Summary Information

Stockton East Water District

Calaveras River: Bellota fish ladder passage evaluation

Amount sought: $144,051

Duration: 36 months

Lead investigator: Mr. Doug Demko, S.P. Cramer &Associates

Short Description

In 2003, USFWS funded, through the Central Valley Project Improvement Act's (CVPIA) Anadromous Fish Restoration Program (AFRP), the construction and installation of a denil fish ladder at the lower end of the Bellota Weir (RM 24). Since its installation, there has been no comprehensive evaluation of the effectiveness of the ladders at providing fish passage. This monitoring project will evaluate the effectiveness of the ladders under low flow conditions by enumerating fish migrating through the ladders with an infra−red scanner (Vaki RiverWatcher). An additional objective is to evaluate flow conditions preceding recorded fish passage events by documenting flow data at two gaging stations.

Executive Summary

Calaveras River: Bellota Fish Ladder Passage Evaluation

EXECUTIVE SUMMARY

The Calaveras River is a tributary to the San Joaquin River that supports a substantial rainbow trout fishery, and is opportunistically used by steelhead and fall−run Chinook salmon when adequate streamflows allow for migration above Bellota to occur. Although several factors may contribute to limited steelhead and Chinook salmon populations in the Calaveras River, one of the primary factors identified is inadequate passage at a flashboard dam structure known as the Bellota Weir. In 2003, the U.S. Fish and Wildlife Service (USFWS) funded, through the Central Valley Project Improvement Act's (CVPIA) Anadromous Fish Restoration Program (AFRP), the construction and installation of a denil fish ladder at the lower end of the Bellota Weir (RM 24). This ladder was intended to complement an existing denil fish ladder installed on the upper end of the weir and the combined ladder configuration was designed to assist anadromous fish passage above the

Bellota Weir during low flow conditions. The ultimate goal of the AFRP funded ladder is to increase the abundance of fall−run Chinook salmon and steelhead within the Calaveras River through increasing fish access to spawning and rearing habitat within the 18 mile reach of river between Bellota and New Hogan Dam. Since its installation, there has been no comprehensive evaluation of the effectiveness of the ladders at providing fish passage. As a result, it is currently unknown whether fish are able to pass over the weir at low flows, and under what flow conditions, if any, the ladders become functional.

The primary objective of our monitoring project is to evaluate the effectiveness of the ladders under low flow conditions by enumerating fish migrating through the ladders with an infra−red scanner (Vaki RiverWatcher). An additional objective is to evaluate flow conditions preceding recorded fish passage events by documenting flow data at two gaging stations. This monitoring study will examine the opportunities for salmonid passage above the Bellota Weir into suitable spawning and rearing habitat.

The installation and operation of a Vaki RiverWatcher will provide the means for the collection of data that will more accurately reflect the status of Calaveras River Chinook and steelhead populations. The collection of life−history and population data is recognized by the CALFED Bay−Delta Program Ecosystem Restoration and Science Programs, and the CVPIA AFRP as an important tool in the planning and evaluation of restoration efforts. Evaluation of restoration efforts based on accurate data is integral to the successful implementation of adaptive management programs that allow managers to efficiently manage a scarce water resource and maximize benefits for at−risk salmonid species.

Calaveras River: Bellota Fish Ladder Evaluation

A. PROJECT DESCRIPTION: PROJECT GOALS AND SCOPE OF WORK

1. PROBLEM, GOALS, AND OBJECTIVES

Previously Funded Restoration Action

In 2003, the U.S. Fish and Wildlife Service (USFWS) funded, through the Central Valley Project Improvement Act's (CVPIA) Anadromous Fish Restoration Program (AFRP), the construction and installation of a denil fish ladder on the lower Calaveras River, a tributary to the San Joaquin River. The fish ladder is installed at the lower end of the Bellota Weir (RM 24) and was intended to complement an existing denil fish ladder installed on the upper end of the weir. The combined ladder configuration was designed to assist anadromous fish passage above the Bellota Weir during low flow conditions (Figure 1). Both ladders are installed each year during the period between November and March to provide access to suitable spawning and rearing habitat for Chinook salmon and steelhead. Suitable salmonid spawning and rearing habitat is located in the 18 mile reach that extends from Bellota to the impassable New Hogan Dam (RM 42). Although visual assessments of flows passing through the ladders have been made on several occasions, no directed fisheries monitoring has occurred to evaluate the effectiveness of the ladders at providing fish passage. As a result, it is currently unknown whether fish are able to pass over the weir through these ladders and under what flow conditions, if any, the ladders become functional.

Problem that the Restoration Action Addresses

The Calaveras River extends roughly 60 miles from the Sierra Nevada Mountains to the Stockton metropolitan area, however, anadromous salmonids have been limited to the lower 42 miles of river below New Hogan Dam since 1930 (Figure 2). The lower river between Bellota and New Hogan Dam currently supports a prized rainbow trout fishery, and is opportunistically used by steelhead (Titus 2000; SPC unpublished data) and fall-run Chinook salmon (Yoshiyama et al. 2001) when adequate streamflows for migration above Bellota occur.

Although several factors may contribute to limited steelhead and Chinook salmon populations on the Calaveras River, one of the primary factors identified is inadequate passage at the Bellota Weir (Reynolds et al.1993; USFWS 1995). Fish passage at the Weir is either blocked or impeded dependent on time of year and associated flashboard dam configuration, and the influence of precipitation on flow levels. During April through October, a 6-foot high flashboard weir is installed which blocks fish passage under all flow conditions. However, from November through March, this structure is replaced by a 2-foot high flashboard weir that prevents unassisted passage at low flows but allows passage to occur at higher flows (i.e., > 200-250 cfs). In recent years, two temporary fish ladders have been installed at the weir between November and March to increase upstream passage opportunities during low flow conditions for salmonids. These temporary fish ladders will continue to be used for a number of years until a permanent fish passage solution at Bellota is implemented. Currently, it is unknown whether fish are able to pass

over the weir through the ladders and under what flow conditions, if any, the ladders become functional.

Goals and Objectives of the Restoration Project and Proposed Monitoring Project

The overall objective of the AFRP funded fish ladder is to provide increased fish passage opportunities above Bellota, increasing fish access to spawning and rearing habitat within the 18 mile reach of river between Bellota and New Hogan Dam. The ultimate goal of the AFRP funded ladder is to increase the abundance of fall-run Chinook salmon and steelhead within the Calaveras River.

Since both of the denil fish ladders will continue to be used for a number of years until a permanent fish passage solution at Bellota is implemented, it is important to know whether the ladders, as configured, are functional at lower flows, or whether modifications should be made to provide maximal fish passage opportunities. Also, it is important to know what magnitude and duration of attraction and migratory flows provide fish the opportunity to reach the ladders. The primary objective for this monitoring project will be to evaluate the effectiveness of the ladders under low flow conditions by enumerating fish migration through the ladders with an infrared scanner (Vaki RiverWatcher). An additional objective will be to evaluate flow conditions preceding recorded fish passage events by documenting flow data at two gaging stations.

2. JUSTIFICATION

Flashboard dams, such as the Bellota Weir, can cause adverse effects to salmonids by "1) reducing stream habitat diversity, 2) diminishing stream water quality, 3) enhancing the habitats of salmonid predators, and 4) blocking or restricting fish movements" (NOAA Fisheries 2001). Unassisted upstream fish passage at Bellota is limited to periods during November through March when the temporary 2-foot high flashboard dam is installed and there are relatively high flow events (i.e., >200-250 cfs). Any delays or blockage of adult upstream migration at Bellota occurring from November through March can adversely affect upstream migrating fall-run Chinook (November-December) and steelhead (November-March). If adult salmonids are attracted into Mormon Slough and are delayed from passing over Bellota for an extended period of time, the extra cost in energy during the delay may reduce the ability of fish to successfully spawn (Mundie 1991, Banks 1969). If blocked from passing, adult salmonids may eventually spawn in Mormon Slough but unsuitable incubation conditions would result in larval mortality, or adults could become stranded in the slough during flow fluctuations and experience mortality prior to spawning (Fishery Foundation of California, unpublished data). Since delays or blockage at the weir can adversely affect salmonid productivity, it is important that the number of passage opportunities over the weir be maximized.

Without proper pool depths and horizontal and vertical distances at the weir during low flow conditions, fish ladders are necessary to assist salmonid passage into the reach above Bellota. Expected benefits from functional ladders are an increase in the abundance of Chinook salmon and steelhead, since more fish will be able to access areas where spawning and rearing habitat is available. Increased abundance will help attain the salmon and steelhead doubling goals of the AFRP and help in the recovery of federally threatened Central Valley steelhead.

Our proposed monitoring project will evaluate the effectiveness of the ladders for salmonid passage at low flows and will determine the flow conditions under which fish are attracted and migrate upstream. Our null hypotheses are:

HO: Adult salmonids are not capable of successfully migrating through the Bellota fish ladders.

HO: Adult salmonids are not capable of successfully migrating upstream through the Stockton Diverting Canal and Mormon Slough to reach the Bellota fish ladders.

If we determine that the ladders are not functional as currently configured, we will modify the configuration until a functional configuration is achieved to ensure that passage opportunities are maximized.

3. PREVIOUSLY FUNDED MONITORING

Only cursory visual assessments of the fish ladders and fish stranding surveys in Mormon Slough have been conducted under varying flow conditions by the Fishery Foundation of California (FFC), as funded by AFRP. No fisheries monitoring or hydraulic measurements have been made to adequately determine whether fish are able to pass over the weir through the ladders and under what flow conditions, if any, the ladders become functional.

4. APPROACH AND SCOPE OF WORK

It is essential to know whether fish are actually able to pass above the Bellota Weir through the fish ladders as they are currently configured. Otherwise, modifications to the ladders could potentially be implemented to maximize fish passage opportunities.

Performance measures will be in the form of written documentation of the monitoring project, including experimental design and hypotheses, study protocols, data collected, analyses performed, and final results. The following Objectives, Tasks, and Activities will be performed:

Objective 1. Manage project to ensure that all objectives and reporting requirements are met on time and within budget.

Task 1.1 Project management.

The Stockton East Water District (SEWD) will be responsible for overall project management and administrative activities. Project management will consist of managing the contract, submitting progress reports, budget tracking and invoicing. The work products will consist of semi-annual fiscal and programmatic reports.

Activity 1.1.1 Execute contract with funding agency and sub-contractors.

SEWD will sign and execute the contract with the funding agency and submit additional information, if required. SEWD will also execute a contract with the sub-contractor, S.P. Cramer & Associates (SPC), and submit a copy to the funding agency within ninety (90) days of execution.

Activity 1.1.2 Provide technical oversight to ensure that all project objectives are met, tasks are carried out in the manner described, and deliverables are completed on schedule.

SPC will oversee the coordination of all field activities to ensure that the project objectives are met and that all deliverables are completed on schedule. This includes adaptively managing the project to respond to unforeseen challenges in the field and to modify sampling elements as needed.

Activity 1.1.3 Manage project funds.

SEWD will prepare and submit invoices inclusive of subcontractor services to the funding agency on a monthly basis. Three copies of the invoice will be provided to the funding agency, including one signed invoice and two duplicate copies. Activity reports will accompany each monthly invoice and will describe the work conducted during the month.

Activity 1.1.4 Prepare and submit semi-annual fiscal and programmatic reports to funding agency.

Fiscal and programmatic reports will be submitted to the funding agency on a semi-annual basis. The semi-annual reports will describe the fiscal and programmatic status during each six month period. These reports will include (1) the total amount of money awarded to the project, (2) the amount invoiced to the granting agency, (3) description of activities performed during the six month period and the percentage of each task completed, (4) deliverables produced during the six month period, (5) problems encountered that may delay the progress of the project, and (6) description of amendments or modifications to the grant agreement.

Task 1.2 Prepare and distribute bi-weekly sampling summaries.

SPC will distribute bi-weekly summaries of all field activities during the sampling season to the agencies, managers, and other interested parties. Bi-weekly summaries will include a written description of activities, as well as relevant tables and graphs.

Task 1.3 Submit electronic and hardcopy of data collected annually

Data will be downloaded by SPC field personnel, entered into a Microsoft Access database, and error checked before being submitting to the funding agency at the end of each of the three project years. SPC will provide the funding agency an electronic and hardcopy version of the

data collected, along with a written description of field procedures, summary tables and graphs, and an account of database management procedures.

Task 1.4 Prepare and distribute annual raw data reports.

SPC has found that many people are interested in the raw data generated by monitoring efforts for comparison to similar or related projects. Annual study reports typically do not provide all of the detailed monitoring data collected during the study. Annual data reports will include only data tables and graphs with no interpretation of the results. Annual data reports will be made available on the Calaveras River Watershed Stewardship Group website at the following address: [www.calaverasriver.com].

Task 1.5 Compile research findings into comprehensive annual reports of study findings.

Each year, SPC will prepare a comprehensive written report describing events and study findings to date. All reports will be distributed to managers involved with work in the Calaveras River and San Joaquin Basin for review and comment.

Task 1.6 Participate at workshops, seminars, and conferences.

SPC will prepare and deliver at least one PowerPoint presentation of study findings and project status to a scientific or resource group (e.g., CALFED, American Fisheries Society, etc.). SPC has regularly attended the CALFED Science Conference and AFS annual meetings and delivered several presentations at each forum.

Objective 2. Determine the flow necessary for Chinook salmon and steelhead to successfully navigate through the Bellota fish ladder.

In order to determine whether fish are actually able to pass above the weir and under what flow conditions, if any, the ladders become functional, SPC will use a Vaki infrared scanner to detect and enumerate fish as they pass through the upper ladder and will gather gaging station data to document flows during passage. The Vaki system and gaging station data will enable us to evaluate: (1) fish ladder effectiveness at various flows and (2) approximate flows occurring between Mormon Slough and the confluence that provide passage opportunities.

Task 2.1 Install and operate a Vaki infrared scanner in the Bellota Weir fish ladder.

The Vaki infrared scanner is a small unit that consists of a computer and infrared scanner. The scanner is about 12 inches wide and 18 inches tall and is identical to the one used on the Stanislaus River Weir Project. The scanner will be mounted to the upstream end of the upper fish ladder to detect adults that have successfully migrated through Mormon Slough and through both the lower and upper ladder. This location was chosen to allow a thorough assessment of the additional fish passage benefits provided by the AFRP funded ladder and due to ease of operation. As fish pass the scanner, an infrared image of the fish's silhouette will be recorded.

The Vaki infrared scanner will be installed by November 1 and operated through March 31 each year during the period when upstream migration through the ladders is possible. Although the Vaki system will be in place during the entire November through March period, the system will only record data whenever there are actual inflows into the ladder. During extremely low inflow periods (i.e., <10 cfs), the ladder is closed due to the hydraulic head requirements of the Bellota Diversion unless salmonids are observed in the pool immediately below Bellota. In this latter instance, the ladder is left open to provide passage opportunities for fish already in the vicinity of the ladders.

Task 2.2. Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder.

Infrared silhouettes will be generated for all fish migrating past Bellota through the ladders, even under high turbidity. A total count of salmonids migrating may not be possible, since fish may pass directly over the flashboard dam under high flow conditions. Based on previous observations of salmonids that have migrated above Bellota (CDFG1979; Sazaki 1975 a, b, and c; Villa 1996), it is anticipated that flows greater than 200 cfs would be required for fish to ascend the weir without assistance from the ladders.

For each salmonid that passes the scanner, SPC will determine the date and time of passage, estimated size of the fish, direction of passage (upstream or downstream), and potentially determine sex and presence or absence of an adipose fin. Our experience with a Vaki scanner on the Stanislaus River is that our ability to determine these latter two characteristics is determined by a fish's swimming speed. For slower fish, SPC can obtain higher quality images and better identify biological characteristics.

Task 2.3 Visually monitor adult salmonid presence in the pool below the Bellota Weir.

As part of the current ladder operating criteria, SEWD monitors the pool immediately below the Bellota Weir whenever the upper ladder is closed between November and March to look for signs of adult salmonid presence. If fish are observed, the upper ladder is opened to allow fish the opportunity to use the ladders. The observed presence or absence of a salmonid(s) in the pool, together with Vaki passage records through the fish ladder, will be used to determine successful passage through the ladders and/or Mormon Slough. The day that fish are first observed below the weir and/or detected by the Vaki will also be compared to flow records during the preceding weeks to determine what level and duration of attraction and migratory flows were available for fish passage.

Task 2.4. Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period).

SPC will gather hourly discharge records for the Escalon-Bellota gaging station from the California Data Exchange Center (CDEC) to identify the flow traveling through the ladders whenever a fish is recorded. This gaging station is right below the Bellota Weir and will provide an accurate representation of flow through the ladders under low flow conditions. At higher flows, SPC will subtract the capacity of the lower ladder from the amount of flow recorded at the

gaging station to determine how much flow is overtopping the weir. SPC will also record hourly water temperature data onsite using a HOBO data-logger. Instantaneous turbidity and water temperature will be collected onsite by SPC field staff during visits to download the monitoring data (minimum of weekly visit during flow events). Daily precipitation for the basin will be obtained from the Army Corps of Engineers operations website. In addition, SPC will obtain diel information from the time stamp generated by the Vaki system during each fish detection.

Task 2.5. Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors.

Qualitative data pertaining to number of salmonids and environmental parameters will be summarized in charts, graphs, and tables. A variety of statistical tests may be applied to determine potential relationships or correlations between environmental parameters and migration activity. Statistical analyses (e.g., regression, Mann-Whitney, etc.) will be contingent upon the level of analyses that can be conducted with the number of fish and quality (e.g., degree that gender and adipose clips can be identified) of data recorded by the Vaki. Analyses will be discussed in annual comprehensive reports and a final project report.

Objective 3. Determine the magnitude and duration of attraction and migratory flows that allow Chinook salmon and steelhead to successfully navigate through the Stockton Diverting Canal and Mormon Slough to reach the fish ladders.

Fish must navigate through 24 miles of river before reaching the fish ladders including about 18 miles of Stockton Diverting Canal and Mormon Slough, a 12,500 cfs flood control channel with multiple anthropogenic structures. Much of the migration route is not well suited for fish passage under low flow conditions since fish can become stranded below diversion structures, road crossings, and in isolated pools. Only two gaging stations are located in the river today: one at New Hogan and one at Bellota. Although the gage at Bellota provides some information pertaining to flows in Mormon Slough, there are additional inputs that occur below Bellota that can contribute substantially to attraction of fish into the river, as well as provide migration flows. Due to the absence of a gaging station in the extreme lower river, it is currently unknown what magnitude and duration of flow conditions in the area below Bellota actually attract and provide passage conditions for salmonids.

Task 3.1 Install and operate a non-submersible pressure transducer gaging station at the juncture of Stockton Diverting Canal and Mormon Slough.

Non-submersible pressure transducers (i.e., bubbler gage) consist of a pressure-sensitive diaphragm system with a gas-purge system which converts the pressure forces of water (i.e., pressure exerted by water at any point in the water column is a function of water depth) to electrical signals that are sent to a remote display and datalogger.

The flow gage will be installed and operated at the juncture of the Stockton Diverting Canal and Mormon Slough. This location is below tributary inputs into Mormon Slough which can affect fish attraction and migration ability in the lower river so it will measure flows that provide passage opportunities to the Bellota Weir. Comparison of fish passage data measured at the

Bellota ladder with flow measurements recorded at two gages in the lower reach of the river (i.e., the new gage at the juncture of Stockton Diverting Canal with Mormon Slough and the existing Bellota gage) will provide us with information on the level of flow necessary for passage to the Bellota Weir and fish ladders. This information will allow greater flexibility for managing ladder operations resulting in maximized fish passage opportunities.

5. FEASIBILITY

SPC staff has confidence that the Vaki RiverWatcher system will be a feasible and beneficial application for monitoring adult passage at the Bellota Weir. SPC staff has documented the benefits and results of monitoring with a Vaki RiverWatcher system on the Stanislaus River. Several years of monitoring on the Stanislaus River has given field staff an intimate knowledge of the installation, application, and maintenance required with the monitoring system. Lead SPC biologists are also experienced with analyzing and reporting on monitoring data collected with the Vaki system. Preliminary assessment of the Calaveras River Bellota Weir site indicates that it would be an optimal location for Vaki monitoring.

The Vaki RiverWatcher is a passive fish monitoring device (infrared camera) that is installed in a pre-existing camera housing located within a pre-existing fish ladder. SPC holds valid scientific collecting permits and are currently under consultation with NOAA Fisheries for Section 10 authorization.

The installation of the flow gage will potentially require a Reclamation Board Encroachment Permit, CEQA (Categorical Exclusion, Class 3), and California Department of Fish and Game (CDFG) Section 1600 streambed alteration agreement due to the need to dig two approximately 2 foot deep holes for galvanized piping for housing the gaging station. Since the activity will take less than two days, the temporarily disturbed area is minimal and will be outside the wetted channel, it is anticipated that it will require minimal time (3-4 months) to obtain permits. Since the property at Bellota (i.e., location of Vaki RiverWatcher) and at the juncture of Stockton Diverting Canal with Mormon Slough (i.e., location of the flow gage)is owned by SEWD (i.e., applicant), no landowner permission is required.

The USFWS, NOAA Fisheries, CDFG, California Department of Water Resources (DWR), and members of the Calaveras River Fish Group (CRFG) are supportive of the proposed project, since the project will help to determine whether the existing ladder configuration is functional or whether modifications to the configuration could improve passage opportunities.

6. EXPECTED OUTCOMES AND PRODUCTS

Expected benefits from functional ladders are an increase in the abundance of Chinook salmon and steelhead, since more fish will be able to access areas where spawning and rearing habitat is available. Increased abundance will help attain the salmon and steelhead doubling goals of the AFRP and help in the recovery of federally threatened Central Valley steelhead.

Products of the proposed effort will include bi-weekly summaries (Task 1.2), an Access database and hardcopies of sampling results (Task 1.3), semi-annual fiscal and programmatic reports

(Activity 1.1.4), annual data reports (Task 1.4), comprehensive annual reports (Task 1.5), and presentations at workshops, seminars, and conferences (Task 1.6).

7. DATA HANDLING, STORAGE, AND DESSIMINATION

Raw data will be downloaded from the Vaki scanner onto a mobile hard drive by field personnel, entered into a Microsoft Access database, and error checked before being released to interested parties. Data will be made accessible on a near real-time basis to agency personnel, watershed management groups, and the public via an existing internet website www.calaverasriver.com.

8. PUBLIC INVOLVEMENT AND OUTREACH

Recently, SPC became the Watershed Coordinator for the newly created Calaveras River Watershed Stewardship Group (CRWSG). The purpose of the CRWSG is to encourage preservation and proper management of the lower Calaveras River below New Hogan Dam through watershed-wide cooperation between landowners, water users, recreational users, conservation groups, and local, state, and federal agencies. It is the desire of SPC to get interested parties involved and informed about our ladder monitoring project through the CRWSG. SPC will provide information about the project on the CRWSG website at www.calaverasriver.com. This website site has already shown high levels of activity and the first watershed group meeting generated an excellent response; therefore, SPC anticipates that information will be widely shared through this forum. Furthermore, local news stations and newspapers have created several stories regarding our activities in the Calaveras River and SPC anticipates continued support of the local media regarding this project.

9. WORK SCHEDULE

SPC will operate the Vaki RiverWatcher 7 days per week from November through March. The data will be downloaded a minimum of once per week. During times of high flows (freshets), the Vaki may require additional labor to ensure the Vaki scanner is free of debris and functioning properly. The annual budgets anticipate that SPC will need to monitor the Vaki RiverWatcher more frequently during extended freshets.

Bi-weekly summaries will be written and distributed throughout the field sampling period extending from November through March (see Task 1.2). At the end of each sampling period (i.e., April) electronic and hardcopies of data will be provided to the funding agency and a data report will be distributed (see Task 1.4). Annual reports will be completed in October 2006 and October 2007, and the final comprehensive report will be completed in October 2008 (see Task 1.5).

Monthly activity summaries will also accompany each invoice (see Activity 1.1.3) and semi-annual status reports will also be provided to the funding agency every six months for the course of the three-year project (Activity 1.1.4).

B. APPLICABILITY TO CALFED BAY-DELTA PROGRAM ERP GOALS, THE ERP DRAFT STAGE 1 IMPLEMENTATION PLAN, AND CVPIA PRIORITIES

1. ERP AND CVPIA PRIORITIES

The installation and operation of a Vaki RiverWatcher will provide the means for the collection of data that will more accurately reflect the status of Calaveras River Chinook and steelhead populations. The collection of life-history and population data is recognized by the Ecosystem Restoration Program (ERP), the Science Program, and the Central Valley Project Improvement Act (CVPIA) as an important tool in the planning and evaluation of restoration efforts. Evaluation of restoration efforts based on accurate data is integral to the successful implementation of adaptive management programs that allow managers to efficiently manage a scarce water resource and maximize benefits for at-risk salmonid species.

ERP Goals

At the heart of the ERP are six Strategic Goals. Each of the goals addresses a different aspect of the restoration of the Bay-Delta Watershed. Two of these, Strategic Goal 1 and Strategic Goal 3 would be contributed to by the successful implementation of the Vaki RiverWatcher monitoring system. Goal 1 refers specifically to the recovery of at-risk species that rely on the Delta as a critical component of their life-histories. Goal 3 provides for the maintenance and/or enhancement of populations of certain harvestable species, including Chinook salmon and steelhead trout.

Goal 1. Implement actions to improve understanding of at-risk species in the region.

The biological and environmental data collected at the Bellota Weir will **aid in the identification of Central Valley salmonid life-history and environmental requirements**. As in the majority of Central Valley rivers and streams, accurate data from which the current status and characteristics of Calaveras River steelhead is in dire need of collection, as management decisions are currently made using incomplete information about the population. While the Calaveras River monitoring system will not be able to monitor all of the population, it will allow for a partial view of migration activity in addition to assessing passage issues.

Goal 3. Maintain and/or enhance populations of selected species for sustainable commercial and recreational harvest, consistent with the other ERP strategic goals.

Based on the successful implementation of the Vaki RiverWatcher system on the Stanislaus River by SPC staff, SPC believes a Calaveras River monitoring system will serve as an effective, efficient, and accurate means of **analyzing the effectiveness of the fish ladder under varied conditions on at-risk species** (i.e., Central Valley fall-run Chinook salmon and Central Valley steelhead). Successful implementation of this project will serve to determine whether the ladder project is meeting its goals and objectives.

CVPIA Goals

The Central Valley Project Improvement Act (CVPIA) states as one of its goals that it is meant to "protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley...of California". Part of this goal is achieved through authorization of the AFRP. The goal of the AFRP is to develop and implement a program that attempts to ensure that the natural production of anadromous fish in the Central Valley will be double that of average levels reached between 1967 and 1991 and that the new production levels will be sustainable over the long term. One objective set forth by the AFRP is the collection of fish population, health, and habitat data. Without this reference data, specific target levels of production and general population condition would not be able to be developed in a manner that would accurately reflect the levels historically attained in a specific watershed.

Accurate and complete data takes much of the guesswork out of management decisions and restoration actions. The success of restoration activities can only be judged through direct monitoring should be based on the most complete data available. This is especially crucial in the management of at-risk species because these populations are more sensitive to change than are more stable groups. Monitoring of at-risk salmonids at the Bellota Weir will provide solid information that will help in the evaluation of Calaveras River management and restoration activities.

2. RELATIONSHIP TO OTHER ECOSYSTEM RESTORATION ACTIONS, MONITORING PROGRAMS, OR SYSTEM-WIDE ECOSYSTEM BENEFITS

Little information is available regarding steelhead within the Central Valley. The Vaki RiverWatcher monitoring program will gather information on steelhead, without the potential negative effects of handling fish. This information will add to the growing subset of data being gathered on the Calaveras River regarding this species, as well as regarding fall-run Chinook salmon. Gaining solid information regarding these species migration characteristics within the watershed will help clarify the Calaveras River's contribution to anadromous stocks.

The Vaki RiverWatcher monitoring program would not only clarify issues with the Bellota Weir, but also add and assist current research within the basin. The FFC is currently performing an AFRP funded Limiting Factors Evaluation to assess several aspects of salmonid life history and create a model composed of any limiting factors within the river. Monitoring passage at the Bellota Weir is integral to developing a complete model of all ecosystem components and functions. Monitoring data will document when the ladders successfully assist fish passage and when migration occurs.

In addition to the FFC project, DWR is currently conducting a fish passage improvement study. DWR is performing a comprehensive survey of anthropogenic features within the lower Calaveras River (i.e., road crossings, diversion, pumps, screens, etc.) and hydrologic characteristics. They are using this data to identify areas that require passage improvements. Monitoring the Bellota Weir would identify whether the fish ladders need improvement and allow for better management of the river. The implementation of the weir monitoring project is a

critical baseline for understanding the dynamics of the Calaveras River and potentially ensuring the benefit of other research within the basin.

Science Program Goals

As stated in the August 2001 ERP Draft Stage 1 Implementation Plan, the CALFED Science Program's long-term goal is to build, over time, "a body of knowledge that will continually improve the effectiveness of restoration actions, allow the CALFED Program to track restoration progress and allow ever-increasing understanding of the implications of interrelated CALFED Program actions." A set of short-term goals have been established by the Science Program to aid in the realization of this ultimate goal and the Calaveras monitoring project lends toward the advancement of this vision.

Advance the scientific basis of regulatory activities. At issue on the Calaveras River, as with all of the major rivers of the Sacramento-San Joaquin Delta watershed, are practices that take advantage of the hydrological and biological resources within each watershed. The impoundment of water and subsequent regulation of flow have effects that are very meaningful to ecological processes in and around waterways and so must be managed in such a way to allow for the effective continuation of these processes. Management activities such as changing dam releases require agency and utility resources. In order for management practices such as these to be most effective, the most up-to-date and comprehensive information about target species is necessary. The Calaveras River monitoring project will provide a source of information to allow managers to efficiently manage a scarce water resource and maximize benefits for at-risk salmonid species.

3. ADDITIONAL INFORMATION FOR PROPOSAL CONTAINING LAND ACQUISITION

Not Applicable.

C. QUALIFICATIONS

Stockton East Water District

Stockton East Water District (SEWD) was created in 1948 as the successor agency to the Linden Irrigation District. SEWD provides surface water supplies for agricultural customers in the vicinity of the lower Calaveras River and for urban contractors including the City of Stockton, the County of San Joaquin, and the California Water Service Company. Since 2000, SEWD has taken an active role in fisheries monitoring, protection, and enhancement on the lower Calaveras River through the funding of several fisheries monitoring programs. SEWD has retained SPC since 2000 to provide fisheries consulting services related to the above activities. SEWD has funded the development of a Habitat Conservation Plan, annual rotary screw trap monitoring since 2002, implementation of a PIT Tag study and annual advisory funding for SPC to attend meetings in order to keep them up-to-date on fisheries issues. SEWD will extend its existing contract with SPC to conduct the proposed project activities.

Kevin Kauffman**, **General Manager of SEWD. Kevin will serve as contract manager and will be responsible for quality assurance and control throughout the project. As general manager of SEWD, Kevin oversees all of SEWD's daily operational activities and has experience in administering large projects.

S.P. Cramer & Associates

S.P. Cramer & Associates, Inc. (SPC) was established in 1987 to provide innovative solutions for issues relating to salmon and trout on the Pacific Coast. SPC is reputed for investigative work in determining why fish populations have or may change in response to specific actions. SPC has been conducting salmonid research on the Calaveras River for SEWD and Stanislaus River for, Tri-Dam, the Comprehensive Assessment and Monitoring Program, and the USFWS's AFRP; therefore, SPC is very familiar with San Joaquin basin issues, key watershed participants, and the actions necessary to conduct the proposed project. SPC has also conducted numerous fisheries investigations and assessments in other tributaries within the Sacramento-San Joaquin basin. Previous and ongoing fisheries research includes, but is not limited to, annual juvenile salmonid outmigration monitoring, adult migrant trapping, radio-tracking, and electrofishing studies.

Doug Demko, Senior Consultant. Doug manages and coordinates project activities both within SPC and between cooperating agencies. He also supervises data analyses, interpretation, and report preparation activities. Doug received a Bachelor's degree in Biology in 1992, a Juris Doctor degree in 2002, and has worked in the San Joaquin Basin since 1993. He has led a variety of field sampling projects and has gained the respect of state and federal fisheries biologists as an expert in migrant fish sampling. His experience in the San Joaquin Basin is more extensive than many researchers, and includes project management of studies such as juvenile salmonid outmigration, smolt survival, radio-tracking, predator surveys, resident trout population estimates, habitat surveys, and limiting factors analyses.

Michele Simpson, Fish Biologist. Michele joined SPC in 2002 after working as a fisheries biologist for both the U.S. Bureau of Reclamation and NOAA Fisheries. She received her Master's degree in Biology in 1997. She specializes in Endangered Species Act issues regarding salmonid populations in California including effects analyses of projects potentially effecting listed salmonids including reservoir management, unscreened diversions, fish passage barriers/impediments, and habitat restoration. She also conducts data analyses and report preparation and review of SPC monitoring projects within the Central Valley. In addition, she collaborates extensively with state, federal, and local government agency representatives; landowners, and other interested groups regarding fisheries management issues.

Andrea Fuller, Fish Biologist. Andrea joined SPC as a fisheries technician in 1995 and was promoted to Fish Biologist in 2000 while attending California State University, Stanislaus. She coordinates and oversees field personnel and data collection activities and assists in data analyses and report preparation. Since joining SPC, she has assisted Doug Demko in the coordination of field research activities on major tributaries to the San Joaquin River. As a field research coordinator, she conducts considerable networking and coordination with state, federal, and local government agency representatives; private consultants; landowners; and recreational groups.

D. COSTS

1. BUDGET

The total cost of the program is $159,051, of which SEWD requests $144,051 from the ERP. The budget for year 1 is $81,383 which includes a one-time expense of $30,000 for the Vaki RiverWatcher system and $20,000 for equipment and labor to install a gaging station at the juncture of Stockton Diverting Canal and Mormon Slough. Year 2 and 3 budgets are $31,135 and $31,533, respectively.

2. COST SHARING

SEWD will contribute $5,000 of in-kind services per project year through administrative services (i.e., execute contract, invoicing, etc.), assist installation and maintenance of the Vaki RiverWatcher and flow gage, maintain and distribute flow gage database, and visually observe pool below Bellota Weir for presence of salmonids according to ladder operating criteria.

3. LONG-TERM FUNDING STRATEGY

If, after this three year monitoring effort is completed, additional monitoring of the fish ladders is deemed necessary by NOAA Fisheries, USFWS, and CDFG, then SEWD will pursue all available grant opportunities to continue the monitoring program. In the event that no grant funding is available, SEWD will fund the program if it is determined to be one of the critical components of SEWD's overall fisheries monitoring program and all critical components fall within a previously agreed upon budget for the long-term monitoring program.

E. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

The proposed project has been developed in compliance with all of CALFED's standard terms and conditions presented in Attachment 3 of the September 2004 PSP. The applicant has reviewed and will comply with the State of California standard contracting terms and conditions. SEWD and SPC also agree that the prevailing law shall be the State of California and the venue for settling any disputes, if any, shall be Sacramento, California. The applicant also understands that the contract terms will apply to any sub-contracts that may be entered into to complete the proposed work. There are no conflicts of interest in performing this work.

G. LITERATURE CITED

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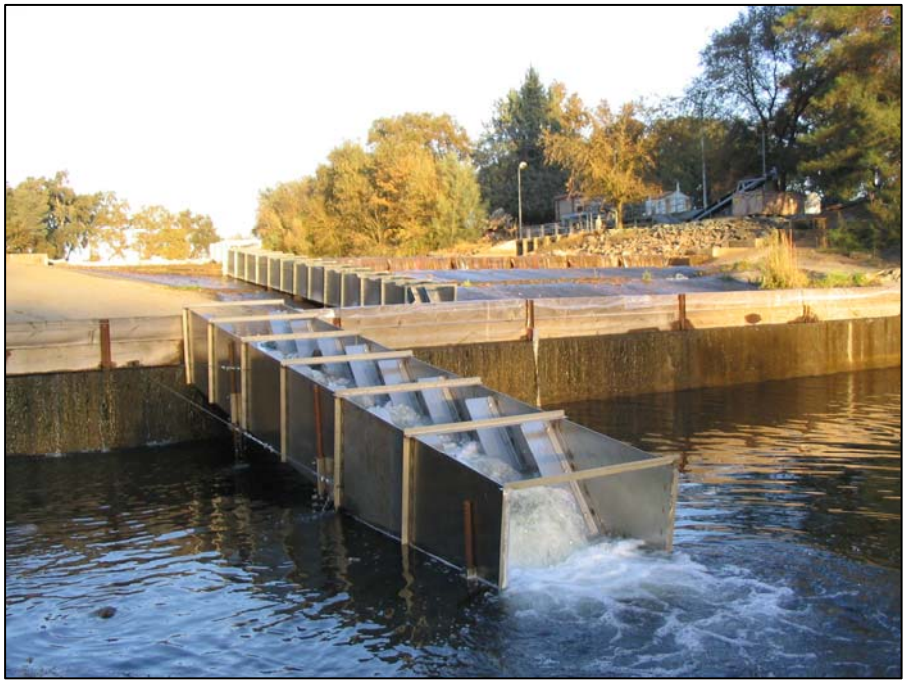

Figure 1. Bellota Weir's staggered fish ladders.

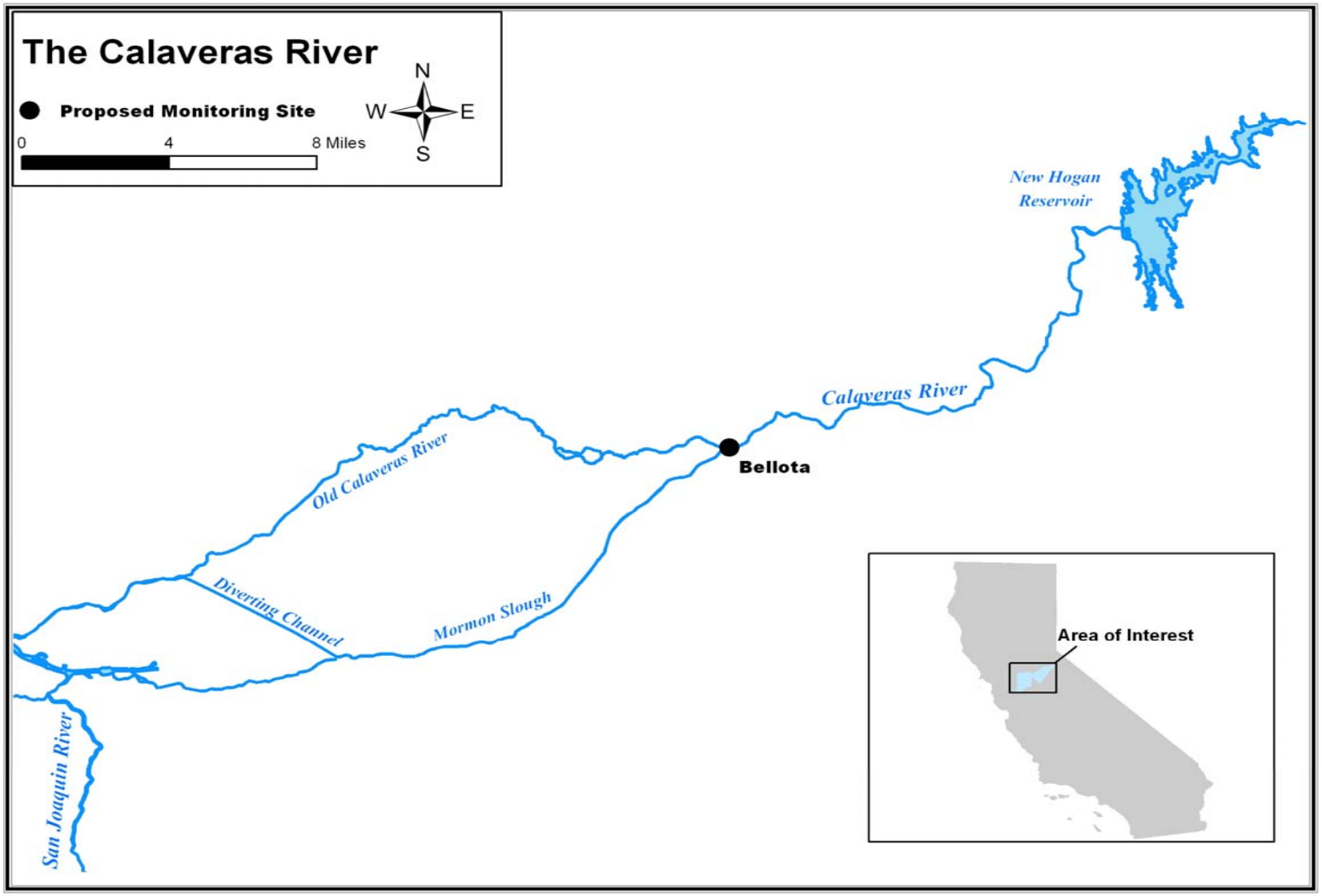

Figure 2. Map of monitoring area.

Table 1. Detailed budget for work to be performed by S.P. Cramer & Associates.

Calaveras River: Bellota Fish Ladder Passage Evaluation

Year 1	Total Labor	Travel Cost	Supplies & Expendables	Equipment (>$1000)	Other Direct Costs	2006 Total Cost
Objective 1: Manage project to ensure that all objectives and reporting requirements are met on time and within budget.						
Task 1.1 Project Management	$4,320	0	$50	$0.00	$0.00	$4,370
Task 1.2 Prepare and distribute bi-weekly sampling summaries.	$2,716	0	$50	$0.00	$0.00	$2,766
Task 1.3 Submit electronic and hard copy of data collected annually.	$235	0	$50	$0.00	$0.00	$285
Task 1.4 Prepare and distribute annual data reports.	$942	0	$50	$0.00	$0.00	$992
Task 1.5 Compile research findings into comprehensive annual reports of study findings	$5,023	0	$50	$0.00	$0.00	$5,073
Task 1.6 Participate in workshops, seminars and conferences.	$2,299	$500	$50	$0.00	$0.00	$2,849
Subtotal	**$15,536**	**$500**	**$300**	**$0.00**	**$0.00**	**$16,336**
Objective 2. Determine the flow necessary for Chinook salmon and steelhead to successfully navigate through the Bellota fish ladder.						
Task 2.1 Install and operate a VAKI infrared scanner in the Bellota Weir fish ladder.	$4,246	$3,400.00	$350	$30,000.00	$0.00	$37,996
Task 2.2. Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder.	$1,788		$50	$0.00	$0.00	$1,838
Task 2.3 Visually monitor adult salmonid presence in the pool below the Bellota Weir.	$0		$50	$0.00	$0.00	$50
Task 2.4. Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period).	$1,788		$50	$0.00	$0.00	$1,838
Task 2.5. Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors.	$1,267		$50	$0.00	$0.00	$1,317
Subtotal	**$9,087**	**$3,400.00**	**$550**	**$30,000.00**	**$0.00**	**$43,037**
Objective 3. Determine the magnitude and duration of attraction and migratory flows that allow Chinook salmon and steelhead to successfully navigate through the Stockton Diverting Canal and Mormon Slough to reach the fish ladders.						
Task 3.1 Install and operate a non-submersible pressure transducer gaging station at the juncture of Stockton Diverting Canal and Mormon Slough.	$9,759	$100	$200	$12,000.00	$0.00	$22,059
Subtotal	**$9,759**	**$100**	**$200**	**$12,000**	**$0**	**$22,059**
Total	**$34,382**	**$4,000**	**$1,050**	**$42,000**	**$0**	**$81,432**

Calaveras River: Bellota Fish Ladder Passage Evaluation

Year 1	Total Tech hrs	$44.69/hr Tech	Total Hrs Bio I	$56.65/hr Bio I	Total Hrs Bio III	$100.63/hr Bio III	Total Hrs Sr Conslt	$115.39/hr Sr Conslt
Objective 1: Manage project to ensure that all objectives and reporting requirements are met on time and within budget.								
Task 1.1 Project Management	0	$0.00	0	$0.00	20	$2,012.60	20	$2,307.80
Task 1.2 Prepare and distribute bi-weekly sampling summaries.	0	$0.00	20	$1,133.00	10	$1,006.30	5	$576.95
Task 1.3 Submit electronic and hard copy of data collected annually.	4	$178.76	1	$56.65	0	$0.00	0	$0.00
Task 1.4 Prepare and distribute annual data reports.	16	$715.04	4	$226.60	0	$0.00	0	$0.00
Task 1.5 Compile research findings into comprehensive annual reports of study findings	0	$0.00	15	$849.75	30	$3,018.90	10	$1,153.90
Task 1.6 Participate in workshops, seminars and conferences.	0	$0.00	8	$453.20	0	$0.00	16	$1,846.24
Objective 2. Determine the flow necessary for Chinook salmon and steelhead to successfully navigate through the Bellota fish ladder.								
Task 2.1 Install and operate a VAKI infrared scanner in the Bellota Weir fish ladder.	95	$4,245.55		$0.00		$0.00		$0.00
Task 2.2. Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder.	40	$1,787.60		$0.00		$0.00		$0.00
Task 2.3 Visually monitor adult salmonid presence in the pool below the Bellota Weir.	0	$0.00	0	$0.00	0	$0.00	0	$0.00
Task 2.4. Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period).	40	$1,787.60		$0.00		$0.00		$0.00
Task 2.5. Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors.	0	$0.00	0	$0.00	8	$805.04	4	$461.56
Objective 3. Determine the magnitude and duration of attraction and migratory flows that allow Chinook salmon and steelhead to successfully navigate through the Stockton Diverting Canal and Mormon Slough to reach the fish ladders.								
Task 3.1 Install and operate a non-submersible pressure transducer gauging station at the juncture of Stockton Diverting Canal and Mormon Slough.	80	$3,575.20	40	$2,266.00	16	$1,610.08	20	$2,307.80

Calaveras River: Bellota Fish Ladder Passage Evaluation

Year 2	Total Labor	Travel Cost	Supplies & Expendables	Equipment (>$1000)	Other Direct Costs	2007 Total Cost
Objective 1: Manage project to ensure that all objectives and reporting requirements are met on time and within budget.						
Task 1.1 Project Management	$4,362	0	$50	$0.00	$0.00	$4,412
Task 1.2 Prepare and distribute bi-weekly sampling summaries.	$2,753	0	$50	$0.00	$0.00	$2,803
Task 1.3 Submit electronic and hard copy of data collected annually.	$241	0	$50	$0.00	$0.00	$291
Task 1.4 Prepare and distribute annual data reports.	$963	0	$50	$0.00	$0.00	$1,013
Task 1.5 Compile research findings into comprehensive annual reports of study findings	$5,080	0	$50	$0.00	$0.00	$5,130
Task 1.6 Participate in workshops, seminars and conferences.	$2,325	$500	$50	$0.00	$0.00	$2,875
Subtotal	**$15,724**	**$500**	**$300**	**$0.00**	**$0.00**	**$16,524**
Objective 2. Determine the flow necessary for Chinook salmon and steelhead to successfully navigate through the Bellota fish ladder.						
Task 2.1 Install and operate a VAKI infrared scanner in the Bellota Weir fish ladder.	$4,574	$3,400.00	$350	$0.00	$0.00	$8,324
Task 2.2. Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder.	$1,830		$50	$0.00	$0.00	$1,880
Task 2.3 Visually monitor adult salmonid presence in the pool below the Bellota Weir.	$0		$50	$0.00	$0.00	$50
Task 2.4. Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period).	$1,830		$50	$0.00	$0.00	$1,880
Task 2.5. Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors.	$1,279		$50	$0.00	$0.00	$1,329
Subtotal	**$9,512**	**$3,400.00**	**$550**	**$0.00**	**$0.00**	**$13,462**
Objective 3. Determine the magnitude and duration of attraction and migratory flows that allow Chinook salmon and steelhead to successfully navigate through the Stockton Diverting Canal and Mormon Slough to reach the fish ladders.						
Task 3.1 Install and operate a non-submersible pressure transducer gauging station at the juncture of Stockton Diverting Canal and Mormon Slough.	$898	$100	$200	$0.00	$0.00	$1,198
Subtotal	**$898**	**$100**	**$200**	**$0**	**$0**	**$1,198**
Total	**$26,134**	**$4,000**	**$1,050**	**$0**	**$0**	**$31,184**

Calaveras River: Bellota Fish Ladder Passage Evaluation

Year 2	Total Tech hrs	$45.74/hr Tech	Total Hrs Bio I	$57.70/hr Bio I	Total Hrs Bio III	$101.68/hr Bio III	Total Hrs Sr Conslt	$116.44/hr Sr Conslt
Objective 1: Manage project to ensure that all objectives and reporting requirements are met on time and within budget.								
Task 1.1 Project Management	0	$0.00	0	$0.00	20	$2,033.60	20	$2,328.80
Task 1.2 Prepare and distribute bi-weekly sampling summaries.	0	$0.00	20	$1,154.00	10	$1,016.80	5	$582.20
Task 1.3 Submit electronic and hard copy of data collected annually.	4	$182.96	1	$57.70	0	$0.00	0	$0.00
Task 1.4 Prepare and distribute annual data reports.	16	$731.84	4	$230.80	0	$0.00	0	$0.00
Task 1.5 Compile research findings into comprehensive annual reports of study findings	0	$0.00	15	$865.50	30	$3,050.40	10	$1,164.40
Task 1.6 Participate in workshops, seminars and conferences.	0	$0.00	8	$461.60	0	$0.00	16	$1,863.04
Objective 2. Determine the flow necessary for Chinook salmon and steelhead to successfully navigate through the Bellota fish ladder.								
Task 2.1 Install and operate a VAKI infrared scanner in the Bellota Weir fish ladder.	100	$4,574.00	0	$0.00	0	$0.00	0	$0.00
Task 2.2. Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder.	40	$1,829.60	0	$0.00	0	$0.00	0	$0.00
Task 2.3 Visually monitor adult salmonid presence in the pool below the Bellota Weir.	0	$0.00	0	$0.00	0	$0.00	0	$0.00
Task 2.4. Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period).	40	$1,829.60	0	$0.00	0	$0.00	0	$0.00
Task 2.5. Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors.	0	$0.00	0	$0.00	8	$813.44	4	$465.76
Objective 3. Determine the magnitude and duration of attraction and migratory flows that allow Chinook salmon and steelhead to successfully navigate through the Stockton Diverting Canal and Mormon Slough to reach the fish ladders.								
Task 3.1 Install and operate a non-submersible pressure transducer gaging station at the juncture of Stockton Diverting Canal and Mormon Slough.	0	$0.00	8	$461.60	2	$203.36	2	$232.88

Calaveras River: Bellota Fish Ladder Passage Evaluation

Year 3	Total Labor	Travel Cost	Supplies & Expendables	Equipment (>$1000)	Other Direct Costs	2008 Total Cost
Objective 1: Manage project to ensure that all objectives and reporting requirements are met on time and within budget.						
Task 1.1 Project Management	$4,404	$0	$50	$0	$0	$4,454
Task 1.2 Prepare and distribute bi-weekly sampling summaries.	$2,790	$0	$50	$0	$0	$2,840
Task 1.3 Submit electronic and hard copy of data collected annually.	$246	$0	$50	$0	$0	$296
Task 1.4 Prepare and distribute annual data reports.	$984	$0	$50	$0	$0	$1,034
Task 1.5 Compile research findings into comprehensive annual reports of study findings	$5,138	$0	$50	$0	$0	$5,188
Task 1.6 Participate in workshops, seminars and conferences.	$2,350	$500	$50	$0	$0	$2,900
Subtotal	**$15,912**	**$500**	**$300**	**$0.00**	**$0.00**	**$16,712**
Objective 2. Determine the flow necessary for Chinook salmon and steelhead to successfully navigate through the Bellota fish ladder.						
Task 2.1 Install and operate a VAKI infrared scanner in the Bellota Weir fish ladder.	$4,679	$3,400	$350	$0	$0	$8,429
Task 2.2. Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder.	$1,872	$0	$50	$0	$0	$1,922
Task 2.3 Visually monitor adult salmonid presence in the pool below the Bellota Weir.	$0	$0	$50	$0	$0	$50
Task 2.4. Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period).	$1,872	$0	$50	$0	$0	$1,922
Task 2.5. Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors.	$1,292	$0	$50	$0	$0	$1,342
Subtotal	**$9,714**	**$3,400**	**$550**	**$0.00**	**$0.00**	**$13,664**
Objective 3. Determine the magnitude and duration of attraction and migratory flows that allow Chinook salmon and steelhead to successfully navigate through the Stockton Diverting Canal and Mormon Slough to reach the fish ladders.						
Task 3.1 Install and operate a non-submersible pressure transducer gaging station at the juncture of Stockton Diverting Canal and Mormon Slough.	$906	$100	$200	$0	$0	$1,206
Subtotal	**$906**	**$100**	**$200**	**$0**	**$0**	**$1,206**
Total	**$26,532**	**$4,000**	**$1,050**	**$0**	**$0**	**$31,582**

Calaveras River: Bellota Fish Ladder Passage Evaluation

Year 3	Total Tech hrs	$46.79/hr Tech	Total Hrs Bio I	$58.75/hr Bio I	Total Hrs Bio III	$102.73/hr Bio III	Total Hrs Sr Conslt	$117.49/hr Sr Conslt
Objective 1: Manage project to ensure that all objectives and reporting requirements are met on time and within budget.								
Task 1.1 Project Management	0	$0.00	0	$0.00	20	$2,054.60	20	$2,349.80
Task 1.2 Prepare and distribute bi-weekly sampling summaries.	0	$0.00	20	$1,175.00	10	$1,027.30	5	$587.45
Task 1.3 Submit electronic and hard copy of data collected annually.	4	$187.16	1	$58.75	0	$0.00	0	$0.00
Task 1.4 Prepare and distribute annual data reports.	16	$748.64	4	$235.00	0	$0.00	0	$0.00
Task 1.5 Compile research findings into comprehensive annual reports of study findings	0	$0.00	15	$881.25	30	$3,081.90	10	$1,174.90
Task 1.6 Participate in workshops, seminars and conferences.	0	$0.00	8	$470.00	0	$0.00	16	$1,879.84
Objective 2. Determine the flow necessary for Chinook salmon and steelhead to successfully navigate through the Bellota fish ladder.								
Task 2.1 Install and operate a VAKI infrared scanner in the Bellota Weir fish ladder.	100	$4,679.00	0	$0.00	0	$0.00	0	$0.00
Task 2.2. Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder.	40	$1,871.60	0	$0.00	0	$0.00	0	$0.00
Task 2.3 Visually monitor adult salmonid presence in the pool below the Bellota Weir.	0	$0.00	0	$0.00	0	$0.00	0	$0.00
Task 2.4. Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period).	40	$1,871.60	0	$0.00	0	$0.00	0	$0.00
Task 2.5. Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors.	0	$0.00	0	$0.00	8	$821.84	4	$469.96
Objective 3. Determine the magnitude and duration of attraction and migratory flows that allow Chinook salmon and steelhead to successfully navigate through the Stockton Diverting Canal and Mormon Slough to reach the fish ladders.								
Task 3.1 Install and operate a non-submersible pressure transducer gaging station at the juncture of Stockton Diverting Canal and Mormon Slough.	0	$0.00	8	$470.00	2	$201.26	2	$234.98

Tasks And Deliverables

Calaveras River: Bellota fish ladder passage evaluation

Task ID	Task Name	Start Month	End Month	Deliverables
1.1	Project Management	1	36	Monthly invoices, activity reports, semi-annual fiscal and programmatic reports
1.2	Prepare and distribute bi-weekly sampling summaries.	1	36	Bi-weekly sampling summaries (to be distributed November through March of each year); web updates
1.3	Submit electronic and hardcopy of data collected annually	1	36	Electronic and hard copy of data collected annually; Access database of sampling results
1.4	Prepare and distribute annual raw data reports.	1	36	Annual data reports
1.5	Compile research findings into comprehensive annual reports of study findings.	1	36	Draft and final annual comprehensive reports
1.6	Participate at workshops, seminars, and conferences.	1	36	Power point presentations, attendance and participation at workshops,

				seminars and conferences
2.1	Install and operate a VAKI infrared scanner in the Bellota Weir fish ladder.	1	36	Database of infrared images of the fish’s silhouette passing the ladder.
2.2	Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder.	1	36	Access database; annual data report
2.3	Visually monitor adult salmonid presence in the pool below the Bellota Weir.	1	36	Draft and final annual comprehensive reports
2.4	Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period).	1	36	Access database; annual data report; Draft and final annual comprehensive reports
2.5	Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors.	1	36	Draft and final annual comprehensive reports
3.1	Install and operate a non−submersible pressure transducer gaging station at the juncture of Stockton Diverting Canal and Mormon Slough.	1	36	Access database; annual data report; gaging station; Draft and final annual comprehensive reports

Comments

If you have comments about budget justification that do not fit elsewhere, enter them here.

Budget Summary

Project Totals

Labor	Benefits	Travel	Supplies And Expendables	Services And Consultants	Equipment	Lands And Rights Of Way	Other Direct Costs	Direct Total	Indirect Costs	Total
$0	$0	$0	$0	$144,051	$0	$0	$0	$144,051	$0	$144,051

Do you have cost share partners already identified?
Yes.

If yes, list partners and amount contributed by each:

The cost and labor of Task 2.3 will be provided entirely by SEWD. They will also provide in−kind services for administration services, help in installing and maintaining the new gaging station and maintaining and distributing the gaging station database.

Do you have potential cost share partners?
No.

If yes, list partners and amount contributed by each:

Are you specifically seeking non−federal cost share funds through this solicitation?

Calaveras River: Bellota fish ladder passage evaluation

Calaveras River: Bellota fish ladder passage evaluation

Year 1 (Months 1 To 12)

Task	Labor	Benefits	Travel	Supplies And	Services And	Equipment	Lands	Other	Direct	Indirect	Total

				Expendables	Consultants		And Rights Of Way	Direct Costs	Total	Costs	
1.1: project management (12 months)	0	0	0	0	4370	0	0	0	$4,370	0	$4,370
1.2: Prepare and distribute bi−weekly sampling summaries. (12 months)	0	0	0	0	2766	0	0	0	$2,766	0	$2,766
1.3: Submit electronic and hardcopy of data collected annually (12 months)	0	0	0	0	285	0	0	0	$285	0	$285
1.4: Prepare and distribute annual raw data reports. (12 months)	0	0	0	0	992	0	0	0	$992	0	$992
1.5: Compile research findings into comprehensive annual reports of study findings. (12 months)	0	0	0	0	5073	0	0	0	$5,073	0	$5,073
1.6: Participate at workshops, seminars, and conferences. (12 months)	0	0	0	0	2849	0	0	0	$2,849	0	$2,849
2.1: Install and operate a VAKI infrared scanner in the Bellota Weir fish ladder. (12 months)	0	0	0	0	37996	0	0	0	$37,996	0	$37,996
	0	0	0	0	1838	0	0	0	$1,838	0	$1,838

2.2: Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder. (12 months)											
2.3: Visually monitor adult salmonid presence in the pool below the Bellota Weir. (12 months)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	$0	**0**	$0
2.4: Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period). (12 months)	**0**	**0**	**0**	**0**	**1838**	**0**	**0**	**0**	$1,838	**0**	$1,838
2.5: Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors. (12 months)	**0**	**0**	**0**	**0**	**1317**	**0**	**0**	**0**	$1,317	**0**	$1,317
3.1: Install and operate a non−submersible pressure transducer gaging station at the juncture of Stockton Diverting Canal and Mormon Slough. (12 months)	**0**	**0**	**0**	**0**	**22059**	**0**	**0**	**0**	$22,059	**0**	$22,059
Totals	**$0**	**$0**	**$0**	**$0**	**$81,383**	**$0**	**$0**	**$0**	**$81,383**	**$0**	**$81,383**

Year 2 (Months 13 To 24)

Task	Labor	Benefits	Travel	Supplies And Expendables	Services And Consultants	Equipment	Lands And Rights Of Way	Other Direct Costs	Direct Total	Indirect Costs	Total
1.1: project management (12 months)	0	0	0	0	4412	0	0	0	$4,412	0	$4,412
1.2: Prepare and distribute bi−weekly sampling summaries. (12 months)	0	0	0	0	2803	0	0	0	$2,803	0	$2,803
1.3: Submit electronic and hardcopy of data collected annually (12 months)	0	0	0	0	291	0	0	0	$291	0	$291
1.4: Prepare and distribute annual raw data reports. (12 months)	0	0	0	0	1013	0	0	0	$1,013	0	$1,013
1.5: Compile research findings into comprehensive annual reports of study findings. (12 months)	0	0	0	0	5130	0	0	0	$5,130	0	$5,130
1.6: Participate at workshops, seminars, and conferences. (12 months)	0	0	0	0	2875	0	0	0	$2,875	0	$2,875
2.1: Install and operate a VAKI infrared scanner in the Bellota Weir fish ladder.	0	0	0	0	8324	0	0	0	$8,324	0	$8,324

(12 months)											
2.2: Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder. (12 months)	**0**	**0**	**0**	**0**	**1880**	**0**	**0**	**0**	$1,880	**0**	$1,880
2.3: Visually monitor adult salmonid presence in the pool below the Bellota Weir. (12 months)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	$0	**0**	$0
2.4: Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period). (12 months)	**0**	**0**	**0**	**0**	**1880**	**0**	**0**	**0**	$1,880	**0**	$1,880
2.5: Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors. (12 months)	**0**	**0**	**0**	**0**	**1329**	**0**	**0**	**0**	$1,329	**0**	$1,329
3.1: Install and operate a non−submersible pressure transducer gaging station at the juncture of Stockton Diverting Canal and Mormon Slough. (12 months)	**0**	**0**	**0**	**0**	**1198**	**0**	**0**	**0**	$1,198	**0**	$1,198
Totals	**$0**	**$0**	**$0**	**$0**	**$31,135**	**$0**	**$0**	**$0**	**$31,135**	**$0**	**$31,135**

Year 3 (Months 25 To 36)

Task	Labor	Benefits	Travel	Supplies And Expendables	Services And Consultants	Equipment	Lands And Rights Of Way	Other Direct Costs	Direct Total	Indirect Costs	Total
1.1: project management (12 months)	0	0	0	0	4454	0	0	0	$4,454	0	$4,454
1.2: Prepare and distribute bi−weekly sampling summaries. (12 months)	0	0	0	0	2840	0	0	0	$2,840	0	$2,840
1.3: Submit electronic and hardcopy of data collected annually (12 months)	0	0	0	0	296	0	0	0	$296	0	$296
1.4: Prepare and distribute annual raw data reports. (12 months)	0	0	0	0	1034	0	0	0	$1,034	0	$1,034
1.5: Compile research findings into comprehensive annual reports of study findings. (12 months)	0	0	0	0	5188	0	0	0	$5,188	0	$5,188
1.6: Participate at workshops, seminars, and conferences. (12 months)	0	0	0	0	2900	0	0	0	$2,900	0	$2,900
2.1: Install and operate a VAKI infrared scanner in the Bellota Weir fish ladder.	0	0	0	0	8429	0	0	0	$8,429	0	$8,429

(12 months)											
2.2: Record the number and timing of migrating salmonids that pass through the Bellota Weir fish ladder. (12 months)	**0**	**0**	**0**	**0**	**1922**	**0**	**0**	**0**	$1,922	**0**	$1,922
2.3: Visually monitor adult salmonid presence in the pool below the Bellota Weir. (12 months)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	$0	**0**	$0
2.4: Collect environmental data (i.e., flow, turbidity, water temperature, precipitation, diel period). (12 months)	**0**	**0**	**0**	**0**	**1922**	**0**	**0**	**0**	$1,922	**0**	$1,922
2.5: Examine relationship of salmonid passage at Bellota Weir fish ladders with environmental factors. (12 months)	**0**	**0**	**0**	**0**	**1342**	**0**	**0**	**0**	$1,342	**0**	$1,342
3.1: Install and operate a non−submersible pressure transducer gaging station at the juncture of Stockton Diverting Canal and Mormon Slough. (12 months)	**0**	**0**	**0**	**0**	**1206**	**0**	**0**	**0**	$1,206	**0**	$1,206
Totals	**$0**	**$0**	**$0**	**$0**	**$31,533**	**$0**	**$0**	**$0**	**$31,533**	**$0**	**$31,533**

Budget Justification

Calaveras River: Bellota fish ladder passage evaluation

Labor

Labor to help install and maintain flow gaging station (Task 3.1)and Vaki equipment (Task 2.1) and to maintain and distribute gaging station database (Task 3.1) will be provided by Stockton East Water District (SEWD) as in−kind service. SEWD will also provide a crew to visually observe the pool below the Bellota Weir for presence of salmonid as in−kind service (Task 2.3). SEWD will contribute services to manage the contract as an in−kind service, as well. The approximate value of the in−kind services provided by SEWD each year will be between $3000−5000. See Services and Consultants for compensation rates of sub−contractors.

Benefits

The applicant will provide in−kind services to the project. See Services and Consultants for benefits of sub−contractor.

Travel

No travel costs will be incurred by applicant. See Services and Consultants for travel costs of sub−contractor.

Supplies And Expendables

No reimbursements for supplies and expendables will be required by applicant. See Services and Consultants for list of supplies and expendables purchased by subcontractor.

Services And Consultants

A detailed table of costs provided by the sub−contractor are attached to the proposal. Please refer to this table for a breakdown of each task. Details are also listed below. A 5%

increase is applied to billing rates each year.

Labor:

S.P. Cramer &Associates (SPC) will be used to perform most field activities and synthesis of the data collected. They will be used on all tasks listed in the proposal with the exception of portions of Task 1.1 and Task 2.3. For task 1.1 SPC will provide technical insight and oversee that objectives and tasks are being met and deliverables produced. This task will require 20 hours of senior consultant and 20 hours of Biologist III time for each year of the project. Task 1.2 will require 20 hours of Biologist I time, 10 hours of Biologist III time and 5 hours of senior consultant time for each year of the project. This task includes summarizing and reporting on preliminary data to keep resource managers updated on a real−time basis. Task 1.3 will require 4 hours technician time and 1 hour Biologist I time for each year of the project to organize final summarized data and provide a electronic and hard copy of raw data to the funding agency. Task 1.4 will require 16 hours technician time, 4 hours Biologist I time for each year of the project to prepare an annual data report consisting of summarized data, graphs and tables. Task 1.5 will require 15 hours Biologist I time, 30 hours Biologist III time and 10 hours senior consultant time for each year of the project to prepare draft and final comprehensive annual reports. Task 1.6 will require 8 hours Biologist I time and 16 hours of Senior Consultant time to participate in workshops, seminars and conferences each year of the project. A large portion of this task includes preparing Power Point presentations of the study findings, which will be delivered by the Senior Consultant to interested forums.

Task 2.1 will require 95 hours technician time for one technician to travel to and from project site, download data and clear Vaki system of debris approximately 3 days per week from November to March. Although the scope of work indicated the data will be downloaded a minimum of 1 time per week, the budget compensates for the need of increased visits due to high debris loading and increased flow. The Vaki system must remain free of debris in order to detect fish passage;

therefore, it is important to the success of the project to increase labor during these events. Task 2.2 will require 40 hours technician time (approximately 2 hours per week) each year of the project to summarize data recorded by Vaki system. Task 2.3 will be completed by SEWD. Task 2.4 will require 40 hours of technician time for each year of the project to obtain water samples during each site visit, download and summarize flow and precipitation data from the internet, and download/summarize data from thermographs every two months. Task 2.5 requires 8 hours Bio III time and 4 hours Senior Consultant time for each year of the project to examine the relationship between passages detected at the weir and environmental variables collected in Task 2.4.

Task 3.1 will require 80 hours technician time during the first year of the project to research, purchase and install a gaging station at the juncture of Mormon Slough and Stockton Diverting Canal. SEWD will assist SPC staff for this task and will maintain the gage after it is installed and working properly. 40 hours of Biologist I time, 16 hours Biologist III time, and 20 hours Senior Consultant time will also be required to complete Task 3.1 during the first year. This will include coordination with SPC field crew and SEWD personnel to install, calibrate, and get the gaging station running properly. The cost for Task 3.1 will be reduced significantly for years 2 and 3. In years 2 and 3, Task 3.1 will require 8 hour Biologist I time, 2 hour Biologist III time and 2 hour Senior Consultant time. The compensation rate with burden for each of the categories mentioned above are $54.67/hr for Senior Consultant, $48.60 for Biologist III, $30.51 for Biologist I and $23.26 for technicians for the first year. Year 2 and 3 will be a 5% increase over these rates to reflect cost of living increase and inflation. Compensation with burden includes taxes, workman's compensation and estimated bonuses.

Benefits: The calculated benefit rate per hour worked includes vacation and holiday pay, medical/dental/life insurance and pension.

The benefit rate per hour for the first year for a senior

consultant is $14.54, for Bio III $11.78, for Bio I $6.98, and for technicians $6.14. Year 2 and 3 will have a 5% increase for cost of living and inflation.

Indirect Costs/Overhead: The indirect cost consists of overhead plus 10% profit of the billing rate for each of the employee categories listed above under labor and benefits. Overhead varies depending on employee position, but is approximately 17%. Overhead for Senior Consultant is $46.15/hr, for Biologist III is $40.50/hr, for Biologist I is $19.15/hr and for technicians is $15.38/hr. The overhead includes items such as administrative personnel (invoicing, payroll, etc.), depreciation on equipment, liability insurance, building maintenance, rent, utilities, furniture, legal expenses, accounting, phones, etc.

The billing rates are $115.39 for senior consultant, $100.63 for Bio III, $56.65 for Bio I and $44.69 for technicians for the first year of the project. Years 2 and 3 will have a 5% increase for cost of living and inflation for the billing rates.

Travel: A total of $4,000 per year is included to cover cost of traveling to and from project sites, to download thermographs throughout the Calaveras River and to attend workshops, seminars and conferences. Travel includes mileage to travel to and from the site once per day for 5 months. The project site is approximately 45 miles from the SPC field office, which would equal 90 miles round trip. The project site may be visited more than one time per week, and may even include 3–4 visits during heavy debris loads and high flows. A small amount has also been included for travel and lodging needed by the Senior Consultant for site visits during annual monitoring.

Supplies and Expendables:

The total amount budgeted for supplies and expendables for the first year is $1,000. Expenses for task 2.1 additional supplies needed to install the Vaki RiverWatcher, wading boots, locks, batteries, etc. Office supplies for the project

are expected to cost approximately $75 for each year and will include the materials for report creation and distribution, data sheet organization and storage, copies, toner, etc. Communication costs associated with long-distance calls (including conference calls) and cellular phone usage are expected to cost approximately $500 per year. Task 1.2 includes the cost of a website domain name and yearly charges. The cost of the website is split with other on-going projects on the Calaveras River, therefore there will be a cost saving for this expense.

Equipment:

The Vaki RiverWatcher will be a one time cost during the first year of the project. The cost of the Vaki RiverWatcher is approximately $30,000 and consists of an infrared scanner, DU unit, junction boxes, cords, etc. The cost of the actual gaging station (Task 3.1) will also be a one time cost during the first year of the project. The non-submersible pressure transducer gaging station is estimated to cost $12,000 for the equipment.

Equipment

No equipment will be purchased by applicant. See Services and Consultants for equipment purchased by sub-contractor.

Lands And Rights Of Way

Not applicable

Other Direct Costs

None

Indirect Costs/Overhead

Overhead and direct cost of applicant to assist with field work and provide administrative services will be provided as in-kind service.

Comments

The majority of the field work and data collection/synthesis will be conducted by a sub-contractor. Please refer to the Services and Consultants section to see breakdown of costs for each task. Also a table of these costs is provided as an attachment to the proposal.

Environmental Compliance

Calaveras River: Bellota fish ladder passage evaluation

CEQA Compliance

Which type of CEQA documentation do you anticipate?
− none
− negative declaration or mitigated negative declaration
− EIR
X categorical exemption

If you are using a categorical exemption, choose all of the applicable classes below.
− Class 1. Operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. The types of "existing facilities" itemized above are not intended to be all−inclusive of the types of projects which might fall within Class 1. The key consideration is whether the project involves negligible or no expansion of an existing use.
− Class 2. Replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced.
X Class 3. Construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure. The numbers of structures described in this section are the maximum allowable on any legal parcel, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.
− Class 4. Minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.
− Class 6. Basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not

yet approved, adopted, or funded.
– Class 11. Construction, or placement of minor structures accessory to (appurtenant to) existing commercial, industrial, or institutional facilities, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

Identify the lead agency.
Stockton East Water District

Is the CEQA environmental impact assessment complete?
No.

If the CEQA environmental impact assessment process is complete, provide the following information about the resulting document.

Document Name
State Clearinghouse Number

If the CEQA environmental impact assessment process is not complete, describe the plan for completing draft and/or final CEQA documents.

A Categorical Exclusion, Class 3 will be prepared and submitted.

NEPA Compliance

Which type of NEPA documentation do you anticipate?
X none
– environmental assessment/FONSI
– EIS
– categorical exclusion

Identify the lead agency or agencies.

If the NEPA environmental impact assessment process is complete, provide the name of the resulting document.

If the NEPA environmental impact assessment process is not complete, describe the plan for

completing draft and/or final NEPA documents.

Successful applicants must tier their project's permitting from the CALFED Record of Decision and attachments providing programmatic guidance on complying with the state and federal endangered species acts, the Coastal Zone Management Act, and sections 404 and 401 of the Clean Water Act.

Please indicate what permits or other approvals may be required for the activities contained in your proposal and also which have already been obtained. Please check all that apply. If a permit is *not* required, leave both Required? and Obtained? check boxes blank.

Local Permits And Approvals	Required?	Obtained?	Permit Number (If Applicable)
conditional Use Permit	–	–	
variance	–	–	
Subdivision Map Act	–	–	
grading Permit	–	–	
general Plan Amendment	–	–	
specific Plan Approval	–	–	
rezone	–	–	
Williamson Act Contract Cancellation	–	–	
other	–	–	

State Permits And Approvals	Required?	Obtained?	Permit Number (If Applicable)
scientific Collecting Permit	X	X	
CESA Compliance: 2081	–	–	
CESA Complance: NCCP	–	–	
1602	–	–	
CWA 401 Certification	–	–	
Bay Conservation And Development Commission Permit	–	–	

reclamation Board Approval	X	–	
Delta Protection Commission Notification	–	–	
state Lands Commission Lease Or Permit	–	–	
action Specific Implementation Plan	–	–	
other California Department Of Fish And Game (CDFG) Section 1600 Streambed Alteration Agreement	X	–	

Federal Permits And Approvals	Required?	Obtained?	Permit Number (If Applicable)
ESA Compliance Section 7 Consultation	–	–	
ESA Compliance Section 10 Permit	X	–	
Rivers And Harbors Act	–	–	
CWA 404	–	–	
other	–	–	

Permission To Access Property	Required?	Obtained?	Permit Number (If Applicable)
permission To Access City, County Or Other Local Agency Land Agency Name	–	–	
permission To Access State Land Agency Name	–	–	
permission To Access Federal Land Agency Name	–	–	
permission To Access Private Land Landowner Name	–	–	

If you have comments about any of these questions, enter them here.

The Vaki RiverWatcher is a passive fish monitoring device (infrared camera) that is installed in a pre-existing camera

housing located within a pre−existing fish ladder. SPC holds valid scientific collecting permits which we re−−new each year and are currently under consultation with NOAA Fisheries for a multi−year Section 10 authorization.

The installation of the flow gage will potentially require a Reclamation Board Encroachment Permit, CEQA (Categorical Exclusion, Class 3), and California Department of Fish and Game (CDFG) Section 1600 streambed alteration agreement due to the need to dig two approximately 2 foot deep holes for galvanized piping for housing the gaging station. Since the activity will take less than two days, the temporarily disturbed area is minimal and will be outside the wetted channel, it is anticipated that it will require minimal time (3−4 months) to obtain permits.

Since the property at Bellota (i.e., location of Vaki RiverWatcher) and at the juncture of Stockton Diverting Canal with Mormon Slough (i.e., location of the flow gage)is owned by SEWD (i.e., applicant), no landowner permission is required.

Land Use

Calaveras River: Bellota fish ladder passage evaluation

Does the project involve land acquisition, either in fee or through easements, to secure sites for monitoring?
X No.
– Yes.

How many acres will be acquired by fee?

How many acres will be acquired by easement?

Describe the entity or organization that will manage the property and provide operations and maintenance services.

Is there an existing plan describing how the land and water will be managed?
– No.
– Yes.

Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?
X No.
– Yes.

Describe briefly the provisions made to secure this access.

Do the actions in the proposal involve physical changes in the current land use?
X No.
– Yes.

Describe the current zoning, including the zoning designation and the principal permitted uses permitted in the zone.

Describe the general plan land use element designation, including the purpose and uses allowed in the designation.

Describe relevant provisions in other general plan elements affecting the site, if any.

Is the land mapped as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance under the California Department of Conservation's Farmland Mapping and Monitoring Program?
X No.
– Yes.

Land Designation	Acres	Currently In Production?
Prime Farmland		**–**
Farmland Of Statewide Importance		**–**
Unique Farmland		**–**
Farmland Of Local Importance		**–**

Is the land affected by the project currently in an agricultural preserve established under the Williamson Act?
X No.
– Yes.

Is the land affected by the project currently under a Williamson Act contract?
– No.
– Yes.

Why is the land use proposed consistent with the contract's terms?

Describe any additional comments you have about the projects land use.

The applicant is the owner of the land required to access the project site.