



California Department of Fish & Wildlife
National Oceanic & Atmospheric Administration
US Fish & Wildlife Service

Ecosystem Restoration Program Activities Report Year 15

**Year 14 Accomplishments & Year 15 Proposed Work
(State FYs 2014-15; Federal FY 2015)**

June 30, 2014

Introduction

The Ecosystem Restoration Program Activities Report Year 15 documents all activities ongoing, initiated, and/or completed in the Ecosystem Restoration Program (ERP) Year 14 and proposed to occur in Year 15 that contribute to achieving the ERP Goals. This activities report represents a “snapshot-in-time” on the continuum of the restoration and environmental compliance efforts by the ERP Implementing Agencies as they carry out their respective programs.

Ecosystem Restoration Program Background

The Sacramento-San Joaquin Delta Ecosystem is an area of critical importance to California. It is home to more than half a million people; contains 500,000 acres of agriculture; provides drinking water for more than 25 million Californians; and serves as habitat for a diverse assortment of native plant and animal species. ERP is a multi-agency effort aimed at improving and increasing aquatic and terrestrial habitats and ecological function in the Delta and its tributaries.

The ERP is designed to:

1. maintain, improve, and increase aquatic and terrestrial habitats and improve ecological functions in the ERP focus area to support sustainable populations of diverse plant and animal species;
2. achieve recovery of at-risk species dependent on the Delta and Suisun Bay; and
3. support the recovery of at-risk species in San Francisco Bay and in the watershed above the estuary.

The following are the six strategic goals (CDFW et al. 2014) that guide ERP:

1. Recover endangered and other at-risk species and native biotic communities
2. Rehabilitate ecological processes
3. Maintain or enhance harvested species and their populations
4. Protect, restore, and/or enhance habitats
5. Prevent or control non-native invasive species
6. Improve or maintain water and sediment quality

The ERP focus area include the Sacramento-San Joaquin Delta, Suisun Bay, the Sacramento River below Shasta Dam, the San Joaquin River below the confluence with the Merced River, and their major tributary watersheds directly connected to the Bay-Delta system below major dams and reservoirs.

Regulatory History

Thirteen federal and state agencies with management and regulatory responsibilities in the Bay-Delta, signed the CALFED Record of Decision (ROD) in 2000. Based on the

analysis in the Multi-species Conservation Strategy (MSCS) and the Final Programmatic Environmental Impact Statement/Environmental Impact Report (Final PEIS/R), the CALFED Implementing Agencies fulfilled the regulatory requirement for its programmatic evaluation of the CALFED Program, under the Section 7 of the Endangered Species Act, and under the Natural Community Conservation Planning Act (NCCPA). Because the CALFED Program meet these requirements, the regulatory agencies issued three regulatory documents concurrently with the ROD: a programmatic biological and conference opinion (1-1-00F-184) by U.S. Fish and Wildlife Service (USFWS); a programmatic biological opinion (SWR-00-SA-0110-MEA) by NOAA's National Marine Fisheries Service (NMFS); and a programmatic Natural Community Conservation Plan (NCCP) approval by California Department of Fish and Wildlife (CDFW). These three regulatory documents addressed CALFED implementation and regulatory compliance requirements, as described in the Final PEIS/R, technical appendices program plans, implementation plan and Phase II Report. Based on the CALFED Program documents, the Proposed Actions in the programmatic biological and conference opinions provide a comprehensive description of the CALFED Program.

ERP upholds federal and state endangered species laws as it implements the many programs and commitments addressed in the ROD. To satisfy consultation requirements in the programmatic biological opinions, ERP completed a mid-Stage 1 assessment (in 2004) of progress towards achieving the milestones. The implementing agencies requested that ERP report annually regarding the continued progress toward achieving ERP goals.

Purpose of the ERP Activities Report Year 15

The ERP Activities Report Year 15 documents all activities ongoing, initiated, and/or completed in the ERP Year 14 and proposed to occur in Year 15 that contribute to achieving the ERP Goals (CALFED 2000 a-d). For specific information about any of the ERP projects, please contact ERP staff directly (<http://www.dfg.ca.gov/erp/>).

The following list provides the ERP's Year 14 Accomplishments and Year 15 Proposed Work. California Bay Delta Federal Cross-Cut Fiscal Year 2015 (USFWS 2014) provided the descriptions for the federal activities that contribute to ERP. Unless otherwise indicated, the ERP projects and activities listed in this report incorporate:

- **Environmental Review:** California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), California Endangered Species Act (CESA), and Federal Endangered Species Act (FESA) review and permitting.
- **Public Review:** The Proposal Solicitation Process (PSP), project specific environmental documentation process, and/or specific workgroup and local stakeholder group meetings (i.e., Yolo Bypass Working Group) or workshops have provided review for each project.
- **Science Review:** ERP strongly emphasizes a science-based approach to ecosystem restoration and continues to integrate science into all program activities including: 1) collaborative actions with the Delta Science Program; 2) technical and scientific review of the project proposals; 3) support of scientific workshops and conferences; 4) monitoring implementation results from project proposals and their contributions toward achieving the ERP objectives; and 5) updating conceptual models with newly developed information to be available for subsequent resource management decisions (adaptive management).

Terms Used in the Attached List. One of the challenges of ERP as a cross-jurisdictional, multi-agency effort is finding and understanding terms used to describe ERP efforts; in some cases terms have a legal or regulatory meaning that is not the intended meaning by the ERP Implementing Agencies in their efforts to describe the ERP's activities. The definitions of the terms used in the attached list are as follows:

<i>Activity:</i>	Refers to a project, program, or coordinated activity, and includes a brief description of the desired outcome.
<i>Year 14 Accomplishments:</i>	Lists the significant work or accomplishments related to the activity that happened between July 1, 2013 and June 30, 2014.
<i>Year 14 Costs:</i>	Refers to how much funding was granted, allocated, contracted, or spent between July 1, 2013 and June 30, 2014 for the activity.
<i>Year 15 Proposed Work:</i>	Refers to efforts related to the activity that ERP projects to take place between July 1, 2014 and June 30, 2015.

Year 15 Projected Costs: Refers to the best projection of how much ERP will granted, allocate, contract, or spend between July 1, 2014 and June 30, 2015 for the activity.

Funding Source: Lists the existing and/or requested sources of funding for the activity.

Agencies: Identifies the agencies or entities that ensure the performance of a project.

Priority/Goal Addressed: Identifies the 2010/2011 PSP Priority (DFG 2010) and/or the ERP Goal (CALFED 2000 a-d) addressed

Task Category: Refers to the category that the activity represents. There are six task categories: planning, research, implementation, education, monitoring, and program support.

Activity: A Socio-Economic and Behavioral Analysis of Farmers' Decisions to Adopt or Reject the CALFED Conservation Initiatives. This project will evaluate farmers/ranchers attitudes towards conservation and management changes, identify and appraise constraints, and identify the most important factors in influencing farmers' long-term commitments to conservation innovation and participation in habitat enhancement programs.

Year 14 Accomplishments: Sonoma State University (SSU) completed all surveys and is now analyzing the data. Grantee submitted one peer reviewed Manuscript. Economic incentives alone, if high enough, can entice growers to participate in a government program that involves little techno-managerial changes. Attitudes and motivations for participating matter little under those conditions. Small acreage growers are motivated to participate by peer networks and intergenerational ties to the land. Large acreage farm growers had little economic incentive to add a higher-payout wildlife practices to their contracts. Smaller acreage farmers are more likely to adopt wildlife friendly practices than larger acreage farmers are. Smaller acreage farmers that adopted wildlife friendly practices tend to have more conservation interests. SSU presented the project at the Spring 2013 Association of American Geographers Conference.

Year 14 Cost: Utilized existing funds (Funded \$175,228 in Year 10)

Year 15 Proposed Work: Continue surveys to determine farmers Long-term Commitments without being paid; complete final Manuscript and Project Close-out Summary.

Year 15 Projected Cost: \$0

Funding source: Proposition 50

Agencies: CDFW and Sonoma State University

Priority/Goal Addressed: ERP Goals 4

Task Category: Research

Activity: A Systems Biology Assessment of EDCs in the Delta. The project assess the genomic and proteomic responses of *Menidia beryllina* as a surrogate for Delta smelt after exposure to pyrethroid pesticides (represented by bifenthrin) and pharmaceuticals (represented by ibuprofen) and effluent from three wastewater treatment plants in the Suisun Bay area. In addition, University of California, Davis (UC Davis) will assess estrogenic and anti-estrogenic activity in these five sample types. UC Davis will assess reproductive behavior after exposure to bifenthrin and ibuprofen. UC Davis's goal is to develop monitoring tools that researchers can use to assess site-specific reproductive fitness of native wild fish populations in the Bay-Delta System.

Year 14 Accomplishments: UC Davis has presented at five scientific Conferences on this project this past year. UC Davis completed acute toxicity tests and 14-day bioassays, YES/YAS and CALUX assays bifenthrin and ibuprofen, and spawning trial assays.

Year 14 Cost: Utilized existing funds (Funded \$486,411 in Year 13)

Year 15 Proposed Work: UCD will conclude the biochemical assessments on bifenthrin-exposed fish; continue with microarray data analyses for both bifenthrin and ibuprofen and prepare Manuscript; water effluent bioassays will begin; and continue spawning trials assessments of exposed *Menidia*.

Year 15 Projected Cost: \$0

Funding Source: Proposition 84

Agencies: CDFW and UC Davis

Priority/Goal Addressed: PSP Priority 2/ERP Goals 1 and 6

Task Category: Research and Monitoring

Activity: American Basin Fish Screen and Habitat Improvement Project. The Natomas Mutual Water Company (NMWC) is a non-profit mutual water company that controls surface water rights for over 250 landowners within the 55,000 acres known as the American Basin. The purpose of this Project is to improve fish passage conditions for at-risk species in the Sacramento River by replacing existing unscreened diversions that meet or exceeds federal and state screening criteria. The project will include construction of a new 434 cfs screened pumping plant (Sankey Diversion) on the Sacramento River, construction of distribution facilities required to deliver water from the Sankey Diversion outfall to existing points of use, the decommissioning, demolition and site restoration of the Northern and Bennett Pumping Plants on the Natomas Cross Canal, and the decommissioning and removal of the Verona Diversion Dam. Additionally, the project will include upgrading and screening the existing 150 cfs Pritchard Lake Diversion. Beginning in November 2001, the Ecosystem Restoration Program provided grant funding for the planning, design, and environmental compliance phases of this project. NMWC expects to complete the construction phase in 2016. ERP funded American Basin projects:

- American Basin Fish Screen and Habitat Improvement Project (ERP-01-N60) (Closed Year 7)
- American Basin Fish Screen and Habitat Improvement Project (ERP-02-P09-D) (Closed Year 14)
- American Basin Fish Screen and Habitat Improvement (Phase IV-Construction) Project (ERP-09D-S03)

The USBR's Anadromous Fish Screening Program and the Sacramento Area Flood Control Agency are providing additional cost share for this project.

Year 14 Accomplishments: AFSP engineers completed post-construction testing and NMWC completed refinements on the Sankey Diversion intake facility, and associated distribution facilities. NMWC completed planning and acquisition for the Pritchard Lake Diversion.

Year 14 Cost: Utilized existing funds (Funded \$12,600,000 in Year 4 (ERP-02-P09-D), and additionally \$9,000,000 in Year 10 (ERP-09D-S03))

Year 15 Proposed Work: Construction will begin on upgrading and screening the 150 cfs Pritchard Lake Diversion.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Propositions 204 and 84

Agencies: CDFW, NMFS, USFWS, SAFCA, and United States Bureau of Reclamation (USBR)

Priority/Goal Addressed: ERP Goals 1-3

Task Category: Planning and Implementation

Activity: Anadromous Fish Restoration Program (AFRP). The objectives of the Anadromous Fish Restoration Program (AFRP) [CVPIA Section 3406 (b)(1)] are to (1) improve habitat for all life stages of anadromous fish through provision of flows of suitable quality, quantity, timing, and physical habitat; (2) improve survival rates by reducing or eliminating entrainment of juveniles at diversions; (3) improve the opportunity for adult fish to reach their spawning habitats in a timely manner; (4) collect fish population, health, and habitat data to facilitate evaluation of restoration actions; (5) integrate habitat restoration efforts with harvest and hatchery management; and (6) involve partners in the implementation and evaluation of restoration actions.

Year 14 Accomplishments: The AFRP funded habitat restoration projects that improve habitat, survival, and passage of anadromous fish in Antelope Creek, Cow Creek, Cottonwood Creek, Deer Creek, Mill Creek, and the American, Cosumnes, Merced, Stanislaus, and Yuba Rivers. AFRP collected fish population data for Cottonwood, Cow, Deer, and Mill creeks and in the Merced, San Joaquin, Stanislaus, and Yuba rivers to facilitate evaluation of restoration actions.

Year 14 Cost: : \$10,065,000

Year 15 Proposed Work: The AFRP will make reasonable efforts to at least double natural production of anadromous fish. In pursuing this goal, AFRP will work with local watershed groups and other partners to implement watershed restoration plans, and to give first priority to actions, which protect and restore natural channel and riparian habitat values. The AFRP will focus on streams with the greatest potential to sustain natural production of fall-run, late fall-run winter-run, and spring-run Chinook salmon, and steelhead. The streams that support these species include the Sacramento, Yuba, Feather, American, and Stanislaus rivers, and Cottonwood, Cow, Mill, Deer, Battle, and Clear creeks. The highest priority will be to complete ongoing projects. Emphasis will be on improving access for spawning adults to upstream habitat, protecting and restoring riparian and shaded riverine aquatic habitat, improving access for juvenile fish to floodplain habitats, and reducing loss of juveniles along their rearing and migratory corridors. Fish screening and fish passage project planning and permitting will be a high priority. Furthermore, AFRP will collaborate and provide technical assistance to large-scale restoration efforts on the main-stem San Joaquin River and in the Delta.

Year 15 Projected Cost: \$11,379,000

Funding Source: Federal (USBR) Funds

Agencies: CDFW, USBR, and USFWS

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Planning and Implementation

Activity: Anadromous Fish Screen Program (AFSP). The primary objective of the AFSP is to protect juvenile Chinook salmon (all runs), steelhead trout, and green and white sturgeon from entrainment at priority diversions in California's Central Valley including the Sacramento and San Joaquin Rivers, their tributaries, the Delta, and the Suisun Marsh. Section 3406 (b)(21) of the Central Valley Project Improvement Act (CVPIA) requires the Secretary of the Interior to assist the State of California in developing and implementing measures to avoid losses of juvenile anadromous fish resulting from unscreened or inadequately screened diversions. The AFSP can provide up to fifty percent federal cost share for fish screen projects and requires a fifty percent non-federal match. Note that the ERP activities table displays each ERP project that provides the State's contribution toward the AFSP as separate project.

Year 14 Accomplishments: The AFSP provided funds to RD 2035 for their fish screen project and to Natomas Mutual for their Pritchard Lake diversion fish screen. Also, completion of constructed fish screens are anticipated for: Yuba City, Colusa Indian Community Council (Compton Diversion), South Sutter Water District (Diversion #1), and Feather Water District (North and South Diversions).

Year 14 Cost: \$5,070,000

Year 15 Proposed Work: AFSP's cost share will fund environmental compliance, design, construction, and monitoring activities for a number of fish screen projects. AFSP selects projects based on AFSP prioritization criteria, which include willing applicant, project costs, biological benefits, availability of Federal funding, and availability of the required non-Federal cost share. In addition, a number of on-going AFSP projects will seek construction funding including RD 2035, WSID and MFWC.

Year 15 Projected Cost: \$4,150,000

Funding Source: Federal (USBR) Funds

Agencies: CDFW, USBR, and USFWS

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Planning and Implementation

Activity: Battle Creek Salmon and Steelhead Restoration Project. This multi-phased project will restore approximately 42 miles of historical anadromous fish habitat in Battle Creek, and an additional 6 miles of habitat in its tributaries. Implementation includes modification of facilities at Battle Creek Hydroelectric Project diversion dam sites located on the North Fork Battle Creek, South Fork Battle Creek, and Baldwin Creek in three phases (Phases 1A, 1B and 2). Phase 1A includes installing fish screens and ladders at the North Battle Creek Feeder (NBCF) and Eagle Canyon diversion dams and removing Wildcat diversion dam and appurtenant conveyance systems on the North Fork; and constructing a fish barrier on Baldwin Creek near the Asbury Pump diversion dam. Phase 1B includes installing an Inskip Powerhouse tailrace connector and bypass on the South Fork, and Phase 2 includes installing a fish screen and ladder on Inskip diversion dam, installing a South Powerhouse tailrace connector, and removing Lower Ripley Creek Feeder, Soap Creek Feeder, Coleman and South diversion dams, and appurtenant conveyance systems. ERP-funded Battle Creek projects that are currently active include:

- Anadromous Fish Habitat Monitoring for the Battle Creek Salmon and Steelhead Restoration (ERP-06D-S18)
- Battle Creek Salmon and Steelhead Restoration Project (ERP-99-B01)
- Battle Creek Salmon and Steelhead Restoration Project-Phase 1A (ERP-08D-S04)
- Battle Creek Salmon and Steelhead Restoration Project-Phase 2 (ERP-13D-S02)
- Outreach and Technical Services to Support Landowner and Watershed Resident's Participation in the Battle Creek Salmon and Steelhead Restoration Project (ERP-03-M10)

Year 14 Accomplishments: Phase 1A: At the North Battle Creek Feeder (NBCF) site, design work is underway to: 1) improve the effectiveness of the fish screening and fish ladder passage, and 2) add mechanical and electrical improvements to address facility safety and operations. Construction began to address safety measures at the new access road to NBCF diversion and fish facilities. The work will include installing a precast concrete block retaining wall and concreted rock slope protection, placing asphaltic concrete paving and concrete vehicle barriers, and stabilizing the upper road cut-slope rock block and right bridge abutment excavation, due by July 2014. USBR constructed a fish barrier weir that maintains 5 cubic feet per second (cfs) minimum flow in Baldwin Creek near Asbury Diversion Dam, downstream of the Darrah Springs State Trout Hatchery. The constant 5 cfs created an additional mile of suitable salmon and steelhead habitat, while the barrier prevents these fish that could carry viruses, from infecting the trout hatchery. Phase 1B: A government construction crew repaired the access road damaged in December 2012 and cleaned the sediment deposits inside the penstock bypass upper jump basin and at the two outlets in Coleman Canal. Phase 2: Data collection, environmental compliance efforts and design works are currently underway for the remaining final Restoration Project phase. Coleman National Fish Hatchery Adaptive Management Plan (CNFH AMP): Cramer Fish Sciences (CFS) completed the first internal draft of the CNFH AMP and an independent science panel reviewed it. The CFS team continues to work with the Technical Advisory Committee (TAC) to develop the CNFH AMP and address the Science Panel comments. For more details see: <http://www.usbr.gov/mp/battlecreek/status.html>

Year 14 Cost: Utilized existing funds (Funded \$75.1M in previous years).

Year 15 Proposed Work: Phase 1A: Begin modifications at NBCF. Phase 1B: Carry out Coleman Canal safety and facility access improvements. Phase 2: Continue data collection, environmental compliance efforts and design works currently underway for the final Restoration Project phase. Construction will occur on South Fork Battle Creek and its tributaries, and is planned to occur under two construction contracts; one construction contract involves the installation of a fish screen and ladder at Inskip diversion dam, installation of a tailrace tunnel connector from South Powerhouse to Inskip Canal, and removal of Lower Ripley Creek Feeder and Coleman diversion dams, and another construction contract involves the removal of Soap Creek Feeder diversion and the removal of South diversion dam and appurtenant conveyance system, including the removal of South Canal. USBR plans Phase 2 contract procurement for 2016 and anticipates construction from 2017 through 2019. Coleman National Fish Hatchery Adaptive Management Plan (CNFH AMP): USBR will release a revised draft AMP for public review in winter 2015; USBR anticipates completion of the final CNFH AMP in October 2016.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Sources: Fish Restoration Program (FY 2012), Federal Funds, Propositions 50, 84, California Urban Water Agencies (Category III)

Priority/Goal Addressed: ERP Goals 1-4

Task Category: Planning, Monitoring and Implementation

Activity: Bay Delta Conservation Plan (Federal). The BDCP is a HCP and NCCP being prepared to meet requirements of the FESA, and NCCPA for CVP and SWP water operations and management activities in the Delta. The BDCP will serve as the basis for incidental take permit applications for a new water conveyance facility around and/or through the Sacramento-San Joaquin River Delta, along with habitat restoration, under section 10 of the ESA. In addition, the information developed as part of the BDCP process will help inform the ESA Section 7 consultation on the coordinated long-term operation of the CVP and SWP. The section 10 permit issuance decisions and the associated Federal actions that may be undertaken by USBR are major Federal actions that require preparation of an EIS under the NEPA. Lead agencies for the EIS are USBR, the USFWS, and the NMFS. The BDCP also will serve as the planning and permitting document under State law for the new conveyance facility, operations, and habitat restoration, and a take permit for these activities under California's NCCPA administered by CDFW. CEQA requires the preparation of an EIR for the BDCP. The lead agency for the EIR is the California Department of Water Resources (DWR).

Year 14 Accomplishments: The lead agencies posted the Draft BDCP and associated Draft EIR/EIS on the BDCP website (<http://baydeltaconservationplan.com/Home.aspx>) December 9, 2013, with formal public comment from December 13, 2013 through July 29, 2014. During the formal comment period, public meetings took place throughout the State. These meetings provided information about the project and served as one venue for accepting formal comments. The lead agencies will accept and consider comments during the official comment period that will be used to inform the development of the Final BDCP and Final EIR/EIS. The Draft BDCP EIR/EIS includes 15 alternatives plus a No Action Alternative.

Year 14 Cost: \$3,500,000

Year 15 Proposed Work: The lead agencies will continue activities associated with BDCP legal and permitting requirements. The requirements include compliance with the ESA, NEPA, Clean Water Act, and National Historic Preservation Act. Other activities include development of value engineering studies, Fish Facility Technical Team studies, modeling, and a Design, Estimating and Construction (DEC) review of the proposed pumping and conveyance facilities.

Year 15 Projected Cost: \$4,000,000

Funding Sources: Federal (USBR) Funds

Agencies: CDFW, DWR, NMFS, USBR, and USFWS

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Planning

Activity: Blacklock Restoration Project Monitoring. The 70-acre Blacklock property is being restored to a self-sustaining functioning brackish tidal marsh by restoring tidal action, reversing subsidence, and promoting establishment of native vegetation and a tidal marsh channel network appropriate to this location within the San Francisco Estuary. The Blacklock Restoration Project Monitoring will collect bathymetry, vegetation, channel morphology, water quality and sedimentation data following the restoration of tidal flow to the Blacklock parcel. This information is required by Bay Conservation and Development Commission as a condition of the restoration and will provide information on restoration trajectory that may be applicable to future tidal marsh restoration in the region.

Year 14 Accomplishments: None. Funded but not executed.

Year 14 Cost: None

Year 15 Proposed Work: Execute agreement and begin monitoring of levee breach geometry, inundation regime, surface elevation, changes in sedimentation, slough network evolution, native marsh vegetation

Year 15 Projected Cost: \$382,250

Funding Source: Proposition 84

Agencies: CDFW and DWR

Priority/Goal Addressed: ERP Goals 1, 2, 4, and 6

Task Category: Monitoring

Activity: BREACH III: Evaluating and Predicting 'Restoration Thresholds' in Evolving Freshwater-Tidal

Marshes. "BREACH III" Project activities involve Lower Yolo Bypass technical site evaluation, monitoring, research, and feasibility assessment. Several issues need to be addressed to assess long-term restoration potential, and management of publicly owned properties in the Lower Yolo Bypass. The BREACH III proposal will address both the physical and environmental processes occurring on the sites, and greatly improve our understanding of the aquatic species response to tidal wetland restoration. BREACH III will assess the natural development of tidal marsh at Liberty Island and the impacts of seasonal and interannual hydrologic variability. The results should be a comprehensive monitoring and research approach. A key component of the project is the development of hydrodynamically driven models, which may be run with restoration and management practitioner input. The technical approach should greatly improve decision making capacity in regards to future management, restoration potential, and evolving ecosystem and hydrodynamic conditions in the lower bypass.

Year 14 Accomplishments: USFWS monitoring of sediment, vegetation, biologic and trophic character of the evolving tidal marsh and upland ecotones on Liberty Island were completed. USFWS completed development and validation of quantitative landscape models of marsh evolution. USFWS established links between the quantitative model(s) and conceptual models to interpret the biotic and trophic character of model run scenarios. USFWS incorporated restoration and management practitioner input to predict ecological responses to change in habitat structure. USFWS interpreted alternative flow and marsh configuration scenarios. ERP held the final modeling workshop on June 11, 2013. The study found that Liberty Island is in the "slow phase" of emergent vegetation colonization, a sort of equilibrium with the wave and tidal action.

Year 14 Cost: Utilized existing funds (Funded \$2,447,998 in Year 8)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 84

Agencies: CDFW, NMFS, and USFWS

Priority/Goal Addressed: ERP Goals 1, 2, 4, and 6

Task Category: Monitoring and Research

Activity: Butte Creek Spring-run Chinook Salmon Life History Investigation. A partnership between California State University (CSU), Chico Research Foundation and the CDFW, will continue the Butte Creek spring-run Chinook salmon (SRCS) life history investigation. This project is located on Butte Creek, in Butte County, California near Chico. The objective is to continue development of an SRCS adult escapement estimate that will serve as a reliable and more precise "recovery-metric" providing a measure of overall restoration effectiveness and as a measure of recovery for the listed SRCS.

Year 14 Accomplishments: The annual Butte Creek spring-run Chinook salmon (*Oncorhynchus tshawytscha*) (SRCS) spawning escapement survey was conducted in early July 2013. Chico Research Foundation employed the standard swimming snorkel methodology (used since 1988) to survey from Centerville Head Dam to Parrott-Phelan Diversion Dam. The estimate for the adult 2013 SRCS snorkel escapement is 11,470 salmon. The grantee conducted the annual SRCS pre-spawn mortality in June-September 2013. For the period, the grantee encountered 354 carcasses and recorded biological data on a majority of those fish. Chico Research Foundation estimated the total pre-spawning mortality to be 645 fish. The grantee conducted the adult SRCS spawning escapement survey in September-October 2013 and reported an escapement estimate of 15,887 salmon. Crews encountered and handled 10,991 carcasses. Crews tagged and released approximately 1,055 fresh carcasses. Crews subsequently recovered 585 of those tagged carcasses for a recovery rate of 55%. Crews did not recover any coded-wire tags (CWT) during the entire pre-spawning or spawning escapement surveys. Chico Research Foundation crews conducted the adult fall-run Chinook Salmon (FRCS) spawning survey in November-December 2013, and estimated spawning escapement of 2,200 adult FRCS. Crews encountered and chopped 1,421 fish and marked and released an additional 133 for potential recovery. Crews recovered 37 CWT fish, which are awaiting tag retrieval and analysis.

Year 14 Cost: Utilized existing funds (Funded in Year 7, reduced to \$291,661 in Year 11)

Year 15 Proposed Work: CSU, Chico Research Foundation will conduct escapement surveys and pre-spawn mortality monitoring activities.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Agencies: CDFW and CSU Chico Research Foundation

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Monitoring and Research

Activity: CALFED Coordination. The California Bay Delta is an ecosystem of national significance, and the U.S. Army Corps of Engineers (USACE) is participating with other agencies in addressing the goals in the Interim Federal Action Plan (IFAP) for the Bay Delta. CALFED Coordination allows the USACE to participate in planning activities, interagency meetings and projects. Other coordination activities include watershed based planning and collaboration efforts along the Yuba River to help integrate Delta sustainability goals, as well as in southern California to advance statewide planning activities related to Delta sustainability. Interagency coordination includes the prioritization and implementation of existing projects benefiting the Bay Delta, by developing innovative ways to streamline the planning and implementation process of Bay Delta projects.

Year 14 Accomplishments: Attended interagency meetings and coordinated with applicants on processing Section 408 and 404 requests. USACE coordinated with DWR and Delta Stewardship Council (DSC). The DSC completed the DSC's Delta Plan. The USACE staff coordinated with DWR and the DSC to help integrate flood risk management elements of the watershed into the plan, as well as ecosystem restoration activities in the Delta.

Year 14 Cost: \$100,000

Year 15 Proposed Work: The USACE will provide program support and coordinate with Bay-Delta ecosystem planning and restoration efforts.

Year 15 Projected Cost: \$100,000

Funding Source: Federal

Agencies: Federal (USACE) Funds

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Planning and Program Support

Activity: CALFED Program Management, Oversight, and Coordination. Activities include Program support; program-wide tracking of schedules, finances, and performance; agency oversight and coordination of Program activities to ensure program balance and integration; development of interagency crosscut budgets; coordination of public outreach and involvement, including tribal, environmental justice, and public advisory activities; development of Annual Reports; and USBR's administration of the storage, conveyance, water use efficiency, environmental water account, ecosystem restoration, science, and water transfer programs.

Year 14 Accomplishments: USBR provided management, oversight, and coordinated CALFED activities.

Year 14 Cost: \$1,700,000

Year 15 Proposed Work: USBR will provide management, oversight, and coordinate with CALFED activities.

Year 15 Projected Cost: \$1,700,000

Funding Source: Federal (USBR) Funds

Agencies: USBR

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Planning and Program Support

Activity: Central Valley Project Improvement Act (CVPIA) Contribution. According to the ROD, up to \$15 million of CVPIA restoration funds will be used for the purpose of protecting, restoring, and enhancing special-status species and their habitats in areas directly or indirectly affected by the CVP. The CVPIA programs that contribute to the ERP goals and objectives include the AFRP, AFSP, Battle Creek Restoration, Clear Creek Restoration, Dedicated Project Yield, Spawning Gravel/Riparian Habitat, and Water Acquisition programs. More information on the CVPIA accomplishments and activities can be found at <http://www.usbr.gov/mp/cvpia/>.

Year 14 Accomplishments: See Year 14 Activities for the AFRP, the AFSP, Battle Creek Restoration, Clear Creek Restoration, Dedicated Project Yield, Riparian Habitat/Spawning Gravel, and Water Acquisition programs.

Year 14 Cost: \$15,000,000 (Year 14 funds are included in the AFRP, the AFSP, Battle Creek Restoration, Clear Creek Restoration, Dedicated Project Yield, Spawning Gravel/Riparian Habitat, and Water Acquisition programs).

Year 15 Proposed Work: See Year 15 Proposed Work for the AFRP, the AFSP, Battle Creek Restoration, Clear Creek Restoration, Dedicated Project Yield, Spawning Gravel/Riparian Habitat, and Water Acquisition programs.

Year 15 Projected Cost: \$15,000,000 (Year 15 funds are included in the AFRP, the AFSP, Battle Creek Restoration, Clear Creek Restoration, Dedicated Project Yield, Spawning Gravel/Riparian Habitat, and Water Acquisition programs).

Funding Source: CVPIA Restoration Funds

Agencies: USFWS and USBR

Priority/Goal Addressed: ERP Goals 1-4

Task Category: Planning, Monitoring, and Implementation

Activity: Clear Creek Environmental Water Program. This project will develop a written on-the-ground in-season operational plan for the recommended Environmental Water Program (EWP) Whiskeytown Dam re-operation acceptable to Central Valley Operators, produce a companion core geomorphic and biological effectiveness-monitoring plan, and perform one EWP re-operation/release in 2015 on Clear Creek. The monitored test of a planned mid-level flow will have great geomorphic and ecological significance. The overall vision for the pilot EWP flow on Clear Creek is to release a discharge of sufficient magnitude, duration and frequency to reactivate natural fluvial geomorphic processes. These processes are fundamental for creating and maintaining the diverse template of habitats required in the Clear Creek ecosystem to recover and sustain aquatic and riparian species, particularly anadromous salmonids and native floodplain and riparian vegetation. The project is the fourth step in a directed action process for pilot flow augmentation under the existing Environmental Water Program in Clear Creek.

Year 14 Accomplishments: ESSA submitted 6 draft technical briefs that USBR is reviewing. Northern Hydrology and Graham Matthews & Associates produced an estimate of Clear Creek channel capacity. ESSA produced a Technical Guidance Memo to Stillwater Sciences. Stillwater Sciences completed the Draft Core Monitoring and Adaptive Management Plan.

Year 14 Cost: Utilized existing funds (Funded \$813,745 in Year 10)

Year 15 Proposed Work: Finalize the six Technical Briefs and complete the NEPA/CEQA compliance document. Amend the project to extend to December 31, 2015 to facilitate releasing the flushing flow that the USBR had to delay one year due to their need to perform long-term maintenance on one of the Spring Creek Powerhouse generators.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW, USBR, and USFWS

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Planning and Implementation

Activity: Clear Creek Restoration. The purpose of the Clear Creek Restoration Program is to: (1) restore stream channel form and function necessary to optimize habitat for salmon and steelhead and the aquatic and terrestrial communities on which they depend; (2) determine long-term flow needs for spawning, incubation and rearing by conducting an Instream Flow Incremental Methodology study as mandated in Section 3406 (b)(12); (3) provide flows of adequate quality and quantity to meet the requirements of all life stages of Chinook salmon and steelhead trout known to use Clear Creek; (4) provide spawning gravel to replace supply blocked by Whiskeytown Dam; and (5) monitor project results.

Year 14 Accomplishments: Clear Creek restoration focused on providing flows, the planning and design of restoration projects focusing on stream channel and instream habitat, and conducted monitoring to determine impacts of restoration actions. Releases from Whiskeytown Dam provided downstream fish habitat that is at least 90 percent of the maximum possible weighted usable area, allowed water temperatures to comply with the NMFS's biological opinion, and allowed passage of adult anadromous fish at the former McCormick-Saeltzer Dam location. USBR completed design and permitting on the Cloverview Long-term Gravel Supply Project that will use abandoned dredger mine tailings as an inexpensive source of spawning gravel for future placements. Efforts to prepare long-term programmatic environmental permits for various restoration actions continued. Environmental compliance planning will be initiated for the Environmental Water Program's "geomorphic/channel maintenance flows". Monitoring activities included work to ascertain impacts of restoration actions on fishery and geomorphic resources and determine the amount of spawning gravel needed to maximize the amount of spawning habitat.

Year 14 Cost: \$800,000

Year 15 Proposed Work: Clear Creek restoration will work to implement aggressively Chinook salmon and steelhead habitat enhancement projects through partnerships with local landowners, public and private agencies, and universities. Projects are currently emphasizing restoration actions that will increase populations of spring-run Chinook salmon and steelhead, both listed as threatened under the FESA. Restoration activities will focus on implementing the Cloverview Long-term Gravel Supply Project. The program will monitor juvenile habitat use, conduct spawning area mapping, calculate juvenile habitat suitability indices, assess gravel quality, monitor survival-to-emergence, provide fish rescue, conduct benthic macro invertebrate sampling, monitor water quality and water temperature. The program will also implement several in-stream spawning gravel placement projects. In addition, the Environmental Water Program is scheduled to implement its first "geomorphic/channel maintenance flows" discharge of 3,250 cfs, which will help promote proper functioning of more natural fluvial geomorphic processes in Clear Creek.

Year 15 Projected Cost: \$1,080,000

Funding Source: Federal (USBR) Funds

Agencies: CDFW, USBR, and USFWS

Priority/Goal Addressed: ERP Goals 1-4

Task Category: Planning and Implementation

Activity: Clover Creek/Millville Diversion Fisheries Restoration Project. The Clover Creek/Millville Diversion Fisheries Restoration Project will remove fish passage barriers associated with the Millville Diversion Dam on Clover Creek, tributary to Cow Creek in Shasta County. Once these barriers are removed, approximately ten miles of spawning habitat will be available to anadromous salmonids.

Year 14 Accomplishments: The Western Shasta Resource Conservation District (WSRCD) began work to complete CEQA/NEPA compliance documents; solicit bids and award the contract to finalize engineering designs developed to 50% by the Fish Passage Improvement Program; and develop and finalize the Quality Assurance Project Plan and the Project Monitoring Plan.

Year 14 Cost: \$2,000,000

Year 15 Proposed Work: WSRCD will continue work on the CEQA/NEPA compliance documents; solicit bids and award the contract to finalize engineering designs developed to 50% by the Fish Passage Improvement Program; and develop and finalize the Quality Assurance Project Plan and the Project Monitoring Plan.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 204

Agencies: WSRCD and CDFW

Priority/Goal Addressed: ERP Goals 1-4

Task Category: Implementation

Activity: Complementing Water Planning Efforts for the Delta and Sacramento River: Application of the Ecological Flows Tool. The project leverages recently completed efforts, the Sacramento River Ecological Flows Study, by expanding the capability of the developed Sacramento River Ecological Flows Tool (SacEFT) for application to the Delta. This project will conduct a set of refinements to increase the utility of SacEFT, and construct a new Delta ecological flows tool (DeltaEFT) branch of the software. The DeltaEFT will have the ability to link explicitly upstream (Sacramento River) ecological responses evaluated with the SacEFT to ecosystem responses in the Delta evaluated with the DeltaEFT.

Year 14 Accomplishments: The Nature Conservancy (TNC) completed the SacEFT and the DeltaEFT applications. The final report "Application of the Ecological Flows Tool to Complement Water Planning Efforts for the Delta and Sacramento River: Multi-Species Effects Analysis and Ecological Flow Criteria" was submitted.

Year 14 Cost: Utilized existing funds (Funded \$1,715,533 in Year 8)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 84

Agencies: CDFW

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Planning

Activity: Corona and Twin Peaks Mine Drainage Treatment Project. The purpose of this project is to develop and demonstrate an effective approach for mine cleanup involving private landowners, non-profit organizations, regulators, and interested stakeholders. The project will need to address legal liability issues prior to initiation of large-scale mine remediation work efforts. The project addresses Ecosystem Restoration Program Goal 6 (Water and Sediment Quality), Objective 1 to "Improve and/or maintain water and sediment quality conditions that fully support healthy and diverse aquatic ecosystems in the Bay-Delta estuary and watershed; and eliminate, to the extent possible, toxic impacts to aquatic organisms, wildlife, and people."

Year 14 Accomplishments: Unforeseen circumstances resulted in the issuance of a stop work order.

Year 14 Cost: \$1,530,550 (Funding for entire project)

Year 15 Proposed Work: Project remains on hold.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 13

Agencies: CDFW

Priority/Goal Addressed: PSP Priority 3/ERP Goal 6

Task Category: Implementation

Activity: Dedicated Project Yield. The Department of the Interior has the responsibility to dedicate and manage annually 800,000 acre-feet of CVP water Section (b)(2) water for fish, wildlife, and habitat restoration purposes and assist the State of California in its efforts to protect the waters of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. The program objectives are to: (1) improve habitat conditions for anadromous fish in CVP controlled rivers and streams and the Bay-Delta to help meet the AFRP doubling goals; (2) increase survival of out migrant juvenile anadromous fish, especially in the Bay-Delta; (3) enhance recovery of listed threatened and endangered fish species; and (4) monitor and evaluate to assess the effectiveness of Section (b)(2) measures.

Year 14 Accomplishments: Continued efforts associated with the annual dedication and management of 800,000 acre-feet of the CVP yield for the primary purpose of anadromous fish restoration. Upstream actions were implemented; and monitoring and evaluation to assess the effectiveness of Section (b)(2) environmental measures continued. USBR will use a portion of the funds for litigation costs.

Year 14 Cost: \$600,000

Year 15 Proposed Work: USBR will use funds to continue efforts associated with the annual dedication and management of 800,000 acre-feet of CVP yield for the primary purpose of anadromous fish restoration as directed by the CVPIA. The May 2003 Decision on Implementation of Section 3406(b) (2), will be implemented for the thirteenth year in 2015; upstream actions will be implemented; and monitoring and evaluation to assess the effectiveness of (b) (2) environmental measures will continue.

Year 15 Projected Cost: \$700,000

Funding Source: Federal (USBR) Fund

Agencies: USBR

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Implementation and Monitoring

Activity: Delta Dialogues, Phase II. The Delta Dialogues fosters greater shared understanding of the different interests in the Delta, focusing on issues of water flow, levees, trust and governance, and water quality. During Phase II, the Delta Dialogues will be a platform for a core set of key Delta leaders to better understand the Bay-Delta Conservation Plan and its potential impacts on the Delta, and explore and create robust and innovative responses to the Delta's challenges. The Delta Dialogues will expand these conversations to a broader set of stakeholders to help break down the multiple myths that have contributed to gridlock in achieving progress in the co-equal goals of Delta ecosystem health and a sustainable water supply.

Year 14 Accomplishments: Sacramento-San Joaquin Delta Conservancy (Delta Conservancy) held monthly, full-day, facilitated stakeholder meetings focused on building shared understanding and stronger relationships among the people in the room using a combination of site visits and the Dialogue Mapping technique. The Delta Conservancy published the resulting Dialogue Maps and other notes from the meetings on their website

Year 14 Cost: \$100,800

Year 15 Proposed Work: Continue to will hold monthly, full-day, facilitated stakeholder meetings focused on building shared understanding and stronger relationships among the people in the room using a combination of site visits and the Dialogue Mapping technique. The Delta Conservancy will publish the resulting Dialogue Maps and other notes from the meetings on their website.

Year 15 Projected Cost: Utilized existing funds.

Funding source: Proposition 84

Agencies: Delta Conservancy and CDFW

Priority/Goal Addressed: ERP Goals 1, 4, and 6

Task Category: Implementation

Activity: Delta Working Landscapes. This project provides support for local farmers to implement demonstration projects that improve habitat values while improving water quality, sediment transport, and levee stabilization. Evaluates operations of agriculture practices in the Delta that could be implemented elsewhere. This project will provide an educational and outreach festival to inform the public on the values of the Delta.

Year 14 Accomplishments:

The Delta Protection Commission submitted the Year 3 Monitoring Report, Cost-Analysis Report, the Feasibility Report, the Farmers Information Packet, the Vegetation Buffer and Wetland Habitat Maintenance Guide and the Final Report and Project Close-out Summary.

Year 14 Cost: Utilized existing funds (Funded \$800,000 in Year 10)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding source: Proposition 50

Agencies: CDFW and Delta Protection Commission

Priority/Goal Addressed: ERP Goals 1, 4, and 6

Task Category: Implementation

Activity: Development Of A Spatially Explicit Ecosystem Model To Explore Physicochemical Drivers of Step Changes in POD Species And Distribution In The Sacramento-San Joaquin Delta And Suisun Bay.

The purpose of this project is to improve a dynamic food web model of the Sacramento-San Joaquin Delta and Suisun Bay, so that U.S. Geological Survey (USGS) can move from using it as a hypothesis-exploration tool toward using it as a decision-support tool. Planners can use the this model in conjunction with Monte Carlo simulations of the time-dynamic module as a tool for exploring the impacts of resource management decisions, and help to optimize the utility and effects of such decisions.

Year 14 Accomplishments: During ERP Year 14, USGS focused work on the model development task. USGS completed the Habitat Data Table and Ecospace Model Schematic, and NOAA completed the GIS Basemap. The USGS Biologists presented a poster on the project titled, "Recent Progress of the Sacramento-San Joaquin Delta and Suisun Bay Ecopath Model" at the 2014 Interagency Ecological Program Annual Conference, Folsom, CA.

Year 14 Cost: Utilized existing funds (Funded \$356,483 in Year 13).

Year 15 Proposed Work: In ERP Year 15, USGS will complete the Ecosim and Sensitivity Analysis and Project Review Tasks. The Ecosim and Sensitivity Analysis Task includes implementing the functional Ecospace model for initial test runs of simulations (Ecosim) for hypothesis testing. In addition, the NOAA team will develop programming code to determine the sensitivity of model outputs to uncertainty in the various input parameters. Understanding this sensitivity will indicate the level of confidence model users should give to predicted outcomes. The results will also suggest types of data needed to improve the model. The Project Review Task is the final task, which will include preparation of the Final Report and Presentation Summary.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW and USGS

Priority/Goal Addressed: PSP Priority 2/ERP Goals 1-4

Task Category: Research

Activity: Development of Best Management Practices to Reduce Methyl Mercury Exports and Concentrations from Seasonal Wetlands in the Yolo Wildlife Area (DFG).

This agreement supports CDFW staff at Moss Landing Marine Lab for the project. These pilot and demonstration projects will develop Best Management Practices (BMPs) to reduce Methyl Mercury (MMHg) concentrations and exports from wetlands. These projects will test whether physical modifications of the fields as well as modifications of methods employed in managing wetlands can reduce MMHg loads. The primary focus of this proposal is to construct a Pilot Project that consists of a 50-acre pond that will treat and remove MMHg from water and includes installations of small settling basins to catch particles.

Year 13 Accomplishments: CDFW continued with Year 12 activities, modifying them in response to recommendations from Science Advisory Panel. Monitored permanent ponds (through which water from seasonal ponds was moved). Monitoring focused on evaluating removal of MMHg in permanent ponds and determining the effect of size, depth, hydraulic residence time and age of permanent ponds on MMHg removal. The Project Team is summarizing the past year's data and synthesizing it with previous efforts in preparation of the final year of experiments.

Year 14 Cost: Utilized existing funds (Funded \$168,509 in Year 11)

Year 15 Proposed Work: The Project Team will complete summary of the past year's data and carryout the final year of experiments.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 13

Agencies: CDFW

Priority/Goal Addressed: ERP Goal 4 and 6

Task Category: Research, Implementation

Activity: Development of Best Management Practices to Reduce Methyl Mercury Exports and Concentrations from Seasonal Wetlands in the Yolo Wildlife Area (SJSURF). The pilot and demonstration projects will develop BMPs to reduce methylmercury concentrations and exports from wetlands. These projects will test whether physical modifications of the fields as well as modifications of methods employed in managing wetlands can reduce MMHg loads. Following investigation of the various management measures, a final structure will be constructed to remove MMHg from water and reduce exports from the Yolo Wildlife Area.

Year 14 Accomplishments: The San Jose State University Foundation continued with Year 12 activities, modifying them in response to recommendations from Science Advisory Panel. Monitored permanent ponds (through which water from seasonal ponds was moved). Monitoring focused on evaluating removal of MMHg in permanent ponds and determining the effect of size, depth, hydraulic residence time and age of permanent ponds on MMHg removal. The Project Team is summarizing the past year's data and synthesizing it with previous efforts in preparation of the final year of experiments. The Project Team is in the process of summarizing the last year of data for use in planning the final year of field experiments. The Project Team presented this work to their Science Advisory Panel on June 20, 2013.

Year 14 Cost: Utilized existing funds (Funded \$1,632,491 in Year 12).

Year 15 Proposed Work: The Project Team will complete summary of the past year's data and carryout final year of experiments.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 13

Agencies: San Jose State University Research Foundation

Priority/Goal Addressed: ERP Goal 6

Task Category: Research, Implementation

Activity: Ecological Performance of Fishes in an Ever-changing Estuary: The Effects of Nutritional Status on Environmental Stress Tolerance in Sturgeon. The purpose of the project is to do a systematic study designed to establish the relationship between nutritional status, an indicator of dietary quality and quantity, and physiological performance of green and white sturgeon when faced with key environmental stressors. This project is a 2010/2011 Directed Action.

Year 14 Accomplishments: UC Davis presented project findings at the 7th International Symposium on Sturgeon, Nanaimo, BC, Canada and completed manuscript on juvenile green sturgeon. UC Davis analyzed and archived data collected from the spring 2013 green sturgeon spawning. UC Davis completed sample analyses for the white sturgeon young-of-the-year, including whole body, carcass, liver, viscera, gonads and plasma metabolites (protein, glucose, triacylglycerol). Data analysis for the white sturgeon young-of-the-year optimum feeding experiment is in progress. UC Davis prepared a manuscript on the optimum feeding model of white sturgeon. UC Davis completed data analysis of juvenile white sturgeon CTmax and sample and data analyses for plasma osmolality, Na⁺, K⁺, Cl⁻, glucose and lactate, and pyloric ceca and gill NaK ATPase. UC Davis processed the remaining tissue samples for green sturgeon fingerling HSP70 and began white and green sturgeon juvenile HSP70 sample processing. UC Davis carried out plasma cortisol analysis of juvenile white sturgeon samples. UC Davis has completed statistical analyses of green sturgeon juvenile data and continued statistical analyses of white sturgeon juvenile data.

Year 14 Cost: Utilized existing funds (Funded \$472,991 in Year 13).

Year 15 Proposed Work: UC Davis will continue to study the relationship between nutritional status, an indicator of dietary quality and quantity, and physiological performance of green and white sturgeon when faced with key environmental stressors.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW and UC Davis

Priority/Goal Addressed: PSP Priority 2/ERP Goals 1

Task Category: Research

Activity: Ecosystem Restoration Program (ERP) Oversight & Coordination. As an ERP implementing agency, the NMFS will continue the ERP planning efforts in collaboration with USFWS, CDFW, and DSC. Activities include program planning and implementation, tracking schedules, finances, and performance; coordination of Program activities to ensure Program balance and integration with other CALFED Programs; coordination of public outreach and involvement, including tribal, environmental justice, and public advisory activities in accordance with the Federal Advisory Committee Act. NMFS, through an interagency process, is also involved in planning in order to meet the requirement of FESA, CESA, and NCCPA.

Year 14 Accomplishments: NMFS provided ERP with oversight and coordination on planning and implementation efforts including the ERP Conservation Strategy (CDFW et al. 2014), performance measures, program plan, environmental compliance, project review, species and habitat modeling.

Year 14 Cost: \$140,000

Year 15 Proposed Work: NMFS staff and management will assist coordination of implementation and integration of ERP overall in meeting the ERP goals and objectives. NMFS will provide oversight and coordination of ERP planning efforts including performance measures, program plan, environmental compliance, project review, species and habitat modeling.

Year 15 Projected Cost: \$140,000

Funding Source: Federal (NOAA) Funds

Agencies: NMFS

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Planning and Program Support

Activity: Ecosystem Restoration Program Implementation Staff. In support of the 30-year CALFED ROD, CDFW staff manage the ERP grants, support the ERP planning at program-wide and regional levels, support ongoing implementation activities, coordinate with the DSC, USFWS, NMFS, and other CDFW staff, as well as coordinate with other planning efforts that contribute or may affect CALFED, such as the CVPIA, the BDCP, and the CVFPP.

Year 14 Accomplishments: ERP staff completed the ERP Conservation Strategy (CDFW et al. 2014). ERP implemented projects selected the ERP's 2010-2011 PSP, and Directed Actions that focused on priority restoration activities identified in the ERP Conservation Strategy. ERP staff managed existing projects. ERP staff participated, coordinated, reported, and provided input to Bay-Delta Ecosystem planning and monitoring efforts.

Year 14 Cost: \$3,261,744

Year 15 Proposed Work: ERP will approve the ERP Conservation Strategy, implement projects that selected through the ERP's 2010-2011 PSP, Directed Actions, as well as manage existing projects. ERP staff will participate, coordinate, report, and provide input to Bay-Delta Ecosystem planning and monitoring efforts.

Year 15 Projected Cost: \$3,141,863

Funding Source: Proposition 84

Agencies: CDFW

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Task Category: Planning and Implementation

Activity: Ecosystem Restoration Program Performance Measures Staff. CDFW staff support to comply with increased accountability requirements of bond-funded activities. This fulfills the requirement to follow an adaptive management process, and to monitor and evaluate the ERP program performance by developing indicators and performance measures.

Year 14 Accomplishments: Staff provided input on the Delta Science Program's Delta Science Plan and Interim Science Action Agenda. Staff coordinated CDFW's input on progress towards implementing the ecosystem restoration and other pertinent components of the *Delta Vision Strategic Plan* for the 2014 Delta Vision Report Card. Staff contributed to on-going effort to develop an adaptive management and monitoring programs for the BDCP and Fish Restoration Program (FRP). Staff played an active role in the California Estuary Monitoring Workgroup and contributed to the development of content for the California Estuaries Portal on the California Water Quality Monitoring Council's (CWQMC's) My Water Quality portal, reporting on status and trends of indicators relevant to ecosystem health in the San Francisco Bay-Delta. Staff conducted a review of ERP-funded simulation modeling projects. Staff currently serve on a technical advisory team, along with the Delta Conservancy, DWR, SFEI, San Francisco Bay Joint Venture, and Central Valley Joint Venture, to develop a San Francisco Estuary-wide Restoration Habitat Tracking Database.

Year 14 Cost: \$345,131

Year 15 Proposed Work: ERP Performance Measures staff will develop and refine performance measures to evaluate the success of ERP actions and support adaptive management. Staff will coordinate with the DSC, DSP, FRP, BDCP, CWQMC, SWRCB, Delta Conservancy, and other agencies and programs to develop and refine adaptive management processes and performance measures for ecosystem protection, enhancement, and restoration. Staff will continue to contribute to development of the adaptive management and monitoring programs for the BDCP and FRP. Staff will participate in the newly established IEP Tidal Wetland Monitoring Project Work Team and contribute to the development of standardized monitoring approaches and performance measures to assess the effectiveness of tidal wetland restoration actions. Staff will coordinate CDFW's reporting on progress towards implementing the ecosystem restoration and other pertinent components of the *Delta Vision Strategic Plan* for the 2015 Delta Vision Report Card. Staff will continue to contribute to the implementation of the Delta Science Program's Delta Science Plan (e.g., development of the Interim Science Action Agenda). Staff will continue to contribute to the development of content for the California Estuaries Portal. In coordination with the San Francisco Estuary Partnership and the California Estuary Monitoring Workgroup, staff will develop indicators for the State of the Estuary Report 2015. Staff will continue to participate on a technical advisory team, to support development of a San Francisco Estuary-wide Restoration Habitat Tracking Database.

Year 15 Projected Cost: \$344,131

Funding Source: Proposition 84

Agencies: CDFW

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Task Category: Monitoring

Activity: Evaluation of Floodplain Rearing and Migration in the Yolo Bypass. This project directly address restoration actions currently being considered to improve passage for upstream-migrating fish such as salmon and sturgeon, and by using telemetry to document specific areas in the Bypass that present passage barriers to adult Chinook salmon and sturgeon under different hydrological conditions. It also collects information on juvenile salmon residence time and survival in the Bypass, using telemetry. Specific thresholds (flow and inundation criteria) for enhanced lower trophic productivity that have not yet been identified in the Bypass. The project will analyze an existing 12-year database to identify these thresholds. In addition, the project will collect new data on chlorophyll and densities of zooplankton and drift invertebrates in summer and fall months, as these months are not represented in the current long-term dataset.

Year 14 Accomplishments: DWR completed its second year cycle of telemetry studies of Chinook salmon and sturgeon. DWR submitted their second yearly telemetry report. DWR collected samples for the Chinook Salmon Run Identification and has continued analyzing the samples. DWR has finalized the molecular markers of interest for the Thermal Stress Investigations. DWR has nearly completed the Historical Salmon Data Analysis of coded wire tag salmon for survival, apparent growth rate, residence time, and emigration patterns. DWR continues the preparation of the Sulfur Isotope Studies archived samples. DWR has continued analyzing the samples and is preparing a multivariate analysis of the invertebrate samples.

Year 14 Cost: Utilized existing funds (Funded \$878,020 in Year 13)

Year 15 Proposed Work: DWR will:

- Analysis of telemetry studies of Chinook salmon and sturgeon within the Yolo Bypass;
- Collect samples for the Chinook Salmon Run Identification; Analyze the Historical Salmon Data that DWR has collected and prepare Manuscript; design assays for markers of interest;
- Collect and archive samples for sulfur isotope studies;
- Analyze food web samples; and
- Prepare initial summaries.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW and DWR

Priority/Goal Addressed: PSP Priority 2/ERP Goals 1, 2, and 4

Task Category: Research

Activity: Expanding Fish Tracking Array with Real-Time Monitoring of Tagged Sturgeon and Salmonids.

The purpose of the project includes: 1) Upgrading 75 obsolete monitors in the array of 300 fish detecting monitors situated in the Sacramento River, Delta, and Suisun, Grizzly, San Pablo, and San Francisco Bays; 2) Creating a new online database using 'Hydra' software allowing for interaction between researchers and operators of telemetry receivers; and 3) Adding a real-time capability to the array that will enhance its effectiveness at providing timely information and could make it possible to respond to changes in the distribution of fishes on the temporal scale of a day.

Year 14 Accomplishments: UC Davis removed obsolete monitors and replaced them with new monitors. UC Davis has moved the biotelemetry data formerly housed at NOAA to the online database Hydrophone Data Repository (HYDRA) and the project team began placing real-time monitors into the field. Web interface with the real time monitors is under development but online and detecting fish at one monitor along the Sacramento River.

Year 14 Cost: Utilized existing funds (Funded \$690,593 in Year 12, later reduced to \$420,392)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 84

Agencies: CDFW and UC Davis

Priority/Goal Addressed: ERP Goals 1 and 2

Task Category: Research and Monitoring

Activity: Fall X2 Fish Sampling: Contrasts in Health Indices, Growth and Reproductive Fitness of Delta Smelt and Other Pelagic Fishes Rearing in the Low Salinity Zone and Cache Slough Region. This project addresses a critical need for information on the impacts of recurring multiple stressors in the Delta - notably contaminants, disease, environmental stress, and the underlying role of nutrition - on delta smelt and three other pelagic fish. It responds to recommendations from scientific review of the Adaptive Management Plan for Delta Fall Outflow, a scientifically based adaptive management plan to continue to investigate and clarify the relationship between the fall habitat quality index and delta smelt stock-recruit. This relationship is the biological underpinning for the USFWS Delta Smelt Biological Opinion Reasonable and Prudent Action Component 3 or Fall X2 Action. This project is a 2010/2011 Directed Action.

Year 14 Accomplishments: UC Davis investigated the relationship between the fall habitat quality index and delta smelt stock-recruit Project. UC Davis provided Fall Low Salinity Habitat (FLaSH) reports.

Year 14 Cost: Utilized existing funds (Funded \$2,980,196 in Year 12).

Year 15 Proposed Work: UC Davis will research health indices, growth and reproductive fitness of Delta smelt rearing in the Low Salinity Zone and Cache Slough Regions.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW and UC Davis

Priority/Goal Addressed: PSP Priority 2/ERP Goals 1 and 2

Task Category: Research

Activity: Fish Friendly Farming Environmental Certification Program. This project expands the Fish Friendly Farming program in the Napa River watershed. The program assesses the site conditions on Napa Valley farms, develops plans for the application of BMPs (by private landowners) to improve water quality and associated salmonid habitat. Certification, planning and on the ground restoration activities will be confined to on streams in Napa River Watershed.

Year 14 Accomplishments: The California Land Stewardship Institute completed Gravel Augmentation Adaptive Management Plan and Water Quality monitoring Plan for evaluating the effectiveness of the Fish Friendly Farming activity in the watershed, the Arundo Control Plan for Fish Friendly Farming projects on the Napa River, Carneros Creek Management Plan, the Napa River Fine Sediment Control the BMPs Report and the USACE permit for the Migration barrier Removal on Murphy Creek.

Year 14 Cost: Utilized existing funds (Funded \$1,000,243 in Year 8)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding source: Proposition 50

Agencies: CDFW, U.S. Environmental Protection Agency, and Napa County Resource Conservation District

Priority/Goal Addressed: ERP Goals 1, 4, 5, and 6

Task Category: Implementation

Activity: Fish Passage Improvement Program. The Fish Passage Improvement Program (FPIP) team studies and evaluates constructed structures that impede anadromous fish migration, and assists with engineering and environmental evaluations for removal or modification of migration barriers within the ERP focus area. The FPIP team is guided by an annual work plan developed by an Interagency Review Team (IRT) that includes representatives from the ERP Implementing Agencies and FPIP and approved by the ERP Implementing Agency managers. The work plan identifies and addresses high priority fish passage issues and other engineering support requirements for ecosystem restoration that may be highlighted in the ERP regional restoration plans.

Year 14 Accomplishments: FPIP completed a habitat assessment of Clover Creek and preliminary design drawings to 50% for modification of the Millville Diversion Dam; completed the Bear Creek Fish Passage Barrier Survey Report and presentation to the Bear Creek Watershed Group; analyzed four alternatives for the Deer Creek Irrigation District fish passage project and completed preliminary designs to 50%; discussed reclaiming the training walls in the Yuba River, and fish passage at the Daguerre Pont Dam with Teichert Materials; completed permit modification documents for Weir No. 2 of the Sutter Weirs East Borrow Canal Project; developed final design drawings for the Budiselich Flashboard Dam and Caprini Low Water Crossing in the Calaveras River System; completed a Fish Passage Forum Prioritization Report and maps for the ERP focus area; administered the Pacific States Marine Fisheries Commission interagency agreement; and assisted CDFW staff with short-term modifications to benefit fish passage at the Fremont Weir.

Year 14 Cost: Utilized existing funds (Funded \$1,307,000 in Year 12)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 84

Agencies: DWR and CDFW

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Planning

Activity: Groundwater Monitoring Plan for the Lake Davis Pike Eradication Project. CDFW will conduct well monitoring for a 10-year period in the Lake Davis Vicinity, a requirement of the 2007 Lake Davis Northern Pike Eradication Project EIR. CDFW will analyze samples for CFT formulation chemicals used in the 2007 Lake Davis treatment. CDFW will review and Interpret sample results, maintain a data tracking system, conduct repeat sampling as necessary, and consult with owners and local agencies as necessary depending on contaminants detected. CDFW will provide updates and conducts informational presentations in coordination with Plumas County Environmental Health, and Lake Davis Steering Committee, and prepare yearly Project Performance Status Reports.

Year 14 Accomplishments: CDFW conducted ground water monitoring and reporting activities. Annual Water Quality Monitoring for 2011 through 2013 completed. Water quality monitoring will continue through 2017 as per the ten-year well monitoring requirement of the 2007 Project EIS/EIR. Funding for continued monitoring past Year 14 is with non-ERP funding

Year 14 Cost: \$49,000 (3-year ERP funding)

Year 15 Proposed Work: 3-year ERP-funded monitoring is complete for Year 12 through Year 14. Water quality monitoring will continue through 2017 as per the ten-year well monitoring requirement of the 2007 Project EIS/EIR. Funding for continued monitoring past Year 14 is with non-ERP funding.

Year 15 Projected Cost: Monitoring is complete.

Funding Source: Proposition 50

Agencies: CDFW

Priority/Goal Addressed: ERP Goal 5

Task Category: Monitoring

Activity: Habitat Restoration. USFWS is leading habitat restoration activities within the Bay-Delta Estuary. This includes working with other Federal, State, and local agencies to plan and implement numerous programs, including the CALFED ERP, BDCP, CVPIA, portions of the Interim Federal Action Plan, the Central Valley Joint Venture, the Cooperative Endangered Species Conservation Fund, Endangered Species Recovery Program, Partners for Fish and Wildlife Program, Land Acquisition Program, the North American Wetlands Conservation Fund, FRP, and the Interagency Ecological Program. This overall effort so far has resulted in thousands of acres of restored and conserved habitats, providing benefits to numerous fish and wildlife species and the American public.

Year 14 Accomplishments:

- Assisted in implementing ERP restoration grants and to worked to approve additional projects as funding and authorization allowed;
- Supported the development of a designs to support the propagation and restoration of Delta native fish species;
- Participated in habitat restoration efforts such as restoration of flows on the San Joaquin River from Friant Dam to the confluence of the Merced River, and in efforts to restore self-sustaining habitat in Battle Creek, Cache Slough, and the Yolo Bypass Floodplain;
- Restored, enhanced, and protected thousands of acres of Delta and Delta watershed wetland and waterfowl-friendly agricultural habitats and secured full water supplies for Central Valley State and Federal refuges;
- Awarded Cooperative Endangered Species Conservation Fund grants as appropriate, based on regional and national competitions and program criteria;
- Worked on the Draft Delta Native Fishes Recovery Plan in 2013;
- Worked with numerous landowners, to restore thousands of acres of Delta and Delta watershed wetland, riparian, and instream habitat for numerous fish and wildlife species and provided extensive technical assistance.

Year 14 Cost: \$2,937,000

Year 15 Proposed Work:

- Continue to assist implementing ERP restoration grants and to work to approve additional projects as funding and authorization allow.
- Reinforce cross-agency collaboration in Aquatic Invasive Species Program (AISP). The program will focus on preventing the introduction of new invasives (ex., quagga mussels), limiting or eradicating existing invasives (ex., *Egeria densa*), and reducing adverse impacts from infestations.
- Work on the BDCP will assist that effort to identify and implement a set of water flow and habitat restoration actions to contribute to recovery of endangered and sensitive species and their habitats in the Bay-Delta Estuary.
- Continue in the Federal, State, and City partnership, led by the Service, to support development of a facility designed to support the propagation and restoration of Delta native fish species.
- Participate in short-term habitat restoration efforts such as restoration of flows on the San Joaquin River from Friant Dam to the confluence of the Merced River, and in efforts to restore self-sustaining habitat in Battle Creek, the Cache Slough Complex, and the Yolo Bypass Floodplain.
- Estimates it will restore, enhance, and protect thousands of acres of Delta and Delta watershed wetland and waterfowl-friendly agricultural habitats and will secure full water supplies for Central Valley State and Federal refuges.
- Award Cooperative Endangered Species Conservation Fund grants as appropriate based on regional and national competitions and program criteria.
- Work with numerous landowners, estimates it will restore thousands of acres of Delta and Delta watershed wetland, riparian, and instream habitat for numerous fish and wildlife species and will provide extensive technical assistance.

Year 15 Projected Cost: \$4,037,000

Funding Source: Federal (FWS) Funds

Agencies: USFWS

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Planning, Research, and Implementation

Activity: Hamilton Airfield Wetlands Restoration. The project site is located on San Pablo Bay, four miles east of the city of Novato, Marin County, California. The project includes a 988-acre parcel with a former military airfield, adjacent California State Lands Commission areas, and the 1,612-acre Bel Marin Key Unit V (BMKV) parcel. The levee-protected site has subsided below the elevation of the surrounding properties, including the tidal wetlands immediately adjacent to San Pablo Bay. This project allows for the beneficial reuse of 24.4 million cubic yards of dredged material, including 3.5 million cubic yards from the Port of Oakland 50' Deepening Project. This wetlands-restoration project would advance the beneficial use of dredge material from San Francisco Bay as part of the Long Term Management Strategy (LTMS). The California State Coastal Conservancy is the non-Federal sponsor.

Year 14 Accomplishments: The USACE carried out the final breach that opened the restoration site to full tidal action. This required that the entire outboard levee be scraped down and rocky road base material removed and backfilled with sandy dredged sediment from the North Antenna Field. The Hamilton Bay Trail was also completed. The restoration construction phase is now complete.

Year 14 Cost: Utilized existing funds (Total Federal funding through FY13 \$85,234,000)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Federal (USACE) Funds

Agencies: USACE

Priority/Goal Addressed: ERP Goal 4

Task Category: Task Category: Implementation

Activity: Hamilton City, CA. The project area includes Hamilton City and the surrounding rural area. The boundaries are the Sacramento River to the east, the Glenn Colusa Canal to the west and extend about two miles north and six miles south of Hamilton City. The project area lies just north of the existing Sacramento River Flood Control project levees and within the area of extent of the Chico Landing to Red Bluff bank protection project. The project will construct a setback levee, degrade an existing levee and revegetate the setback area to restore 1,145 acres of riparian woodland, 261 acres of riparian shrub, and 70 acres of floodplain meadow. The project will also reduce flood risk for Hamilton City and adjacent agricultural lands, and improve fish passage through the delta.

Year 14 Accomplishments: Completed a Limited Reevaluation Report in June 2014 that evaluated some of the design refinements focused on updating costs and benefits, contract award, and construction management.

Year 14 Cost: \$15,000,000

Year 15 Proposed Work: Award contracts for acquisition and propagation of plants and installation of half of the restoration area: Aug 2014 Initiate removal of existing levee and construction of setback levee in southern portion of Dunning Slough: Oct 2014.

Year 15 Projected Cost: \$3,800,000

Funding Source: Federal (USACE) Funds

Agencies: USACE

Priority/Goal Addressed: ERP Goals 1, 2, and 5

Task Category: Planning and Implementation

Activity: Hill Slough West Restoration Project, Phase I-Preliminary Restoration Design, Environmental Documentation and Permitting. The purpose of the overall project is to restore brackish tidal marsh and associated upland ecotone at the northern Suisun Marsh near the corner of Highway 12 and Grizzly Island Road to benefit endangered as well as migratory and resident species. The funding under this Grant will support Phase 1, design, permitting and environmental compliance.

Year 14 Accomplishments: California Wildlife Foundation produced the preliminary restoration design and plan, management plan, final environmental documents, and prepared permits. The California Wildlife Foundation completed the EIR administrative draft.

Year 14 Cost: Utilized existing funds (Funded \$646,642 in Year 9)

Year 15 Proposed Work: Finish permitting, environmental compliance and management plan.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 50

Agencies: CDFW

Priority/Goal Addressed: ERP Goals 1, 2, and 4

Task Category: Task Category: Planning and Research

Activity: Identifying habitat characteristics that support native fish in the Delta and Suisun Marsh. The purpose of this research is to develop a better understanding of how physical habitat, flow, and other factors interact to maintain assemblages of native and non-native species in an environmental gradient that supports populations of most of the native fishes in the upper estuary. By documenting how native and alien fishes use habitat around Suisun Marsh, Sherman Island, and the Cache Slough complex, insights can be gained and hypotheses tested that will aid the recovery of at-risk native species, inform flow and habitat management decisions, and allow for better adaptation to climate change.

Year 14 Accomplishments: UC Davis completed habitat mapping and fish and habitat surveys are continuing. Summary analysis of the first year of the study are being performed and include habitat values, water quality, fish abundance, and zooplankton abundance and the results will be used to refine decisions for the second year work. UC Davis completed otolith chemistry for samples of splittail collected in 2012 and collected additional samples in the Cache-Lindsay complex. UC Davis also determined age and growth on the above-mentioned splittail.

Year 14 Cost: Utilized existing funds (Funded \$1,152,195 in Year 12).

Year 15 Proposed Work: UC Davis will continue to conduct fish and environmental surveys. Researchers will utilize otoliths to determine natal origin of adult Sacramento splittail and measurements of strontium isotopes to identify juvenile Sacramento splittail nursery areas.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: UC Davis and CDFW

Priority/Goal Addressed: PSP Priority 2/ERP Goal 1-4

Task Category: Research and Monitoring

Activity: IRWM Fish and Productivity Data Analysis and Interpretation. This project will analyze fish and food web data collected under a previous grant funded by the CALFED Science Program. The overall goal is to gain as much insight as possible from the IRWM field data on the nature and extent to which tidal marsh restoration contributes to ecological support for native resident and migratory fishes through direct provision of habitats and high quality productivity.

Year 14 Accomplishments: Grant funded researchers analyzed fish and productivity data and completed manuscripts for most project tasks. The project is nearing its close on June 30, 2014. A final manuscript for Carl's Marsh site characterization is underway. The final project report will follow.

Year 14 Cost: Utilized existing funds (Funded \$420,000 in Year 11)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 84

Agencies: ABAG and CDFW

Priority/Goal Addressed: ERP Goals 1, 2, and 4

Task Category: Task Category: Research and Monitoring

Activity: Linking Habitat and Spatial Variability to Native Fish Predation. This research project uses genetic assays to identify the presence of Chinook salmon, steelhead trout, Delta and longfin smelt, white and green sturgeon, and Sacramento splittail in the stomachs of predatory fishes (striped bass and largemouth bass) as well as the native piscivore, Sacramento pikeminnow (*Ptychocheilus grandis*), across migration corridors and habitats of the north Delta. Subsidiary studies of evacuation rates will contribute to estimating predation rates. Results will be combined with bioenergetic models to investigate population impacts.

Year 14 Accomplishments: Submitted genetic assay manuscript to peer-reviewed journal; initiated feeding trials; collected and analyzed 2013/2014 fish samples. UC Davis presented this project at two Conferences.

Year 14 Cost: Utilized existing funds (Funded in Year 12)

Year 15 Proposed Work: UC Davis will collect fish predators and conduct analysis of the stomach contents. The captive feeding trial will continue in the Spring/Summer 2014. UC Davis will conduct feeding trials to determine the maximum length of time of digestion to still detect individual fish DNA; and begin bioenergetics modeling. UC Davis will submit the second yearly report for predator fish sampling.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW and UC Davis

Priority/Goal Addressed: PSP Priority 2/ERP Goals 1-3

Task Category: Research

Activity: Lower Clear Creek Aquatic Habitat and Mercury Abatement Project. The objective of the Lower Clear Creek Aquatic Habitat and Mercury Abatement Project is to remove the long-term impacts of mercury contamination in the project area, while creating a cost-effective 20-year supply of spawning gravel from dredger tailings for use in Lower Clear Creek to enhance listed salmon/steelhead species populations, and to create 5.72 acres of new wetlands.

Year 14 Accomplishments: 2010/2011 PSP selection.

Year 14 Cost: No funds expended in Year 14.

Year 15 Proposed Work: ERP will execute the agreement and WSRCD will begin project implementation.

Year 15 Projected Cost: \$4,539,015 (Funding for entire project).

Funding Source: Proposition 13

Agencies: CDFW and WSRCD

Priority/Goal Addressed: PSP Priority 1 and 3/ERP Goals 1 - 4

Task Category: Implementation

Activity: Lower Clear Creek Floodway Rehabilitation Project (Phase 3B). This project completed the Lower Clear Creek Floodway Rehabilitation Project. Phase 3B reconstructed the bankfull channel and portions of floodplain along 0.9 miles in the center of the restoration project area in one construction season, as well as monitored project implementation for three years. The reconstructed bankfull channel is designed to function geomorphically within newly constructed floodplain surfaces completed in Phases 2A and 2B of the Lower Clear Creek Floodway Rehabilitation Project, which are immediately adjacent to Phase 3B. The work also addressed a headcut that threatened the channel and riparian habitat created in previous project phases.

Year 14 Accomplishments: WSRCD implemented Chinook salmon and steelhead habitat enhancement projects through partnerships with local landowners, public and private agencies, and universities. Projects currently emphasize restoration actions that will increase populations of spring-run Chinook salmon and steelhead, both listed as threatened under FESA. Restoration activities focused on implementing the Cloverview long-term Gravel Supply Project. The program continued monitoring juvenile habitat use, spawning area mapping, juvenile habitat suitability indices, gravel quality, survival-to-emergence, fish rescue, benthic macro invertebrate sampling, water quality, and water temperature. The program also implemented several in-stream spawning gravel placement projects.

Year 14 Cost: Utilized existing funds (Funded \$3,482,000 in Year 7)

Year 15 Proposed Work: WSRCD will complete three additional projects using the remaining grant funds. Project #1 will rip and replant a road to connect two large riparian areas. Project #2 will lower a scour channel and replant it with wetland vegetation. Project #3 will decommission a series of unnecessary road segments, and replant and irrigate approximately 2.5 acres.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 50

Agencies: CDFW and WSRCD

Priority/Goal Addressed: ERP Goals 1-4

Task Category: Implementation and Monitoring

Activity: Lower Cosumnes River Floodplain Restoration Project. The purpose of this project is to restore 154 acres of historic floodplain in the Cougar Wetlands Unit of the Cosumnes River Preserve for the purpose of reconnecting historic tidal sloughs to the mainstem Cosumnes River and providing tidal wetland habitat for juvenile Chinook salmon, steelhead, and other native fish species. Consistent with Proposition 204 and ERP goals and objectives, this project will address the need for restoration of functioning riparian floodplains in the Sacramento-San Joaquin Delta ecosystem.

Year 14 Accomplishments: Ducks Unlimited completed hydraulic modeling and a project design, and initiated environmental compliance and permitting.

Year 14 Cost: Utilized existing funds (Funded \$1,244,017 000 in Year 12)

Year 15 Proposed Work: Project will undergo further technical review and design refinements.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 204

Agencies: CDFW, BLM, USFWS, DWR, and National Fish and Wildlife Foundation

Priority/Goal Addressed: PSP Priority 1/ERP Goals 1, 2, and 4

Task Category: Implementation

Activity: Lower Putah Creek Restoration from Toe Drain to Monticello Dam: Project Description Development, CEQA Compliance, Permits, Selected Final Design. The purpose of this project is to create the planning and designs needed to construct the Lower Putah Creek Channel and Tidal Marsh Restoration as described herein. Environmental documentation, designs and permitting prerequisite to construction will be provided by this grant.

Year 14 Accomplishments: To address the splitting of the CEQA leads, the Yolo Basin Foundation has developed an MOU with Solano county water Agency. The Yolo Basin Foundation conducted biological, topological and bathymetry surveys. Design charrettes with project team input are in progress. Yolo Basin Foundation initiated upper reach surveys and project identification. Work on the Lower Reach CEQA has begun.

Year 14 Cost: Utilized existing funds (Funded \$2,260,313 in Year 12).

Year 15 Proposed Work: Yolo Basin Foundation will perform environmental documentation, project design and permitting. Channel realignment design and project description should near completion.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested

Funding Source: Proposition 204

Agencies: CDFW

Priority/Goal Addressed: PSP Priority 1/ERP Goals 1, 2, 5, and 6

Task Category: Planning

Activity: M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Long-term Protection Project: Evaluation of Rock Removal on the Sacramento River (RM 194-187). This grant will assist CDFW in preserving and protecting fish and wildlife by determining a rock bank removal alternative on the Sacramento River that will benefit bank swallows and anadromous fish by providing essential riparian and instream habitats.

Year 14 Accomplishments: USFWS submitted draft report "Evaluation of Rock Removal Alternatives on the Sacramento River (RM 187-194)" for technical review and finalization.

Year 14 Cost: \$53,000 (Funding for entire project)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 204

Agencies: CDFW and USFWS

Priority/Goal Addressed: ERP Goals 1, 2, and 4

Task Category: Planning

Activity: M&T/Llano Seco Fish Screen Facility Long-Term Protection Project (Phase IV). Phase IV of this multi-phased project will prepare the environmental compliance documentation required under NEPA, CEQA, ESA, and CESA, for the M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Long-Term Protection Project, and obtain necessary permits required for implementation of the alternative selected at the conclusion of the environmental review process. Consistent with Proposition 84 and ERP goals and objectives, this project will provide an overall net benefit to Central Valley fisheries subjected to impacts from river diversions by ensuring project compliance with State and federal fish screen criteria, and maintenance of agreements not to divert 40 cfs of a water right from Butte Creek which currently serves to protect Spring-run Chinook salmon during critically dry years.

Year 14 Accomplishments: Ducks Unlimited continued work on the environmental compliance documents with oversight of the Project Team.

Year 14 Cost: Utilized existing funds (Funded \$2,480,610 in Year 12)

Year 15 Proposed Work: Ducks Unlimited will develop an Administrative Draft Project EIS/EIR, work on project permitting, and conducting public scoping meetings.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 204

Agencies: CDFW and USFWS

Priority/Goal Addressed: ERP Goals 1, 2, and 4

Task Category: Planning

Activity: M&T/Llano Seco Fish Screen Facility Short-Term Protection Project-Environmental Compliance.

The purpose of this project is to support the short-term protection of the existing M&T / Llano Seco Fish Screen Facility on the Sacramento River from being compromised by river sedimentation until a long-term solution for facility protection is implemented. This project will result in all environmental compliance documents and permits required to implement an instream dredge to protect the fish screen facility and extend the rock toe revetment protection on the opposite side of the River. This project will prepare the permits and environmental compliance documentation required under NEPA, CEQA, ESA, and CESA required for short-term protections for the M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project.

Year 14 Accomplishments: The project has completed the public review of the draft Environmental Assessment/Initial Study, Proposed Finding of No Significant Impact, and Proposed Mitigated Negative Declaration and is awaiting the completion of the Biological Assessments.

Year 14 Cost: Utilized existing funds (Funded \$542,640 in Year 12)

Year 15 Proposed Work: Work will continue on obtaining necessary project permits.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested

Funding Source: Proposition 204

Agencies: CDFW and USFWS

Priority/Goal Addressed: ERP Goals 1-4

Task Category: Planning

Activity: Management Tools for Landscape-Scale Restoration of Ecological Functions in the Delta.

Develops a set of tools facilitating landscape-scale restoration of the Sacramento-San Joaquin Delta ecosystem. The historical perspective will be compared to the present-day Delta to identify opportunities to restore ecological functions, not necessarily by replicating the historical Delta but by recreating viable habitat mosaics with the vision of how they connect at the landscape scale. Conceptual models will be developed to help practitioners identify these landscape level opportunities along with assistance given to develop appropriate metrics to assess individual projects.

Year 14 Accomplishments: The team developed draft text and related maps, bar charts, and other graphical material associated with the Historical and Contemporary Landscape Analysis. ASC linked metrics with ecological functions in preparation for the technical memo on that describes and compares past and present ecological function of the Delta. ASC sought public participation communication with interested agencies and groups.

Year 14 Cost: Utilized existing funds (Funded \$875,000 in previous years)

Year 15 Proposed Work: ASC will produce landscape level conceptual models, restoration principles and suggestions for long-term restoration assessment metrics. Produce the project's primary technical tools for restoration project designers and planners based on knowledge gained from previous work that will help generate tools that improve understanding of appropriate landscape restoration variables such as target patch sizes, the subregional distribution of habitats along physical gradients, habitat connectivity and nearest neighbor considerations, and governing physical drivers. Provide graphics of Delta landscapes past, present, and future, with accompanying descriptive text used in the website, an interactive website with maps, graphics, and artwork presenting project products.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW

Priority/Goal Addressed: PSP Priority 2/ERP Goal 1, 2, and 4

Task Category: Research

Activity: Managing Natural Resources for Adaptive Capacity: the Central Valley Chinook Salmon Portfolio.

The purpose of this project is to explore a variance-buffering "portfolio effect "(PE) in Central Valley fall-run Chinook by examining tradeoffs between multiple anthropogenic activities, including flow modification, hatcheries, and fisheries, by investigating 1) the role of phenotype diversity in contributing to PE, 2) effects of anthropogenic activities on PE, and 3) incorporating PE into management.

Year 14 Accomplishments: Finalized negotiations. Agreement executed end of Year 14.

Year 14 Cost: No funds expended in Year 14 (Funded \$489,343 in Year 11).

Year 15 Proposed Work: UC Berkeley will begin implementation.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW and UC Berkeley

Priority/Goal Addressed: PSP Priority 2/ERP Goals 1 and 3

Task Category: Research

Activity: McCormack-Williamson Tract Flood Control and Ecosystem Restoration Project. The project will implement flood control improvements in a manner that benefits aquatic and terrestrial habitats, species and ecological processes. McCormack-Williamson plays a key role in north Delta hydraulics. The project is intended to allow passing of flood flows through the tract, in a way that minimizes flood impacts to the system. Because the tract's topography varies from roughly plus five feet above sea-level to minus four feet, the tract provides an ideal landscape gradient for a continuum of habitat types that provides for ecosystem benefits. This grant would be used to cover the 7% cost share of the 35% local match for project design and construction (\$1.365 million) not being provided by DWR. In addition, this application seeks \$1.95 million (10% of project design and construction cost) for pre and post construction monitoring and focused research. There will also be administrative and contingency costs associated with the project. Expected habitat outcomes with project implementation:

Floodplain: 400 acres
Riparian: 250 acres
Scrub-shrub: 100 acres
Channel aquatic: 200 acres
Dendritic intertidal: 100 acres
Shallow-water habitat: 500 acres
Emergency Marsh: 250 acres
Mudflat: 50 acres
Grassland: 150 acres

Year 14 Accomplishments: Negotiating a scope of work began in Year 13. The goal is to have an agreement in place by year 15.

Year 14 Cost: No funds expended in Year 14.

Year 15 Proposed Work: ERP will complete the agreement and Reclamation District 2110 will begin implementation.

Year 15 Projected Cost: \$3,314,300 (Funding for entire project)

Funding Source: Proposition 204

Agencies: CDFW

Priority/Goal Addressed: PSP Priority 1/ERP Goal 2

Task Category: Implementation and Monitoring

Activity: Mercury in San Francisco Bay-Delta Birds: Trophic Pathways, Bioaccumulation and Ecotoxicological Risk to Avian Reproduction. The primary project goal is to use an integrated field and laboratory approach to evaluate the risks of mercury (Hg) exposure to avian reproduction in the Bay and the Delta. This study will investigate three guilds of birds: recuivirostrids, terns, and diving ducks. This project will integrate a field assessment of exposure and effects with a laboratory assessment of the variation in sensitivity of avian embryos to methylmercury. The field approach will evaluate the relative hazard of Hg to three foraging guilds of marine-dependent birds and evaluate whether some species are experiencing adverse effects in the field that may be linked with Hg exposure. This project will also evaluate the potential influence of other contaminants of concern (COC's), primarily selenium (Se), polychlorinated biphenyls (PCB's) and polybrominated diphenyl ether (PBDE), which co-occur with Hg in some areas of the Bay-Delta.

Year 14 Accomplishments: ERP closed out project.

Year 14 Cost: Utilized existing funds (Funded \$5,823,262 in Year 5)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 204

Agencies: USFWS and CDFW

Priority/Goal Addressed: ERP Goals 1, 3, and 6

Task Category: Task Category: Research and monitoring

Activity: Other CVP Impacts. Habitat Restoration Program 3406 (b)(1) Other, protects and restores native habitats and species impacted by the CVP that are not specifically addressed in the Fish and Wildlife Restoration activities section of the CVPIA. The focus is on habitats known to have experienced the greatest percentage decline in habitat quantity and quality since construction of the CVP, where such decline could be attributed to the CVP (based on direct and indirect loss of habitat from CVP facilities and use of CVP water). These include rare serpentine soil habitat, alkali scrub and associated grasslands, vernal pools, Central Valley wetlands, riverine dunes, and riparian habitats.

Year 14 Accomplishments: The program provided funding for protection and/or restoration of at least 2,000 acres of the CVP impacted habitats, captive breeding and reintroduction of federally listed species, and targeted research on the CVP impacted species and habitats.

Year 14 Cost: \$1,500,000

Year 15 Proposed Work: USBR will use funds for protection of habitats through purchase of fee title or conservation easements, restoration and management of habitats, and surveys and studies for Federally listed species impacted by the CVP. The program will focus on protecting and restoring endangered serpentine soil habitats in Santa Clara County, vernal pool wetlands throughout the Central Valley, grassland and alkali scrub habitats in the San Joaquin Valley and Tulare Basin, and aquatic/riparian habitats throughout the Central Valley. The program will also solicit for targeted research actions that coincide with high priority species and habitats. USBR will solicit proposals for project funding on www.grants.gov, with the selection of new projects each year being dependent on the most current species and habitat priorities identified by the USFWS. USBR anticipates that approximately 50% of project funds will be committed to land acquisition. USBR will direct the remaining project funds to habitat restoration and research to benefit Federally listed species. These activities are required as part of the Programmatic Section 7 Consultation for CVPIA and other Biological Opinions related to the CVP operations. All projects will focus on improving conditions for the CVP impacted species.

Year 15 Projected Cost: \$1,700,000

Funding Source: Federal (USBR) Funds

Agencies: USBR

Priority/Goal Addressed: ERP Goals 1, 2, 3, and 4

Task Category: Planning, Implementation, and Research

Activity: Recovery Implementation for Riparian Brush Rabbit and Riparian Woodrat on the Lower Stanislaus River. This project restores riparian habitats along the lower Stanislaus and San Joaquin Rivers adjacent to the Caswell State Park and the San Joaquin River National Wildlife Refuge.

Year 14 Accomplishments: USFWS provided final report.

Year 14 Cost: Utilized existing funds (Funded \$5,465,944 in Year 7)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 204

Agencies: CDFW and USFWS

Priority/Goal Addressed: ERP Goals 1, 2, 3 and 5

Task Category: Task Category: Implementation

Activity: Renewed Federal State Partnership. USFWS is working to renew Federal and State partnerships that are invested in restoring the Bay-Delta. With support from our partners, the USFWS will identify water flow and habitat restoration actions to recover endangered and sensitive species and their habitats as well as address long-term critical water issues facing California. These efforts support the BDCP and the Administration's Interim Federal Action Plan (IFAP).

Year 14 Accomplishments: USFWS reviewed the draft BDCP. USFWS worked with state and local interests to plan and implement activities under the IFAP.

Year 14 Cost: \$793,000

Year 15 Proposed Work:

- Following the conclusion of the scientific and public review processes that are underway, the USFWS will continue to provide technical assistance to the State of California and partners, to facilitate completion of the final BDCP as soon as feasible.
- Associated with the IFAP, the Service will continue to work to align and function with California State legislation focused on efforts to restore the Bay-Delta Estuary and better meet the State's water needs.
- The Service will continue to work with State and local interests to plan and implement activities under the IFAP.

Year 15 Projected Cost: \$793,000

Funding Source: Federal (USFWS) Funds

Agencies: USFWS

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Planning and Program Support

Activity: Restoration of the Confluence Area of the Sacramento River, Big Chico and Mud Creeks. This project completes phase II of a four-phase project to protect and restore 311 acres of flood prone, ecologically significant land located within the Sacramento River Conservation Area at the confluence of the Sacramento River, Big Chico and Mud Creeks at river miles 194-195. The goal of this project is to protect and complete restoration and management planning for three properties located in Butte County: Nicolaus, Nock, and Singh properties. The objectives are to improve the viability of at-risk species by protecting and restoring riparian habitat and rehabilitating floodplain processes, increasing the knowledge of ecosystem function, reducing flood damage to important human infrastructure by increasing floodwater storage in project area, and improving water quality.

Year 14 Accomplishments TNC and State Parks continued to work with Butte County and neighboring landowners to gain the County's endorsement of the Central Valley Flood Protection Board Encroachment Permit Application for restoration of the Singh Unit.

Year 14 Cost: Utilized existing funds (Funded \$2,603,377 in Year 4)

Year 15 Proposed Work: TNC will work with State Parks to address Butte County and neighboring landowner concerns regarding the proposed Singh Unit floodplain restoration.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 204

Agencies: CDFW

Priority/Goal Addressed: ERP Goals 1, 2, 4, and 6

Task Category: Task Category: Planning and Implementation

Activity: Riparian Sanctuary (Phase II) – Bringing Agricultural and Ecological Interests Together for Pumping Plant Protection and Riparian Restoration (Sacramento River Mile 178) - Design Development and Environmental Compliance. This project supports planning and design efforts to develop second phase of multi-phase process to protect Princeton-Codora-Glenn and Provident Irrigation Districts (PCGID-PID) pumping plant and fish screen facility and to meet Sacramento River National Wildlife Refuge habitat goals for the Riparian Sanctuary.

Year 14 Accomplishments: River Partners completed the Final EIS/EIR and permit applications for a riparian restoration project at the Llano Seco Riparian Sanctuary Unit of the Sacramento River National Wildlife Refuge, which will also protect the alignment of the Sacramento River at the water diversion for the PCGID-PID pumping plant and fish screen facility. PCGID-PID will submit permit applications after addressing concerns regarding the possible consequences of removing the existing bank protection at the site and to the Butte Basin. The project is now complete.

Year 14 Cost: Utilized existing funds (Funded \$683,698 in Year 8)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding source: Proposition 50

Agencies: CDFW

Priority/Goal Addressed: ERP Goals 1, 2, 4, and 5

Task Category: Planning

Activity: Sacramento Valley/Delta Fish Screen Program. This project will monitor and screen up to fifteen small diversions in the Sacramento River. There will be two years of data collection prior to screening each diversion. Fifty percent cost share funding for this project is provided by USBR's AFSP.

Year 14 Accomplishments: During Year 14, Family Water Alliance completed project permitting and subcontractor Intake Screens, Inc. installed fish screens on the final three diversions under the grant which included the Cranmore Farms #2 (40 cfs), River Garden Farms Town Site (62 cfs), and Tisdale Irrigation District #2 (44 cfs) diversions on the Sacramento River. In addition, Natural Resource Scientists completed the final biological assessment report, which included results of this multi-year entrainment monitoring effort. The project resulted in the screening of 12 diversions (totaling 630 cfs), with diversion sizes ranging from 9 to 154 cfs. Fish entrainment monitoring data was collected for two diversion seasons at the sites, typically April to September, prior to screen installation which occurred at the end of the second irrigation season. The project is now complete.

Year 14 Cost: Utilized existing funds (Funded \$4,525,636 in Year 9) (State Match to AFSP)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 84

Agencies: CDFW and USBR

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Task Category: Planning and Implementation

Activity: Sacramento-Central Valley Fish Screen Program. This program reduces entrainment mortality of juvenile fish species from Delta and river diversions by installing state-of-the-art self-cleaning fish screens. Fifty percent cost share funding for this project is provided by USBR's AFSP.

Year 14 Accomplishments: In partnership with the AFSP, Family Water Alliance worked with its subcontractors to prepare environmental documents and permit applications and complete fish screen designs for the three diversions that the Family Water Alliance will screen in Fall 2014. Amended in Year 14 to extend grant term through 2016, increase the maximum number of diversions screened under the project to 7, and add \$250,000. This amendment is in support of additional funding awarded by the AFSP to conduct a Watershed and Diversion Prioritization on 8 selected AFRP priority watersheds.

Year 14 Cost: Utilized existing funds (Funded \$1,500,000 in Year 10) and Amended to add funds (Funded \$250,000 in Year 14) (State Match to AFSP)

Year 15 Proposed Work: Family Water Alliance will complete environmental documentation and obtain all permits necessary to install fish screens on two Feather River diversions (40 cfs and 78 cfs) and one screen on Auburn Ravine (80 cfs) in Fall 2014. In addition, the Family Water Alliance will complete the Watershed and Diversion Prioritization and select 1-3 additional diversions for screening.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW and USBR

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Task Category: Implementation and Monitoring

Activity: Salinity effects on native and introduced SAV of Suisun Bay and the Delta. This research project will evaluate the role of increased salinity on native versus introduced submerged aquatic vegetation beds in an effort to predict how native *Stuckenia spp.* beds might contribute to restoration of native communities and functions in the Delta region. The project is a companion to recently funded projects (NMFS and Delta Science) mapping *Stuckenia* distribution and characterizing *Stuckenia* beds as habitat for epifaunal invertebrates and fish.

Year 14 Accomplishments: San Francisco State University (SFSU) monitored water quality at all eight sites with hand held instruments as well as sampled for nutrients. SFSU conducted *Egeria* salinity experiments and turbidity/salinity experiment. SFSU initiated intensive invertebrate/salinity experiments. SFSU processed samples and analyzed data.

Year 14 Cost: Utilized existing funds (Funded \$412,410 in Year 13)

Year 15 Proposed Work: SFSU will complete all experiments including the salinity/turbidity experiment and the invertebrate/salinity experiment. SFSU will produce a final report which will:

- Provide results of the field survey of abiotic conditions and mesocosm experiments testing salinity effects on native and invasive SAV and associated epifaunal invertebrate assemblages.
- Make predictions of the potential for persistence and upward estuary spread (or restoration) of *Stuckenia* with increasing salinity as well as the potential for decline of *Egeria*.
- Make predictions for improved or reduced favorability for common invertebrate species under increased salinity conditions in both SAV habitats.
- Create GIS maps to provide visual results of abiotic measures taken across *Stuckenia* and *Egeria* beds.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW and SFSU

Priority/Goal Addressed: PSP Priority 2/ERP Goals 1, 2, 4, and 5

Task Category: Research

Activity: San Joaquin River Dissolved Oxygen/Oxygen-consuming materials in San Joaquin River. The purpose of this project is to collect and analyze data on the sources of nutrients, phytoplankton, and oxygen-consuming materials in the San Joaquin River estuary to support the development of an estuary model. This model is needed by the Central Valley Regional Water Quality Control Board to complete the SJR Dissolved Oxygen Total Maximum Daily Load development and allocation process.

Year 14 Accomplishments: University of Pacific submitted the draft final report.

Year 14 Cost: Utilized existing funds (Funded \$2,992,933 in Year 9)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 84

Agencies: University of the Pacific and CDFW

Priority/Goal Addressed: ERP Goals 1 and 6

Task Category: Task Category: Research

Activity: Screen Engineering and Review. NMFS staff provide technical review and comment of proposed projects under the AFSP.

Year 14 Accomplishments: NMFS staff reviewed ERP-funded fish screens and improvement projects as they develop for compliance with section 7 FESA and existing biological opinions. Specific issues for program staff included reviewing the SWP and CVP Fish Collection Facilities in the Delta. Staff participation on the Tracy Technical Advisory Team, South Delta Fish Facility Forum, and Central Valley Fish Facility Team, all of which are involved in developing new ways to salvage fish from water and debris and return them unharmed to the Delta. Staff reviewed and commented on fish studies, research projects, facility evaluations, and operations and maintenance of the Delta fish facilities for compliance with current biological opinions.

Year 14 Cost: \$70,000

Year 15 Proposed Work: NMFS staff will provide technical assistance to AFSP as described in Year 14.

Year 15 Projected Cost: \$70,000

Funding Source: Federal (NOAA) Funds

Agencies: NMFS

Task Category: Planning

Activity: Selby Creek Stream Habitat Restoration and Riparian Revegetation Project. This project continues support for restoration efforts based on the Selby Creek Project (watershed plan) on Selby Creek in the Napa watershed.

Year 14 Accomplishments: Bioengineering Institute completed the final Bioengineering Construction and Revegetation projects along Selby Creek. The Grantee submitted the Final Riparian and Revegetation Report, the Final Photo Report and the Final Report and Project Close-out Summary.

Year 14 Cost: Utilized existing funds (Funded \$475,000 in Year 11)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding source: Proposition 50

Agencies: CDFW and USGS

Priority/Goal Addressed: ERP Goals 4

Task Category: Implementation

Activity: Spawning Gravel/Riparian Habitat. The purpose of the Spawning Gravel/Riparian Habitat Program (CVPIA, Section 3406 (b)(13) is to increase the availability of spawning gravel and rearing habitat, and subsequently monitor the results of these actions, for: (1) Sacramento River Basin Chinook salmon and steelhead trout in the reach of the mainstem Upper Sacramento River from Keswick Dam downriver to Red Bluff Diversion Dam; (2) American River Basin Chinook salmon and steelhead trout in the reach of the American River downriver from Nimbus Dam; and (3) Stanislaus River Chinook salmon and steelhead trout in the reach of the Stanislaus River downriver from Goodwin Dam. Note that AFRP provides gravel additions in other rivers to improve spawning and rearing habitat for anadromous fish.

Year 14 Accomplishments: Gravel placement occurs annually in the upper Sacramento River downstream from Keswick Dam. USBR replenished gravel at existing augmentation sites as the river washes downstream previous placed gravel. USBR scoped new placement sites and new projects addressing rearing and considered spawning habitat limitations. USBR conducted monitoring of past projects and worked on the development of a sediment budget. To address spawning habitat and rearing habitat limitations, the American River gravel placement program has identified specific project sites as part of a multi-year series of projects, which began in 2008, between Nimbus Dam and River Bend Park. USBR has completed work at five of the project sites. Projects include mainstem gravel placement and side channel creation for spawning and rearing habitat targeting steelhead and Chinook salmon. Evaluating the effectiveness of past projects is ongoing. The Stanislaus River program has identified rearing habitat as a key limitation to Chinook salmon so projects will target gravel placement to enhance rearing and spawning habitat. The National Oceanic and Atmospheric Administration Reasonable and Prudent Alternative for operations of the CVP and SWP included an action to place 50,000 cubic yards of gravel in the Stanislaus by 2014 and 8,000 cubic yards per year thereafter (for steelhead). Stanislaus projects are striving to meet this action. Evaluating the effectiveness of past projects is ongoing.

Year 14 Cost: \$1,200,000

Year 15 Proposed Work: USBR will use funds for gravel restoration and rearing habitat projects on the Upper Sacramento, American, and Stanislaus rivers immediately downstream from Keswick, Nimbus, and Goodwin dams, respectively. Species to benefit include Sacramento, American and Stanislaus River Basin Chinook salmon and steelhead trout. The public involvement and permitting phases of project planning will determine final site selection in all three rivers. USBR will incorporate monitoring into all projects to determine the effectiveness of projects at maintaining salmonid habitat. Specific gravel placement activities each year are dependent on watershed hydrology, which modifies instream habitat.

Year 15 Projected Cost: \$1,690,000

Funding Source: Federal CVPIA Restoration Funds (Department of the Interior – USBR and USFWS)

Agencies: USBR and USFWS

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Planning and Implementation

Activity: Suisun Marsh Land Acquisition and Tidal Marsh Restoration - Public Notification and Site Selection. This grant supports the public notification and site selection component of the Suisun Marsh Land Acquisition and Tidal Marsh Restoration project, by conducting public notifications, property owner contacts, compiling information, ensuring the project location is consistent with local general plans and has all necessary environmental documentation and permitting necessary to acquire the acreage identified.

Year 14 Accomplishments: The grantee was on standby to provide public notification, environmental compliance, and permitting for parcels belonging to willing sellers.

Year 14 Cost: Utilized existing funds (Funded \$16,500 in Year 9)

Year 15 Proposed Work: None, project closed.

Year 15 Projected Cost: \$0

Funding Source: Proposition 84

Agencies: Suisun Resource Conservation District and CDFW

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Task Category: Implementation

Activity: Suisun Marsh Land Acquisition. The project will acquire approximately 500 acres of land in the western or northern Suisun Marsh, Solano County that will meet the specific selection criteria for ultimately restoring to tidal wetland. This acquisition is part of a larger long-term marsh restoration/management project under the Suisun Marsh Habitat Management, Preservation, and Restoration Plan (SMHMPPR). California Waterfowl Association (CWA) will use funds to acquire properties that further its goals and objectives of the SMHMPPR.

Year 14 Accomplishments: Directed action approved.

Year 14 Cost: None. Project funded but not executed.

Year 15 Proposed Work: Execute grant, California Waterfowl Association (CWA) will search for additional acquisition opportunities.

Year 15 Projected Cost: \$940,952

Funding Source: Proposition 84

Agencies: CDFW

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Task Category: Implementation

Activity: Suisun Marsh Protection. The Suisun Marsh Preservation Agreement (SMPA) was executed on March 2, 1987, among USBR, DWR, CDFW, and Suisun Resource Conservation District. The revised SMPA was executed on June 20, 2005, to reflect significant events and changed conditions that had occurred since the original SMPA was signed. The objective of the SMPA is to assure that a dependable water supply is maintained to mitigate the adverse effects on the Marsh from CVP and SWP and a portion of the adverse effects of the other upstream diversions. USBR (CVP) is responsible for 40 percent of the construction and annual operation and maintenance costs associated with implementation of the SMPA; the State (SWP) is responsible for 60 percent of the implementation costs.

Year 14 Accomplishments: The lead agencies released the final draft of the EIS/EIR on December 6, 2011.

Year 14 Cost: \$1,432,000

Year 15 Proposed Work: USBR will continue Federal participation with the State of California to identify structural and nonstructural actions for the protection and preservation of Suisun Marsh to improve water quality, while preserving the CVP storage yield. Funding will support Reclamation's participation with DWR to ensure dependable water supply of adequate quantity and quality to protect wildlife habitat in the Marsh for the protection and preservation of fish and wildlife, including continued funding of operation and maintenance costs of the SMPA facilities and the anticipated implementation of the proposed amendment to the revised SMPA upon finalization of the Suisun Marsh Plan decision documents.

Year 15 Projected Cost: \$1,253,000

Funding Source: Federal (USBR) Funds

Agencies: USBR

Priority/Goal Addressed: ERP Goals 1-6

Task Category: Planning and Implementation

Activity: Survival and Migratory Patterns of Juvenile Spring and Fall Run Chinook Salmon in the Sacramento River and Delta. This research will measure reach-specific survival rates of juvenile Chinook salmon (*Oncorhynchus tshawytscha*), and determine survival differences between spring and fall runs. The project provides resource managers in California with a more comprehensive understanding of the response of juvenile salmon outmigration under a wide variety of flow conditions and Delta water management practices. Researches will implant acoustic transmitters in critical life stages of Chinook salmon to track hatchery-raised fall and spring run smolts released annually over a period of three years. UC Davis will be evaluate the effects of natural and anthropogenic changes in flow and related water project operations on Chinook salmon survival and movement patterns within the Sacramento River and Delta.

Year 14 Accomplishments: UC Davis has completed range and reliability tests on biotelemetry receivers and tags. UC Davis has upgraded and replaced outdated monitors. Research team biologists have begun tagging and releasing hatchery-raised fall and spring-run Chinook salmon with JSAT beacons to track reach specific survival during downstream migration. In addition, UC Davis carried out physiological studies of the effects of JSATS tags on juvenile salmonids are being conducted.

Year 14 Cost: \$1,746,955 (Funding for entire project).

Year 15 Proposed Work: UC Davis will continue to research and monitor survival and migratory patterns of juvenile spring and fall run Chinook salmon in the Sacramento River and Delta.

Year 15 Projected Cost: Project completed an amendment for additional time and an additional \$358,956 to cover increased costs due to the long delay in funding from the time of initial proposal submission.

Funding Source: Proposition 84

Agencies: CDFW and UC Davis

Priority/Goal Addressed: PSP Priority 2/ERP Goals 1 and 3

Task Category: Research

Activity: Upper Sacramento River Winter Chinook Salmon Carcass Survey Project (USFWS). The Upper Sacramento River Winter Chinook Carcass Survey monitors the annual abundance, migration timing, spawning distribution, and several life history characteristics of hatchery and natural winter-run Chinook salmon.

Year 14 Activities: USFWS collected, analyzed, and reported on data for the 2013 escapement survey. USFWS fully completed work including collecting data for the seasons in 2007, 2008, and 2010 – 2013. USFWS produced a final report for each season that available at the Red Bluff Fish and Wildlife Office website:

http://www.fws.gov/redbluff/rbdd_jsmp.aspx.

Year 14 Cost: Utilized existing funds (Funded \$496,210 in Year 7)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 50

Agencies: USFWS and CDFW

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Task Category: Monitoring

Activity: Water Acquisition. The two key objectives of the CVPIA Water Acquisition Program (WAP) are to: (1) Provide supplemental water supplies for refuges, referred to as Incremental Level 4, for critical wetland habitat supporting resident and migratory waterfowl, threatened and endangered species, and wetland dependent aquatic biota [CVPIA Sections 3406 (b)(3) and (d)(2)]. (2) Acquire, land, water, and conveyance to improve spawning and rearing habitat and increase migration instream flows for fall, winter and spring run Chinook salmon and steelhead in support of the Anadromous Fish Restoration Plan [CVPIA Section 3406 (b)(3)].

Year 14 Accomplishments: WAP continues its efforts to: (1) Provide supplemental refuge water supplies (IL4) through annual purchases. As a supplement to surface water acquisitions the WAP – Refuge will continue to investigate and implement, as appropriate, groundwater projects in order to lower costs and increase reliability of providing supplemental refuge water supplies. Refuge water quality data will be collected and analyzed to assess the potential for long-term groundwater projects while providing short-term IL4 supplies; (2) Provide additional in-stream flows in support of the Central Valley wide fish doubling goal, as described in Section 3406 (b)(1). The WAP – In-stream intended to acquire Merced Irrigation District (MID) water to provide additional spring 2014 fishery pulse flows on the Merced and lower San Joaquin Rivers. The MID agreement expired December 31, 2013 and USBR and USFWS made efforts to negotiate a new agreement. However, due to limited funding and water availability, USBR and USFWS did not reach a new agreement with MID and no water was acquired in Year 14 pursuant to WAP – Instream. The SWRCB is actively reviewing San Joaquin River flow objectives however, it is uncertain when those objectives would be adopted; and (3) Acquire water to enhance in-stream flows, thus improving spawning and rearing habitat for salmon and steelhead in support of the AFRP. The WAP – In-stream's acquisition of such water is subject to funding availability.

Year 14 Cost: \$21,406,000

Year 15 Proposed Work: CVPIA required the acquisition of 100 percent of IL4 refuge water supplies, approximately 133,000 acre-feet (af), by 2002, for various wetland habitat areas within the Central Valley of California. However, the WAP-Refuge has not yet achieved this goal due to a variety of factors including water availability, water pricing, and funding. The WAP-Refuge acquires an average annually IL4 water supply of approximately 60,000 af; the actual amount acquired varies depending on the factors previously mentioned. Reclamation may acquire water supplies through short-term purchase agreements; purchase options, long-term water purchase agreements that require annual payments, and participation in groundwater banking. The WAP will acquire a large percentage of this water within the San Joaquin Valley where most of the wetlands are located. Sources of water may include reservoir storage transfers, groundwater pumping, banked groundwater, and temporary or permanent transfers of surface supplies by water right holders or project contractors. The WAP may transfer water supplies through the Delta, if excess pumping capacity at the CVP Jones Pumping Plant is available during July – September, for use on the San Joaquin Valley refuges. In addition to the water acquisition cost, there are delivery costs to get the water to the refuges, funded under the RWSP - Conveyance Component. In FY 2015, the WAP-Refuge expects to partner in the design and construction of Del Puerto Water District's and the Cities of Modesto and Turlock's proposed North Valley Regional Recycled Water Program (NVRWP). The WAP-Refuge anticipates receiving, via the NVRWP, a long-term (possibly 30-40 years), reliable IL4 water supply for San Joaquin Valley wildlife refuges. Although the potential to receive IL4 water from the NVRWP looks promising at this time, there is some uncertainty regarding water quality issues (salt loading) as they relate to the Delta-Mendota Canal and lower San Joaquin River that need to be resolved. The WAP – In-stream intends to acquire water to supplement the quantity of water dedicated under CVPIA, Section 3406 (b)(2) for fish, wildlife and habitat restoration purposes. Such water acquisitions will focus on in-stream flows to support the Central Valley wide fish doubling goal as described in (b)(1).

Year 15 Projected Cost: \$24,655,000

Funding Source: Federal CVPIA Restoration Funds (Department of the Interior – USBR and USFWS)

Agencies: USBR and USFWS

Priority/Goal Addressed: 1 and 3

Task Category: Implementation

Activity: Water Quality Effects on Survival, Growth, and Feeding Performance in Larval Delta Smelt (*Hypomesus transpacificus*) from the Sacramento-San Joaquin Delta. The primary objective of this investigation is to assess the impacts of waterborne contaminants found in Delta water on larval delta smelt. The project team proposes to investigate the sub-lethal physiological stresses imposed on Delta smelt by utilizing excess larvae from the USFWS Livingston Stone National Fish Hatchery refugial population. Assessing these sub-lethal effects will lead to a better understanding of the role contaminants play in recent population collapses. To reach this objective the project team will: 1) Determine if exposure of delta smelt yolk-sac larvae to Delta water impairs 6-day post-hatch survival, growth rate, or ability to feed; 2) Assess any temporal influences, between April and July, on survival or feeding; and 3) Assess correlations between organophosphate, organochlorine, pyrethroid, or fungicide concentrations in Delta water with 6-day post-hatch survival, growth, or ability to feed.

Year 14 Accomplishments: ERP amended the project to increase funding by \$25,376 in order to add an additional sampling location. USFWS collected water samples for bioassay and chemical analysis. USFWS detected three fungicides and two organophosphates in the water samples in 2014; however, no consistent pesticide detection was associated with impaired survival or feeding response.

Year 14 Cost: Utilized existing funds (Funding \$250,136 in Year 14)

Year 15 Proposed Work: USFWS will complete the analysis from the sampling and bioassay trials for 2014 and prepare a 2014 annual report. USFWS will submit a poster or presentation for the Bay-Delta Science Conference. USFWS will complete a final project report and submit a manuscript to a peer reviewed journal by the end of April 2015.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW and USFWS

Priority/Goal Addressed: PSP Priority 2/ERP Goal 6

Task Category: Research

Activity: West Stanislaus Irrigation District Fish Screen Intake Final Design Planning, Environmental Compliance and Permitting Project. West Stanislaus Irrigation District (WSID) will complete the final planning designs, environmental compliance and permitting of a new fish screen on their 347 cubic foot per second year-around diversion from the lower San Joaquin River, Stanislaus County. This is Phase II of the Project which includes detailed final engineering, refined construction cost estimates of a preferred alternative, bid specifications, necessary State and Federal environmental compliance and the necessary permits required to later construct (Phase III). USBR's AFSP provided a fifty percent cost share for this project .

Year 14 Accomplishments: WSID continued to work on environmental compliance and permitting, design, and geotechnical investigations.

Year 14 Cost: Utilized existing funds (Funded \$2,600,000 in Year 13) (State Match to AFSP)

Year 15 Proposed Work: WSID will conduct environmental compliance and permitting, design, geotechnical investigations, surveying and mapping.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 50

Agencies: CDFW, USBR, and WSID

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Task Category: Planning

Activity: Wetland and Rice Management to Limit Methylmercury Production and Export. This project undertakes measurements of labile carbon, as well as a suite of measurements of factors that are likely to affect mercury methylation activities, including the quality of organic carbon, total mercury, pH, etc. USGS will measure porewater methylmercury to give site specific (within each type of pilot manipulation) information on the effects of the treatments. Builds upon an existing grant that tests whether changes in rice harvesting methods, or control of water levels in wetlands, will lower the rates of microbial methylmercury production (from inorganic mercury).

Year 14 Accomplishments: USGS completed final analyses and produce final report.

Year 14 Cost: Utilized existing funds (Funded \$197,416 in Year 13)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Funding Source: Proposition 84

Agencies: USGS

Priority/Goal Addressed: PSP Priority 3/ERP Goal 6

Task Category: Task Category: Research

Activity: Wildlife and Vegetation Response to Experimental and Restoration of Flooded Riparian Forest Habitat for The Cosumnes River Preserve. This project includes the following long-term goals: 1) use engineered levee breaches and grading to restore an active and regular flooding regime to the Oneto Horseshoe and Denier II properties (owned and managed by CDFW and TNC) within the Cosumnes River Preserve; 2) restore approximately 600 acres of flooded riparian forest habitat using a combination of horticultural restoration and natural process restoration techniques where possible, each carried out in a controlled experimental context; 3) measure wildlife and plant community response to the habitat restoration treatments; 4) monitor changes in surface and ground water hydrology; and 5) monitor geomorphic changes occurring throughout the restored site using remote sensing techniques. Moreover, this restoration and monitoring project will be one of the first such projects to enumerate changes in Bay-Delta ecosystem services, specifically groundwater recharge, soil carbon storage, and flood abatement, from floodplain reconnection.

Year 14 Accomplishments: UC Davis completed the second year of pre-restoration biophysical monitoring data collection and submitted the annual biophysical monitoring report. UC Davis began work on the third year of biophysical monitoring and submitted an amendment request to update the grant scope of work and extend the grant term to 2018, in response to construction delays. UC Davis researchers presented biophysical monitoring data and results at the 2013 Society of Ecological Restoration Conference in Madison, Wisconsin.

Year 14 Cost: Utilized existing funds (Funded \$2,055,022 in Year 13)

Year 15 Proposed Work: Floodplain restoration is expected to be implemented during Year 15 (using alternate funding), and TNC and its partners will complete the first year of post-restoration avian, vegetation, and biophysical monitoring under the grant. UC Davis will complete the third and fourth biophysical monitoring seasons and submit the final biophysical monitoring report and publication submittals.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 84

Agencies: CDFW

Priority/Goal Addressed: ERP Goals 1, 3, and 4

Task Category: Monitoring

Activity: Working Waterways Program. Yolo County Resource Conservation District (Yolo County RCD) that will complete activities started under the Yolo-Solano Conservation Partnership AFI grant. This project includes riparian habitat enhancements, irrigation canal re-vegetation, farm pond habitats, and wildlife and vegetation monitoring along with studies on ecosystem services, outreach, and education. The Solano County RCD will incorporate conservation strategies successful in the Yolo County RCD.

Year 14 Accomplishments: The Yolo County RCD conducted outreach activities counties that resulted in on ground projects, staff trainings, and expansion of student participation in restorations in Colusa, Merced and other counties. Additional perch ponds, waterway plantings, performance monitoring and project assessments occurred within the project Yolo-Solano project area. Papers analyzing regional project potential, wildlife use of habitats created and enhanced by the grant were completed.

Year 14 Cost: Utilized existing funds (Funded \$643,000 in Year 13)

Year 15 Proposed Work: The Yolo County RCD will implement the Habitat Creation on Working Landscapes in order to contribute to the conservation of Giant Garter Snake, Swainson's Hawk, Sacramento Perch and other species. Building upon prior success expanding habitat creation and conservation capacity, the Yolo County RCD will extend conservation partnerships begun in Yolo and Solano counties.

Year 15 Projected Cost: Utilizing existing funds, no additional funds requested.

Funding Source: Proposition 50

Agencies: CDFW and Yolo County RCD

Priority/Goal Addressed: ERP Goal 1-4

Task Category: Implementation

Activity: Yuba City Fish Screen Project. The purpose of this project is to provide cost share funding for construction of a new 74 cfs intake structure for the City of Yuba City that includes a fish screen and increased diversion capacity. The City of Yuba City and its' partners designed a new facility meet the State and Federal protection criteria for anadromous salmonids. The project will be located on the Feather River in Sutter County just upstream of the City's current intake location. USBR's AFSP provided a fifty percent cost share for this project.

Year 14 Accomplishments: Yuba City Fish Screen Project completed construction of the screen on the City of Yuba City's new intake facility on the Feather River.

Year 14 Cost: Utilized existing funds (Funded \$500,000 in Year 10) (State Match to AFSP)

Year 15 Proposed Work: None, project complete.

Year 15 Projected Cost: \$0

Agencies: CDFW

Priority/Goal Addressed: ERP Goals 1 and 3

Task Category: Implementation

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