similar to the 2nd Rod Stamp could be used to cover those costs.
12. **Forms:** If applicable, list any forms to be created, amended or repealed:
Click here to enter text.

SECTION 3: FGC Staff Only

Date received: Click here to enter text.

FGC staff action:

RECEIVED AT

JUN 22 2016

COMMISSION MEETING
AGENDA ITEM 2



State of California -- Fish and Game Commission

PETITION TO THE CALIFORNIA FISH AND GAME COMMISSION FOR REGULATION CHANGE
FGC 1 (NEW 10/23/14) Page 3 of 3

- ☒ Accept - complete
☐ Reject - incomplete
☐ Reject - outside scope of FGC authority

Tracking Number

Date petitioner was notified of receipt of petition and pending action: July 6, 2016

Meeting date for FGC consideration: August 24-25, 2016

FGC action:

- ☐ Denied by FGC
☐ Denied - same as petition _____
Tracking Number
☐ Granted for consideration of regulation change

Memorandum

Date: April 3, 2017

To: Valerie Termini,
Executive Director
Fish and Game Commission

From: Craig Shuman, D. Env.
Marine Regional Manager



Subject: Regulatory Petition to change Section 28.80., Title 14 CCR, Dip Nets and Hawaiian type Throw Nets

Summary

The Department of Fish and Wildlife (Department) has reviewed the above-referenced petition and recommends denial of the petition at this time. As explained below, there are several unanswered questions that would need to be addressed prior to expansion of the requested gear to all state waters. In addition, the Department, with support of the Fish and Game Commission (Commission), has committed to delaying all non-essential marine fisheries regulatory packages until after the Marine Life Management Act (MLMA) Master Plan Amendment process has been completed.

Background

In June 2016, a petition was filed with the Commission requesting a change be made to the existing sport fishing regulation Section 28.80, Title 14 California Code of Regulations (CCR), with the intent to allow the use of throw nets in all state marine waters. The regulation currently restricts the use of throw nets south of Point Conception, as well as restricting the species that may be taken north of Point Conception:

- **Title 14 CCR, § 28.80. Dip Nets and Hawaiian Type Throw Nets:**
Dip nets of any size and baited hoop nets not greater than 36 inches in diameter may be used to take herring, Pacific staghorn sculpin, shiner surfperch, surf smelt, topsmelt, anchovies, shrimp and squid. Hawaiian type throw nets may be used north of Point Conception to take such species.

The petition proposes to strike the language in the last sentence of the current regulation, "Hawaiian type throw nets may be used north of Point Conception to take such species", to allow the use of throw nets in all state marine waters.

Department Evaluation

The original basis for prohibiting throw (cast) nets in marine waters south of Point Conception was to protect Grunion, which is much more common in the area (1993 Ocean Sport Fishing Regulations CEQA, pgs. 2-10,-11). Despite brief local concentrations during spawning runs, Grunion are not an abundant species.

Although no formal stock analyses have been undertaken, the population north of Los Angeles County is considered to be extremely limited. The majority of the population occurs along the coast of Los Angeles (including Santa Catalina Island), Orange, and San Diego counties. It is estimated that California contains 95 percent or more of the entire global habitat range for this species. Recent studies monitoring Grunion and long term trends in run strength indicate that Grunion have declined overall since 2011, with individual beaches showing the same pattern (Dr. Karen Martin, Pepperdine University, Comments for State Wildlife Action Plan 2015 Update, personal comm. 2015.).

Information is lacking on whether this gear type would improve fishing efficiency as implied by the petition, or create new fishing pressure on species that could be negatively impacted by increased incidental fishing mortality. The indiscriminate nature of throw nets to take any species that become entangled raises concerns of poaching and/or overfishing of vulnerable or managed species, intentional or not. In addition, improperly discarded or lost throw nets can create entanglement issues for seabirds, marine mammals, and non-target species. For example, after major spawning events for herring, cast nets are frequently observed by Department staff to be hung up and discarded on rocks, pier pilings, and other structures.

A number of potential uncertainties would need to be addressed to properly evaluate this petition. Research is needed on the susceptibility of potential target species, and the degree of potential bycatch, including from lost fishing gear. Acquiring this information represents a new workload at a time when the current priority for the Department's Marine Region is to amend the MLMA Master Plan. Consequently, the Department does not have the staff resources to conduct new investigations to address the uncertainties associated with this petition. After the amended Master Plan is adopted, the Department would be supportive of exploring opportunities to collaborate with the petitioners on ways to obtain the needed information should this effort be deemed to be a high priority.

Thank you for the opportunity to provide the Department's perspective on this petition. If you have any questions or need additional information, please contact Tom Barnes in the Department's Marine Region by telephone at 858-467-4233, or via e-mail at Tom.Barnes@wildlife.ca.gov

cc: Tom Barnes, Environmental Program Manager
Marine Region
Tom.Barnes@wildlife.ca.gov

Marci Yaremko, Environmental Program Manager
Marine Region
Marci.Yaremko@wildlife.ca.gov

From: [Sarah Sikich](#)
To: [FGC](#)
Cc: [Miller-Henson, Melissa@FGC](#); [Rita Kampalath](#); [Dan Jacobson](#); [Dana Murray](#)
Subject: proposed resolution supporting federal prohibition on new oil and gas development
Date: Friday, April 14, 2017 2:29:20 PM
Attachments: [image003.png](#)
[Draft FGC Resolution on oil gas \(00358090xA1C15\).docx](#)

On behalf of Environment California and Heal the Bay,

We are submitting the attached resolution for the California Fish and Game Commission to consider adopting at its April 2017 meeting. The resolution expresses the Commission's support for federal prohibition on new oil and gas leases offshore of California, which would threaten the long-term sustainability of our state's fish and wildlife.

At the Commission's December 2016, our organizations requested such a resolution. The Commission then directed its staff, at its February 2017 meeting, to request that we draft resolution text. Accordingly, please accept the attachment.

We also respectfully request that the item be scheduled for April 27th, as we plan to have staff attend the meeting that day, who can speak to the item and answer any questions the Commission may have.

We thank you in advance for your for consideration.

Regards,
Sarah

HTB_logo_color



SARAH ABRAMSON SIKICH | VICE PRESIDENT

Main Office

1444 9th Street

Santa Monica, CA 90401

T: 310.451.1500 **x** 128 | **F:** 310.496.1902 | **M:** 310.849.7006

healthebay.org   

CALIFORNIA FISH AND GAME COMMISSION

RESOLUTION SUPPORTING THE FEDERAL PROHIBITION OF NEW OIL AND GAS LEASING IN FEDERAL WATERS OFFSHORE OF CALIFORNIA

WHEREAS, the mission of the California Fish and Game Commission is, on behalf of California citizens, to ensure the long-term sustainability of California's fish and wildlife resources; and

WHEREAS, the California coast and its waters are home to an abundance of diverse fish and wildlife, including numerous rare, threatened and endangered species, as well as sensitive habitats on which they depend; and

WHEREAS, the California Fish and Game Commission adopted California's first-in-the-nation network of marine protected areas, which was created to help ensure that the natural resources, marine ecosystem functions, and marine heritage of the state were protected; and

WHEREAS, hundreds of millions of California residents and visitors enjoy the state's ocean and coast for recreation, exploration and relaxation; and

WHEREAS, there has been no new offshore oil and gas lease in California since the 1969 blowout of a well in federal waters, offshore Santa Barbara County, that spilled 3.4 million to 4.2 million gallons (80,000 to 100,000 barrels) of crude oil into the Santa Barbara Channel and onto the beaches of Santa Barbara County, fouling the coastline from Goleta to Ventura and representing the largest oil spill in waters off the California shore; and

WHEREAS, as recently as May 2015, California experienced another oil spill during which an oil pipeline owned by Plains All American Pipeline ruptured near Refugio State Beach in Santa Barbara County releasing approximately 100,000 gallons (2400 barrels) of crude oil, with about 21,000 gallons (500 barrels) spilling into the Pacific Ocean and creating a nine mile oil slick; and

WHEREAS, beginning in 1921, and many times since, the California Legislature has enacted laws that withdrew certain offshore areas from oil and gas leasing, and by 1989, the state's offshore oil and gas leasing moratorium was in place; and

WHEREAS, in 1994, the California Legislature made findings in Assembly Bill 2444, Chapter 970, Statutes of 1994, that offshore oil and gas production in certain areas of state waters poses an unacceptably high risk of damage and disruption to the marine environment; and

WHEREAS, in the same bill, the Legislature created the California Coastal Sanctuary Act, which included all of the state's unleased waters subject to tidal influence and prohibited new oil and gas leases in the sanctuary, unless the President of the United States has found a severe energy supply interruption and has ordered distribution of the Strategic Petroleum Reserve, the Governor finds that the energy resources of the sanctuary will contribute significantly to alleviating that interruption, and the Legislature subsequently amends Chapter 970 to allow that extraction; and

WHEREAS, section 18 of the Outer Continental Shelf Lands Act (43 U.S. Code [U.S.C.] 1331 et seq.) requires the preparation of a nationwide offshore oil and gas leasing program setting a five-year schedule of lease sales implemented by the Bureau of Ocean Energy Management within the U.S. Department of the Interior; and

WHEREAS, consistent with the principles of section 18 and the resulting regionally tailored leasing strategy, the current exclusion of the Pacific Outer Continental Shelf from new oil and gas development is consistent with the long-standing interests of Pacific coast states, as framed in the 2006 Agreement on Ocean Health adopted by the governors of California, Washington, and Oregon; and

WHEREAS, the Bureau of Ocean Energy Management recently released a final 2017-2022 leasing program that continues the moratorium on oil and gas leasing in the undeveloped areas of the Pacific Outer Continental Shelf; and

WHEREAS, Governor Brown, along with previous California governors, have united with the governors of Oregon and Washington in an effort to commit to developing robust renewable energy sources to reduce our dependence on fossil fuel and help us reach our carbon emission goals; and

WHEREAS, burning fossil fuels exacerbates global climate change, which increasingly impacts the sustainability of marine ecosystems, including fish and wildlife, in California and beyond; and

WHEREAS, there are renewed calls for opening offshore areas for drilling and for lifting moratoriums on energy production in federal areas, which could lead to more oil spills and increased dependence of fossil fuels; and

WHEREAS, the California Fish and Game Commission considers new oil and gas development offshore of California to be a threat to environmental health, including our marine ecosystems, fisheries and wildlife; and

WHEREAS, the California Fish and Game Commission also considers new oil and gas development offshore of California to be a threat to the nation's economy, given that our state sustains more than \$18 billion of recreation and tourism dependent on the ocean and coast;

NOW THEREFORE, BE IT RESOLVED that the California Fish and Game Commission strongly and unequivocally supports the current federal prohibition on new drilling in federal waters offshore California, opposes attempts to modify the prohibition, and will consider any appropriate actions to maintain the prohibition; and

BE IT FURTHER RESOLVED, that the California Fish and Game Commission will transmit copies of this resolution to the President and Vice President of the United States, to the Governor of California, to the Majority and Minority Leaders of the United States Senate, to the Speaker and Minority Leader of the United States House of Representatives, to each Senator and Representative from California in the Congress of the United States, to the Secretary of the United States Department of the Interior, to the Director of the Bureau of Ocean Energy Management, and to each member of the California State Senate and Assembly.

APRIL 27, 2017

California Fish and Game Commission
Staff Report on Staff Time Allocation and Accomplishments
April 14, 2017

Staff time is a tangible and invaluable asset. This report identifies where Commission staff allocated time to general activity categories (see table) and specific activities (see activities lists) during February and March 2017.

While the table below summarizes time allocation across all staff classifications, some classifications require a greater emphasis on certain categories than others. For example, the advisors spend up to 30% of their time on special projects due to committee project assignments, while regulatory analysts spend up to 70% of their time on regulatory program tasks.

General Allocation

Task Category*	February Staff Time	March Staff Time
Regulatory Program	10%	7%
Commission/Committee Meetings	20%	18%
Legal Matters	3%	4%
External Affairs	4%	7%
Special Projects	10%	15%
Administration	18%	18%
Leave Time	14%	16%
Unfilled Positions	26%	20%
Total Staff Time ¹	106%	105%

** Total staff time is greater than 100% due to overtime*

Activities for February 2017

- Reviewed applications and scheduled interviews for filling seasonal clerk position
- Finished preparations for and conducted three publically-noticed meetings (February 7 Tribal Committee, February 8-9 Commission, and February 21 Wildlife Resources Committee's Predator Policy Workgroup)
- Began preparing for three publically-noticed meetings (Mar 15 Commission teleconference, Mar 20 Wildlife Resources Committee's Predator Policy Workgroup, and Mar 23 Marine Resources Committee)
- Assisted FGC members in preparing for confirmation hearings
- Began planning for delta fisheries forum
- Prepared for Fisheries Bycatch Workgroup meeting

- Conducted tribal consultations
- Participated in the California Department of Fish and Wildlife Joint Leadership Team meeting
- Participated in interagency coordination discussions regarding aquaculture leases
- Participated in planning team meeting for updates to the Marine Life Management Act master plan for fisheries

Activities for March 2017

- Completed interviews for and hired seasonal clerk
- Reviewed applications and scheduled interviews for filling associate governmental program analyst position
- Prepared for and conducted three publically-noticed meetings (Mar 15 Commission teleconference, Mar 20 Wildlife Resources Committee's Predator Policy Workgroup, and Mar 23 Marine Resources Committee)
- Began preparations for two publically-noticed meetings (Apr 13 Commission teleconference and Apr 26-27 Commission)
- Prepared for and conducted the Mar 17 Fisheries Bycatch Workgroup meeting
- Attended Senate Rules confirmation hearings
- Conducted tribal consultations
- Attended the Joint Committee on Fisheries and Aquaculture hearing
- Prepared for and conducted additional California Environmental Quality Act training for regulation analysts, advisors, and DFW staff
- Participated in the Marine Protected Areas Statewide Leadership Team meeting
- Participated in the Marine Life Protection Act Milestones meeting
- Participated in the California Department of Fish and Wildlife Headquarters Safety Committee meeting
- Continued planning for delta fisheries forum

*** General Allocation Categories with Sample Tasks**

Regulatory Program

- | | |
|--|---|
| • Coordination meetings with DFW to develop timetables and notices | • Prepare administrative records |
| • Review and process CESA petitions | • Track and respond to public comments |
| • Prepare and file notices, re-notices, ISORs and FSORs | • Consult, research and respond to inquiries from OAL |

Commission/Committee Meetings and Support

- | | |
|--|---|
| • Research and review practices and procedures for adaptive management | • Research and compile subject-specific information |
|--|---|

- Review and develop policies
- Develop and distribute meeting agendas and materials
- Agenda and debrief meetings
- Prepare meeting summaries and audio files
- Maintain voting records
- Develop and distribute after-meeting memos/letters

- Make travel arrangements for staff and commissioners
- Conduct onsite meeting management
- Process submitted meeting materials
- Provide commissioner support (expense claims, office hours, etc.)
- Process and analyze regulatory petitions and non-regulatory requests

Legal Matters

- Respond to Public Records Act requests
- Process appeals and accusations
- Process requests for permit transfers

- Process kelp and state water bottom leases
- Litigation

External Affairs

- Engage and educate legislators, monitor legislation
- Maintain state, federal and tribal government relations

- DFW partnership, including joint development of management plans and concepts
- Website maintenance

Special Projects

- Predator Policy Workgroup
- Fishing from piers and jetties
- Fishing Communities

- Fisheries Bycatch Workgroup
- Streamline routine regulatory actions

Administration

- Correspondence
- Purchases and payments
- Contract management
- Personnel management
- Strategic planning

- Budget development and tracking
- Health and safety oversight
- Internal processes and procedures
- Staff training and professional development

Leave Time

- Holidays
- Sick leave
- Vacation or annual leave

- Jury duty
- Bereavement
- Professional development

Unfilled

- Program Manager
- Regulatory analyst

- Legal/regulatory clerk

SCI SB 161_support_Sen Appro (McGuire).docx

CSL SB 161_support_Sen Appro (McGuire).doc

OSCC SB 161_support_Sen Appro (McGuire).doc



Safari Club International

A NON-PROFIT ORGANIZATION • DEDICATED TO CONSERVING WILDLIFE AND PRESERVING HUNTING



SCI CA Coalition

March 16, 2017

The Honorable Mike McGuire
California State Senate
State Capitol Building
Sacramento, CA 95814

Position: Support

Location: Senate Appropriations Committee

Re: SB 161 (McGuire) Fish and Game Commission: tribal committee (As Introduced January 19, 2017)

Dear Senator McGuire:

Safari Club International and Safari Club International Foundation (SCI) is a worldwide Non-Profit organization with the mission to protect the freedom to hunt and to promote wildlife conservation. SCI recognizes hunting as a valuable management tool. SCI currently has over 55,000 members and over 6,500 members in California. SCI also has 30,000 California Affiliates, 950,000 U.S. Affiliates and over 7,000,000 International Affiliates. SCI spends millions annually for Wildlife Conservation, Research and Education.

This is to notify you of the support of the SCI CA Coalition (SCI) for SB 161 that would require the State Fish and Game Commission to establish a Tribal Committee, and would require the committee to report to the commission from time to time on its activities and to make recommendations on all tribal matters considered by the commission.

SCI believes that what happens on tribal lands is important to the state's wildlife and habitat resources, and that tribal representatives should have more input and visibility in the commission's regulatory process.

For your information, SCI is also supporting AB 1337 (Patterson) that would require that the public meetings of the commission and all commission committees be webcast to increase public visibility, input and participation relative to the development of regulations and related activities of the commission and its committees.

For the above reasons, the SCI CA Coalition (SCI) supports the enactment of SB 161.

Should you have any questions, please contact our legislative advocate, Kathryn Lynch, at (916) 443-0202 or lynch@lynchlobby.com.

Sincerely,

Lisa C. McNamee
Co-Legislative Coordinator
SCI CA Coalition

Don Giottonini
Co-Legislative Coordinator
SCI CA Coalition

cc: Ms. Catalina Hayes-Bautista, Deputy Legislative Secretary, Governor's Office
Ms. Narisha Bonakdar, Senate Appropriations Committee
Ms. Rocel Bettencourt, Consultant, Assembly Republican Caucus
Fish and Game Commission
Department of Fish and Wildlife
Ms. Kathryn Lynch, Legislative Advocate
SCI CA Coalition



The California
Sportsman's Lobby, Inc.

March 16, 2017

The Honorable Mike McGuire
California State Senate
State Capitol Building
Sacramento, CA 95814

Position: Support

Location: Senate Appropriations Committee

Re: SB 161 (McGuire) Fish and Game Commission: tribal committee (As Introduced January 19, 2017)

Dear Senator McGuire:

The California Sportsman's Lobby is a nonprofit organization of sportsman's clubs and individuals dedicated to preserving outdoor recreation in California. Our principal activities are to monitor legislation that might negatively impact hunting, fishing and other recreation, and to oppose unwise changes in the laws relating to these activities.

The California Sportsman's Lobby (CSL) promotes the conservation, enhancement, scientific management, and wise use of all our natural resources; CSL seeks an end of activities needlessly destructive to natural resources; CSL endeavors to educate and encourage the public generally, and the youth specifically, to an understanding of the advantages and importance of the conservation, enhancement, and wise use of all our natural resources; and CSL works to secure more and better outdoor opportunities for all citizens, regardless of race, creed, or color as essential to the physical and spiritual well being of all the people.

This is to notify you that the California Sportsmen's Lobby (CSL) supports SB 161 that would require the State Fish and Game Commission to establish a Tribal Committee, and would require the committee to report to the commission from time to time on its activities and to make recommendations on all tribal matters considered by the commission.

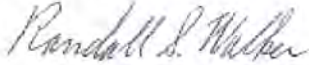
CSL believes that tribal representatives should be assured of having more input and visibility in the commission's regulatory process. SB 161 would accomplish this.

CSL also believes that all public meetings of the commission and its committees should be webcast to increase the public's overall awareness, input and participation relative to the development of regulations and related commission activities. For this reason, CSL is also supporting AB 1337 (Patterson) which would require such webcasts.

Accordingly, the California Sportsmen's Lobby supports the passage of SB 161.

Should you have any questions, please contact our legislative advocate, Kathryn Lynch, at (916) 443-0202 or lynch@lynchlobby.com.

Sincerely,

A handwritten signature in cursive script, appearing to read "Randy Walker".

Randy Walker
President, California Sportsman's Lobby

cc: Ms. Catalina Hayes-Bautista, Deputy Legislative Secretary, Governor's Office
Ms. Narisha Bonakdar, Senate Appropriations Committee
Ms. Rocel Bettencourt, Consultant, Assembly Republican Caucus
Fish and Game Commission
Department of Fish and Wildlife
Ms. Kathryn Lynch, Legislative Advocate
California Sportsman's Lobby



Dedicated to Preserving Your Rights To Hunt and Fish In the State of California

March 16, 2017

The Honorable Mike McGuire
California State Senate
State Capitol Building
Sacramento, CA 95814

Position: Support

Location: Senate Appropriations Committee

Re: SB 161 (McGuire) Fish and Game Commission: tribal committee (As Introduced January 19, 2017)

Dear Senator McGuire:

The Outdoor Sportsmen's Coalition of California is a nonprofit organization of sportsman's clubs and individuals dedicated to preserving outdoor recreation in California. Our principal activities are to monitor legislation that might negatively impact hunting, fishing and other recreation, and to oppose unwise changes in laws and regulations relating to these activities.

The Outdoor Sportsmen's Coalition of California (OSCC) promotes the conservation enhancement, scientific management, and wise use of all our natural resources; OSCC seeks to end activities needlessly destructive to natural resources; OSCC endeavors to educate and encourage the public generally, and the youth specifically, to an understanding of the advantages and importance of the conservation and enhancement of our natural resources.

OSCC works to enhance outdoor opportunities for all citizens. With several thousand members located throughout California, we stay in contact with our membership via newsletters and the internet so they can be involved as they see fit.

The Outdoor Sportsmen's Coalition of California (OSCC) supports the enactment of SB 161 that would require the State Fish and Game Commission to establish a Tribal Committee, and would require the committee to report to the commission from time to time on its activities and to make recommendations on all tribal matters considered by the commission.

OSCC believes that what happens on tribal lands is important to the state's wildlife and habitat resources, and that tribal representatives should have more input and visibility in the commission's regulatory process.

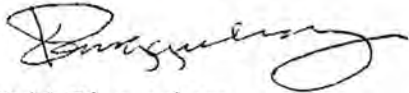
OSCC also believes that it is important that the public meetings of the commission and its committees be webcast to increase the public's overall awareness, input and participation relative to the development of

regulations and related commission activities. Accordingly, OSCC wishes to inform you that it is also supporting AB 1337 (Patterson) that would accomplish this webcast objective.

For these reasons, the Outdoor Sportsmen's Coalition of California supports SB 161.

Should you have any questions, please contact our legislative advocate, Kathryn Lynch, at (916) 443-0202 or lynch@lynchlobby.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Keith Ringgenberg', with a stylized, flowing script.

Keith Ringgenberg
President, Outdoor Sportsmen's Coalition

cc: Ms. Catalina Hayes-Bautista, Deputy Legislative Secretary, Governor's Office
Ms. Narisha Bonakdar, Senate Appropriations Committee
Ms. Rocel Bettencourt, Consultant, Assembly Republican Caucus
Fish and Game Commission
Department of Fish and Wildlife
Ms. Kathryn Lynch, Legislative Advocate
Outdoor Sportsmen's Coalition of California

Commissioners
Eric Sklar, President
Saint Helena
Jacque Hostler-Carmesin, Vice President
McKinleyville
Anthony C. Williams, Member
Huntington Beach
Russell E. Burns, Member
Napa
Peter S. Silva, Member
El Cajon

STATE OF CALIFORNIA
Edmund G. Brown Jr., Governor

Valerie Termini, Executive Director
1416 Ninth Street, Room 1320
Sacramento, CA 95814
(916) 653-4899
www.fgc.ca.gov

Fish and Game Commission



Wildlife Heritage and Conservation
Since 1870

April 20, 2017

The Honorable Cory Booker
U.S. Senate
359 Dirksen Senate Office Building
Washington, DC 20510

The Honorable Edward Royce
U.S. House of Representatives
2310 Rayburn House Office Building
Washington, DC 20515

Dear Senator Booker and Representative Royce:

I am writing on behalf of the California Fish and Game Commission (Commission) to convey support for the proposed Shark Fin Sales Elimination Act of 2017, as introduced through House of Representatives Bill 1456 (H.R. 1456) by Representative Royce (R-CA) on March 9, 2017, and through Senate Bill 793 (S. 793), by Senator Booker (D-NJ) on March 30, 2017.

The corresponding bills propose to make it illegal to possess, buy, or sell shark fins or any product containing shark fins, except for permitted traditional fishery, educational, or scientific purposes. The action taken by the bill would effectively shut down the U.S. market for shark fins, and thus discourage the practice of shark finning, both legal and illegal, around the world.

Ensuring conservation and effective management of shark populations is important to U.S. fisheries and safeguards our marine ecosystems. It is estimated that over 100 million sharks are killed each year for their fins (B. Worm et al. / Marine Policy 40 (2013) 194–204). Since most species of shark are long-lived, the rate of this exploitation will have serious impacts to shark species and to fisheries sustainability.

The mission of the Commission is to ensure long-term sustainability of fish and wildlife resources in California. With regard to marine resources, we fulfill that mission by establishing fishery management strategies and policies, including gear and temporal restrictions, as well as limits on the size and amount of take of living marine resources in state waters. In January 2012, California enacted Assembly Bill 376, by Assembly

The Honorable Cory Booker
The Honorable Edward Royce
April 20, 2017
Page 2 of 2

members Fong and now U.S. Representative Huffman landmark legislation under which it became unlawful to possess, sell, or offer to sell, trade or distribute shark fins in California, except under certain specified conditions. Other states and U.S. territories provide similar protections.

The Commission recognizes that the intent of H.R.1456 and S.793 closely aligns with the Commission's mission, and that it is consistent with, and complementary to, California's existing statutes and take regulations. The Commission supports the concepts embodied in the proposed Federal legislation and is pleased to stand with Senator Booker, Representative Royce and more than 50 other members of the U.S. Congress in support of its passage.

Sincerely,

Eric Sklar
President

cc: Members, California Fish and Game Commission

Ms. Katie Wheeler Mathews
California Governor Browns Office
Katie.wheelermathews@wdc.ca.gov

Mr. Todd Ferrara, Deputy Secretary External Affairs
California Natural Resources Agency
Todd.ferrara@resources.ca.gov

Mr. Chuck Bonham, Director
California Fish and Wildlife Department
Chuck.bonham@wildlife.ca.gov

Dr. Craig Shuman
California Fish and Wildlife Department
Craig.shuman@wildlife.ca.gov

Ms. Marci Yaremko
California Fish and Wildlife Department
Marci.yaremko@wildlife.ca.gov



Department of Fish & Wildlife Legislative Report Executive Team Meeting April 2017

(as of April 13, 2017)

[AB 8](#)

([Bloom](#) D) Mountain lions: depredation permits.

Introduced: 12/5/2016

Status: 3/23/2017-In committee: Set, first hearing. Hearing canceled at the request of author.

Location: 1/19/2017-A. W., P. & W.

Summary: The California Wildlife Protection Act of 1990 establishes that the mountain lion is a specially protected mammal under the laws of this state, and makes it unlawful to take, injure, possess, transport, import, or sell a mountain lion or a product of a mountain lion. The act authorizes a person whose livestock or other property is being or has been injured, damaged, or destroyed by a mountain lion to report that fact to the Department of Fish and Wildlife and request a permit to take the mountain lion. The act requires the department or a specifically authorized animal damage control officer to immediately confirm the reported depredation by a mountain lion, and then promptly issue a permit to take the mountain lion. This bill would authorize, rather than require, the issuance of a permit under these circumstances.

[AB 12](#)

([Cooley](#) D) State government: administrative regulations: review.

Introduced: 12/5/2016

Status: 4/5/2017-In committee: Set, first hearing. Referred to suspense file.

Location: 3/22/2017-A. APPR.

Summary: Would require each state agency to, on or before January 1, 2020, review that agency's regulations, identify any regulations that are duplicative, overlapping, inconsistent, or out of date, to revise those identified regulations, as provided, and report to the Legislature and Governor, as specified. The bill would repeal these provisions on January 1, 2021.

[AB 18](#)

([Garcia, Eduardo](#) D) California Clean Water, Climate, Coastal Protection, and Outdoor Access For All Act of 2018.

Introduced: 12/5/2016

Last Amend: 2/23/2017

Status: 3/20/2017-Read third time. Urgency clause adopted. Passed. Ordered to the Senate. In Senate. Read first time. To Com. on RLS. for assignment.

Location: 3/20/2017-S. DESK

Summary: Would enact the California Clean Water, Climate, Coastal Protection, and Outdoor Access For All Act of 2018, which, if approved by the voters, would authorize the issuance of bonds in an amount of \$3,105,000,000 pursuant to the State General Obligation Bond Law to finance a clean water, climate, coastal protection, and outdoor access for all program. This bill contains other related provisions.

[AB 77](#)

([Fong](#) R) Regulations: effective dates and legislative review.

Introduced: 1/4/2017

Last Amend: 2/7/2017

Status: 4/5/2017-From committee: Do pass and re-refer to Com. on APPR. (Ayes 6. Noes 1.) (April 5). Re-referred to Com. on APPR.

Location: 4/5/2017-A. APPR.

Summary: Would require the Office of Administrative Law to submit to each house of the Legislature for review a copy of each major regulation that it submits to the Secretary of State. The bill would add another exception to those currently provided that specifies that a regulation does not become effective if the Legislature enacts a statute to override the regulation.

AB 424

(McCarty D) Possession of a firearm in a school zone.

Introduced: 2/9/2017

Status: 4/6/2017-Read second time. Ordered to third reading.

Location: 4/6/2017-A. THIRD READING

Summary: Would delete the authority of a school district superintendent, his or her designee, or equivalent school authority to provide written permission for a person to possess a firearm within a school zone. By expanding the scope of a crime, this bill would create a state-mandated local program. This bill contains other related provisions and other existing laws.

AB 425

(Caballero D) Timber harvesting plans: exemptions: temporary roads.

Introduced: 2/9/2017

Last Amend: 4/4/2017

Status: 4/5/2017-Re-referred to Com. on NAT. RES.

Location: 2/21/2017-A. NAT. RES.

Summary: The Z'berg-Nejedly Forest Practices Act of 1973 authorizes the State Board of Forestry and Fire Protection to exempt from some or all of those provisions of the act a person engaging in specified forest management activities, including the cutting or removal of trees in compliance with existing law relating to defensible space. In this regard, the act authorizes, until January 1, 2021, the Forest Fire Prevention Pilot Project Exemption if specified conditions are met. This bill would expand the exemption to allow the construction or reconstruction of temporary roads on slopes of 40% or less if certain conditions are met, including that a registered professional forester designates temporary road locations, landing locations, associated class III watercourse crossings, unstable areas, and connected headwall swales, including convergent slopes, on specified maps.

AB 429

(Grayson D) State water policy: water rights: use and transferability.

Introduced: 2/13/2017

Status: 2/14/2017-From printer. May be heard in committee March 16.

Location: 2/13/2017-A. PRINT

Summary: Current law declares that the growing water needs of the state require the use of water in an efficient manner and that the efficient use of water requires certainty in the definition of property rights to the use of water and transferability of those rights. This bill would make nonsubstantive changes to those declarations.

AB 472

(Frazier D) Water transfers: idled agricultural land: wildlife, waterfowl, and bird nesting habitat.

Introduced: 2/13/2017

Last Amend: 3/28/2017

Status: 4/4/2017-From committee: Do pass and re-refer to Com. on APPR. (Ayes 13. Noes 0.) (April 4). Re-referred to Com. on APPR.

Location: 4/4/2017-A. APPR.

Summary: Current law requires landowners to be encouraged, when agricultural lands are being idled in order to provide water for transfer and an amount of water is determined to be made available by that idling, to cultivate or retain nonirrigated cover crops or natural vegetation to provide waterfowl, upland game bird, and other wildlife habitat. This bill would require the department to allow nonirrigated cover crops or natural vegetation to remain on idled agricultural lands, without penalty to the landowner, unless it determines, based on peer-reviewed scientific studies or other credible scientific evidence, that an injury to another legal user of water would occur as a result of allowing those crops or vegetation to remain on those lands.

AB 474

(Garcia, Eduardo D) Hazardous waste: spent brine solutions.

Introduced: 2/13/2017

Status: 4/5/2017-In committee: Set, first hearing. Referred to suspense file.

Location: 3/21/2017-A. APPR.

Summary: Current law exempts from certain requirements of the Hazardous Waste Control Law wastes from the extraction, beneficiation, or processing of ores and minerals that are not subject to regulation under the federal Resource Conservation and Recovery Act of 1976, including spent brine solutions used to produce geothermal energy that meet specified requirements. This bill would exempt spent brine solutions that are byproducts of the treatment of groundwater to meet California drinking water standards from those same requirements if certain conditions are met, including that the spent brine solutions are transferred for dewatering via a closed piping system to lined surface impoundments regulated by the California regional water quality control boards.

AB 496

(Fong R) Transportation funding.

Introduced: 2/13/2017

Last Amend: 2/28/2017

Status: 3/1/2017-Re-referred to Com. on TRANS.

Location: 2/27/2017-A. TRANS.

Summary: Would create the Traffic Relief and Road Improvement Program to address traffic congestion and deferred maintenance on the state highway system and the local street and road system. The bill would provide for the deposit of various existing sources of revenue in the Traffic Relief and Road Improvement Account, which the bill would create in the State Transportation Fund, including revenues attributable to the sales and use tax on motor vehicles, revenues attributable to automobile and motor vehicle insurance policies from the insurer gross premiums tax, revenues from certain diesel fuel sales and use taxes, revenues from certain vehicle registration fees, and certain miscellaneous State Highway Account revenues.

AB 521

(Frazier D) Hunting: elk tags: fees for residents.

Introduced: 2/13/2017

Last Amend: 3/28/2017

Status: 4/4/2017-From committee: Do pass and re-refer to Com. on APPR. (Ayes 12. Noes 1.) (April 4). Re-referred to Com. on APPR.

Location: 4/4/2017-A. APPR.

Summary: Under current law, a hunting license grants the privilege to take birds and mammals. Current law authorizes the Department of Fish and Wildlife to issue a tag that is required in addition to a hunting license to take an elk. Current law sets the fee for an elk tag for a resident of the state at \$165, as adjusted annually pursuant to a specified index. This bill would reduce the fee for a resident elk tag to \$67 and would prohibit the fee from being adjusted pursuant to the specified index.

AB 573

(Bigelow R) Depredation: wild pigs: damage guidelines.

Introduced: 2/14/2017

Last Amend: 3/23/2017

Status: 3/27/2017-Re-referred to Com. on W.,P., & W.

Location: 3/23/2017-A. W.,P. & W.

Summary: Current law provides that any wild pig that is encountered while in the act of inflicting injury to, or damaging or destroying, or threatening to immediately damage or destroy, land or other property may be taken immediately by the owner or the owner's employee or agent, as specified. Current law defines "damage" for purposes of these provisions and requires the department to develop statewide guidelines to aid in determining the damage caused by wild pigs. This bill would require the guidelines to consider additional factors and would require the department to update the guidelines as needed.

AB 661

(Mayes R) Magnesia Spring Ecological Reserve: Mirage Trail.

Introduced: 2/14/2017

Status: 4/6/2017-Read second time. Ordered to Consent Calendar.

Location: 4/6/2017-A. CONSENT CALENDAR

Summary: Current law requires, until January 1, 2018, that the Mirage Trail within the Magnesia Spring Ecological Reserve be open 9 months of the year during the months of May to January, inclusive, and closed for 3 months during the months of February to April, inclusive, to recreational hiking if the Fish and Game Commission determines that specified conditions relating to providing funding and ensuring the proper use and monitoring of the reserve are met. This bill would delete the January 1, 2018, termination date of that provision.

AB 718 (Frazier D) Mosquito abatement and vector control districts: fees: exemptions.

Introduced: 2/15/2017

Status: 4/3/2017-In committee: Set, first hearing. Hearing canceled at the request of author.

Location: 3/2/2017-A. W., P. & W.

Summary: Would exempt a private landowner from a charge imposed by a mosquito abatement and vector control district to recover mosquito control costs for any type of treatment specific to the landowner's property if the property is managed wetland habitat, as defined, the landowner has placed the property under a state or federal easement or similar wildlife conservation agreement, and the landowner implements best management practices on the property. The bill would restrict the source of moneys that a district uses to pay for any cost of treating these properties to moneys collected from fines and penalties.

AB 721 (Bigelow R) Firearms: prohibited firearms.

Introduced: 2/15/2017

Status: 4/6/2017-Read third time. Passed. Ordered to the Senate.

Location: 4/6/2017-S. DESK

Summary: Current law prohibits the manufacture, importation, sale, or possession in the state of short-barreled rifles and short-barreled shotguns, as defined. Current law authorizes certain government entities and certain peace officers to purchase and possess these firearms under certain circumstances, as specified. This bill would add district attorney's offices and peace officer members of these offices to the specified entities and persons authorized to purchase and possess these weapons under specified circumstances.

AB 748 (Ting D) Peace officers: body-worn cameras.

Introduced: 2/15/2017

Status: 4/4/2017-From committee: Do pass and re-refer to Com. on JUD. with recommendation: To Consent Calendar. (Ayes 7. Noes 0.) (April 4). Re-referred to Com. on JUD.

Location: 4/4/2017-A. JUD.

Summary: Would require each department or agency that employs peace officers and that elects to require those peace officers to wear body-worn cameras to develop a policy setting forth the procedures for, and limitations on, public access to recordings taken by body-worn cameras, as specified. The bill would require the department or agency to conspicuously post the policy on its Internet Web site.

AB 798 (Garcia, Eduardo D) Salton Sea restoration.

Introduced: 2/15/2017

Last Amend: 3/23/2017

Status: 3/27/2017-Re-referred to Com. on W., P., & W.

Location: 3/23/2017-A. W., P. & W.

Summary: Would require the Natural Resources Agency, on or before June 30, 2018, to undertake certain planning activities and to make an effort to secure adequate funding to accomplish a specified goal for the restoration of the Salton Sea.

AB 816 (Kiley R) California Environmental Protection Agency: Natural Resources Agency: Web casts of public meetings and workshops.

Introduced: 2/15/2017

Status: 3/22/2017-VOTE: Do pass and be re-referred to the Committee on [Natural Resources]

Location: 3/22/2017-A. NAT. RES.

Summary: Would require that each department, board, and commission of the Natural Resources Agency, except as specified, and each department, board, and office of the California Environmental Protection Agency Web cast all onsite public meetings, in a manner that enables listeners and viewers to ask questions and provide public comment by telephone or electronic communication commensurate with those attending the meeting. The bill would require the agencies to make the recording of a Web cast available online for no less than 3 years for subsequent viewing by interested members of the public.

AB 947 **(Gallagher R) Department of Fish and Wildlife: lake or streambed alteration agreements: definitions.**

Introduced: 2/16/2017

Last Amend: 3/27/2017

Status: 4/6/2017-From committee: Amend, and do pass as amended and re-refer to Com. on APPR. (Ayes 9. Noes 1.) (April 4).

Location: 4/4/2017-A. APPR.

Summary: Current law prohibits an entity from substantially diverting or obstructing the natural flow of, or substantially changing or using any material from the bed, channel, or bank of, any river, stream, or lake, or from depositing certain material where it may pass into any river, stream, or lake, without first notifying the Department of Fish and Wildlife of that activity, and entering into a lake or streambed alteration agreement if required by the department to protect fish and wildlife resources. This bill would define "bank," "bed," "channel," and "river" and "stream" for purposes of these provisions.

AB 975 **(Friedman D) Natural resources: wild and scenic rivers.**

Introduced: 2/16/2017

Last Amend: 3/23/2017

Status: 4/6/2017-Read second time. Ordered to third reading.

Location: 4/6/2017-A. THIRD READING

Summary: Current law establishes that it is the policy of the state that certain rivers that possess extraordinary scenic, recreational, fishery, or wildlife values shall be preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the state. This bill would revise that policy to specify that certain rivers that possess scenic, recreational, fishery, wildlife, historical, cultural, geological, ecological, hydrological, botanical, or other similar values shall be preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the state, and would revise the definition of "immediate environments," and define the term "extraordinary value" for purposes of that policy.

AB 986 **(Gallagher R) Hunting and sport fishing licenses: sport fishing license duration: reduction in license fees for veterans.**

Introduced: 2/16/2017

Status: 3/21/2017-Coauthors revised. From committee: Do pass and re-refer to Com. on APPR. (Ayes 13. Noes 0.) (March 21). Re-referred to Com. on APPR.

Location: 3/21/2017-A. APPR.

Summary: Current law requires a resident or a nonresident, 16 years of age or older, upon payment of a specified fee, to be issued a sport fishing license for the period of a calendar year, or, if issued after the beginning of the year, for the remainder thereof. This bill would instead require a resident or a nonresident, 16 years of age or older, upon payment of the fee, to be issued a sport fishing license for the period of 12 consecutive months beginning on the date of issuance.

AB 1031 **(Waldron R) Personal income taxes: voluntary contributions: Native California Wildlife Rehabilitation Voluntary Tax Contribution Fund.**

Introduced: 2/16/2017

Last Amend: 4/4/2017

Status: 4/5/2017-Re-referred to Com. on APPR.

Location: 4/5/2017-A. APPR.

Summary: Would allow an individual to designate on his or her tax return that a specified amount in excess of his or her tax liability be transferred to the Native California Wildlife Rehabilitation Voluntary Tax Contribution Fund, which would be created by this bill. The bill would require the Franchise Tax Board to revise the tax return form to include a space for the designation of contributions to the fund when another voluntary designation is removed from the form or there is space, whichever occurs first.

AB 1050 (Allen, Travis R) California Endangered Species Act: Delta smelt.

Introduced: 2/16/2017

Last Amend: 3/28/2017

Status: 3/28/2017-From committee chair, with author's amendments: Amend, and re-refer to Com. on W.,P., & W. Read second time and amended.

Location: 3/27/2017-A. W.,P. & W.

Summary: The California Endangered Species Act requires the Fish and Game Commission to establish a list of endangered species and a list of threatened species and requires the commission to add or remove species from either list if it finds, upon the receipt of sufficient scientific information, that the action is warranted. The act prohibits the taking of an endangered or threatened species, except as specified. This bill would require the commission to remove the Delta smelt from the endangered species list.

AB 1097 (Levine D) Department of Fish and Wildlife: Significant Natural Areas Program.

Introduced: 2/17/2017

Status: 3/6/2017-Referred to Com. on W.,P., & W.

Location: 3/6/2017-A. W.,P. & W.

Summary: Current law requires the Department of Fish and Wildlife to administer the Significant Natural Areas Program, and requires the department, as part of its administration of the program, to maintain, expand, and keep current a data management system, designated the California Natural Diversity Database. Current law requires that data to be made available to interested parties on request. This bill would instead require that data to be made available on the department's Internet Web site.

AB 1133 (Dahle R) California Endangered Species Act: experimental populations.

Introduced: 2/17/2017

Status: 3/23/2017-In committee: Set, first hearing. Hearing canceled at the request of author.

Location: 3/6/2017-A. W.,P. & W.

Summary: Would provide that a person who obtains a federal enhancement of survival permit that authorizes the take of endangered or threatened species that is also listed as endangered, threatened, or candidate under CESA, in order to establish or maintain an experimental population of the species pursuant to FESA, requires no further authorization or approval under CESA for that person to take that species as identified in, and in accordance with, the enhancement of survival permit, if specified requirements are met.

AB 1151 (Gloria D) Vaquita-harmful fish and fish products.

Introduced: 2/17/2017

Last Amend: 3/28/2017

Status: 4/4/2017-Coauthors revised. From committee: Do pass and re-refer to Com. on APPR. (Ayes 8. Noes 4.) (April 4). Re-referred to Com. on APPR.

Location: 4/4/2017-A. APPR.

Summary: Current law makes it unlawful for any person to possess, sell, offer for sale, trade, or distribute a shark fin, as defined. Current law generally makes violations of provisions relating to fish and wildlife a crime. This bill would make it unlawful to sell, offer for sale, trade, or distribute vaquita-harmful fish and fish products, as defined. By creating a new crime, this bill would impose a state-mandated local program.

AB 1196 (Harper R) School bonds: term of bonds: furnishing and equipping classrooms.

Introduced: 2/17/2017

Last Amend: 3/30/2017

Status: 4/3/2017-Read second time. Ordered to third reading.

Location: 4/3/2017-A. THIRD READING

Summary: Would specify that a bond issued for projects that include the furnishing and equipping of classrooms shall have a weighted average maturity that does not exceed 120% of the average reasonably expected economic life of the furnishings and equipment. This bill contains other related provisions and other existing laws.

AB 1197 (Limón D) Oil spill contingency plans: spill management teams.

Introduced: 2/17/2017

Status: 4/6/2017-From committee: Amend, and do pass as amended and re-refer to Com. on APPR. (Ayes 9. Noes 1.) (April 3).

Location: 4/3/2017-A. APPR.

Summary: Would authorize a spill management team (SMT), as defined, to apply to the administrator for oil spill response for a classification of that SMT's response capabilities. The bill would require the administrator to establish levels for classifying a SMT based on a SMT's capacity to respond to spills and manage spills effectively, review applications for classifications, and classify the SMT, as specified. The bill would authorize the administrator to charge a reasonable administrative fee to process an application for, or renewal of, a classification.

AB 1228 (Bloom D) Fisheries: experimental fishing permits

Introduced: 2/17/2017

Status: 3/28/2017-In committee: Hearing postponed by committee.

Location: 3/9/2017-A. W.,P. & W.

Summary: Would authorize the Department of Fish and Wildlife to issue experimental fishing permits for specified purposes that would authorize commercial or recreational fishing activity otherwise prohibited by the Fish and Game Code or regulations adopted pursuant to that code, subject to certain requirements, including a requirement that activities conducted under the permit be consistent with specified policies enacted as part of the Marine Life Management Act of 1998 and any applicable fishery management plan and a requirement that the permit be subject to certain department conditions.

AB 1254 (Wood D) Production or cultivation of a controlled substance: civil and criminal penalties.

Introduced: 2/17/2017

Last Amend: 3/21/2017

Status: 3/21/2017-From committee chair, with author's amendments: Amend, and re-refer to Com. on W.,P., & W. Read second time and amended. (Amended 3/21/2017)

Location: 3/20/2017-A. W.,P. & W.

Summary: Current law makes a person found to have violated specified provisions of law generally protecting fish and wildlife, water, or other natural resources in connection with the production or cultivation of a controlled substance liable for a civil penalty in addition to any penalties imposed by any other law. With respect to a violation that occurs on land that a person owns, leases, or otherwise uses or occupies with the consent of the landowner, existing law makes each day that a violation occurs or continues to occur a separate violation. This bill would also make each day that a violation occurs or continues to occur on the specified types of public or private land or while the person was trespassing on public or private land a separate violation.

AB 1273 (Gallagher R) California Environmental Quality Act: exemption: levee repairs.

Introduced: 2/17/2017

Last Amend: 3/28/2017

Status: 3/28/2017-From committee chair, with author's amendments: Amend, and re-refer to Com. on

NAT. RES. Read second time and amended.

Location: 3/27/2017-A. NAT. RES.

Summary: Would, until July 1, 2028, exempt from the requirements of CEQA repairs of critical levees of the State Plan of Flood Control within an existing levee footprint to meet standards of public health and safety. The bill would require the lead agency to take certain actions regarding the repairs.

AB 1337 (Patterson R) Fish and Game Commission: meetings and hearings: live broadcast.

Introduced: 2/17/2017

Status: 4/4/2017-From committee: Do pass and re-refer to Com. on APPR. with recommendation: To Consent Calendar. (Ayes 13. Noes 0.) (April 4). Re-referred to Com. on APPR.

Location: 4/4/2017-A. APPR.

Summary: Would require the Fish and Game Commission to provide a live video broadcast on its Internet Web site of every commission meeting or hearing that is open and public and every meeting or hearing conducted by the marine resources committee, wildlife resources committee, or tribal committee that is open and public.

AB 1404 (Berman D) California Environmental Quality Act: categorical exemption: infill development.

Introduced: 2/17/2017

Status: 4/6/2017-From committee: Amend, and do pass as amended and re-refer to Com. on APPR. (Ayes 7. Noes 1.) (April 3).

Location: 4/3/2017-A. APPR.

Summary: CEQA requires the Office of Planning and Research to prepare and develop, and the Secretary of the Natural Resources Agency to certify and adopt, guidelines for the implementation of CEQA. CEQA requires the guidelines to include a list of classes of projects that have been determined not to have a significant effect on the environment and that shall be exempt from CEQA (categorical exemption). Current guidelines for the implementation of CEQA exempts from the requirements of CEQA infill development meeting certain requirements, including the requirement that the proposed development occurs within city limits. This bill would expand the above-categorical exemption to include proposed developments occurring within the unincorporated areas of a county.

AB 1420 (Aguilar-Curry D) Water rights: small irrigation use: lake or streambed alteration agreements.

Introduced: 2/17/2017

Status: 3/13/2017-Referred to Com. on W.,P., & W.

Location: 3/13/2017-A. W.,P. & W.

Summary: Would require the State Water Resources Control Board to give priority to adopting, on or before June 30, 2021, except as provided, general conditions that permit a registrant to store water for small irrigation use during times of high streamflow in exchange for the registrant reducing diversions during periods of low streamflow, as specified. The bill would require that the actions of the board under these provisions be deemed an action taken for the protection of the environment for purposes of specified California Environmental Quality Act guidelines, if those actions do not result in the relaxation of streamflow standards.

AB 1459 (Quirk-Silva D) Murder: punishment.

Introduced: 2/17/2017

Status: 3/13/2017-Referred to Com. on PUB. S.

Location: 3/13/2017-A. PUB. S.

Summary: Would make the murder of a peace officer, as defined, who was killed while engaged in the performance of his or her duties, and if the defendant knew, or reasonably should have known, that the victim was a peace officer engaged in the performance of his or her duties, murder of the first degree. The bill would make a person convicted of this type of murder of the first degree subject to punishment by death or life in prison without the possibility of parole if specified facts are charged and found true.

AB 1471 (Allen, Travis R) Firearms: silencers.

Introduced: 2/17/2017

Status: 3/13/2017-Referred to Com. on PUB. S.

Location: 3/13/2017-A. PUB. S.

Summary: Would make the crime of possessing a silencer inapplicable to the sale to, purchase by, or possession by the Department of the California Highway Patrol, the Department of Fish and Wildlife, and the Department of Corrections and Rehabilitation, the possession by peace officers employed by those agencies, or the sale or other transfer in interstate or foreign commerce by registered dealers or manufacturers when the sale or other transfer is in accordance with federal law.

AB 1544 **(Dahle R) Hunting: nonlead ammunition.**

Introduced: 2/17/2017

Last Amend: 3/28/2017

Status: 3/29/2017-Re-referred to Com. on W.,P., & W. In committee: Set, first hearing. Hearing canceled at the request of author.

Location: 3/16/2017-A. W.,P. & W.

Summary: Current law requires the use of nonlead centerfire rifle and pistol ammunition, as determined by the Fish and Game Commission, when taking big game with a rifle or pistol, and when taking coyote, within the California condor range. Current law further requires by no later than July 1, 2019, the use of nonlead ammunition for the taking of all wildlife, including game mammals, game birds, nongame birds, and nongame mammals, with any firearm, and requires the commission to promulgate regulations by July 1, 2015, that phase in the requirements of these provisions. This bill would require the commission to temporarily suspend the latter prohibition for a specific hunting season and caliber if the commission finds that nonlead ammunition of the specific caliber is not available for any reason.

AB 1587 **(Levine D) Invasive species: dreissenid mussels.**

Introduced: 2/17/2017

Last Amend: 3/28/2017

Status: 4/4/2017-From committee: Do pass and re-refer to Com. on APPR. (Ayes 8. Noes 3.) (April 4). Re-referred to Com. on APPR.

Location: 4/4/2017-A. APPR.

Summary: Current law requires any person, or federal, state, or local agency, district, or authority, that owns or manages a reservoir, as defined, where certain recreational activities are permitted, except a privately owned reservoir that is not open to the public, and where nonnative dreissenid mussels have not been detected, to assess the vulnerability of the reservoir for the introduction of nonnative dreissenid mussel species and to develop and implement a program designed to prevent the introduction of that species. This bill would instead require, rather than authorize, the Director of Fish and Wildlife to order the closure of waters or facilities to conveyances for a period of no less than 7 working days if dreissenid mussels are detected or may be present and would make other related changes.

AB 1608 **(Kalra D) Vibrant landscapes for climate, people, and multiple benefits.**

Introduced: 2/17/2017

Status: 3/16/2017-Referred to Com. on NAT. RES.

Location: 3/16/2017-A. NAT. RES.

Summary: Would require the Department of Conservation to develop and implement the Vibrant Landscape Program to assist eligible applicants in the development of county and regional plans that integrate the conservation and management of natural and working lands with other sectors to reduce the emissions of greenhouse gases and to provide other environmental cobenefits and to provide funding for land management and conservation activities that reduce the emissions of greenhouse gases and achieve other environmental cobenefits.

AB 1617 **(Bloom D) Department of Fish and Wildlife: funding.**

Introduced: 2/17/2017

Last Amend: 3/28/2017

Status: 4/4/2017-From committee: Do pass and re-refer to Com. on APPR. (Ayes 10. Noes 4.) (April 4). Re-referred to Com. on APPR.

Location: 4/4/2017-A. APPR.

Summary: Current law declares the intent of the Legislature to identify new funding sources and to secure those sources to adequately fund the Department of Fish and Wildlife's activities directed at protecting and managing wildlife for the people of the state. This bill would require the department, in cooperation with the above-mentioned parties and additional specified parties, to identify and propose new sources of revenue to fund the department's necessary wildlife, land, and marine conservation, restoration, and resources management and protection responsibilities.

AB 1630 **(Bloom D) California Transportation Plan: wildlife movement and barriers to passage.**

Introduced: 2/17/2017

Last Amend: 3/28/2017

Status: 4/4/2017-From committee: Do pass and re-refer to Com. on TRANS. (Ayes 9. Noes 5.) (April 4). Re-referred to Com. on TRANS.

Location: 4/4/2017-A. TRANS.

Summary: Would authorize the Department of Fish and Wildlife to pursue development of a programmatic environmental review process with appropriate state and federal regulatory agencies for remediating barriers to wildlife connectivity that will streamline the permitting process for wildlife crossing projects.

AB 1660 **(Kalra D) Court reporter providers.**

Introduced: 2/17/2017

Last Amend: 4/3/2017

Status: 4/4/2017-Re-referred to Com. on B. & P.

Location: 3/30/2017-A. B.&P.

Summary: Would authorize an individual or entity to engage in the business of providing or arranging for court reporters for the transcription of court proceedings if specified conditions are met, including that an individual be licensed by the board as a court reporter, that an entity be a shorthand reporting corporation or that the individual or entity be registered as a court reporter provider. The bill would require an individual or entity that registers with the board as a court reporter provider to adhere to the same laws and regulations that are applicable to the conduct of certified shorthand reporters, including the requirement for a licensee to pay a fee that will be deposited into the Court Reporter's Fund.

SB 1 **(Beall D) Transportation funding.**

Introduced: 12/5/2016

Last Amend: 4/3/2017

Status: 4/6/2017-Read third time. Urgency clause adopted. Passed. (Ayes 27. Noes 11.) Ordered to the Assembly. In Assembly. Read first time. Held at Desk. Art. IV. Sec. 8(b)(1) of the Constitution dispensed with. (Ayes 54. Noes 25.) Assembly Rule 63 suspended. (Ayes 54. Noes 25.) Read third time. Urgency clause adopted. Passed. (Ayes 54. Noes 26.) Ordered to the Senate. In Senate. Held at Desk.

Location: 4/6/2017-S. ENROLLMENT

Summary: Would create the Road Maintenance and Rehabilitation Program to address deferred maintenance on the state highway system and the local street and road system. The bill would require the California Transportation Commission to adopt performance criteria, consistent with a specified asset management plan, to ensure efficient use of certain funds available for the program. This bill contains other related provisions and other existing laws.

SB 5 **(De León D) California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act of 2018.**

Introduced: 12/5/2016

Last Amend: 3/28/2017

Status: 4/5/2017-Set for hearing April 17.

Location: 3/28/2017-S. APPR.

Summary: Would enact the California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act of 2018, which, if approved by the voters, would authorize the issuance of bonds in an amount of \$3,000,000,000 pursuant to the State General Obligation Bond Law to finance a drought, water, parks, climate, coastal protection, and outdoor access for all program.

SB 22

(Hill D) Firearms: law enforcement agencies: agency firearm accounting.

Introduced: 12/5/2016

Last Amend: 3/28/2017

Status: 4/5/2017-Set for hearing April 17.

Location: 3/28/2017-S. APPR.

Summary: Would require a law enforcement agency, as defined, to adopt a written procedure to account for firearms that are owned, acquired, maintained, sold, loaned, lost, stolen, or in any way possessed by that agency or by an employee of that agency if used or carried for purposes of carrying out the official duties of his or her employment, as specified. The bill would require that firearms that are lost, stolen, or otherwise disposed of be entered into the AFS. By imposing additional duties on local law enforcement agencies, this bill would impose a state-mandated local program.

SB 49

(De León D) California Environmental, Public Health, and Workers Defense Act of 2017.

Introduced: 12/5/2016

Last Amend: 2/22/2017

Status: 4/5/2017-From committee: Do pass and re-refer to Com. on JUD. (Ayes 5. Noes 2.) (April 5). Re-referred to Com. on JUD.

Location: 4/5/2017-S. JUD.

Summary: The Porter-Cologne Water Quality Control Act regulates the discharge of pollutants into the waters of the state. The California Safe Drinking Water Act establishes standards for drinking water and regulates drinking water systems. The California Endangered Species Act requires the Fish and Game Commission to establish a list of endangered species and a list of threatened species and generally prohibits the taking of those species. The Protect California Air Act of 2003 prohibits air quality management districts and air pollution control districts from amending or revising their new source review rules or regulations to be less stringent than those rules or regulations that existed on December 30, 2002. This bill would prohibit state or local agencies from amending or revising their rules and regulations implementing the above state laws to be less stringent than the baseline federal standards, as defined, and would require specified agencies to take prescribed actions to maintain and enforce certain requirements and standards pertaining to air, water, and protected species.

SB 50

(Allen D) Federal public lands: conveyances.

Introduced: 12/5/2016

Last Amend: 3/20/2017

Status: 4/6/2017-From committee: Do pass as amended and re-refer to Com. on APPR. (Ayes 5. Noes 0.) (April 4).

Location: 4/4/2017-S. APPR.

Summary: Would establish, except as provided, a policy of the state to discourage conveyances of federal public lands in California from the federal government. The bill would specify that these conveyances are void ab initio unless the State Lands Commission is provided with the right of first refusal or the right to arrange the transfer to a 3rd party. The bill would require the commission, the Wildlife Conservation Board, and the Department of Fish and Wildlife to enter into a memorandum of understanding establishing a state policy that they will undertake all feasible efforts to protect against future unauthorized conveyances of federal public lands or any change in federal public land designation.

SB 58

(McGuire D) Wildlife management areas: payment of taxes and assessments.

Introduced: 12/12/2016

Status: 4/3/2017-April 3 hearing: Placed on APPR. suspense file.

Location: 4/3/2017-S. APPR. SUSPENSE FILE

Summary: Existing law regulates real property acquired and operated by the state as wildlife management areas, and authorizes the Department of Fish and Wildlife, when income is directly derived from that real property, to annually pay to the county in which the property is located an amount equal to the county taxes levied upon the property at the time it was transferred to the state. Existing law requires those payments to only be made from funds that are appropriated to the department for those purposes. This bill would, commencing with the 2018–19 fiscal year and each fiscal year thereafter, require, instead of authorize, the department to make these payments subject to appropriation by the Legislature.

SB 80

(Wieckowski D) California Environmental Quality Act: notices.

Introduced: 1/11/2017

Last Amend: 2/14/2017

Status: 4/5/2017-Set for hearing April 17.

Location: 3/29/2017-S. APPR.

Summary: The California Environmental Quality Act requires the lead agency to mail certain notices to persons who have filed a written request for notices. The act provides that if the agency offers to provide the notices by email, upon filing a written request for notices, a person may request that the notices be provided to him or her by email. This bill would require the lead agency to post those notices on the agency's Internet Web site. The bill would require the agency to offer to provide those notices by email. Because this bill would increase the level of service provided by a local agency, this bill would impose a state-mandated local program.

SB 144

(McGuire D) Fish and wildlife: steelhead trout: fishing report-restoration card.

Introduced: 1/13/2017

Last Amend: 3/15/2017

Status: 4/3/2017-April 3 hearing: Placed on APPR. suspense file.

Location: 4/3/2017-S. APPR. SUSPENSE FILE

Summary: Current law requires revenues from steelhead trout fishing license fees to be deposited in the Fish and Game Preservation Fund and to be available for expenditure, upon appropriation by the Legislature, to monitor, restore, or enhance steelhead trout resources consistent with specified law, and to administer the fishing report-restoration card program. This bill would extend the operation of those provisions to July 1, 2022, to be repealed as of January 1, 2023. The bill would require the department to report to the Legislature regarding the fishing report-restoration card program's projects on or before July 1, 2021.

SB 161

(McGuire D) Fish and Game Commission: tribal committee.

Introduced: 1/19/2017

Status: 4/3/2017-April 3 hearing: Placed on APPR. suspense file.

Location: 4/3/2017-S. APPR. SUSPENSE FILE

Summary: Current law requires the Fish and Game Commission to form a marine resources committee and a wildlife resources committee from its membership. This bill would require the commission to form a tribal committee from its membership consisting of at least one commissioner and would require the committee to report to the commission from time to time on its activities and to make recommendations on all tribal matters considered by the commission.

SB 183

(Lara D) Marine protected areas: Native American tribes.

Introduced: 1/24/2017

Status: 2/2/2017-Referred to Com. on N.R. & W.

Location: 2/2/2017-S. N.R. & W.

Summary: Current law requires that any proposals for marine protected areas made after January 1, 2002, follow the guidelines set forth in the MMAIA and that specified areas and reserves be designated, deleted, or modified by the commission pursuant to the MMAIA, and the restrictions and allowable uses applicable to those areas be as set forth in the MMAIA. Current law establishes the

Native American Heritage Commission and vests the commission with specified powers and duties. This bill would authorize a California Native American tribe to submit a request to the Native American Heritage Commission to approve the tribe's record of aboriginal use of a specified area of the marine environment for subsistence and cultural purposes.

SB 187

(Berryhill R) Sport fishing licenses: duration.

Introduced: 1/25/2017

Last Amend: 2/27/2017

Status: 3/14/2017-Set for hearing April 25.

Location: 3/8/2017-S. N.R. & W.

Summary: Current law requires every person 16 years of age or older who takes any fish, reptile, or amphibian for any purpose other than profit to first obtain a sport fishing license for that purpose, with specified exceptions, and to have that license on his or her person or in his or her immediate possession when engaged in carrying out any activity authorized by the license. This bill would instead require a resident or a nonresident, 16 years of age or older, upon payment of the fee, to be issued a sport fishing license for the period of 12 consecutive months beginning on the date specified on the license.

SB 193

(Cannella R) Monterey County Water Resources Agency: Lake Nacimiento and Lake San Antonio: white bass.

Introduced: 1/30/2017

Last Amend: 3/16/2017

Status: 3/24/2017-Set for hearing April 25.

Location: 3/23/2017-S. N.R. & W.

Summary: Current law makes it unlawful to place, plant, or cause to be placed or planted, in any of the waters of this state, any live fish, any fresh or salt water animal, or any aquatic plant, whether taken without or within the state, without first submitting it for inspection to, and securing the written permission of, the Department of Fish and Wildlife. Current law also makes it unlawful to transport or possess any live white bass, whether taken within or without the state, unless it is first submitted for inspection to, and written permission is obtained from, the department. This bill would exempt the movement of white bass between Lake Nacimiento and Lake San Antonio through the interlake underground tunnel or pipeline from the above-described provisions relating to fish and wildlife.

SB 214

(Atkins D) San Diego River Conservancy.

Introduced: 2/1/2017

Last Amend: 4/6/2017

Status: 4/6/2017-From committee with author's amendments. Read second time and amended. Referred to Com. on APPR.

Location: 3/14/2017-S. APPR.

Summary: The San Diego River Conservancy Act establishes the San Diego River Conservancy in the Natural Resources Agency, and prescribes the territory, membership, functions, and duties of the conservancy with regard to, among other things, the acquisition, protection, and management of public lands within the San Diego River area, as defined. This bill would specify that the powers of the conservancy include improving, developing, and preserving lands for the purpose of protecting the natural, cultural, and historical resources, and entering into a joint powers agreement, as specified.

SB 216

(Moorlach R) Property: wild animals.

Introduced: 2/1/2017

Status: 2/9/2017-Referred to Com. on RLS.

Location: 2/1/2017-S. RLS.

Summary: Current law provides animals that are wild by nature may be the subject of ownership while those animals are living only in specified circumstances. This bill would make nonsubstantive changes to that section of law.

- [SB 224](#)** **([Jackson](#) D) California Environmental Quality Act: baseline conditions.**
Introduced: 2/2/2017
Last Amend: 4/5/2017
Status: 4/5/2017-From committee with author's amendments. Read second time and amended. Re-referred to Com. on EQ.
Location: 2/16/2017-S. E.Q.
Summary: Would require the Office of Planning and Research, on or after January 1, 2018, at the time of the next review of the guidelines, to prepare, develop, and transmit to the secretary proposed changes or amendments to determine the baseline physical conditions by which a lead agency determines whether a project has a significant effect on the environment. The bill would require the office, in developing the recommendations to limit the consideration of modifications to the environment at the project site cause by certain actions. The bill would require the secretary to certify and adopt the recommended proposed changes or amendments.
- [SB 259](#)** **([Wilk](#) R) Reports.**
Introduced: 2/8/2017
Status: 3/28/2017-March 28 set for first hearing. Failed passage in committee. (Ayes 6. Noes 1.) Reconsideration granted.
Location: 3/28/2017-S. G.O.
Summary: Would require a written report, as defined, submitted by any state agency or department to the Legislature, a Member of the Legislature, or any state legislative or executive body to include a signed statement by the head of the agency or department declaring that the factual contents of the written report are true, accurate, and complete to the best of his or her knowledge.
- [SB 287](#)** **([Dodd](#) D) Habitat restoration: invasive species: Phytophthora pathogens.**
Introduced: 2/9/2017
Last Amend: 3/15/2017
Status: 4/5/2017-Set for hearing April 17.
Location: 3/28/2017-S. APPR.
Summary: Current law establishes the Department of Fish and Wildlife and sets forth the powers and duties of the department with regard to the implementation and administration of, among other things, projects and programs to protect wildlife and wildlife habitat in the state. This bill would require the department, on or before December 31, 2019, to adopt regulations to minimize the risk of Phytophthora pathogens in plant materials used for habitat restoration projects authorized, funded, or required by the state.
- [SB 290](#)** **([Jackson](#) D) Marine mammals and sea turtles: entanglement and stranding: emergency rescue services: grants.**
Introduced: 2/9/2017
Last Amend: 3/30/2017
Status: 3/30/2017-From committee with author's amendments. Read second time and amended. Re-referred to Com. on N.R. & W.
Location: 2/23/2017-S. N.R. & W.
Summary: Would, upon appropriation of moneys by the Legislature, require the Wildlife Health Center at the Davis campus of the University of California to provide grants to qualified organizations, as defined, that respond to marine mammal or sea turtle entanglement or stranding emergencies. The bill would require the grants to be issued on an emergency basis and not for the operating expenses of a qualified organization, except as specified.
- [SB 345](#)** **([Bradford](#) D) Law enforcement agencies: regulations.**
Introduced: 2/14/2017
Last Amend: 3/30/2017
Status: 4/5/2017-Re-referred to Com. on PUB. S.

Location: 4/5/2017-S. PUB. S.

Summary: Would, commencing January 1, 2019, require the Department of Alcoholic Beverage Control, the Department of the California Highway Patrol, the Department of Corrections and Rehabilitation, the Department of Fish and Wildlife, the Department of Justice, including the Commission on Peace Officer Standards and Training, and each local law enforcement agency to conspicuously post on their Internet Web sites all of their current agency regulations that are not specifically exempted from disclosure pursuant to the California Public Records Act, and would require any changes to the regulations to be posted on the Internet Web site within 90 days after the changes become effective.

SB 347 **(Jackson D) State Remote Piloted Aircraft Act.**

Introduced: 2/14/2017

Status: 4/5/2017-From committee: Do pass and re-refer to Com. on PUB. S. (Ayes 9. Noes 1.) (April 4). Re-referred to Com. on PUB. S.

Location: 4/5/2017-S. PUB. S.

Summary: Would enact the State Remote Piloted Aircraft Act. The bill would prohibit a person from operating a remote piloted aircraft in any number of specified manners and would require any person using, operating, or renting a remote piloted aircraft and every commercial operator of a remote piloted aircraft to maintain adequate liability insurance or proof of financial responsibility, as specified.

SB 473 **(Hertzberg D) California Endangered Species Act.**

Introduced: 2/16/2017

Last Amend: 3/22/2017

Status: 4/5/2017-Set for hearing April 17.

Location: 3/28/2017-S. APPR.

Summary: The California Endangered Species Act prohibits the taking of an endangered or threatened species, except in certain situations. Under the act, the Department of Fish and Wildlife may authorize the take of listed species pursuant to an incidental take permit if the take is incidental to an otherwise lawful activity, the impacts are minimized and fully mitigated, and the issuance of the permit would not jeopardize the continued existence of the species. This bill would also apply the take prohibition to public agencies.

SB 506 **(Nielsen R) Department of Fish and Wildlife: lake or streambed alteration agreements: Internet Web site.**

Introduced: 2/16/2017

Last Amend: 4/3/2017

Status: 4/5/2017-Set for hearing April 17.

Location: 4/3/2017-S. APPR.

Summary: This bill would require the Department of Fish and Wildlife, on or before December 31, 2018, and periodically thereafter, to upgrade the information on its Internet Web site regarding lake or streambed alteration agreements, to update its Frequently Asked Questions' document and other appropriate sources of information regarding the lake and streambed alteration program, and to provide guidance on its Internet Web site to facilitate members of the public in obtaining individualized guidance regarding the lake and streambed alteration program, as specified.

SB 532 **(Dodd D) California State Safe Harbor Agreement Program Act: tricolored blackbird.**

Introduced: 2/16/2017

Status: 3/27/2017-March 28 set for first hearing canceled at the request of author.

Location: 3/2/2017-S. N.R. & W.

Summary: Would extend the California State Safe Harbor Agreement Program Act indefinitely and would exempt the approval of a safe harbor agreement covering only tricolored blackbird from CEQA. This bill contains other existing laws.

SB 580

(Pan D) Water development projects: Sacramento-San Joaquin watersheds.

Introduced: 2/17/2017

Status: 4/5/2017-Set for hearing April 17.

Location: 3/28/2017-S. APPR.

Summary: Current law adopts and authorizes federally adopted and approved projects, including a project for flood control along the American and Sacramento Rivers. The projects are authorized at an estimated cost to the state of the sum that may be appropriated by the Legislature for state participation upon the recommendation and advice of the Department of Water Resources or the Central Valley Flood Protection Board. This bill would revise the authorization for the project for flood control along the American and Sacramento Rivers as further modified by a specified report adopted by Congress.

SB 588

(Hertzberg D) Marine resources and preservation.

Introduced: 2/17/2017

Last Amend: 3/23/2017

Status: 3/28/2017-From committee: Do pass and re-refer to Com. on JUD. (Ayes 8. Noes 1.) (March 28). Re-referred to Com. on JUD.

Location: 3/28/2017-S. JUD.

Summary: Would revise and recast the California Marine Resources Legacy Act to establish a similar program to allow, 2 years after the payment of startup costs, a prospective transferor, as defined, to offer and the department to accept title to an artificial reef converted from a decommissioned oil and gas platform for incorporation into the California Artificial Reef Program if similar conditions to as specified are met, except if the platform is required to be fully removed by conditions in a lease issued by the State Lands Commission. As part of the implementation of the program, the bill would require the department to revise the Artificial Reef Plan prepared pursuant to the California Artificial Reef Program.

SB 615

(Hueso D) Salton Sea restoration.

Introduced: 2/17/2017

Status: 4/5/2017-Set for hearing April 17.

Location: 3/28/2017-S. APPR.

Summary: Would require the Natural Resources Agency, by January 1, 2018, to develop a 10-year plan to implement the memorandum of understanding between the agency and the United States Department of the Interior entered into on August 31, 2016, and its addendum, entered into on January 18, 2017, and would require the agency to address certain issues in the plan. The bill would rename the Salton Sea Restoration Act as the "John J. Benoit Salton Sea Restoration Act."

SB 667

(Atkins D) Department of Water Resources: riverine and riparian stewardship improvements.

Introduced: 2/17/2017

Status: 3/14/2017-Set for hearing April 25.

Location: 3/9/2017-S. N.R. & W.

Summary: Current law authorizes the Director of Water Resources to establish a program of flood control and urban creek restoration, known as the Urban Streams Restoration Program, consisting of the development of the capability by the Department of Water Resources to respond to requests from local agencies and organizations for planning and design assistance for efficient and effective urban creek protection, restoration, and enhancement. This bill, upon an appropriation of funds from the Legislature, would require the department to establish a program to implement watershed-based riverine and riparian stewardship improvements by providing technical and financial assistance in support of projects with certain benefits.

SB 709

(Wiener D) Oil spill response and contingency planning.

Introduced: 2/17/2017

Last Amend: 3/23/2017

Status: 4/6/2017-Set for hearing April 19 in EQ. pending receipt. From committee: Do pass as

amended and re-refer to Com. on EQ. (Ayes 7. Noes 2.) (March 28).

Location: 3/28/2017-S. E.Q.

Summary: Would revise the The Lempert-Keene-Seastrand Oil Spill Prevention and Response Act's definition of "oil" to include both "floating oil," as defined, and "nonfloating or potentially nonfloating oil," as defined. The bill would require the administrator, by December 31, 2019, to establish an effective system for nonfloating or potentially nonfloating oil data collection and public reporting.

SB 710

(Anderson R) Silencers.

Introduced: 2/17/2017

Status: 3/27/2017-April 4 set for first hearing canceled at the request of author.

Location: 3/9/2017-S. PUB. S.

Summary: Current law makes it a felony to possess a silencer in the state, punishable by imprisonment in county jail or by a fine not to exceed \$10,000 or by both that fine and imprisonment. This bill would delete the felony prohibition on possession of a silencer and would authorize an individual in lawful possession of a device that will silence, suppress, or muffle the sound or natural report of a firearm when the firearm is discharged to use that device to hunt a bird, mammal, fish, reptile, or amphibian for which the individual is licensed if the firearm to which the device is attached is lawfully possessed.

SB 771

(De León D) California Environmental Quality Act: continuing education: public employees.

Introduced: 2/17/2017

Status: 4/5/2017-Set for hearing April 17.

Location: 3/29/2017-S. APPR.

Summary: Would establish a continuing education requirement for employees of public agencies who have responsibility for overseeing compliance with the California Environmental Quality Act. Because this bill would require a public agency to ensure that this continuing education requirement is met, this bill would impose a state-mandated local program. This bill contains other related provisions and other existing laws.

SB 785

(Wiener D) Consumer protection: firearms and ammunition.

Introduced: 2/17/2017

Status: 3/9/2017-Referred to Coms. on JUD. and APPR.

Location: 3/9/2017-S. JUD.

Summary: Current law, the Consumer Legal Remedies Act (act), prohibits certain enumerated unfair methods of competition and unfair or deceptive acts or practices undertaken by any person in a transaction intended to result, or which results in, the sale or lease of goods or services to any consumer. The act provides for relief through actions for damages, injunctive relief, and restitution, among other remedies. This bill would state that the act applies to firearms and ammunition, and provide that a violation of the act regarding firearms or ammunition is actionable under the act.

SB 809

(Committee on Natural Resources and Water) Natural resources.

Introduced: 3/8/2017

Status: 3/24/2017-Set for hearing April 25.

Location: 3/16/2017-S. N.R. & W.

Summary: Current law requires the owner of an aquaculture facility to register certain information with the Department of Fish and Wildlife by March 1 of each year, and requires the department to impose prescribed fees for registration and renewal. Current law imposes a penalty for delinquent payment of fees. Current law, until January 1, 2018, increases those registration, renewal, surcharge, and penalty fees, as prescribed. Current law requires the department to prepare and submit to the Legislature, on or before February 1, 2017, a report regarding the aquaculture program. This bill would extend the increased registration, renewal, surcharge, and penalty fees until January 1, 2023.

For more information call:

Susan LaGrande, CDFW Deputy Director at (916) 651-6719

Julie Oltmann, CDFW Legislative Representative at (916) 653-9772

You can also find legislative information on the web at <http://leginfo.legislature.ca.gov/> and follow the prompts from the 'bill information' link.

California Dryness and Recovery Challenge Multi-Century Odds



([LINK:https://www.ncei.noaa.gov/sites/default/files/sites/default/files/san-luis-reservoir-in-gustine-california-on-august-19-2014_1200x480-california-department-of-water-resources-florence-low.jpg](https://www.ncei.noaa.gov/sites/default/files/sites/default/files/san-luis-reservoir-in-gustine-california-on-august-19-2014_1200x480-california-department-of-water-resources-florence-low.jpg))

Courtesy of California Department of Water Resources - Florence Low

Between October 2011 and September 2015, California saw its driest four-year period ([LINK:https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php?periods%5B%5D=48¶meter=pcp&state=4&div=0&month=9&year=2015#ranks-form](https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php?periods%5B%5D=48¶meter=pcp&state=4&div=0&month=9&year=2015#ranks-form)) in the instrumental record, which dates back to 1895. Parts of the state lost more than two full years of precipitation during the prolonged, severe dry spell. But, a new study by NOAA NCEI scientists ([LINK:http://journals.ametsoc.org/doi/abs/10.1175/JCLI-D-16-0423.1](http://journals.ametsoc.org/doi/abs/10.1175/JCLI-D-16-0423.1)) suggests that from the longer-term view of paleoclimate records ([LINK://www.ncei.noaa.gov/news/what-is-paleoclimatology](http://www.ncei.noaa.gov/news/what-is-paleoclimatology)), the southern Central Valley and South Coast parts of the state saw their worst dry spell in nearly 450 years.

Published in the *Journal of Climate*

([LINK:http://journals.ametsoc.org/toc/clim](http://journals.ametsoc.org/toc/clim)

/current), this study also looked at how long it would take the state to recover from its current precipitation deficits. And, the scientists found

that California's hardest hit areas would likely need several decades for their long-term average precipitation to recover back to normal levels, starting from the 2012–2015 deficits. "The odds of the state completely recovering from its extreme dryness within two years are estimated at less than 1 percent," said Dr. Eugene R. Wahl, NCEI paleoclimatologist and lead author of the study. "But, the state is moving a good way towards recovery if very wet conditions continue into spring."

California's hardest hit areas would likely need several decades for their long-term average precipitation to recover back to normal levels.

The extreme El Niño conditions between 2015 and 2016 helped jumpstart recovery in the northern half of the state. And, the scientists found that when very strong or extreme El Niño events followed a similar deep dryness, California's full recovery time was nearly cut in half. The high amounts of

precipitation California has received during the current wet season have already set the state up for a faster recovery time than 80 percent of similar events. If it continues to be an extremely wet year for the state, like fall 1982 through summer 1983 (LINK:<https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php?periods%5B%5D=12¶meter=pcp&state=4&div=0&month=9&year=1983#ranks-form>), California would be looking at an even shorter recovery time.

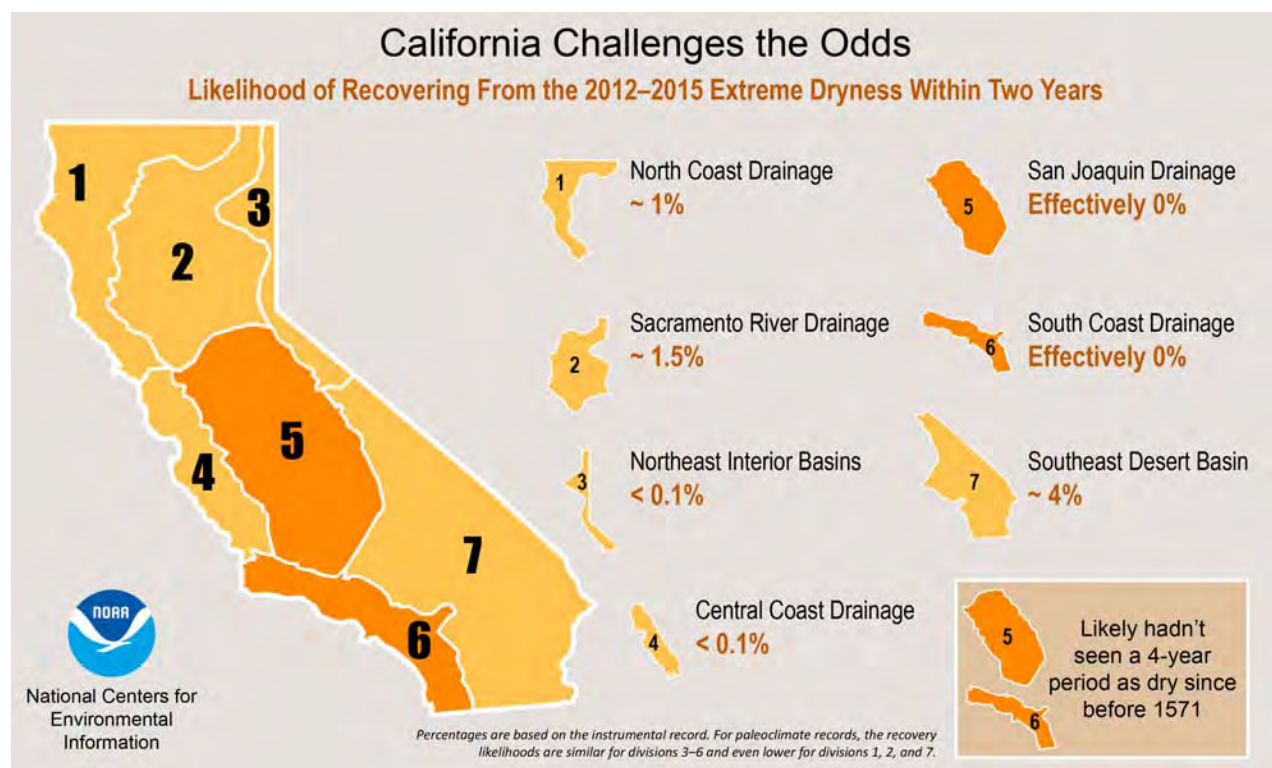
Different Strokes for Different Climate Divisions

But, different parts of the state have felt the impacts of the dryness differently, and they will likely recover at different rates. To get a better view of these regional differences, the scientists also looked at each of the seven standard climate divisions (LINK:<https://www.ncdc.noaa.gov/monitoring-references/maps/us-climate-divisions.php>) in California and their histories of extreme dry spells.

In most of these regions, the scientists found that similar very dry events had occurred since the late 16th century. However, two of the state's hardest hit regions—the San Joaquin Drainage and the South Coast Drainage—likely hadn't seen a four-year period as dry since at

least before 1571. “These two regions include the agriculturally important Central Valley and the densely populated greater Los Angeles and San Diego metropolitan areas,” said Dr. Wahl, “So, the social and economic impacts are of particular importance there.”

Two of the state's hardest hit regions—the San Joaquin Drainage and the South Coast Drainage—likely hadn't seen a four-year period as dry since at least before 1571.



According to analysis of instrumental data, the Southeast Desert Basin division had the highest likelihood of recovering within two years at around 4 percent. The San Joaquin Drainage and the South Coast Drainage divisions effectively had a zero percent chance of recovery within two years.

And, the state's other four climate divisions ranged from a less than 0.1 percent to around a 1.5 percent chance. With the paleoclimate records, the results were similar for the Northeast Interior Basins, Central Coast Drainage, San Joaquin Drainage, and South Coast Drainage divisions. But, the likelihood of recovering within two years dropped even lower for the North Coast Drainage, Sacramento River Drainage, and Southeast Desert Basin divisions.

Megadroughts Could Be on the Way

By looking at precipitation alone, this study provides a unique view of California's past climate as well as insights into its future. Under current conditions, the scientists found that precipitation patterns alone are capable of producing unprecedented dry conditions such as occurred in the San Joaquin Drainage and the South Coast Drainage regions during 2012–2015, without the compounding factor of increasing temperatures.

In a warming world, higher temperatures could combine with and amplify severe precipitation deficits. If temperatures continue to rise as they have ([LINK:http://nca2014.globalchange.gov/report/our-changing-climate/observed-change#narrative-page-16564](http://nca2014.globalchange.gov/report/our-changing-climate/observed-change#narrative-page-16564)), the U.S. Southwest could be facing “megadroughts” ([LINK:http://dx.doi.org/10.1002/wcc.394](http://dx.doi.org/10.1002/wcc.394))—worse than any droughts in the region since medieval times—by the second half of the 21st century.

If temperatures continue to rise as they have ([LINK:http://nca2014.globalchange.gov/report/our-changing-climate/observed-change#narrative-page-16564](http://nca2014.globalchange.gov/report/our-changing-climate/observed-change#narrative-page-16564)), the U.S. Southwest could be facing “megadroughts” ([LINK:http://dx.doi.org/10.1002/wcc.394](http://dx.doi.org/10.1002/wcc.394))—worse than any droughts in the region since medieval times.



U.S. Department of the Interior

Ryan Zinke Sworn In as 52nd Secretary of the Interior

Office of the Secretary



5th-generation Montanan
pledges to uphold President
Theodore Roosevelt's legacy

Date: March 1, 2017

Contact:

Interior_Press@ios.doi.gov

WASHINGTON – Today, Ryan Zinke (pronounced Zink-EE) was confirmed and sworn in as the 52nd Secretary of the Interior. The Senate voted 68-31 to confirm Zinke the morning of March 1, 2017, and he was sworn in by Vice President Mike Pence at a ceremony in the Eisenhower Executive Office Building later that evening. Zinke is the first Montanan to serve as a cabinet secretary and also the first U.S. Navy SEAL in the cabinet.

“I am honored and humbled to serve Montana and America as Secretary of the Interior,” Zinke said. “I shall faithfully uphold Teddy Roosevelt’s belief that our treasured public lands are ‘for the benefit and enjoyment of the people’ and will work tirelessly to ensure our public lands are managed and preserved in a way that benefits all Americans for generations to come. This means responsible natural resource development, increased access for recreation and sportsmen, and conservation that makes the land more valuable for our children’s children. Importantly, our sovereign Indian Nations and territories must have the respect and freedom they deserve.”

In nominating Congressman Zinke, President Donald Trump said, “Ryan has built one of the strongest track records on championing regulatory relief, forest management, responsible energy development and public land issues in Congress. As a former Navy SEAL, he has incredible leadership skills and an attitude of doing whatever it takes to win. America is the most beautiful country in the world and he is going to help keep it that way with smart management of our federal lands. At the same time, my

administration's goal is to repeal bad regulations and use our natural resources to create jobs and wealth for the American people, and Ryan will explore every possibility for how we can safely and responsibly do that."

"Our public lands can once again be economic engines for our nation by creating jobs in energy, recreation, and conservation," continued Zinke. "By working with President Trump and Congress to reevaluate and fix flawed regulations that are barriers to job creation, we will unleash the economic opportunity within our borders. Creating jobs on public lands can and will be done in an environmentally responsible way during my tenure."

About Ryan Zinke

As a fifth-generation Montanan who grew up in a logging and rail town near Glacier National Park, Zinke has had a lifelong appreciation for conserving America's natural beauty while upholding Teddy Roosevelt's vision of multiple-use on our public lands. He has consistently led the efforts to renew the Land and Water Conservation Fund in Congress, and has also been a firm advocate for our nation's sportsmen and women to gain access to our public lands. Zinke also co-authored the 2015 Resilient Federal Forest Act, which initiated new reforms for revitalizing America's timber areas and preventing wildfires by emphasizing local collaboration on responsible timber harvest projects.

As Secretary of the Interior, Zinke leads an agency with more than 70,000 employees who serve as steward for 20 percent of the nation's lands, including national parks, monuments and wildlife refuges, as well as other public lands. The department oversees the responsible development of conventional and renewable energy supplies on public lands and waters; is the largest supplier and manager of water in the 17 Western states; and upholds trust responsibilities to the 567 federally recognized American Indian tribes and Alaska Natives.

Ryan Zinke represented the state of Montana in the U.S. House of Representatives since 2014, building an impressive portfolio on Interior issues ranging from federal mineral leases to tribal affairs to public lands conservation. Zinke is widely praised for his voting record that supports the Teddy Roosevelt philosophy of managing public lands, which calls for multiple-use to include economic, recreation and conservation aspects.

Before being elected to the U.S. House of Representatives, Zinke served in the Montana State Senate from 2009 to 2011, but the bulk of Zinke's public service was his 23 years as a U.S. Navy SEAL officer.

Zinke enlisted in the Navy in 1985 and was soon selected to join the elite force where he would build an honorable career until his retirement in 2008. He retired with the rank of Commander after leading SEAL operations around the globe, including as the Deputy and Acting Commander of Joint Special Forces in Iraq and two tours at SEAL Team Six. Zinke was the first Navy SEAL elected to the U.S. House and is the first SEAL to serve as a cabinet secretary.

Zinke holds a Geology degree from the University of Oregon, where he was an All-PAC 10 football player; a Master's degree in Business Finance from National University; and a Master's degree in Global Leadership from the University of San Diego. Ryan and his wife Lolita (Lola) have three children and two granddaughters. Zinke is proud to be an adopted member of the Assiniboine Sioux Tribe at the Fort Peck Reservation in Northeast Montana.

###



U.S. Department of the Interior

Day One: Secretary Zinke Signs Orders to Expand Access to Public Lands

Office of the Secretary

Orders Strengthen America's Outdoor Heritage & Restore Opportunities for Sportsmen and Anglers

Last edited 3/3/2017

Date: March 2, 2017

Contact: Interior_Press@ios.doi.gov

WASHINGTON - Today, on his first day on duty, Department of the Interior Secretary Ryan Zinke (pronounced ZINK-ee) issued two secretarial orders which expand access to public lands and increase hunting, fishing, and recreation opportunities nationwide. These orders deliver on promises made by both President Donald J. Trump and Secretary Zinke to expand access to America's public lands. The action was hailed by representatives from sportsmen, conservation, and recreation organizations.

"Outdoor recreation is about both our heritage and our economy. Between hunting, fishing, motorized recreation, camping and more, the industry generates thousands of jobs and billions of dollars in economic activity," said Zinke. "Over the past eight years however, hunting, and recreation enthusiasts have seen trails closed and dramatic decreases in access to public lands across the board. It worries me to think about hunting and fishing becoming activities for the land-owning elite. This package of secretarial orders will expand access for outdoor enthusiasts and also make sure the community's voice is heard."

The two secretarial orders include:

[Secretarial Order No. 3346](#) overturns the recent ban of lead ammunition and fish tackle used on Fish and Wildlife Service lands, waters, and facilities. The order highlights the need for additional review and consultation with local stakeholders.

[Secretarial Order No. 3347](#) advances conservation stewardship, improves game and habitat management, and increases outdoor recreation opportunities by directing bureaus and agencies to immediately identify areas where recreation and fishing can be expanded. The order also requests input from the Wildlife and Hunting Heritage Conservation Council and Sport Fishing and Boating

Partnership Council to provide recommendations on enhancing and expanding access on public lands and improving habitat for fish and wildlife.

Secretary Zinke was joined by representatives from the Congressional Sportsmen's Foundation, National Shooting Sports Foundation, Boone and Crockett Club, Wild Sheep Foundation, Theodore Roosevelt Conservation Partnership, National Rifle Association, Safari Club International, National Wild Turkey Federation, Archery Trade Association, Association of Fish and Wildlife Agencies, American Recreation Council, Pheasants Forever, Ducks Unlimited, Sportsmen for Fish and Wildlife, Mule Deer Foundation, National Wildlife Federation, Wildlife Management Institute, American Sportfishing Association, and National Marine Manufacturers Association.

Photos of the signing ceremony for media use can be [downloaded here](#).

Follow Secretary Zinke on Twitter [@SecretaryZinke](#).

###

California Fish and Game Commission

Potential Agenda Items for June 2017 Commission Meeting

The next FGC meeting is scheduled for June 21-22, 2017, at the Howonquet Hall Community Center in Smith River. This document identifies potential agenda items for the meeting, including items to be received from FGC staff and the California Department of Fish and Wildlife (DFW).

Wednesday, June 21: Non-Marine-related and administrative items

1. Public forum
2. Wildlife Resources Committee
3. Approve Private Lands Wildlife Habitat Enhancement and Management Program – initial, annual and five-year licenses
4. Notice: Commercial take of rattlesnakes
5. Adopt: Upland (resident) game bird (annual)
6. Ratify findings on the petition to list northern spotted owl as a threatened or endangered species
7. Determine if candidacy listing of foothill yellow-legged frog as threatened is warranted
8. Executive session
9. Receive and discuss proposed FGC meeting dates and locations for 2018
10. Non-Marine items of interest from previous meetings
11. Action on non-marine petitions for regulation change and non-regulatory requests from prior meetings

Thursday, June 22: Marine-related and administrative items

12. Public forum
13. Marine Resources Committee
14. Tribal Committee
15. Santa Barbara Mariculture: Approve application for new state water bottom lease for aquaculture or extend existing lease
16. Santa Barbara Mariculture: Approve request to renew state water bottom lease for aquaculture
17. Notice: Nearshore and deeper nearshore fishing permits
18. Notice: Commercial fisheries electronic reporting
19. Notice: Commercial sea cucumber
20. Discuss: Process for automatic conformance of state recreational fishing regulations to federal regulations
21. Adopt: Crab and lobster recreational gear marking and commercial lobster harbor restricted fishing areas
22. Receive White Seabass Fishery Management Plan annual review
23. Receive DFW request for 30-day extension to evaluate Cascades frog petition
24. Informational update from DFW on the northern pink shrimp fishery

25. Marine items of interest from previous meetings
26. Action on marine petitions for regulation change and non-regulatory requests from prior meetings
27. Receive DFW informational items
28. Receive other information (staff report, legislative update, federal report)

California Fish and Game Commission – Perpetual Timetable for Anticipated Regulatory Actions

(Dates shown reflect the date intended for the subject regulatory action.)

Updated: 4/19/17

ITEMS PROPOSED FOR CHANGE ARE SHOWN IN BLUE

Updated: 4/19/17					2017												2018							
ITEMS PROPOSED FOR CHANGE ARE SHOWN IN BLUE					APR 13	APR 26 27	MAY 24	JUN 20	JUN 21 22	JUL 20	AUG 16 17	SEP 13	OCT 10	OCT 11 12	NOV 9	DEC 6 7	JAN TBD	FEB TBD	MAR TBD	MAR TBD	APR TBD	APR TBD		
For FGC Staff Use					REGULATORY CHANGE CATEGORY	ACTION DATE, TYPE AND LOCATION																		
QUARTERLY EFFECTIVE	DFW RU ANALYST	FGC ANALYST	LEAD	File Notice w/OAL by Notice Published		02/14/17	02/28/17			04/25/17	06/20/17			8/15/17		10/10/17			TBD	TBD			TBD	TBD
				02/24/17		03/10/17			05/05/17	06/30/17			8/25/17	10/20/17			TBD	TBD			TBD	TBD		
Title 14 Section(s)																								
	SB	JS	FB	Sport Fishing (Annual)	1.05 et al.			R			N				D	A				E 3/1				
*	SB	MMH	WLB	DFW Lands Pass	550 et al.																			
*	MR	JS	LED	Upland Game Bird Special Hunt Drawing	702, 715 (new)																			
*	SB	ST	MR	Spiny Lobster, Sport and Commercial	29.80 et al.	E 4/1																		
*	SB	MMH	LED	Enhance Penalties for Game Illegal Take	748.6 (new)	E 4/1					E 7/1													
*	CM	ST	HC	Livermore Tarplant	670.2						E 7/1													
*	SB	SF	FGC	Tribal Take in MPAs	632	E 4/1																		
*	MR	JS	WLB	Falconry Clean-up	670						E 7/1													
	SB	SF	FB	Klamath River Sport Fishing (Annual)	7.50(b)(91.1)	A		V			E 8/1	R				N			D		A			
	SB	MMH	FB	Central Valley Salmon Sport Fishing (Annual)	7.50(b)	A		E 5/17 V			E 8/1	R				N			D		A			
	SB	SF	MR	Ocean Salmon Sport Fishing (April 2017) (Annual)	27.80(c)	E 4/1 X										N					E 4/1 X			
	SB	SF	MR	Ocean Salmon Sport Fishing (May - November 2017) (Annual)	27.80(d)	A		E 5/1 X								N					A			
	SB	SF	MR	Pacific Halibut Sport Fishing (2017 season)	28.20	A		E 5/1 X																
	CM	JS	FGC	Use of Dogs for Pursuit/Take of Mammals or for Dog Training	265	D	A				E 7/1										E 4/1			
	MR	JS	WLB	Mammal Hunting (Annual)	360 et al.		A	V			E 7/1		R			N			D			A		
	MR	JS	WLB	Deer Tag Reporting Requirements	708.5		A				E 7/1													
	MR	JS	WLB	Waterfowl (Annual)	502		A	V			E 7/1		R			N			D			A		
	MR	JS	WLB	Upland (Resident) Game Bird (Annual)	300		D			A		E 9/1 V					R		N			D		
*	SB	ST	MR	Crab and Lobster Recreational Gear Marking and Commercial Lobster Harbor Restricted Fishing Areas	29.80, 122		D			A					E 10/1									
	ST	WB		Tricolored Blackbird Emergency - 180 Day	749.9						EE 8/17	EE 9/7												
*	ST	WB		Tricolored Blackbird - Compliance	749.9																			
	SB	ST	MR	Abalone Emergency - 180 DAY	29.15	EM 4/1						EE 9/28												
	CM	JS	FGC	Use of Dogs for Pursuit/Take of Mammals or for Dog Training	265		N								D		A				E 4/1			
	SB	ST	MR	Abalone - Compliance	29.15																			
	SB	SF		Process for Automatic Conformance to Federal Recreational Fishing Regulations	27.531.95		N			D		A			E 11/1									
*	SB	ST	FB	Commercial Take of Rattlesnakes	TBD					N					D/A				E 1/1					
	MR	JS	WLB	Big Game Tag Quota Reporting Process	360, 361, 362, 363, 364					N		D			A				E 1/1					
*	SB	SA/ST	MR	Nearshore and Deeper Nearshore Fishing Permits	150, 150.01, 150.02, 705					N		D			A									
*	MR	ST	MR	Commercial Fisheries Electronic Reporting	TBD					N					D/A				E 1/1					
*		MR		Commercial Sea Cucumber	128					N					D/A				E 1/1					
*	MR	SF	MR	Commercial Herring (Annual)	163, 164							N			D/A			E 12/28 X						
RULEMAKING SCHEDULE TO BE DETERMINED																								
*			MR	Kelp and Algae Harvest Management	165, 165.5, 704						V					V								
*			MR	Commercial Sea Cucumber	128															V				
*	MR	ST	MR	Commercial Sea Urchin (Phase II)	120.7																			
*				Possess Game / Process Into Food	TBD																			
*			OGC	AZA / ZAA	671.1																			
				Night Hunting in Gray Wolf Range	474																			
				Shellfish Best Management Practices	TBD						V													
			WB	Trapping Fees	TBD																			
*		ST	WB	Tricolored Blackbird	749.9																			
	SB	ST	MR	Abalone	29.15																			
*		SF	FGC	Tribal Take in MPAs	632																			

EM = Emergency, EE = Emergency Expires, E = Anticipated Effective Date (RED "X" = expedited OAL review), N = Notice Hearing, D = Discussion Hearing, A = Adoption Hearing, V = Vetting, R = Committee Recommendation, WRC = Wildlife Resources Committee, MRC = Marine Resources Committee, TC = Tribal Committee

2017 APR 11 AM 9:01

Memorandum

Date: April 10, 2017

To: Valerie Termini, Executive Director
Fish and Game Commission

From: Charlton Bonham
Director



Subject: **Request for changes to the Fish and Game Commission's Timetable for Anticipated Regulatory Actions**

The Department of Fish and Wildlife (Department) requests the following schedule changes be made to the Fish and Game Commission's (Commission's) 2017 regulatory timetable:

- Remove the proposed Big Game Tag Reporting Process rulemaking from the calendar. Department and Commission staff have determined that this rulemaking is no longer needed. In lieu of this rulemaking, we recommend changing from the current annual process to a three-year regulatory cycle for big game tag quota allocations. Of course, tag quota changes can be considered in any year when adverse environmental conditions or population data warrant a revision.
- Move the proposed Commercial Sea Cucumber rulemaking from the "To Be Determined" category to public notice at the June 22, 2017 meeting in Smith River. The current fishery is open year-round. The Department believes that a closure during all or part of the spawning season is needed to maintain a sustainable fishery. Discussion and adoption would occur at the October 12, 2017 meeting in Atascadero.

If you have any questions or need additional information, please contact Regulations Unit Manager, Craig Martz at (916) 653-4674 or by email at Craig.Martz@wildlife.ca.gov.

cc: Stafford Lehr, Deputy Director
Wildlife and Fisheries Division
Stafford.Lehr@wildlife.ca.gov

David Bess, Chief
Law Enforcement Division
David.Bess@wildlife.ca.gov

Craig Shuman, D. Env., Manager
Marine Region
Craig.Shuman@wildlife.ca.gov

Valerie Termini, Executive Director
Fish and Game Commission
April 10, 2017
Page 2

Kevin Shaffer, Chief
Fisheries Branch
Wildlife and Fisheries Division
Kevin.Shaffer@wildlife.ca.gov

T. O. Smith, Chief
Wildlife Branch
Wildlife and Fisheries Division
Timothy.Smith@wildlife.ca.gov

Maria Melchiorre, Assistant Chief
License and Revenue Branch
Maria.Melchiorre@wildlife.ca.gov

Craig Martz, Program Manager
Regulations Unit
Wildlife and Fisheries Division
Craig.Martz@wildlife.ca.gov

Scott Barrow
Senior Environmental Scientist
Regulations Unit
Wildlife and Fisheries Division
Scott.Barrow@wildlife.ca.gov

Fish and Game Commission:

Melissa Miller-Henson
Deputy Executive Director
Melissa.Miller-Henson@fgc.ca.gov