CDFW Climate College: Lecture #9

Walk the Talk: CDFW Testimonials

Kevin Hunting

Gordon Leppig, R1

Mike Carion, LED

Debbie Aseltine-Neilson, MR

May 16th
1:30 - 2:30PM

- Create a community of adaptation practitioners.
- Accelerate the development of solutions.
- Bring multiple sectors together
- 55 Symposiums
- 12 training events
- 25 working groups

- 500 registrants
  - 44 states
  - 2 territories
  - 3 Canadian Provinces
  - 50 Tribal representatives
  - 73 peoples from CA

  - Gov't: 37%
  - NGO: 37%
  - University: 16%
  - Student: 5%
  - Corporate: 5%

Climate Science Program

- Activities
- Resources
- CDFW Climate College
- CDFW Climate Stakeholders
- CDFW Going Green
- Climate Change Case Studies
- Vulnerability Assessment Tools
- For Teachers
- Western Association of Fish and Wildlife Agencies
- Director's Bulletins
- Legislation and Policy

CDFW Climate Science and Renewable Energy Branch
1416 9th Street
Sacramento, CA 95814
climatechange@wildlife.ca.gov

National Adaptation Forum Agenda and Presentations

Note: If you were a presenter at the Forum and do not see your presentation or would like to update your presentation, please email climatechange@wildlife.ca.gov.

- Agenda (PDF)

S = Symposium
T = Training
WG = Working Group

TUESDAY, APRIL 2

CONCURRENT SESSION 1

(S) Advancing Understanding and Application of Adaptive Capacity to Inform Sustainable Resource Management in a Changing Climate

- Session Introduction
- Gretchen Hofmann, University of California, Santa Barbara: "Adaptation as a response to ocean acidification - is it possible and how do we look for it?"
- Erik Beever, Ph.D., USGS Northern Rocky Mtn. Science Center; "Understanding which, where, and how wildlife species can adapt to a variable and rapidly changing climate"
- Adrienne Nicotra, The Australian National University: "Plasticity: it's relevance to Adaptive Capacity from an ecological and

http://www.dfg.ca.gov/Climate_and_Energy/Climate_Change/Activities/National_Adaptation_Forum/

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Kevin Hunting, CDFW Chief Deputy Director

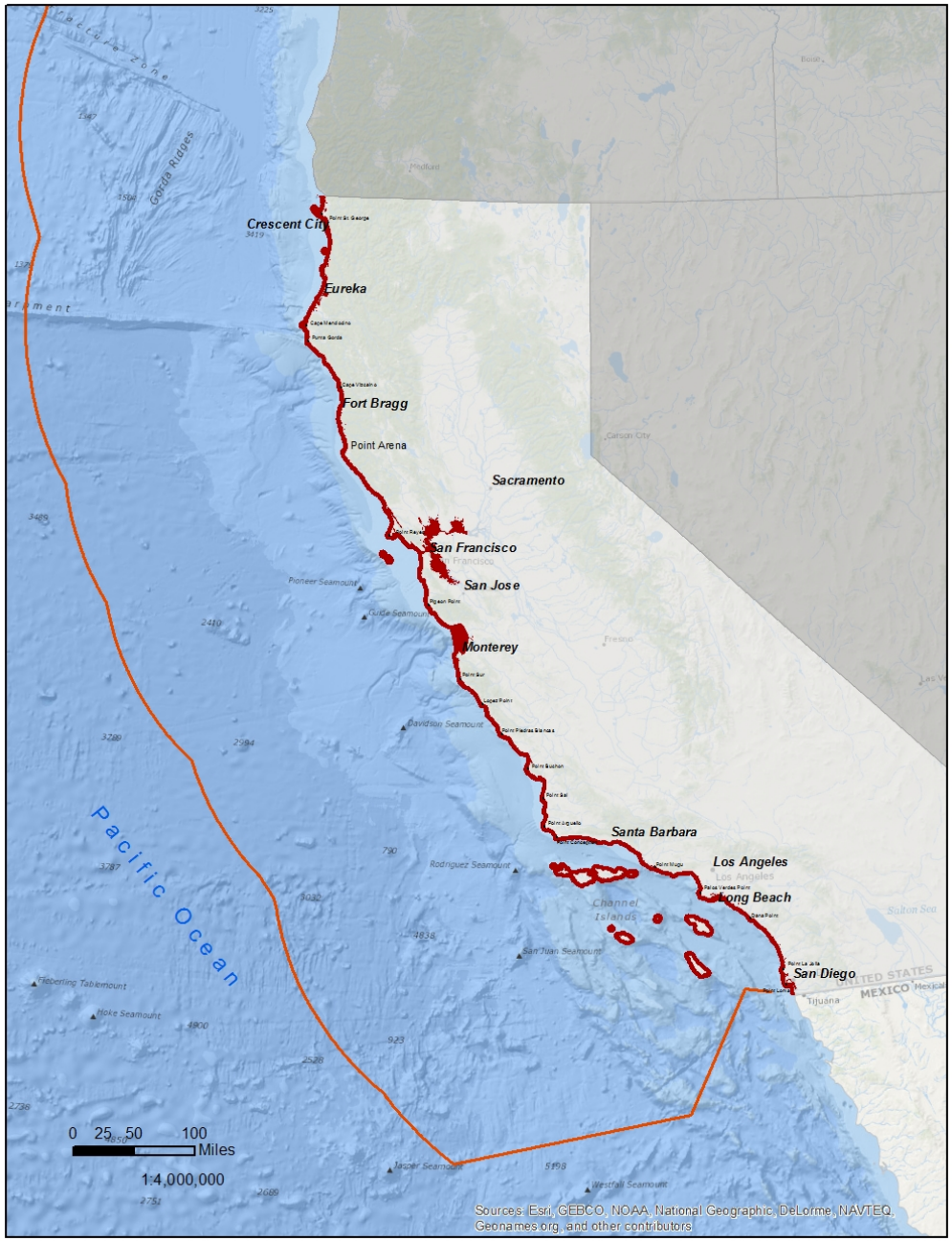
Climate Change and the Marine Environment

Debbie Aseltine-Neilson
CDFW Staff Environmental Scientist
Marine Region – San Diego

Marine Region

CDFW photo

Mission: To protect, maintain, enhance, and restore CA's marine ecosystems for their ecological values and their use and enjoyment by the public through good science and effective communication.

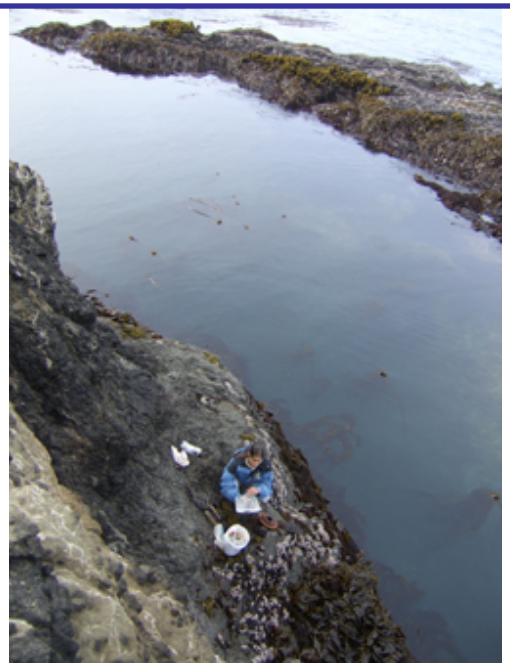


Produced by CDFW

Marine Region

- Responsible for resources along entire coast of CA
- Area includes state waters – out to 3 miles
- Requires collaboration with, and assistance from, numerous entities:
  - State and federal agencies
  - Fishing industry
  - Scientists
  - NGOs
  - Public

Incorporating Climate Change Into the Update Of the State Wildlife Action Plan



Shore habitats

Nearshore zone

CDFW photos

CDFW

E. Kaarsemaker

Estuaries, bays, and lagoons (including mud flats and sea grass beds)

Extreme Events

NOAA's America's Coastlines Collection

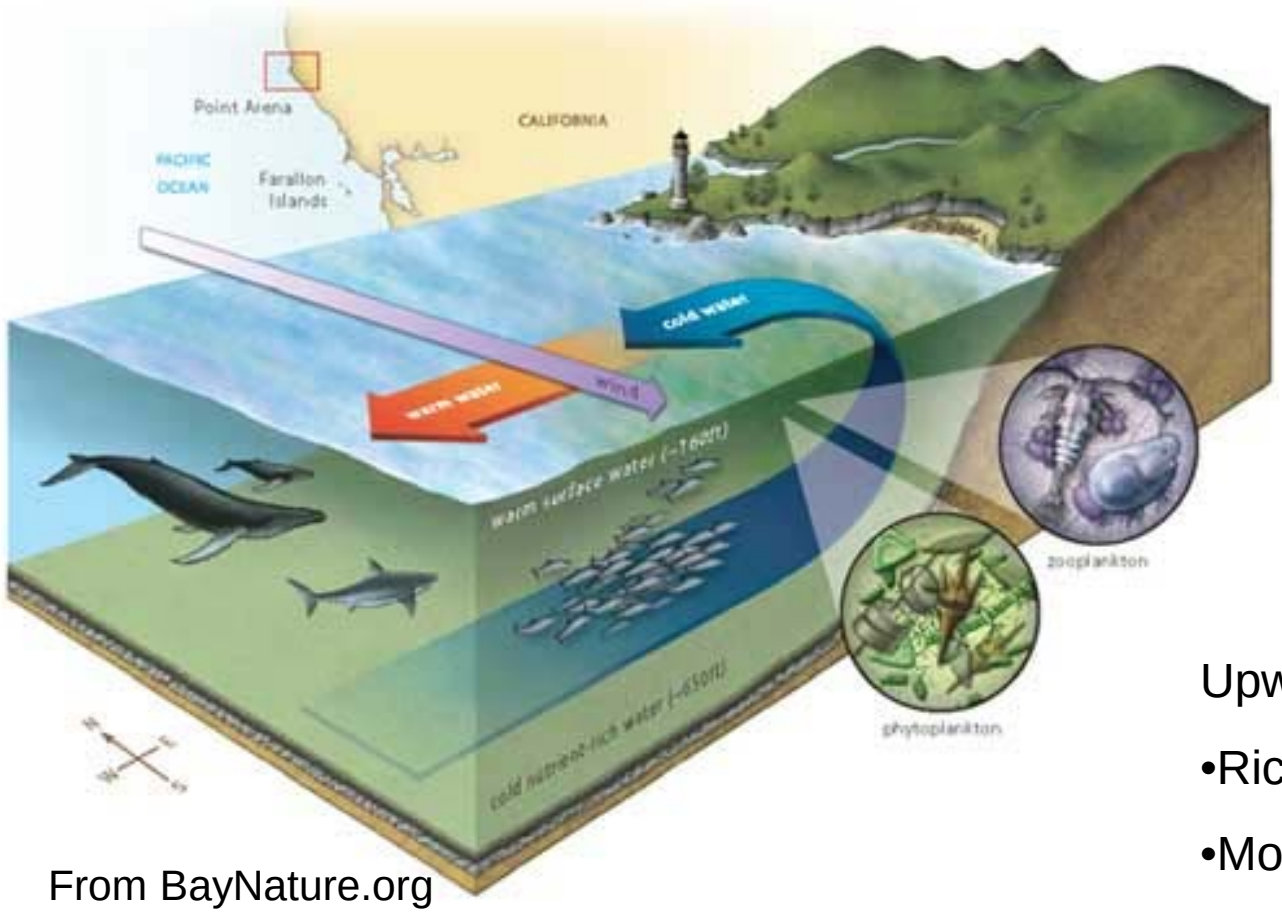
Sea Level Rise

CDFW photos

Incorporating Climate Change Into the Update Of the State Wildlife Action Plan

- Air temperature and humidity
- Freshwater runoff
- Water temperature
- Water chemistry (pCO_2, pH, aragonite concentrations, pO_2)
- Tides
- Currents
- Timing, duration, and strength of upwelling

CDFW



From BayNature.org

Upwelled waters are:

- Rich in nutrients
- More acidic ←
- Lower in oxygen

The source of the upwelled water takes a long time to get here.

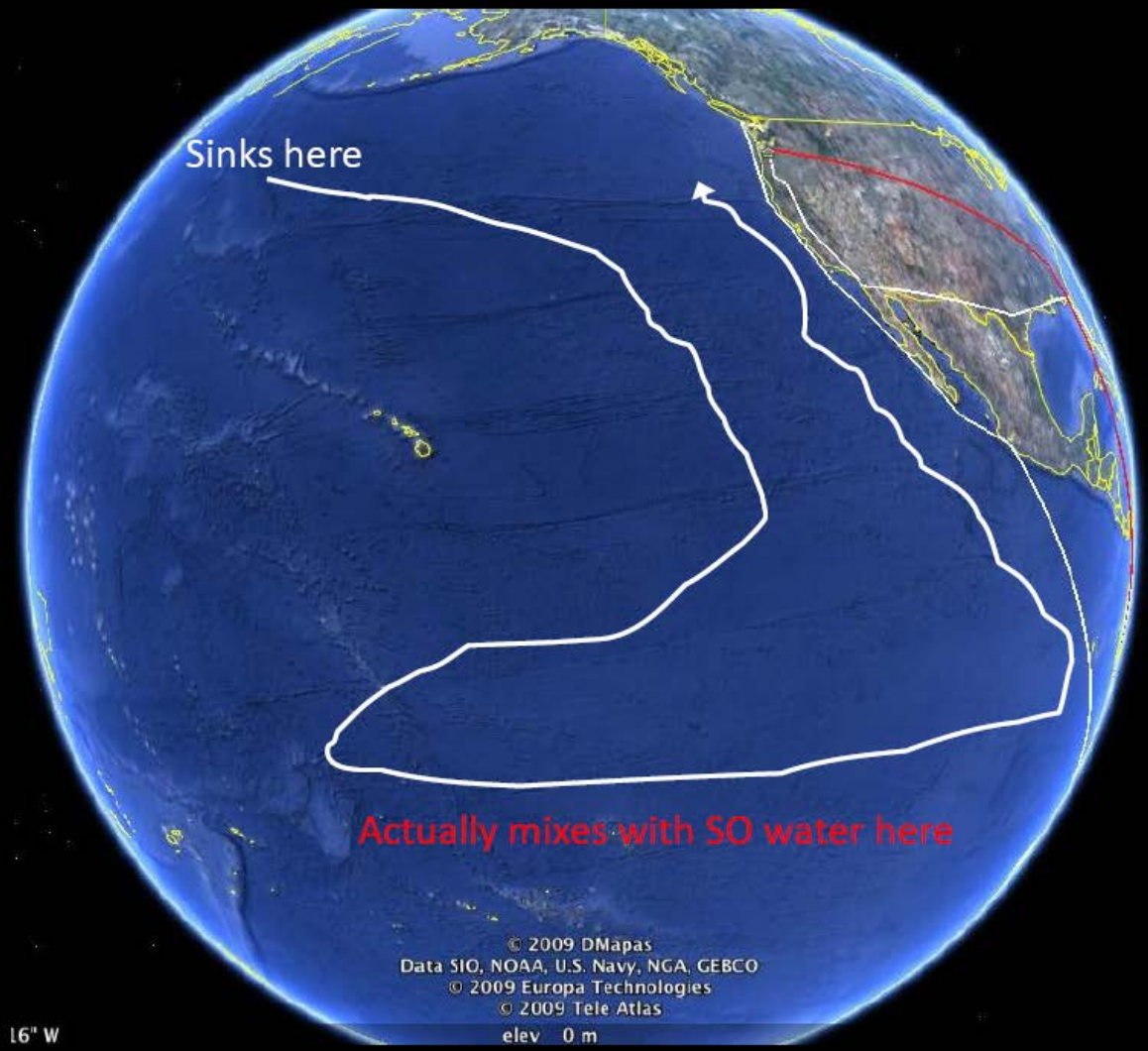
Water takes a circuitous path to upwelling centers.

Takes decades (3-5?) to get here.

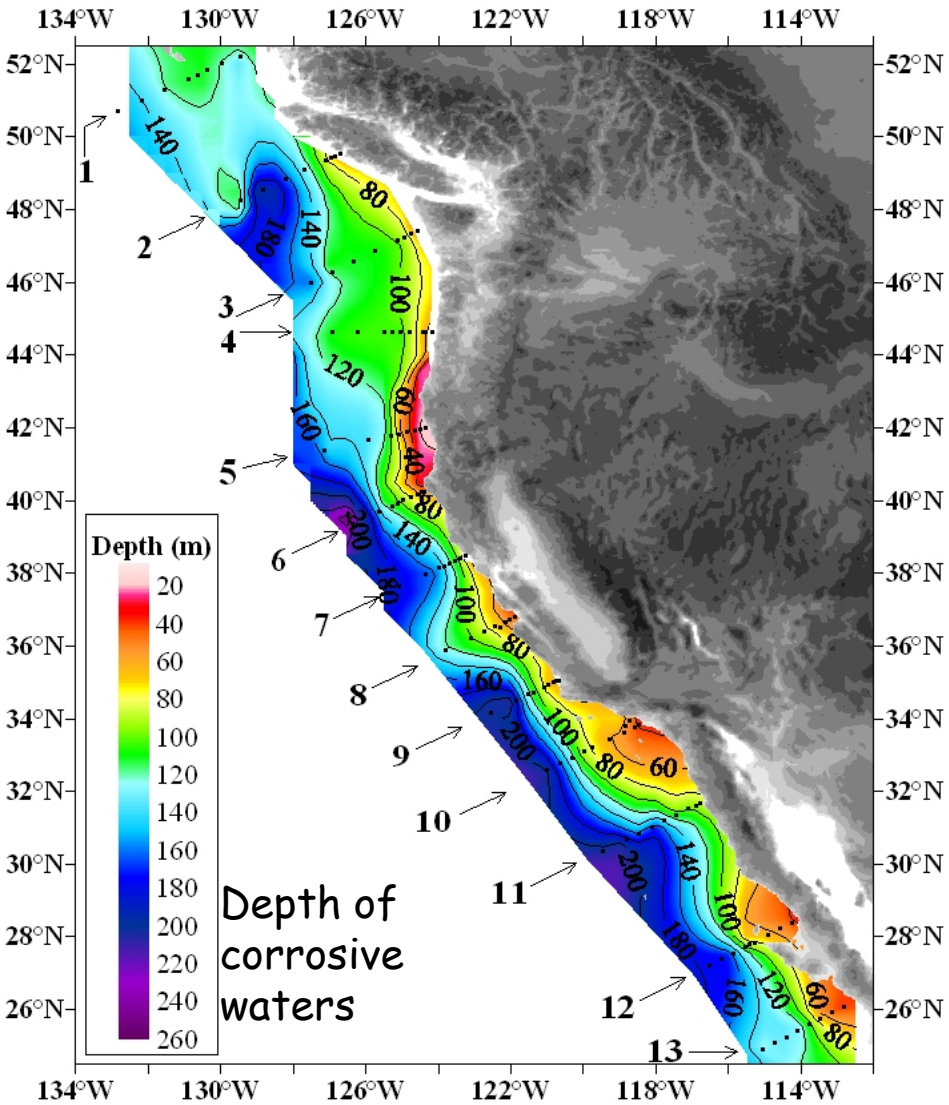
Water gets as deep as ~500m along its route.

During its entire transit, metabolic processes add CO_2.

Provided by Burke Hales, OSU



Ocean Acidification of the North American Continental Shelf



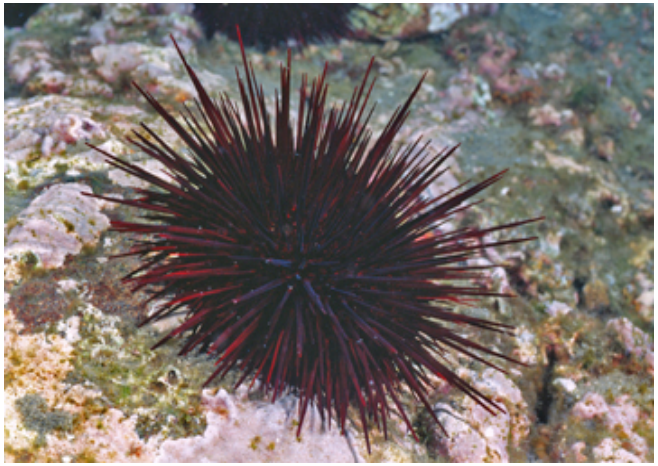
Distribution of the depths of the corrosive water (aragonite saturation < 1.0; pH < 7.75) on the continental shelf of west coast from Queen Charlotte Sound, Canada to San Gregorio Baja California Sur, Mexico.

On transect line 5 the corrosive water reaches all the way to the surface in the inshore waters near the coast.

Feely et al (2008)

Ocean acidification will likely affect important recreational and commercial shellfish species

- Clams, oysters
- Abalone, other “snails”
- Sea urchins



CDFW photos

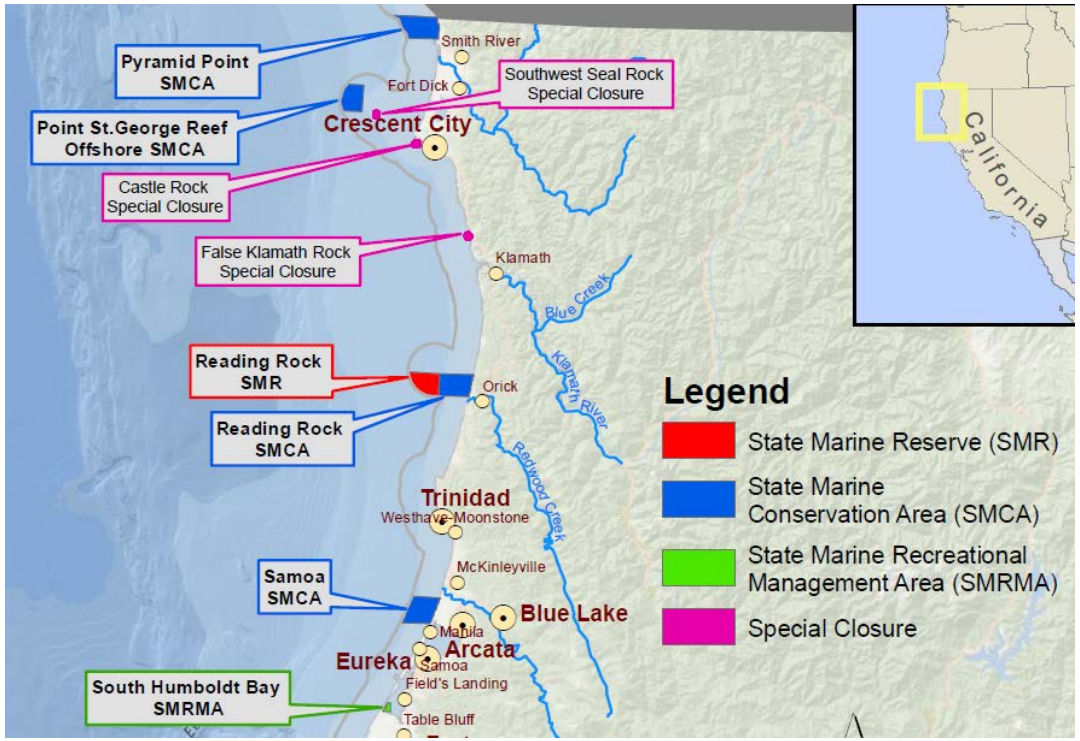
Ocean acidification is also expected to affect marine ecosystems

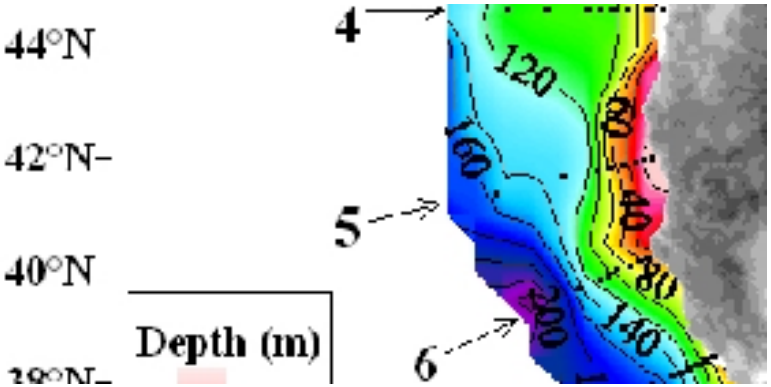
- Rocky substrate, kelp beds
  - Biogenic habitat
    - Soft corals, coralline algae
  - Food webs

CA sheephead
↓
Urchins → Kelp

CDFW

Incorporating Climate Change Into the Update Of the State Wildlife Action Plan





Location of Marine Protected Areas

It takes a collaborative approach!

- Marine Region ecoregion team
- Marine climate change team
- SWAP Technical Team
- Outside experts

Some current collaborations:

- California Ocean Science Trust, MPA Monitoring Enterprise

  "Monitoring climate effects in temperate marine ecosystems:

  A test case using California's MPAs"

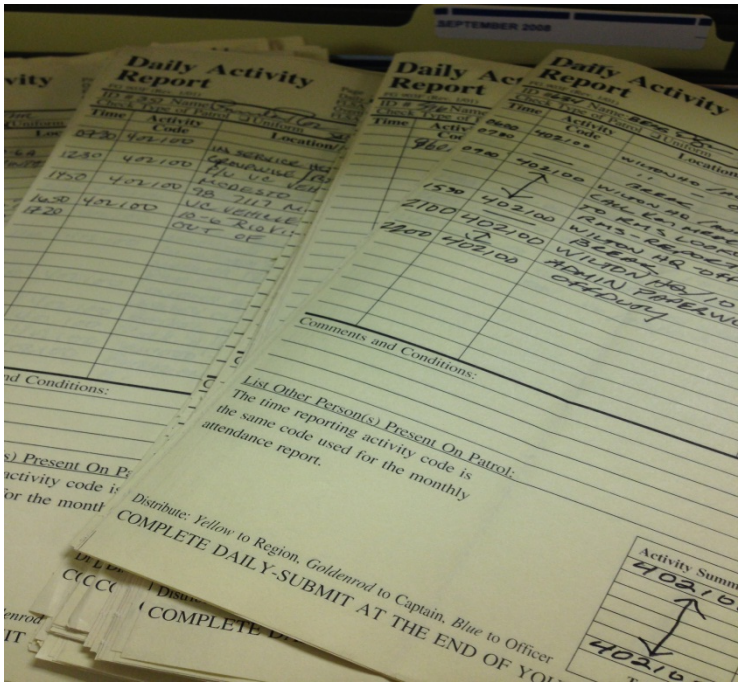
- California Current Acidification Network, http://c-can.msi.ucsb.edu/

Law Enforcement Division
Wildlife Officers

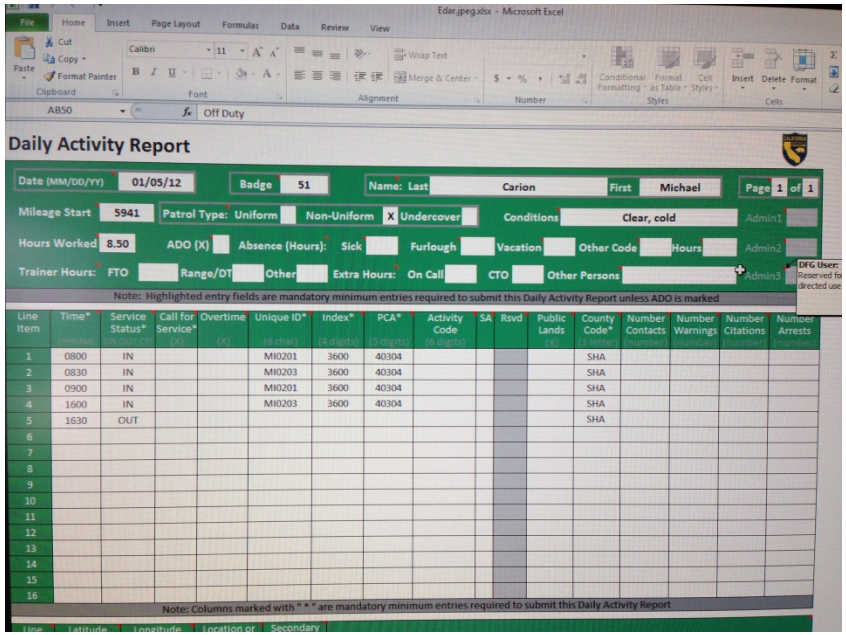
Going Green!

LED's Greener Approach

Before: Daily Activity Reports
3 Copies/Day



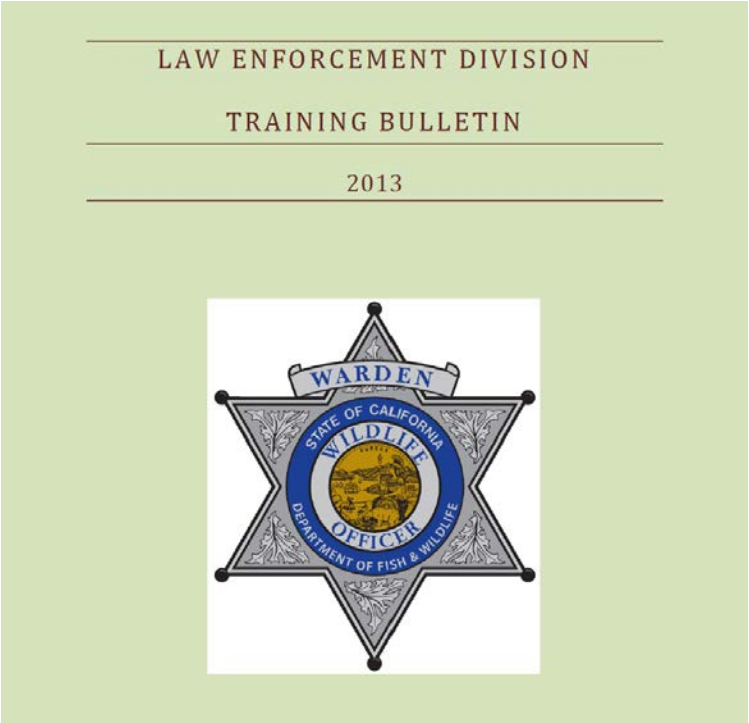
Now All E-based!



LED Going Greener…

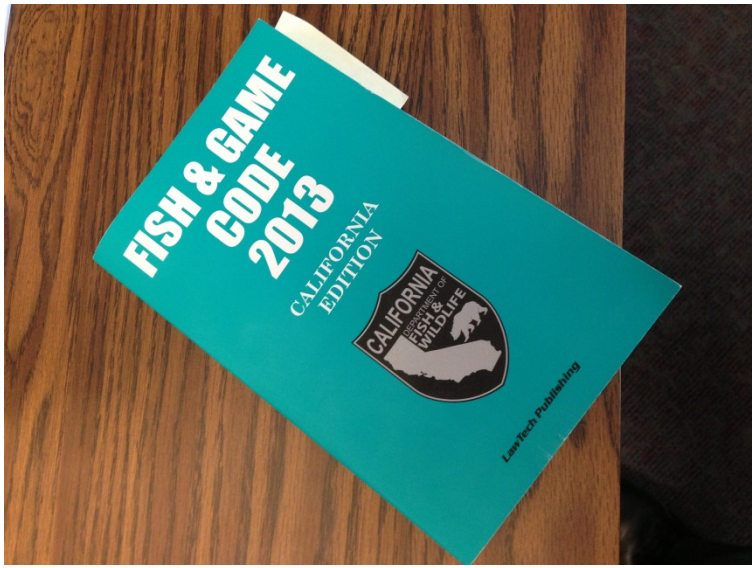
Old Training Bulletins

E-Version in the works for a shared drive!

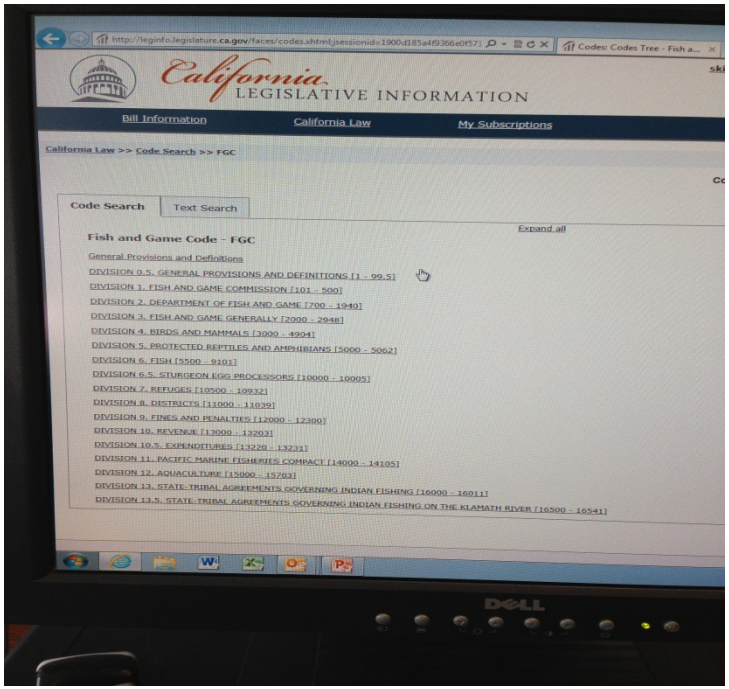


Less Books… More Apps!

From Half the Hard Copies



To Apps on Smart Phones and Web Based



Other Green Options!
Flex Fuel Engines

Marine Motors with Less Pollutants!

- LED is replacing the PB Bluefin engine with a **ultra-low sulfur diesel engine** which **surpasses the EPA standard for emissions with longer maintenance intervals!** This engine is found on the **Greenest** ferries in the country!

Enforcement for a Greener CA

- Streambed Alteration Violations
- Pollution Violations

- And… what may be causing the largest environmental damage of them all!

Illegal Marijuana Gardens Water Pollution

Marijuana Garden Damage
Extensive Litter

Indiscriminant Wildlife Damage

- Poached Ringtail, Deer and Bear

- Poached trout from the Golden Trout Wilderness

Marijuana Garden Clean-up and Eradication Efforts

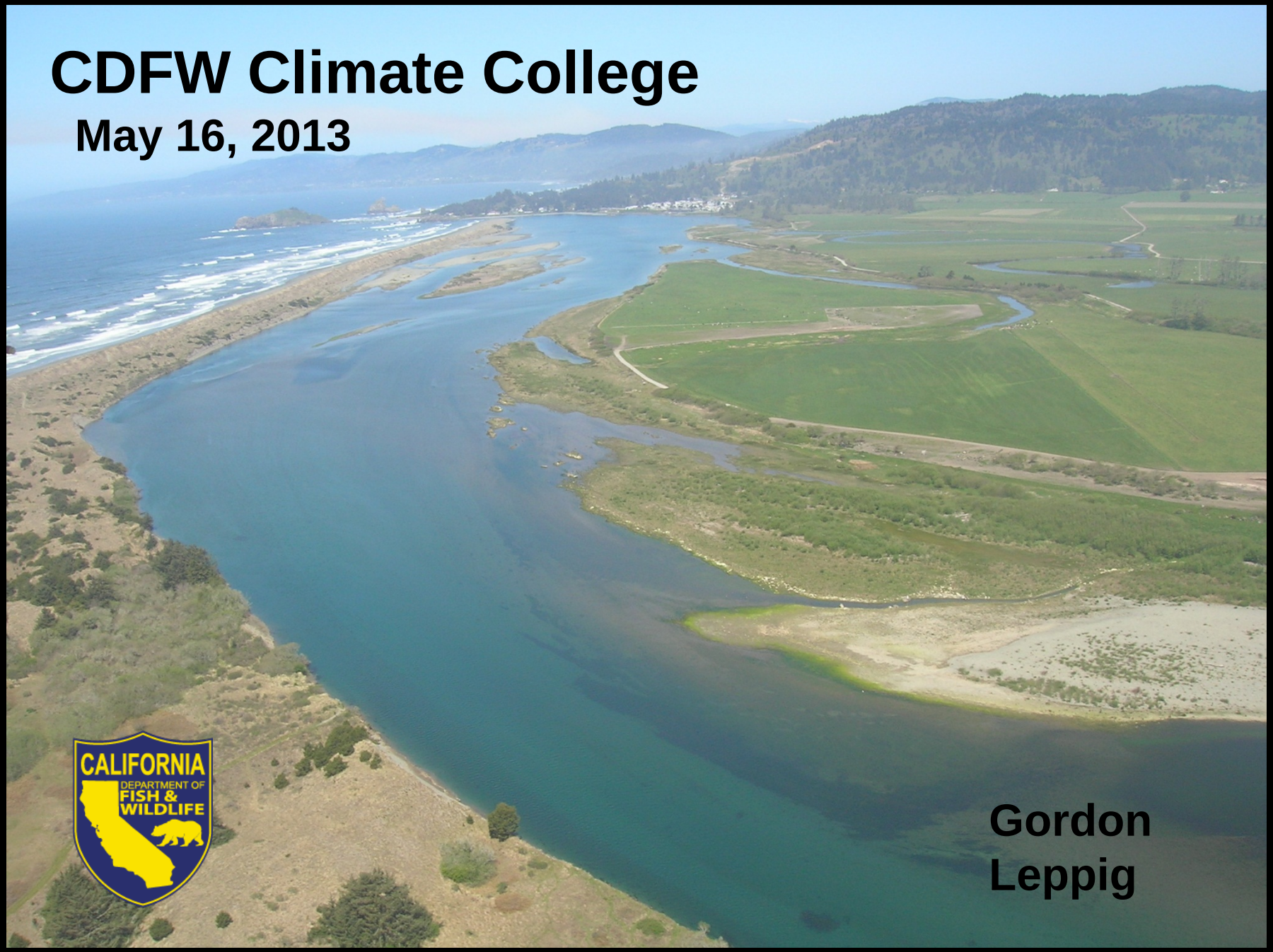
LED will strive to become even **Greener**!

- Better Fuel Options wherever possible
  - More efficient marine outboards
- Use of alternate power sources wherever possible
  - Solar Chargers
  - Greener batteries(re-chargeable etc.)
  - Etc.

Thank you for allowing us to share!

CDFW Climate College

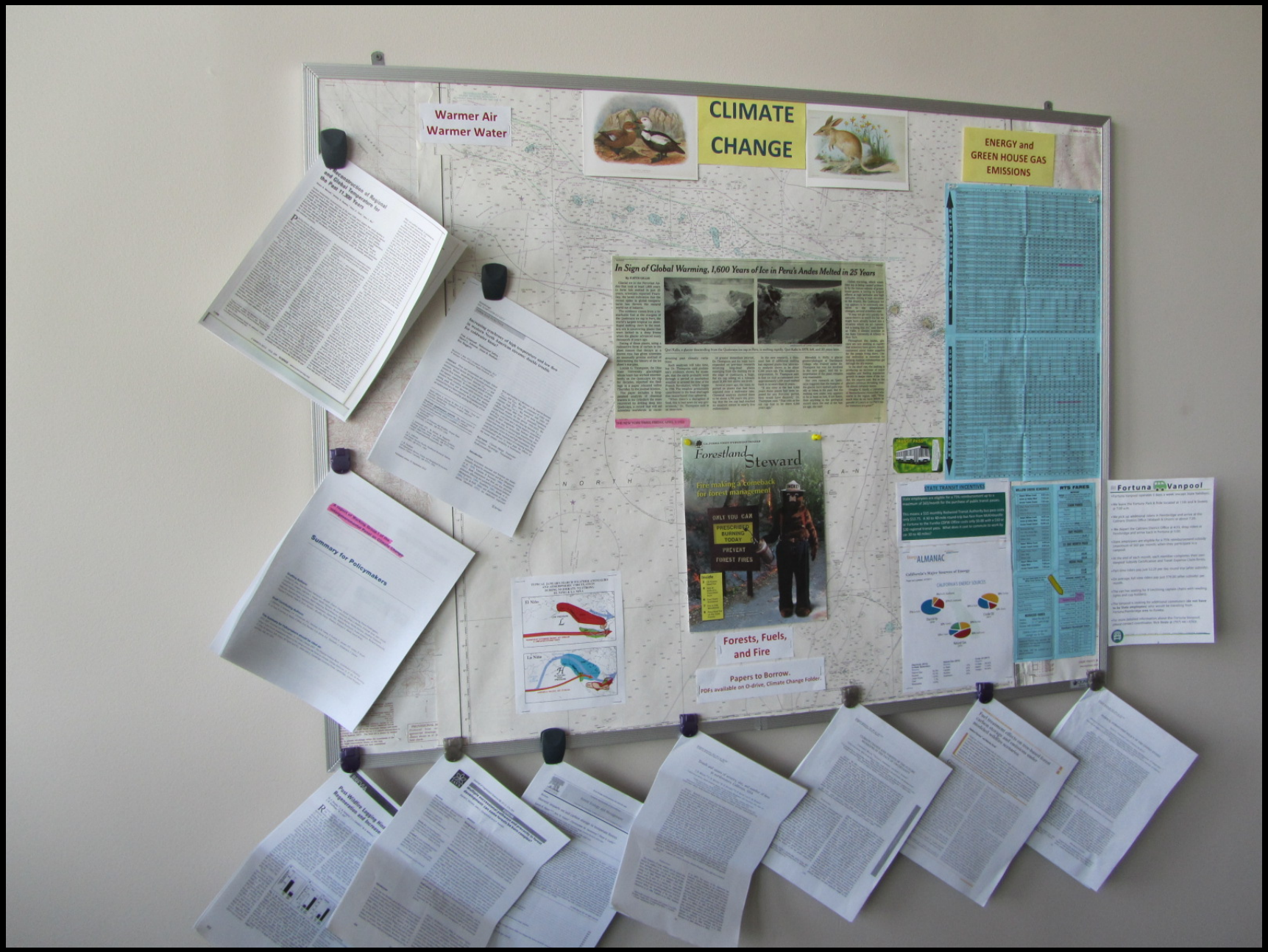
May 16, 2013



Gordon Leppig

Eureka CDFW Office

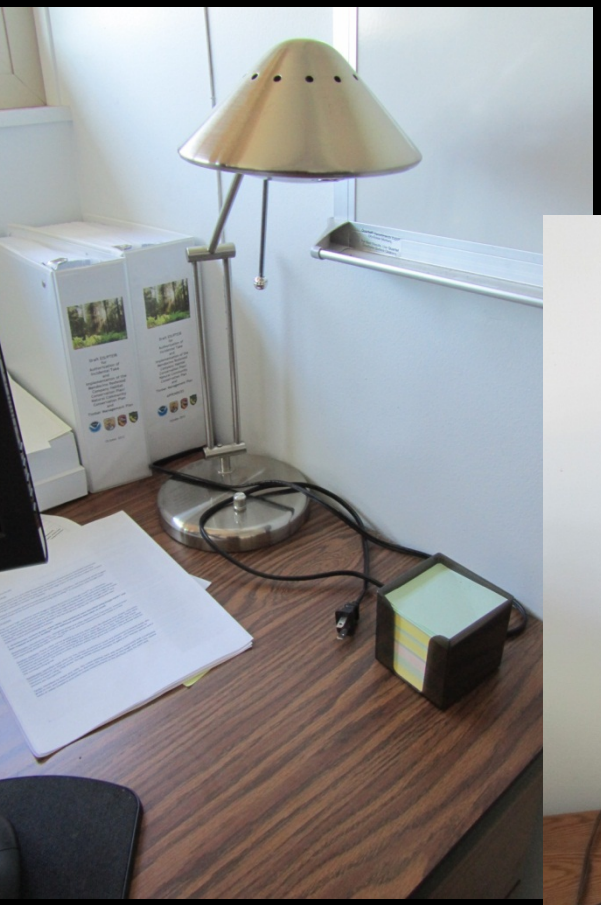
Focus on the Klamath Basin
CLIMATE CHANGE
ENERGY and GREEN HOUSE GAS EMISSIONS
Projected Future Conditions in the Klamath Basin of Southern Oregon and Northern California
October, 2009
Preparing for Climate Change in the Klamath Basin
National Center for Conservation Science & Policy
The Climate Leadership Initiative
March 2010
2012 Significant Climate Anomalies and Events
NORTH PACIFIC OCEAN
4. Basin Report: Klamath
El Niño
La Niña
Papers to take and read.
Ask Gordon for electronic copies.
California Air Resources Board
REVIEW
Approaching a state shift in Earth's biosphere


Warmer Air
Warmer Water
CLIMATE
CHANGE
ENERGY and
GREEN HOUSE GAS
EMISSIONS
In Sign of Global Warming, 1,600 Years of Ice in Peru's Andes Melted in 25 Years
Forestland Steward
Fire making a comeback for forest management
ONLY YOU CAN
PRESCRIBED BURNING TODAY
PREVENT FOREST FIRES
Summary for Policymakers
El Niño
La Niña
STATE TRANSIT INCENTIVES
ALMANAC
Fortuna Vanpool
Forests, Fuels, and Fire
Papers to Borrow.
PDFs available on O-drive, Climate Change Folder.

1.0 GPM

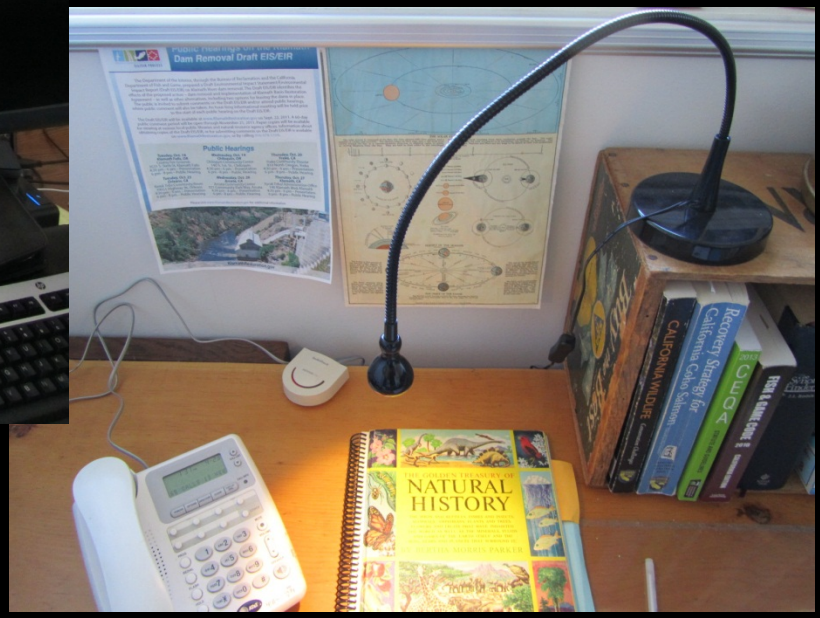
40w bulbs → **28w bulbs**

100 Watt Halogen

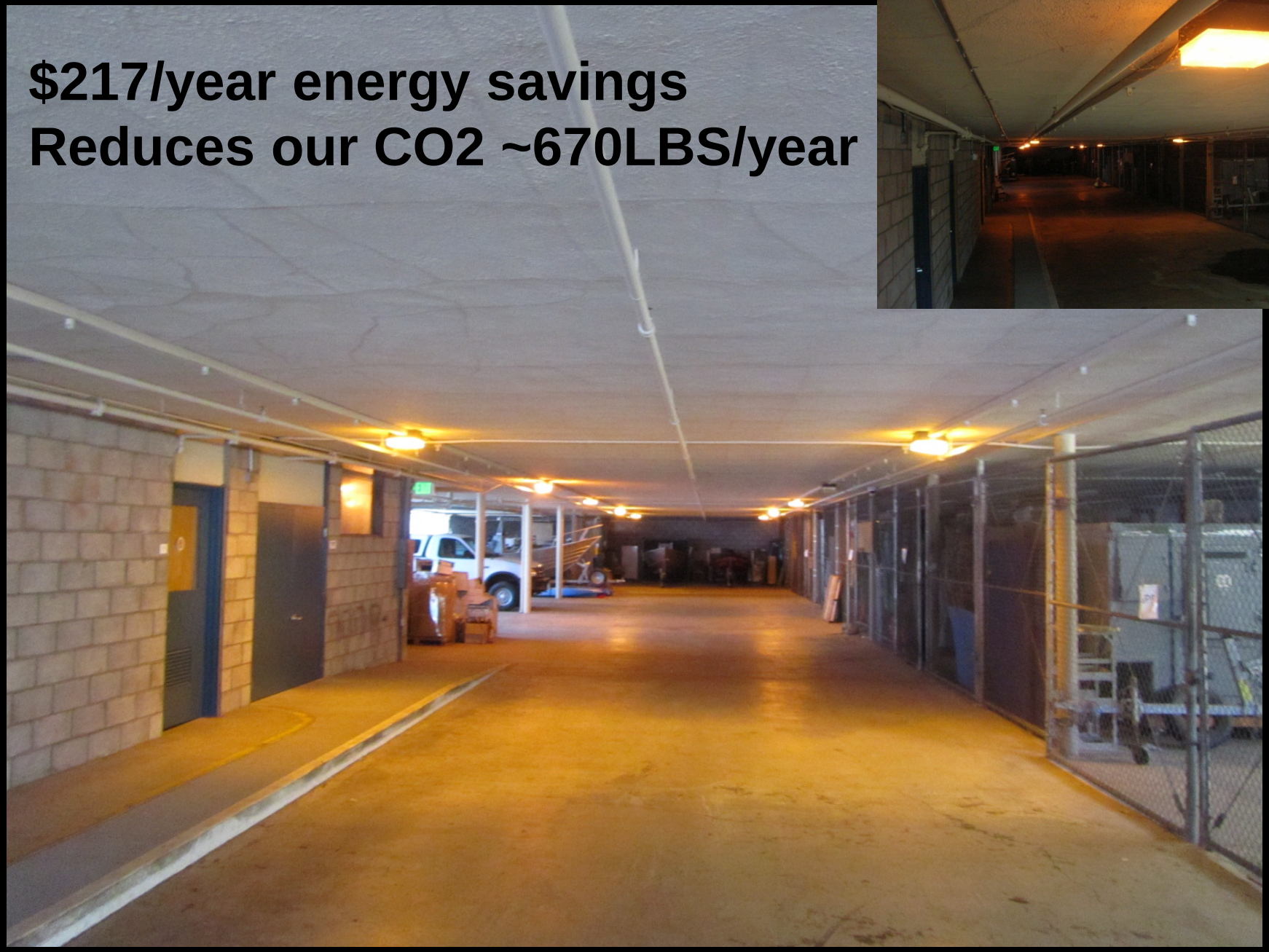


18 Watt CF

3 Watt LED

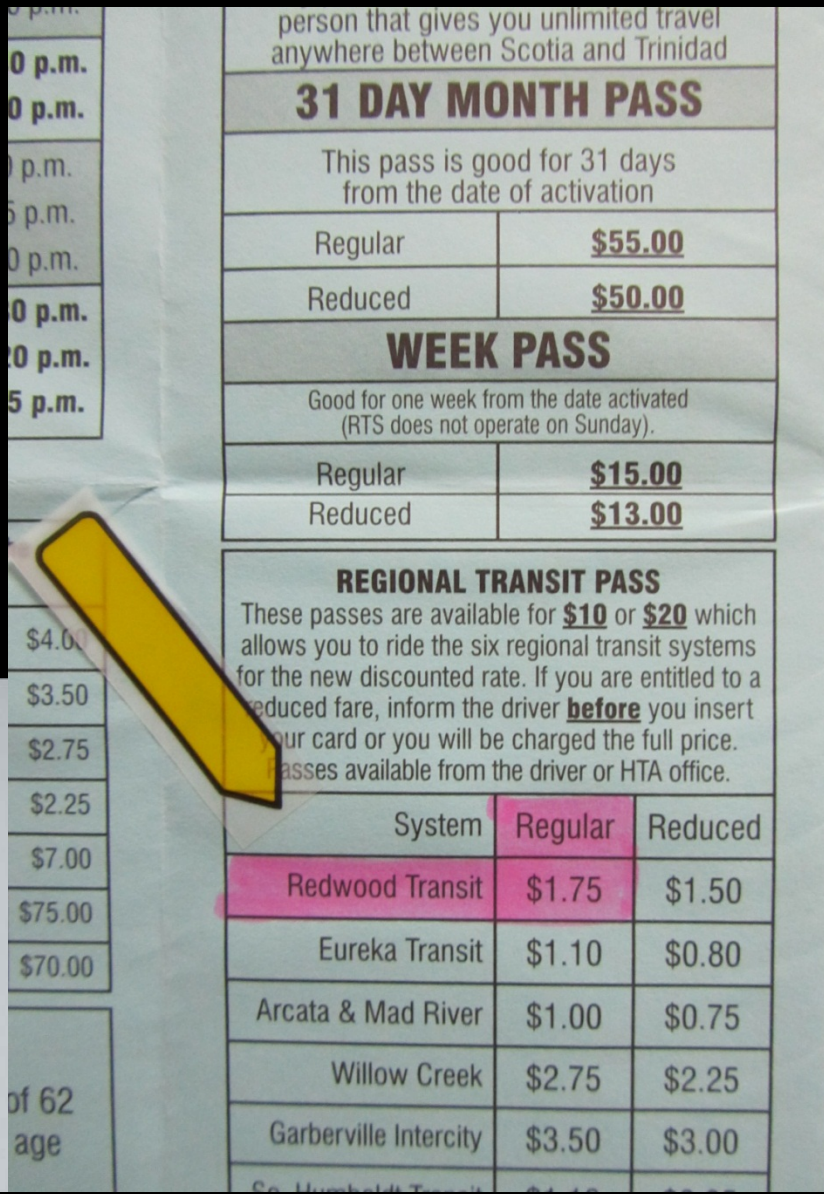


$217/year energy savings
Reduces our CO2 ~670LBS/year



STATE TRANSIT INCENTIVES

75% reimbursement up to a maximum of $65/month



person that gives you unlimited travel anywhere between Scotia and Trinidad

31 DAY MONTH PASS

This pass is good for 31 days from the date of activation

Regular	$55.00
Reduced	$50.00

WEEK PASS

Good for one week from the date activated (RTS does not operate on Sunday).

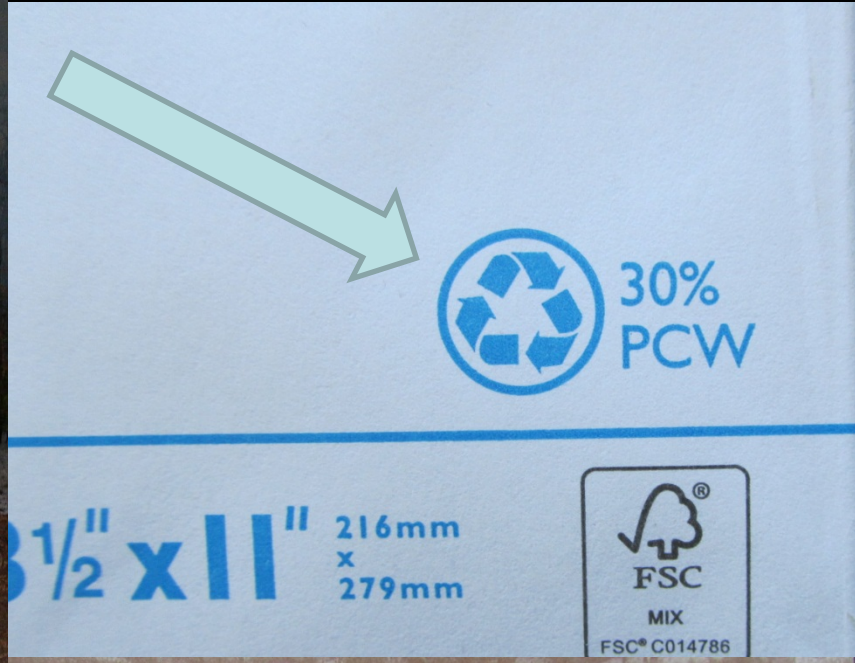
Regular	$15.00
Reduced	$13.00

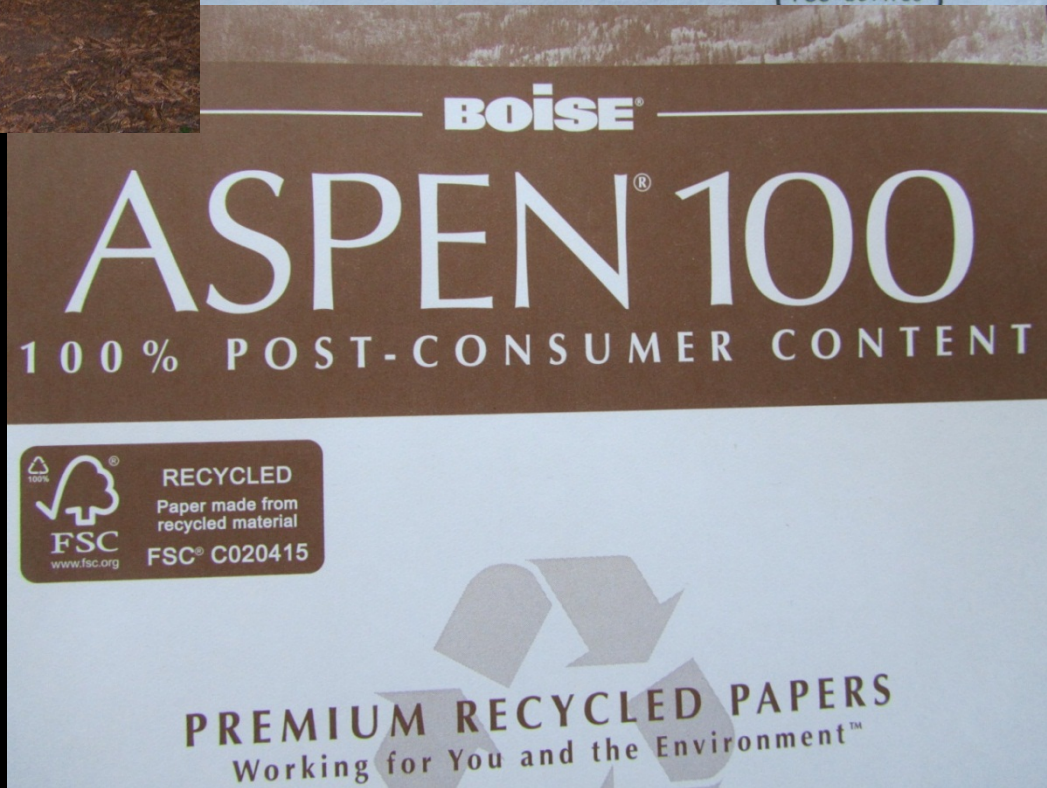
REGIONAL TRANSIT PASS

These passes are available for $10 or $20 which allows you to ride the six regional transit systems for the new discounted rate. If you are entitled to a reduced fare, inform the driver before you insert your card or you will be charged the full price. Passes available from the driver or HTA office.

System	Regular	Reduced
Redwood Transit	$1.75	$1.50
Eureka Transit	$1.10	$0.80
Arcata & Mad River	$1.00	$0.75
Willow Creek	$2.75	$2.25
Garberville Intercity	$3.50	$3.00

Tony LaBanca





HY 98879
elearys.dk

13 MPG

20 MPG

MPG ?

Wetland and Riparian Habitat Technical Memorandum

California Association of Professional Scientists

CALIFORNIA ASSOCIATION OF PROFESSIONAL SCIENTISTS

Scott Bauer

California Association of Professional Scientists (CAPS)
Environmental Sustainability Policy

Approved by the Board May 22, 2010

CAPS Targets Climate Change

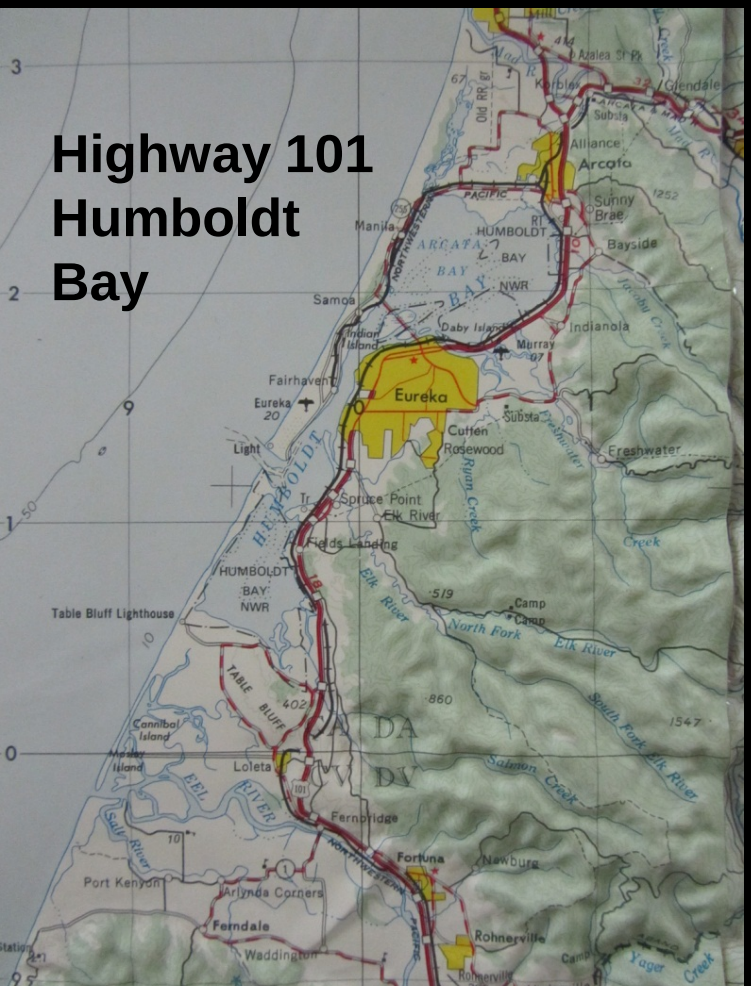
California Native Plant Society

California Department of Fish & Wildlife

CNPS 2015 Conservation Conference San Jose, CA

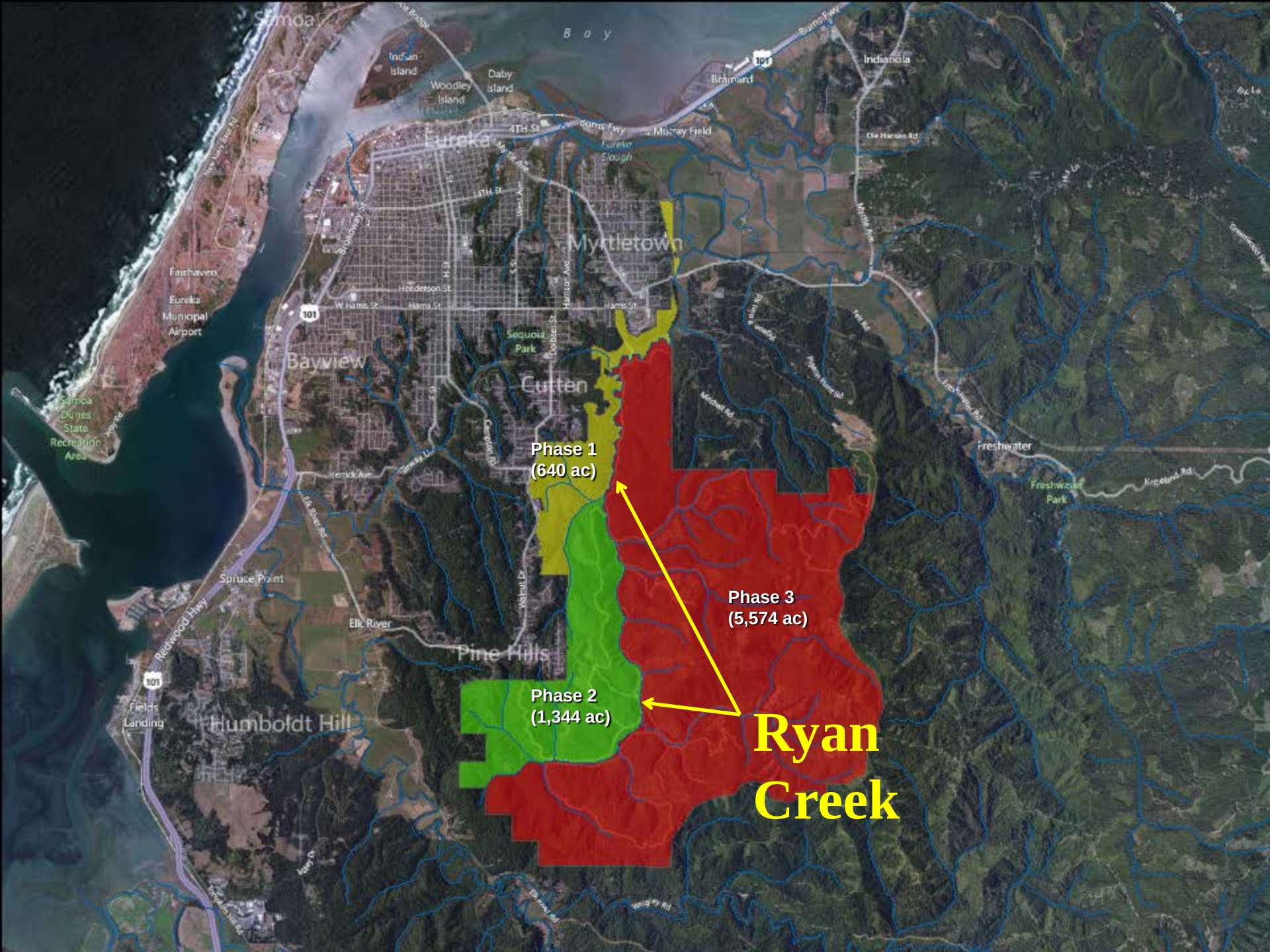
Humboldt Bay
Sea Level Rise Adaptation Planning

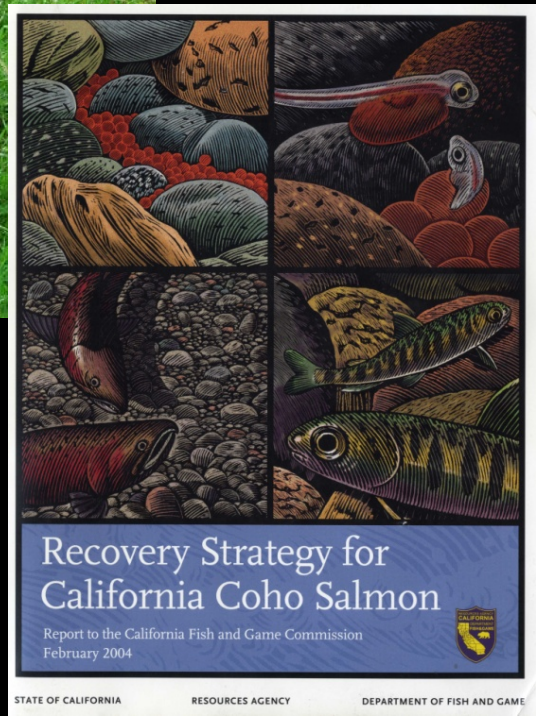
Caltrans
Climate Change
Adaptation
Pilot Strategy



Last Chance Grade, Del Norte Co.

Garcia River Estuary, Mendocino Co.


Phase 1
(640 ac)
Phase 3
(5,574 ac)
Phase 2
(1,344 ac)
Ryan
Creek
Samoa
Bay
Indian Island
Woodley Island
Daby Island
Brainard
Indianola
Eureka
Eureka Slough
Murray Field
Myrtletown
Fairhaven
Eureka Municipal Airport
Bayview
Sequoia Park
Cutten
Samoa Dunes State Recreation Area
Freshwater
Freshwater Park
Spruce Point
Elk River
Pine Hills
Fields Landing
Humboldt Hill
Redwood Hwy
Burns Fwy
4TH St
Henderson St
W Harris St
Harris St
Herrick Ave
Elk River Rd
Walnut Dr
Mitchell Rd
Freshwater Rd
Kreeland Rd
Ole Hansen Rd
Myrtle Ave
Wrigley Rd
101



Mike Wallace

Sidalcea malviflora ssp. *patula*

Linda Miller

USFS Land and Resources Management Plans (Forest Plans)

Warmer temperatures and drought

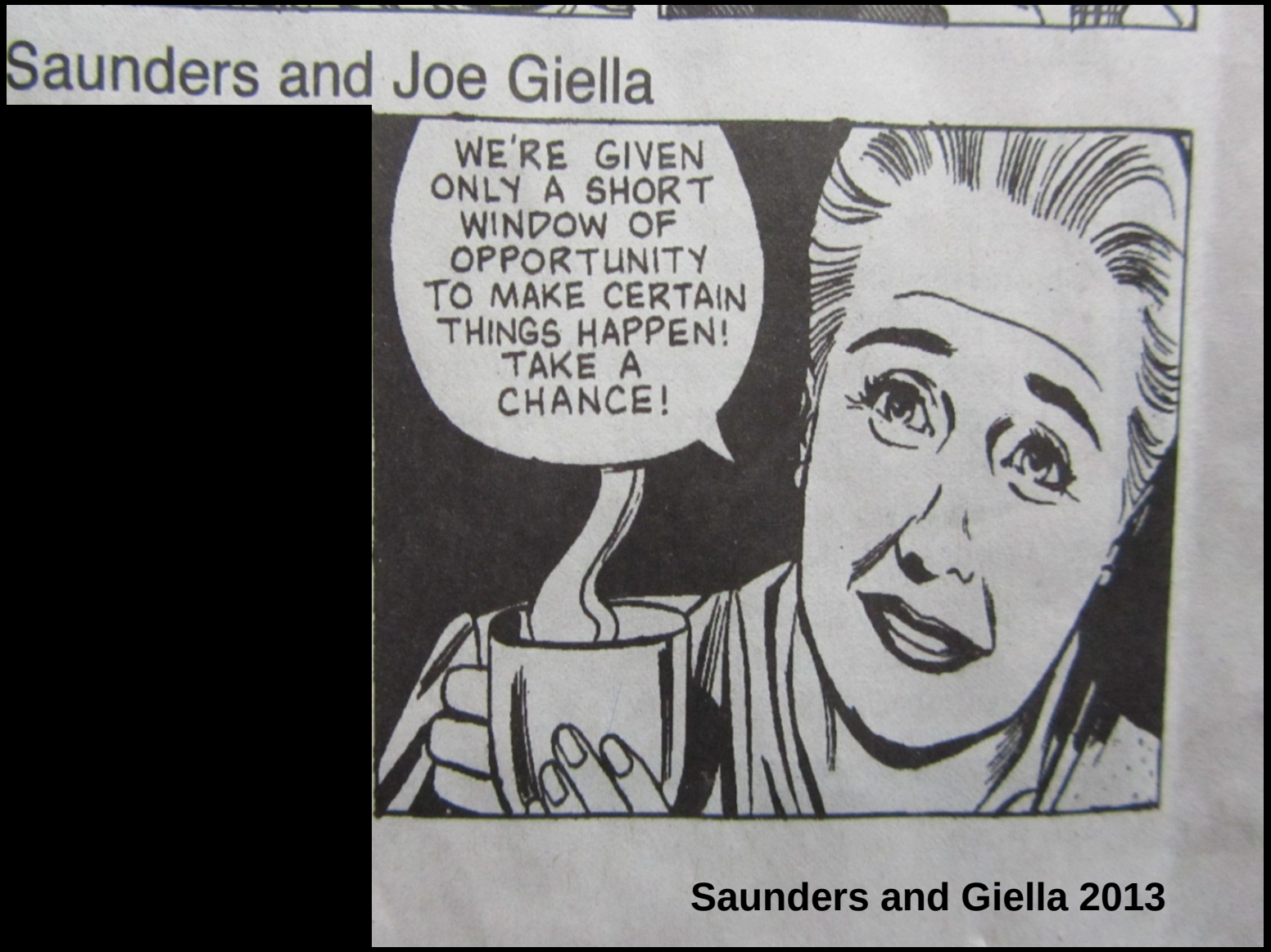
- Fire management
- Fuels management
- Forest management

Bill Condon

Mark Stopher

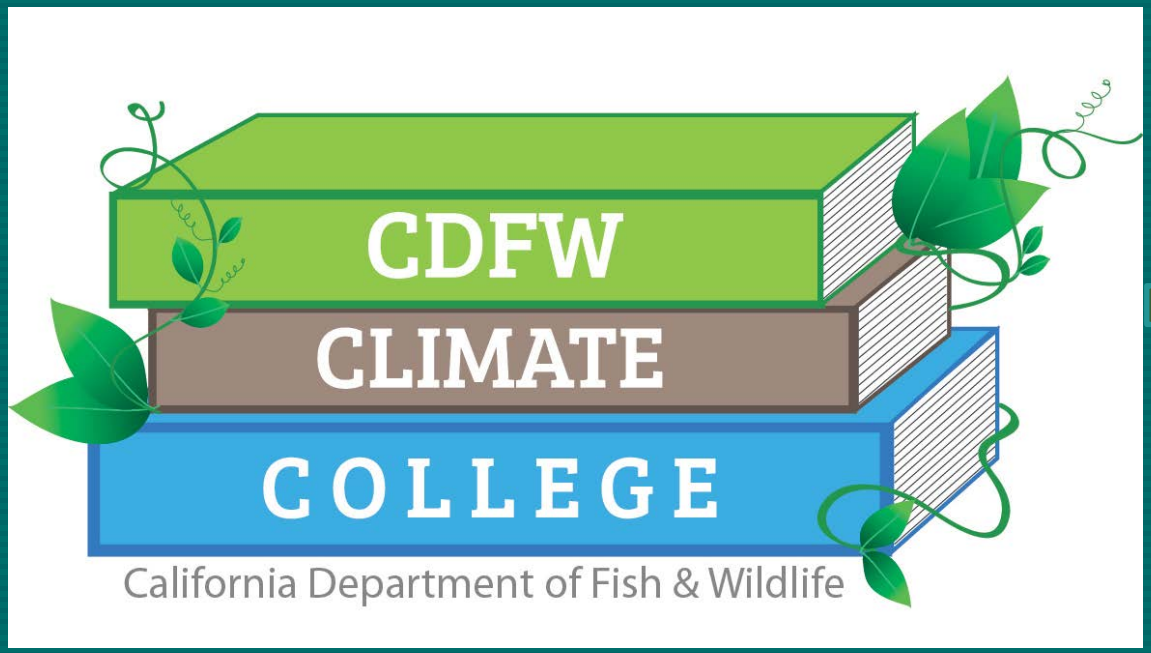
CDFW's Mission is the Confluence of Science and Public Policy

Mary Worth



Saunders and Giella 2013

MORE Climate College!



Marine & TEK focus

Save the Date!

- CDFW Climate College Awards Ceremony:

  Tuesday June 25th, 1:00-3:00PM

Natural Resource Building Auditorium-Sacramento

- Celebrate projects completed by your colleagues!

- Watch 7 of 9 lectures & submit a project
  - Receive certification from DFW/OTD and a certificate of completion from the Director

CDFW CLIMATE COLLEGE
California Department of Fish & Wildlife

Reminder: Projects due May 31st!

- What to submit:
  - The final project coversheet
  - 1-3 page summary describing your project OR a poster summarizing your project (3X4 ft)
  - Any additional documentation as appropriate (e.g. your presentation slides, excerpt from a document where you incorporated climate change, etc.)

Project guidelines and coversheet online:
www.dfg.ca.gov/Climate_and_Energy/Climate_Change/Climate_College/Project_Guidelines.aspx

Thank you &
Congratulations!!