Ecosystem Restoration Program Plan
Year 11

(State FYs 2010-11; Federal FY 2011)

Implementing Agencies:
California Department of Fish & Game
United States Fish & Wildlife Service
NOAA Fisheries Service

CALFED BAY-DELTA PROGRAM

ECOSYSTEM RESTORATION PROGRAM PLAN YEAR 11
July 1, 2010

Introduction

Ecosystem Restoration Program Plan (ERPP) Year 11 identifies activities that are scheduled to be accomplished during State Fiscal Year (FY) 2010-2011 and for Federal FY 2011. The Ecological Restoration Program (ERP) continues under the 30 year CALFED Record of Decision (ROD). California Department of Fish and Game (DFG) fulfills its role as the State's Implementing Agency for ERP, and is currently managing more than 85 ongoing and approximately 10 newly funded projects. These projects are designed to meet the goals and objectives of ERP. ERPP Year 11 also describes progress made to date on the previous year's ERPP. When appropriate, the ERPP will be adjusted during the year to reflect, for example, changes in priorities, funding, policies, research findings, or program direction. Public review for ERPP is provided through the ERP website (http://www.dfg.ca.gov/erp/).

Priorities for Year 11 Activities

ERP's priorities are based on lessons-learned during Stage 1, which are documented in the program's Milestones reports, the Ecosystem Restoration Program End of Stage 1 Report, and are consistent with Conservation Strategy for Stage 2 Implementation Sacramento-San Joaquin Delta Ecological Management Zone (Stage 2 Conservation Strategy) (http://www.dfg.ca.gov/erp/).

Program activities in FY 2010-2011 include work in the following areas:

- *Bay-Delta Conservation Plan*. The purpose of the Bay Delta Conservation Plan (BDCP) is to create a stable regulatory framework to conserve and recover at-risk native species and natural communities in the Delta and provide water supply reliability. A joint Habitat Conservation Plan/Natural Community Conservation Plan is being developed through a collaborative process with water users, State and federal agencies, and non-governmental organizations. BDCP will examine how to improve the design and operation of the State and Federal Water Projects over both the short term and the long term and implement a major program for restoring and managing habitats within the Delta. The final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) and endangered species permits are expected to be completed in the spring of 2011. ERP will continue to provide technical staff support to BDCP, which will in turn, help to ensure consistency between BDCP and ERP planning activities. ERP will continue to work closely with the Delta Science Board to assure that the best available science is applied in the development of BDCP and which may ultimately become an integral component of the Comprehensive Delta Plan being developed by the Delta Stewardship Council. ERP will also provide for early implementation of restoration actions in the Delta and inform the BDCP.
- *Contaminants and Water Quality.* CALFED ERP's Water Quality Program (WQP) goal is to improve Delta water quality for all uses: in-Delta agricultural use, drinking water, and environmental water uses. CALFED WQP has primarily focused on the use of Delta water for drinking and, to some degree, for agricultural use. ERP's water quality program has a broader focus on environmental water quality, primarily the needs of Central Valley fish and wildlife species. ERP has funded efforts to increase dissolved oxygen in the Stockton Deepwater Ship Channel, research on mercury cycling and transport, particularly in managed wetlands, and projects related to pesticides and legacy contaminants.
- *Ecosystem Restoration Program's 2010-2011 Proposal Solicitation Package (PSP)*. Considering the critical decline in fisheries populations, the release of federal recovery plans for anadromous and other native Delta fish species, recommendations from the pelagic organism decline (POD) working group, and results and recommendations from Stage 1 project monitoring and research, ERP will

implement a focused solicitation package to address priority restoration activities identified in the Stage 2 Conservation Strategy. The focus will be on the Delta and at-risk native species that use the Delta, particularly POD species.

- *Non-Native Invasive Species Program.* The Non-Native Invasive Species (NIS) Program will continue to focus on implementing the NIS Strategic Plan. Work will continue toward the three stated goals of the NIS Program. The three goals relate to 1) preventing new introductions; 2) limiting the spread or eliminating populations of NIS; and 3) reducing the harmful ecological, economical, social and public health impacts resulting from infestations of NIS. The NIS program will continue working with the results from ERP funded research, technical assistance, and implementation and restoration projects and working with State agencies to implement California's Aquatic Nuisance Species Management Plan.
- *Performance Measures*. ERP is continuing to work with Delta Conservancy Performance Monitoring and Tracking staff and the Delta Science Program to complete Phase 2 of the Performance Measures development process. ERP performance monitoring unit is currently developing performance measures and are coordinating with the Delta Science Program to integrate performance measures with a broad-based monitoring program for ERP objectives. ERP is developing a Bay-Delta "performance measure" that is a composite of several ecological indicators, each itself a composite of at least two variables. The Bay-Delta Performance Measure is a sum of an estuarine habitat suitability indicator, a pelagic or native fish density indicator, a Chinook salmon "through-Delta" survival indicator, and a toxicity indicator. The first indicator, the estuarine habitat suitability indicator, will eventually include four components which will include outflow + sediment concentration + food supply + acreage of open-water and hydraulically connected land-water interface. Currently data has been compiled for three of these and Water Branch GIS staff is working on the fourth.

Year 10 Accomplishments and Projected Year 11 Activities

ERP has many ongoing activities (some of the major activities are listed below). Some new activities began in Year 10, while several others were projected to start during Year 10. Due to bond funding delays some projects were postponed to Year 11 or later, depending upon bond fund availability. ERP is requesting $22M in project funding for FY 10-11 and any remaining unspent funds (~$19M) from previous years be reappropriated to FY 10-11 to enable ERP to complete more than 85 ongoing projects. More than 500 projects that are in various stages of completion were funded before Year 10; this report does not address all of these projects.

- *Anadromous Fish Passage and Fish Screen Programs.* ERP contributions to the Anadromous Fish Passage and Fish Screen Programs: Priority screens include the Natomas/American Basin and M&T Llano Seco, Battle Creek on the Sacramento River; and Tuolumne Irrigation District and Patterson Irrigation District on the San Joaquin River.
- *Battle Creek Salmon and Steelhead Restoration Project.* ERP contributed $26.4 million to the Battle Creek Salmon and Steelhead Restoration Project in 2008. Several hydroelectric dams are planned for removal and are anticipated to contribute significantly to an increase in salmon runs. Other partners in the Restoration Project include the Battle Creek Working Group and the Battle Creek Watershed Conservancy; U.S. Bureau of Reclamation (USBR); U.S. Fish and Wildlife Service (USFWS); National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries Service); and DFG. The

Restoration Project will be among the largest cold water anadromous fish restoration efforts in North America and will restore approximately 42 miles of habitat in Battle Creek and an additional six miles of habitat in its tributaries. It will also help restore critically imperiled winter-run and spring-run Chinook salmon and Central Valley steelhead.

- *Bay Delta Conservation Plan*. BDCP is a planning and environmental permitting process to restore habitat for Delta fisheries in a way that reliably delivers water supplies to 25 million Californians. Federal and State agencies, environmental organizations, fishery agencies, water agencies and other organizations are working together on the plan. ERP Implementing Agencies coordinated with the BDCP process to assure consistency with the Stage 2 Conservation Strategy.
- *Conceptual Models*. ERP is working with the Delta Science Board to refine and further develop the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP) conceptual models for important Delta fish species and critical habitats. In keeping with the use of "best available science" the models have undergone peer review by independent scientists and been reviewed by the Delta Independent Science Board. These models are important tools to guide ongoing and future restoration and management actions in the Delta and support a sound adaptive management Process. Several DRERIP species and ecosystem conceptual models have been completed and are being used to review conservation actions proposed for the BDCP. As restoration options expand more models will be necessary. Additional models will be necessary to evaluate proposed actions in the Sacramento and San Joaquin Valleys and upstream tributaries.
- *ERP Grant Management.* The ERP Grant Management Unit continues to manage grants for more than 85 ongoing projects and has added or is in the process of adding approximately ten more newly funded projects. These projects are continuing to address ERP goals, objectives and milestones. ERP has prepared the 2010-2011 Project Solicitation Process (PSP) which is focused on the Delta and coordinated with the Stewardship Council. Once implemented, the PSP will fund approximately a dozen new projects as bond funds become available.
- *ERP Stage 2 Conservation Strategy.* ERP Implementing Agencies are completing the final draft of the Conservation Strategy for Stage 2 Implementation Sacramento-San Joaquin Delta Ecological Management Zone (http://www.dfg.ca.gov/water/). The Stage 2 Conservation Strategy includes actions detailed in existing recovery plans and provides a focus on habitat restoration and actions that could restore much of the historic ecological processes that enhance fishery productivity within the Delta. Draft Conservation Strategies have been completed for the Sacramento and San Joaquin River Ecological Management Regions and are currently being reviewed. These strategies are expected to be competed early in Year 11. ERP coordinated with the POD, Delta Vision, the Delta Risk Management Strategy (DRMS), and the Delta Stewardship Council when considering ecosystem priorities during the development of the Stage 2 Conservation Strategy.
- *Non-Native Invasive Species Program.* The three goals of the NIS Program are 1) preventing new introductions; 2) limiting the spread or eliminating populations of NIS; and 3) reducing the harmful ecological, economical, social and public health impacts resulting from infestations of NIS. The NIS Program will continue to focus on implementing the NIS Strategic Plan and the California's Aquatic Nuisance Species Management Plan. The NIS Program also provides technical assistance and coordination to regional efforts and watershed groups focusing on assessment and monitoring for NIS to improve rapid response to new invasions.

Beginning with Year 8, projects were funded under The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Proposition 84). One hundred fifteen million dollars ($115 million) of Proposition 84 funding is designated towards expenditures or grants for ERP

implementation. Priorities for Proposition 84 funding will include some projects delayed from Years 8-10 for various contracting and budgeting reasons. In addition, projects may be chosen through focused project solicitations or Directed Actions. Directed Action project proposals address an urgent or timely issue or unique opportunity in response to immediate ERP priorities. The Directed Action proposal review process evaluates potential ecosystem restoration projects that meet the priorities of CALFED planning documents. Other priorities for Year 11 will be identified during the ERP planning for Stage 2 activities.

Table 1 lists Year 10 activities funded in Year 10 and proposed for Year 11. The activities listed in Table 1 describe actions ERP Implementing Agencies believe are the highest priority to maintain the CALFED ROD and Conservation Agreement's regulatory commitments. Therefore, the priorities described in this program plan are focused on specific actions accomplished in Year 10 and projected for Year 11. The ERP Implementing Agencies relied on the ERP Strategic Plan, the ERP Draft Stage 1 Implementation Plan, and the ERP Milestones Assessment, and Stage 2 Conservation Strategy to develop the list of priority actions for Year 11. These actions were developed and organized to be responsive to POD needs, the CALFED Bay-Delta Program 10-Year Action Plan, Delta Vision Process, BDCP, the Stage 2 Conservation Strategy, the recommendations of the Little Hoover Commission, the contractual process for projects selected through the 2004 Monitoring and Evaluation Proposal Solicitation Process (PSP); and the 2005 Assisting Farmers in Integrating Agricultural Activities with Ecosystem Restoration PSP.

Unless otherwise indicated, the ERP projects and activities listed in Table 1 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. Each project has been subjected to one or more of these public processes: the PSP, project specific environmental documentation process, the Ecosystem Restoration Subcommittee, and/or specific workgroup and local stakeholder group meetings (i.e., Yolo Bypass Working Group) or workshops.
- Science Review. The ERP strongly emphasizes a science-based approach to ecosystem restoration and continues to integrate science into all program activities including: 1) collaborative actions with Delta Science Program; 2) technical and scientific review of project proposals; 3) support of scientific workshops and conferences; and 4) monitoring implementation results from project proposals and their contributions toward achieving the ERP objectives, including the Multi-Species Conservation Strategy (MSCS)/ROD, and Stage 2 Conservation Strategy; and 5) updating conceptual models with newly developed information to be available for subsequent resource management decisions (adaptive management).
- Environmental Justice. Environmental Justice is an important implementation commitment of the ERP. The ERP maintains an extensive list of local agencies, tribes, and nonprofit organizations, including many representing economically disadvantaged communities, local agencies, communities and tribes which are notified when the ERP Implementing Agencies receive proposals within their jurisdictions so they are aware and can provide input if they choose to do so. Their comments are considered in grant recommendations.

- Farmland Conservation. The Final Programmatic EIS/EIR (2000) for the Farmland Conservation Program outlines potential impacts to agricultural lands resulting from land acquisitions and restoration. Mitigation strategies are outlined in the programmatic environmental document (Section 7.1-2). These strategies include supporting the California Farmland Conservancy program in acquiring easements on agricultural land to prevent its conversion to urbanized uses and increase farm viability. Additionally, individual acquisition and/or restoration projects would be subject to environmental review and public comment through the CEQA process where potential impacts to farmlands would be identified and addressed.

A note about the table format: The ERP Implementing Agencies chose to use a similar table format as the one used in last year's program plan to display both prior year accomplishments and projected activities in the same table. This allows for an easier comparison and provides more continuity between annual program plans.

Terms Used in the Table. One of the challenges of the 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 Table 1 are as follows:

Activity:	Refers to the project title and includes a brief description of the desired outcome from the project.
Year 10 Activities:	Lists the significant accomplishments related to the activity that happened between July 1, 2009 and June 30, 2010.
Year 10 Costs:	Refers to how much funding was granted, allocated, contracted, or spent and staff resources allocated between July 1, 2009 and June 30, 2010 for the activity.
Year 11 Activities:	Refers to efforts related to the Activity that are projected to take place between July 1, 2010 and June 30, 2011.
Year 11 Projected Costs:	Refers to the best projection of how much funding will be granted, allocated, contracted, or spent and staff resources allocated between July 1, 2010 and June 30, 2011 for the activity.
Funding Source:	Lists the source of funding for the activity.
Agencies:	Agencies or entities that will ensure that the activity is carried out.
Task Category:	Refers to the category that the activity represents. There are five task categories: planning, research, implementation, education, and monitoring.

Table 1. Year 10 Activities and Projected Year 11 Activities

Activity: American Basin Fish Screen and Habitat Improvement (Phase IV-Construction) Project. Improves fish passage conditions, aquatic and riparian habitats, and prevents possible straying and entrainment of at-risk species on the Sacramento River and the Natomas Cross Canal. Consolidates diversions and installs a positive barrier fish screen on a newly constructed intake facility on the Sacramento River. The project will include construction of a 434 cfs Sankey Diversion with a state of the art fish screen and conveyance improvements, and the demolition and site restoration associated with decommissioning the Northern and Bennett Pumping Plants, and the Verona Dam on the Natomas Cross Canal. The U.S. Bureau of Reclamation, through the Central Valley Project Improvement Act's Anadromous Fish Screen Program has committed 50 percent cost share to this Project.

Year 10 Activities: Produced project designs.

Year 10 Cost: No funds expended in Year 10 do to project delays.

Year 11 Activities: Prepare CEQA/NEPA document and obtain permits, commence construction.

Year 11 Projected Cost: $9,000,000

Funding Source: Prop. 84

Agencies: DFG, NOAA Fisheries Service, and USBR

Task Category: Planning and Implementation

Activity: Aquatic Restoration Planning and Implementation Section (ARPI). ARPI was established in the Department of Water Resources (DWR) to support the ERP by developing habitat enhancement and fish passage improvement in the Yolo Bypass. ARPI provides ERP with engineering and scientific support and collaborates with the Yolo Basin Foundation and other local groups to identify, study, and carry out projects on public or private land with willing participants; these efforts create regionally significant improvements in riparian, tidal marsh, and seasonal floodplain habitats and fish passage in the bypass. This effort is compatible with maintaining or improving seasonal flood flow capacity of the bypass while improving habitat diversity and quality.

Year 10 Activities: Provided the engineering and scientific support needed for the highest priorities identified for the ERP. ARPI conducted the following: 1) evaluated fish passage and aquatic habitat, and studied sediment erosion and accretion; 2) developed 1-D and 2-D flow model; 3) conducted flow and stages monitoring; 4) designed potential restoration actions in lower Putah Creek; 5) evaluated Lisbon Weir fish passage improvement options; and 6) evaluated options to integrate bypass-scale restoration into the Sacramento Area Flood Control Agency's Lower Sacramento River Regional Project. The ARPI website for detailed project information is http://www.water.ca.gov/environmentalservices/. The ERP Implementing Agencies met with ARPI staff to identify high priority needs in the Yolo Bypass, such as assessing sturgeon passage issues, and to articulate how ARPI could assist in addressing those needs. The goal is to develop an annual work plan that could be approved by the ERP Implementing Agency managers.

Year 10 Cost: $1,000,000

Year 11 Activities: N/A

Year 11 Projected Cost: No longer funded by ERP

Funding Source: Prop. 84

Agencies: DWR

Task Category: Planning and Implementation

Activity: Assistance to Farmers in Integrating Agricultural Activities with Ecosystem Restoration (AFI). ERP's Draft Stage 1 Implementation Plan established multi-regional priorities for a coordinated ERP effort to support "wildlife friendly agriculture." Chapter 7 of Proposition 50, which provided funds to the ERP, states, "not less than $20 million shall be allocated for projects that assist farmers in integrating agricultural activities with ecosystem restoration." Funds in this category have been dedicated to focused solicitation and directed actions to implement projects that benefit native fish, giant garter snakes and other MSCS species on agricultural lands. In addition, a portion of the funds in this category have been allocated to support technical assistance partnerships to assist landowners in implementing agricultural activities benefiting MSCS wildlife and fish, and provide a linkage between State and federal programs to benefit farmers and wildlife.

Year 10 Activities: Implemented the Socio-Economic and Behavioral Analysis of Farmers' Decisions to Adopt or Reject the CALFED Conservation Initiatives Project, and the Delta Working Landscapes Project.

Year 10 Cost: $975,228

Year 11 Activities: Continue with Year 10 activities and implement the Selby Creek Stream Habitat Restoration and Riparian Revegetation Project.

Year 11 Projected Cost: $475,000

Funding source: Prop 50 AFI

Agencies: California Department of Food and Agriculture, DFG, Department of Conservation, Natural Resources Conservation Service, USFWS, U.S. Geological Survey

Task Category: Implementation

Activity: Battle Creek Salmon and Steelhead Restoration Project. The Battle Creek Salmon and Steelhead Restoration Project would restore approximately 42 miles of historical anadromous fish habitat in Battle Creek, and an additional 6 miles of habitat in its tributaries. Components of the project include:

- Removal of 5 diversion dams that would have marginal power production value after their releases are adjusted to meet stream flow needs below the dams,
- Installing fish ladders at 3 diversion dams and screening their associated diversions,
- Increasing flow releases from all remaining diversion dams affecting anadromous fish on Battle Creek,
- Direct connection of powerhouse tailraces to power canals to eliminate redundant screening requirements, flow fluctuations associated with powerhouse operations, and false attraction of returning fish to powerhouse tailraces containing a mixture of waters from different basins.

Phase 1A includes installing fish screens and ladders at the North Battle Creek Feeder and Eagle Canyon diversion dams and removing Wildcat diversion dam and appurtenant conveyance systems on the North Fork; installing Eagle Canyon Canal pipeline; and modifying Asbury dam on Baldwin Creek.

Phase 1B includes installing an Inskip Powerhouse tailrace connector and bypass to prevent discharges from entering directly into South Fork Battle Creek. (The discharges would be redirected into a pipeline and then into the Coleman Canal).

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

Year 10 Activities: Continued implementation of Phase 1A and 1B.

Year 10 Cost: Funded in Year 8

Year 11 Activities: Complete Phase 1A, continue implementation of Phase 1B, start Phase 2

Year 11 Projected Cost: $12,000,000 for Phase 2.

Funding Sources: Federal Funds, Iron Mountain Mine Mitigation Federal Funds, DFG State Prop 50 Funds, Wildlife Conservation Board State Prop 50 Funds and Caltrans Benicia-Martinez Bridge and Richmond San Rafael State Mitigation Funds.

Agencies: USBR, USFWS, DFG, NOAA Fisheries

Task Category: Implementation

Activity: Bay Delta Conservation Plan. Technical assistance, coordination, regulatory permitting for the BDCP to restore habitat for Delta fisheries while providing reliable water supplies to 25 million Californians. BDCP planning activities are coordinated with related, ongoing programs including the Delta Vision and Delta Vision Blue Ribbon Task Force (Executive order S-17-06), the Delta Risk Management Strategy (AB1200), the ERP Stage 2 Conservation Strategy, the Delta Science Program, Interagency Ecological Program - POD, and the California Water Plan Update (Bulletin 160).

Year 10 Activities: Develop biological goals and objectives, identify baseline ecological conditions, identify potential conservation actions, analyze different water conveyance approaches, select appropriate methods for scientific analysis, develop an adaptive management and monitoring program, conduct data analysis, peer review, habitat mapping, and other activities necessary for development NCCP. Several DRERIP Species and ecosystem conceptual models have been completed and are being used to review conservation actions proposed for the Bay-Delta Conservation Plan.

Year 10 Cost: $1,591,000

Year 11 Activities: Continue with Year 10 activities. Additional species and ecosystem conceptual models will be necessary to evaluate proposed actions in the Sacramento and San Joaquin Valleys and upstream tributaries.

Year 11 Projected Cost: $1,591,000

Funding Sources: Prop 84.

Agencies: DFG, DWR, NOAA Fisheries, USBR, USFWS

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 10 Activities: N/A

Year 10 Cost: N/A

Year 11 Activities: Monitoring of levee breach geometry, inundation regime, surface elevation, changes in sedimentation, slough network evolution, native marsh vegetation

Year 11 Projected Cost: $382,250

Funding Source: Prop 84

Agencies: DFG, DWR

Task Category: Monitoring

Activity: CALFED Non-Native Invasive Species (NIS) Program (DFG). DFG will work with the USFWS Non-Native Invasive Species (NIS) Program and Stakeholder Teams to implement and administer the NIS program, as developed and documented in the NIS Strategic and Implementation Plans.

Year 10 Activities: Continue implementation of actions described in the State Aquatic Invasive Species Plan and the ERP Multi-year Program Plan. Continue to work on priority terrestrial weed actions in the CALFED area and regulations for restricting the importation of invasive species, and serve as co-chair to the CALFED NIS Advisory Committee.

Year 10 Cost: $100,000

Year 11 Activities: Continue and build on Year 10 activities.

Year 11 Projected Cost: $100,000

Funding Source: Prop. 84

Agencies: DFG

Task Category: Implementation

Activity: Central Valley Project Improvement Act (CVPIA) Contribution. According to the ROD, approximately $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 Central Valley Project. CVPIA programs that contribute to ERP goals and objectives include: Anadromous Fish Restoration Program (AFRP), Dedicated Project Yield, Restoration of Riparian Habitat and Spawning Gravel, Battle Creek Restoration, Clear Creek Restoration, Anadromous Fish Screen Program (AFSP), & Water Acquisition programs. The AFRP will continue to implement the CVPIA directive to at least double natural production of anadromous fish. To this end, AFRP will work with local watershed groups and other local partners to carry out locally developed and supported watershed restoration plans, giving priority to actions that restore natural channel and riparian habitat values [CVPIA Section 3406 (b)(1)]. The AFSP plans to screen the largest diversions on the Sacramento River as diverters volunteer and funds become available. The AFSP also works to optimize fish screen funds with partnership-based funding from sources such as Wildlife Conservation Board (WCB), DFG, and ERP and local sources. AFSP screens contribute to the "at least doubling" Central Valley anadromous fish populations CVPIA goal; these screens are also important to protect listed and candidate species such as the winter-run and spring-run chinook salmon, Delta smelt, steelhead trout, and splittail [CVPIA Section 3406(b)(21)]. In 2008, CVPIA completed a 10-year Program Plan. This Plan serves as a refinement of the previous planning efforts and provides priorities, strategies, and activities to achieve the defined goals set forth in the CVPIA. This Plan provides the background of the implementation of the CVPIA, describes CVPIA goals and accomplishments to date, and sets priorities for the 10-year planning period from 2009 through 2018. This Program Plan includes only highlights of CVPIA accomplishments and activities, more information on these and other CVPIA programs can be found at http://www.usbr.gov/mp/cvpia/.

Year 10 Activities: In FY2010, the AFRP will continue to fund habitat restoration projects that improve habitat, survival, and passage of anadromous fish in Antelope Creek, Cottonwood Creek, and the Calaveras, Cosumnes, Merced, Mokelumne, Stanislaus, and Tuolumne rivers. The program will continue to collect fish population data for Bear, Cottonwood, and Cow creeks and in the Stanislaus and Yuba rivers to facilitate evaluation of restoration actions. Prior year AFSP funding has contributed to preconstruction project activities including environmental compliance and project design for the Natomas Mutual Water Company, RD 2035, City of Yuba City, Meridian Farms Water Company, and Patterson Irrigation District fish screen projects. In 2009, construction of the Meridian Farms Phase I Fish Screen was completed. This project involved screening a 30 cfs diversion located at New Grimes on the Sacramento River. In 2010, construction will begin for the Natomas Fish screen Project. Estimate completion 2012.

Year 10 Cost: $15,000,000

Year 11 Activities: The AFRP 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. In FY 2011 AFSP funds are anticipated to be used for cost share funding for environmental, design and/or construction activities for a number of fish screen projects. The selection of these projects is made based AFSP prioritization criteria which include: willing applicant, cost effectiveness, biological benefits, availability of non-Federal cost share, and ability to obtain preconstruction monitoring data. A number of on-going AFSP projects are expected to need construction funding in FY 2011 and they include: Natomas Mutual, RD 2035, Pleasant Grove-Verona and Meridian Farms Phase II.

Year 11 Projected Cost: $15,000,000

Funding Source: CVPIA Restoration Fund

Agencies: USFWS and USBR

Task Category: Implementation

Activity: Clear Creek Environmental Water Program. Develops a on-the-ground in-season operational plan for the recommended Environmental Water Program (EWP) dam re-operation acceptable to Central Valley Operators, produces a companion core geomorphic and biological effectiveness monitoring plan, and performs one EWP re-operation/release in 2010 or 2011 on Clear Creek. The monitored test of a planned mid-level flow is expected to have great geomorphic and ecological significance. It will provide critical experience and date to form the foundations of discussions that could lead to the adoption of a new operational plan that would produce regular enhanced flows that are fundamental to significant improvements and maintenance in the downstream ecosystem of Clear Creek. The overall vision for pilot EWP flow augmentation on Clear Creek is to release discharges of sufficient magnitude, duration and frequency to reactivate more 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. Develops a on-the-ground in-season operational plan for the recommended Environmental Water Program (EWP) dam re-operation acceptable to Central Valley Operators, produces a companion core geomorphic and biological effectiveness monitoring plan, and performs one EWP re-operation/release in 2010 or 2011.

Year 10 Activities: No activity due to USBR reconsideration of whether or not to move forward with the project.

Year 10 Cost: $813,745.00

Year 11 Activities: Develop an on-the-ground in-season operational plan for the recommended EWP 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 2010 or 2011.

Year 11 Projected Cost: Funded in Year 10

Funding Source: Prop 84

Agencies: DFG, USBR, USFWS

Task Category: Planning and Implementation

Activity: Constant Fractional Marking Program for Central Valley Chinook Salmon. Over 32 million fall-run Chinook salmon are produced each year at hatcheries in California's Central Valley. Annual marking and coded-wire tagging of hatchery production release fall-run Chinook salmon is needed on a long-term basis to meet the needs for 1) monitoring and evaluation of the hatchery programs' genetic and ecological effects on natural populations; 2) estimation of exploitation rates in ocean and inland fisheries; 3) evaluation of the impacts of straying on natural populations; and 4) evaluation of the benefits of restoration actions designed to restore natural populations.

Year 10 Activities: 1) Ocean Harvest Sampling – 80 additional personnel months of Scientific Aide time per year will be needed to complete the recovery of coded-wire tags (CWTs) in the private recreational skiff and recreational charter fisheries, from Crescent City to Avila Beach ports. In addition, 54 additional personnel months of Scientific Aide time per year will be needed to complete the recovery of CWTs from the commercial troll fishery, from Crescent City to Avila Beach ports. One Associate Biologist will supervise the CWT recovery program in the ocean fisheries. 2) Coded-wire Tag Processing Laboratory – Increase staffing levels and provide improved equipment for a modernized coded-wire tag processing laboratory, which will meet the Central Valley CWT processing needs. 3) Age Determination – The age structure of Central Valley Chinook salmon populations will be determined by scale analysis.

Year 10 Cost: $1,025,777

Year 11 Activities: Continue Year 10 activities.

Year 11 Projected Cost: Funded in Year 10

Funding Source: Prop 84

Agencies: DFG

Task Category: Research

Activity: Cow Creek Fish Passage and Flow Improvement Project. The Cow Creek Fish Passage and Flow Improvement Project-Modification of the Millville Diversion Dam will remove fish passage barriers associated with the Millville Diversion Dam on Clover Creek, tributary of Cow Creek in Shasta County. Once removed, approximately ten miles of spawning habitat to anadromous salmonids will be made available.

Year 10 Activities: N/A

Year 10 Cost: N/A

Year 11 Activities: Remove the dam and siphon structure, opening up ten miles of potential habitat for anadromous salmonids and, in the process, be an outreach and education tool to work with other landowners and encourage their participation in removing and/or modifying other diversion dams in the Cow Creek watershed.

Year 11 Projected Cost: $2,500,000

Funding Source: Prop 84

Agencies: Western Shasta RCD

Task Category: Implementation

Activity: Delta Environmental Review. Provides staff to support the increase in both the Delta Levee Program workload and the number of Permitting and Restoration Program projects in the Sacramento-San Joaquin River Delta. The Delta Levee Program ensures the ongoing integrity of about 1,000 miles of levees in the Sacramento-San Joaquin River Delta by providing assistance to local agencies for their maintenance, protection and improvement. Department staff prepares Streambed Alteration Agreements for levee work pursuant to Fish and Game Code Section 1602. These levees protect the water supply of 23 million Californians. In conjunction with performing levee maintenance and improvements, The Department helps improve the Delta ecosystem by requiring full mitigation of impacts to fish and wildlife habitat and net habitat enhancement, as required by legislation (Water Code sections 12980 et seq. and 12310 et seq.). The Permitting and Restoration Program ensures that threatened and endangered fish and wildlife resources in the Delta are conserved, restored and recovered. Timely issuance of CESA permits, water rights reviews, and ERP implementation of restoration and recovery actions are integral to statewide water supply delivery and reliability. The Permitting and Restoration Program projects relate to statewide water planning and design; the protection of rivers, lakes and streams; flood control; and other actions involving water supply operations, water quality, recreational facilities, and transportation infrastructure.

Year 10 Activities: N/A

Year 10 Cost: N/A

Year 11 Activities: Participate in a joint effort to provide project review, permit approval, and conservation and restoration planning for fish and wildlife resources in the Sacramento-San Joaquin River Delta.

Year 11 Projected Cost: $625,000

Funding Source: Prop. 84

Agencies: DFG

Task Category: Planning and Implementation

Activity: Delta Water Legislation - Instream Flow Guidelines. Provides staff for DFG's Instream Flow Program which will enable the DFG to meet its obligations under SBX7 1 and Public Resources Code 10000-10005. The DFG will develop and recommend to the Delta Independent Science Board flow criteria and quantifiable biological objectives for aquatic and terrestrial species of concern dependent on the Delta. The primary objective of flow studies is to develop scientific information on indicators of ecosystem health. Information on relationships between streamflow and physical stream habitat for critical aquatic species' lifestages would be developed on selected priority streams. Anticipated projects may include the study of the following information: relationships of flow to aquatic habitat, stream temperature, channel geomorphology, riparian habitat and restoration activities; the temporal and spatial hydrologic characteristics of flow regimes; fish population abundance, distribution and dynamics; and aquatic invertebrate production.

Year 10 Activities: N/A

Year 10 Cost: N/A

Year 11 Activities: Coordinated internally with DFG staff, and externally with NOAA Fisheries Service and USFWS. Assemble a team to prepare biological objectives and recommendations for flow criteria. Assemble various documents supporting biological objectives and flow recommendations (those that are based on scientific understanding). Hold orientation meeting with the Department's Water Branch, Fisheries Branch, and Regions 1 through 4. Set Priorities for establishing flow criteria and biological objectives. Develop draft flow recommendations. Incorporate comments from NOAA Fisheries, USFWS, and others. Prepare final flow recommendations report for the State Water Board.

Year 11 Projected Cost: $478,138

Funding Source: Prop. 84

Agencies: DFG

Task Category: Planning

Activity: Development of best management practices to reduce methyl mercury exports and concentrations from seasonal wetlands in the Yolo Wildlife Area. The pilot and demonstration projects will develop Best Management Practices (BMP) to reduce monomethylmercury (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 10 Activities: N/A

Year 10 Cost: N/A

Year 11 Activities: Construct pond. Confirm MMHg is reduced in permanent ponds. Determine the effect of size, depth, hydraulic residence time and age of permanent ponds on MMHg removal. Determine if MMHg in water leaving the permanent ponds is reduced if put into French drains. Identify the main MMHg removal mechanisms in the permanent ponds to aid in pond design. Develop MMHg reduction in permanent ponds into BMP. Confirm MMHg concentrations are reduced by summer grazing and if so develop into BMP. Determine which summer plant species minimize MMHg production after flooding and develop into BMP.

Year 11 Projected Cost: $1,300,000

Funding Source: Prop 13

Agencies: DFG

Task Category: Research, and Implementation

Activity: Dutch Slough Tidal Marsh Restoration Project - Dutch Slough Phase I Implementation. The purpose of this project is to restore a 1,166 acre site in Oakley, CA. Project site is adjacent to Dutch Slough and the mouth of Marsh Creek in the western Delta. Current plans do not include construction of perimeter flood protection levees, only restoration of tidal influence on two-thirds of the site.
Year 10 Activities: N/A
Year 10 Cost: N/A
Year 11 Activities: Restoration of tidal influence on two-thirds of the 1,166 acre site.
Year 11 Projected Cost: $6,000,000
Funding Source: Prop 84
Agencies: DWR
Task Category: Implementation

Activity: Ecosystem Restoration Program Grant Management Services. Provides administrative grant and contract management services to ERP projects.
Year 10 Activities: GCAP provided overall contract management and administrative oversight services to grant recipients of Proposition 13, 204, 50, and 84 funds for ERP. GCAP insured that individual recipient agreements and deliverables are successfully completed consistent with the scope of work, project schedule, and budget as approved by the ERP.
Year 10 Cost: $2,988,216
Year 11 Activities: Continue on going activities.
Year 11 Projected Cost: Funded in Year 10
Funding Source: Prop. 50, and General Fund
Agencies: DFG
Task Category: Implementation

Activity: Ecosystem Restoration Program Implementation Staff. In support of the 30-year CALFED ROD, ERP staff manage ERP grants, coordinate ERP and AFRP activities, support regional planning, prepare and maintain regional ERP implementation plans, support ongoing implementation activities, and coordinate ERP implementation with other restoration activities such as CVPIA.
Year 10 Activities: ERP's 2010-2011 PSP, which focuses on priority restoration activities identified in the Stage 2 Conservation Strategy (i.e., the Delta and at-risk native species that use the Delta). Commenced preparation of conservation strategies for the Sacramento and San Joaquin Ecological Regions. Staff were also active in the ongoing development of the Web Based Proposal Submission and Review System.
Year 10 Cost: $4,100,000
Year 11 Activities: Continue on going efforts including completion of Stage 2 Conservation Strategies for the Sacramento and San Joaquin Ecological Management Zone, Sacramento Valley, and the San Joaquin Valley Regions.
Year 11 Projected Cost: $4,100,000
Funding Source: Prop. 84
Agencies: DFG
Task Category: Planning and Implementation

Activity: Fish and Wildlife Planning. USFWS, as an ERP Implementing Agency, collaborates with NOAA Fisheries Service and DFG on ERP planning efforts, including the development of regional ecosystem restoration plans, and providing direction for and management of ERP projects.
Year 10 Activities: ERP planning and implementation efforts, included: 1) Stage 2 Conservation Strategy Implementation; 2) ERP performance measures; 3) ERPP; 4) environmental compliance needs; 5) ERP project review; 6) species and habitat modeling.
Year 10 Cost: $1,232,000
Year 11 Activities: USFWS will continue with ERP planning and implementation efforts.
Year 11 Projected Cost: $1,232,000
Funding Source: Federal
Agencies: USFWS
Task Category: Planning

Activity: Fish Passage Improvement Program (FPIP) Staff. 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 migration barrier structure removal or modification 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 ERP regional restoration plans.
Year 10 Activities: Supported FPIP staff conducting FPIP studies.
Year 10 Cost: $1,179,869
Year 11 Activities: Engineering and design of fish passage improvements in eight watersheds critical for meeting recovery goals for listed salmonids in the Cow, Bear, and Deer Creeks, Sutter Bypass, Calaveras and Yuba Rivers, and prioritization of future projects.
Year 11 Projected Cost: $1,307,000
Funding Source: Prop. 50 & 84
Agencies: DWR
Task Category: Planning

Activity: Genetic/Scale Tissue Archive. Funding for continued development and coordination of historic Central Valley salmonid genetics/scale tissue archive and database. Historic scale/tissue collections in Arcata, Fresno, Red Bluff, and other locations will be cataloged, entered into a database, and made part of the existing DFG Central Valley genetics tissue archive. Collections will be provided for research purposes according to standard protocols.
Year 10 Activities: Continued work on the following: 1) support genetic monitoring at State and Federal fish facilities; 2) identify spring run species; 3) Central Valley-wide survey of chinook salmon; 4) Tissue and scale collections at fish hatcheries; and 5) support comprehensive steelhead monitoring program.
Year 10 Cost: $344,000
Year 11 Activities: Continue existing activities listed above.
Year 11 Projected Cost: $344,000
Funding Source: Prop. 50 & 84
Agencies: DFG
Task Category: Implementation

Activity: Hamilton Airfield Wetlands Restoration. The project includes 988 acres of a former military airfield and adjacent California State Lands Commission areas. The site is located on San Pablo Bay, 4 miles east of the city of Novato, in Marin County, California. The levee-protected site has subsided below the elevation of surrounding properties, including the tidal wetlands immediately adjacent to San Pablo Bay. This wetlands restoration project would advance the beneficial reuse of dredged 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 10 Activities: Funds are being used to complete site preparation for dredge material placement for one segment. Complete containment levees for seasonal wetland and preparation for receipt of Oakland -50 foot project including the Wildlife Corridor Berm. Material placement will begin this fiscal year. Key Milestones: Engineering and Design January/September 2010; ATF Construction Contract January/April 2010.

Year 10 Cost: $14,250,000

Year 11 Activities: Continue restoration activities and site preparation.

Year 11 Projected Cost: $20,000,000

Funding Source: Federal

Agencies: U.S. Army Corps of Engineers

Task Category: Implementation

Activity: Historical Ecology for the Sacramento-San Joaquin Delta. Documents the ecological and hydrogeomorphic characteristics of Sacramento-San Joaquin Delta prior to significant Euro-American modification. The effort will use well-developed methods for the synthesis of historical data through Geographic Information System (GIS) development and analysis. This historical reconstruction will illustrate, to the extent possible, patterns of variation and extent of habitats throughout the Delta to better understand species support functions and controlling physical processes within the native landscape. Such information will provide a basis for identifying target locations and physical conditions necessary to restore functional habitat mosaics within the projected future Delta landscape.

Year 10 Activities: Synthesize hundreds of independent historical data sources to build a reliable picture of early conditions in sufficient detail to inform the ERP Stage 2 Conservation Strategy as well as other ecosystem restoration programs. Aquatic Science Center (ASC) will guide and train 4 to 5 DFG Water Branch staff through the course of the project. DFG involvement is likely to include assistance with data collection, GIS, and report production and presentation. ASC will also provide training and support for historical aerial orthorectification.

Year 10 Costs: Funded in Year 9 ($350,000).

Year 11 Activities: Continue restoration activities including deliverables: GIS of historical conditions documenting target habitat types (e.g. tidal channels, riparian forest, ponds and lakes, tidal marsh-upland ecotone, etc.) and a final report describing the methodology, results, and management implications.

Year 11 Projected Costs: Funded in Year 9

Funding Source: Prop. 84

Agencies: DFG

Task Category: Research and Planning

Activity: Instream Flow Recommendations. Provide DFG's newly formed Instream Flow Program with technical assistance, support, and training from USFWS to fulfill SBX7 1 and PRC 10000-10005 Instream Flow requirements.
Year 10 Activities: N/A.
Year 10 Cost: N/A
Year 11 Activities: USFWS will provide technical assistance, support, and training to DFG Instream Flow Program staff.
Year 11 Projected Cost: $560,862
Funding Source: Prop. 84
Agencies: DFG, USFWS
Task Category: Planning and Research

Activity: IRWM Fish and Productivity Data Analysis and Interpretation. Completes the data analysis of fish and productivity data collected by the Integrated Regional Wetland Monitoring (IRWM) Pilot Project (SCI-05-C24). Analysis of the data will assist IRWM in the determination of the extent that tidal marsh restoration in the San Francisco Estuary contributes to ecosystem functions at multiple spatial and temporal scales.
Year 10 Activities: N/A
Year 10 Cost: N/A
Year 11 Activities: Data analysis of fish and productivity data collected by IRWM.
Year 11 Projected Costs: $420,000
Funding Source: Prop. 84
Agencies: Association of Bay Area Governments (ABAG), DFG
Task Category: Research

Activity: M&T/Llano Seco Fish Screen Facility-Short Term Protection Project. The project is to maintain pumping capacity at the M&T/Llano Seco Fish Screen Facility Short Term Protection Project which requires continual periodic dredging until a long-term permanent solution is identified to protect the operational capacity of the pumping intake and fish screens. Excess dredge materials have been stockpiled on 12 acres of land on the M&T Chico Ranch leaving no additional capacity for expansion of the stockpiled site with future excavated materials. An environmental documentation (Initial Study/Mitigated Negative Declaration) will be prepared of the removal of existing stockpiled material, and preparation for the next in-stream gravel bar excavation.
Year 10 Activities: Environmental documentation (Initial Study/Mitigated Negative Declaration) preparation.
Year 10 Cost: $193,982
Year 11 Activities: Continue Year 10 activities.
Year 11 Projected Cost: TBD
Funding Source: Prop 84
Agencies: USBR, DFG
Task Category: Planning

Activity: Meridian Farms Water Company Fish Screen Project - Construction Phase 1. Construction of the Meridian Farms Water Company (MFWC) Fish Screen project on the Sacramento River. The primary purpose of the project is to prevent entrainment of at-risk native fish species by installing a positive barrier fish screen at one of MFWC's existing intake facilities. The existing diversion at Grimes would be removed, repositioned, and rebuilt with the addition of state of the art fish screens and conveyance system improvements. The USBR's AFSP is funding this project at 50% cost-share ($2.5 million).

Year 10 Activities: Continue Year 9 activities. Commenced implementation of Phase 1 which consists of the following components:

- Grimes Diversion/Pumping Plant: A 30 cfs diversion with fish screen and pumping plant located north of the existing Grimes Diversion. The existing Grimes Diversion will be demolished.
- Grimes Pipeline/Canal: The Grimes Pipeline /Canal is approximately 650 lineal feet of 36-inch diameter pipeline, approximately 3,800 lineal feet of modifying existing earthen canal embankment, and associated work.
- Drexler Pipeline: Approximately 2,000 lineal feet and up to 6,500 lineal feet of 36-inch diameter pipeline, length to be dependant upon available funds, canal and, turnout structure that will deliver irrigation flows from the Drexler Diversion to the Drexler service area.

Year 10 Cost: Funded in Year 9 ($2,500,000)
Year 11 Activities: Continue staff support for development and review of work products.
Year 11 Projected Cost: TBD
Funding Source: Prop 84
Agencies: USBR, DFG
Task Category: Implementation

Activity: National Marine Fisheries Service (NMFS) Staff Participation in the Bay Delta Conservation Plan (BDCP). Funding of NOAA Fisheries Service (previously known as NMFS) staff for their participation in the development of the BDCP. Several Potentially Regulated Entities are preparing a BDCP for existing and new water operations in the Sacramento-San Joaquin Delta. The BDCP is intended to satisfy the requirements of a Federal Habitat Conservation Plan, resulting in permits under Section 1 0(a)(1)(B) of the Endangered Species Act and is also intended to satisfy the requirements of a Natural Community Conservation Plan, resulting in take authorization under Section 2835 of the Fish and Game Code (or to meet the requirements of incidental take permits under Section 2081). This effort requires extensive staff participation from State and Federal fish and wildlife management agencies to ensure the BDCP meets regulatory requirements of DFG, USFWS, and NOAA Fisheries Service; this agreement funds participation of NOAA Fisheries Service staff.

Year 10 Activities: Continue staff support for development and review of work products.
Year 10 Cost: Funded in Year 9
Year 11 Activities: Continue staff support for development and review of work products.
Year 11 Projected Cost: Funded in Year 9
Funding Sources: Prop 84
Agencies: DFG, NOAA Fisheries
Task Category: Planning

Activity: NMFS Staff Support for ERP. NOAA Fisheries Service (previously known as NMFS), as an ERP Implementing Agency, collaborates with USFWS and DFG on ERP planning efforts, including the development of regional ecosystem restoration plans, and providing direction for and management of ERP projects.
Year 10 Activities: ERP planning and implementation efforts, included: 1) Stage 2 Conservation Strategy; 2) ERP performance measures; 3) ERPP; 4) environmental compliance needs; 5) ERP project review; 6) species and habitat modeling.
Year 10 Cost: $225,000
Year 11 Activities: NOAA Fisheries Service will continue with ERP planning and implementation efforts.
Year 11 Projected Cost: $150,000
Funding Source: Federal
Agencies: NOAA Fisheries
Task Category: Planning

Activity: Patterson Irrigation District Fish Screen Construction Project. Replaces the Patterson Irrigation District's 195 cubic foot per second (cfs) unscreened pumped water diversion intake system on the San Joaquin River with a new more efficient facility at the current site. The Patterson Irrigation District Main Pumping Plant is located on the banks of the San Joaquin River, approximately 3.5 miles east of the city of Patterson, in the CALFED Vernalis to Merced River Ecological Management Unit of the San Joaquin River Ecological Management Zone. The new facility will have equivalent diversion capacity and consist of a new wedge-wire plate fish screen designed to meet State and Federal protection criteria for anadromous salmonids.
Year 10 Activities: Work has not been started due to delay in bond funds.
Year 10 Cost: $4,565,725
Year 11 Activities: Replace the Patterson Irrigation District's 195 cubic foot per second (cfs) unscreened pumped water diversion intake system on the San Joaquin River with a new more efficient facility at the current site.
Year 11 Projected Cost: TBD
Funding Source: Prop 84
Agencies: DFG
Task Category: Monitoring and Research

Activity: Performance Measures and Monitoring Staff. Provides four permanent positions to comply with increased accountability requirements of bond funded activities and fulfills the legal mandate to monitor and evaluate program performance by developing ERP indicators and performance measures, including methods to meet regulatory compliance mandates for managed and restored wetlands.
Year 10 Activities: Performance measure development in coordination with the Delta Science Program to integrate performance measures with a broad-based monitoring program for CALFED objectives.
Year 10 Cost: $1,700,000
Year 11 Activities: Continue development of performance measures for assessing success of restoration activities.
Year 11 Projected Cost: $1,690,000
Funding Source: Prop 84
Agencies: DFG
Task Category: Monitoring and Research

Activity: Peterson Ranch Acquisition and Planning. Fee title acquisition of 1,600 acres in the Lindsey Slough area, known as the Peterson Ranch, located adjacent to Calhoun Cut Ecological Reserve (CCER). The biological values and proximity to Lindsey Slough and CCER make this a high-priority acquisition. In addition, this project would complete 20-year planning and restoration effort to preserve vernal pool and tidal wetland/slough habitat along Calhoun Cut, and Barker and Lindsey Sloughs in southern Yolo County (related to ERP-02D-P54).

Year 10 Activities: N/A

Year 10 Cost: N/A

Year 11 Activities: Fee title acquisition Peterson property and development costs. Prepare Peterson Baseline Biological Assessment and Management Plan. Complete Restoration Design for Lindsey Slough project and Peterson acquisition. Complete environmental Review and permitting for Lindsey restoration.

Year 11 Projected Cost: $5,989,534

Funding Source: Prop 84

Agencies: DFG

Task Category: Implementation

Activity: Refine the Fall-run Chinook Salmon Population Model. Will provide structural, statistical and computer processing refinements to the fall-run chinook salmon population model, which will allow for a much broader suite of management action probability questions to determine instream flow level recommendations for fall-run chinook salmon in the San Joaquin River. The refined model will provide the ability to focus future restoration water releases toward the most limiting salmon life stages and processes, and will assist State/federal agencies in developing a conceptual and operational understanding of these life processes and needs to restore fall-run chinook salmon in the San Joaquin River.

Year 10 Activities: Performed data quality assurance and control of inland, delta, and ocean data sets. Performed statistical parameter fitting. Developed temperature dependent egg hatching and juvenile growth and mortality criteria.

Year 10 Cost: $350,000

Year 11 Activities: Develop the coding for the new version of the fall-run chinook salmon population model. Provide model documentation and user's guide.

Year 11 Projected Cost: Funded in Year 10

Funding Source: General Fund

Agencies: DFG

Task Category: Planning

Activity: Sacramento-Central Valley Fish Screen Program. The purpose of this project is to reduce entrainment mortality of juvenile fish species from Delta and river diversions by installing state of the art self-cleaning fish screens, and simultaneously initiating a pilot biological assessment which will help develop criteria for prioritizing future fish screening efforts and project funding.

Year 10 Activities: Work has not been started due to delay in bond funds.

Year 10 Cost: $1,500,000

Year 11 Activities: After selection, planning and design review will be started on each fish screen to meet site-specific conditions. The Grantee will assist the landowners to obtain the necessary environmental permits on their behalf for installation of the fish screen systems. The Grantee will obtain permits. Construction inspections will be provided during fabrication and during installation. After successful installation of a project, as-built drawings and notice of completion, an operations checklist, and Operation and Maintenance manuals will be developed and submitted.

Year 11 Projected Cost: Funded in Year 10

Funding Source: Prop. 84

Agencies: DFG, USBR

Task Category: Planning and Implementation

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 (Regional Board) to complete the SJR Dissolved Oxygen Total Maximum Daily Load development and allocation process.
Year 10 Activities: Work has not been started due to delay in bond funds.
Year 10 Cost: $2,992,933
Year 11 Activities: 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.
Year 11 Projected Cost: Funded in Year 10
Funding Source: Prop. 84
Agencies: DFG
Task Category: Research and Monitoring

Activity: Suisun Marsh Land Acquisition and Tidal Marsh Restoration - Elevation and Contaminant Surveys, Review of Land Acquisition Package, and Review of Property Appraisal. Will acquire, by either fee title and/or conservation easement, up to 500 acres of land in northern or western Suisun Marsh with the exact location dependent upon willing sellers. The choice of this area for restoration was based upon the high potential benefit for native and at-risk species, contiguity with non-urban or similarly-managed lands, the low potential for conflict with neighboring land use, the low risk of downstream flooding, and the low risk of negative salinity changes. The established Environmental Coordination Advisory Team list of selection criteria, in accordance with the Suisun Charter Implementation Plan, will be used to identify parcel(s) that are appropriate for tidal marsh restoration. Parcels must have the potential to include all features of a fully functional, self-sustaining tidal marsh including tidal sloughs and low, middle, and high marsh zones.
Year 10 Activities: Identify parcels for acquisition.
Year 10 Cost: $926,869.64
Year 11 Activities: Identify parcels for acquisition and proceed with property acquisition tasks.
Year 11 Projected Cost: Funded in Year 10
Funding Source: Prop. 84
Agencies: DFG, WCB
Task Category: Implementation

Activity: Technical Modeling of Delta Water Flows for Fish Habitat. Philip Williams and Associates (PWA) will evaluate the effects of water operations and wetland restoration on native fish habitats using modeling and analytic methods. Indicators of fish habitat will be developed for use during the study and are expected to include water levels, discharge, velocity, water quality (water turbidity, temperature, and salinity), and area of open/water wetland habitats. As part of the restoration assessment, PWA will provide a conceptual evaluation of restoration feasibility. PWA will assist DFG in assessing how the restoration habitat responses will benefit or harm native fish populations of interest, including delta smelt, longfin smelt, fall/late-fall, spring and winter runs of chinook salmon, steelhead, splittail, and white and green sturgeon.
Year 10 Activities: N/A
Year 10 Cost: N/A
Year 11 Activities: Provided: PWA will evaluate the effects of water operations and wetland restoration on native fish habitats using modeling and analytic methods.
Year 11 Projected Cost: $600,000
Funding Source: Prop. 84
Agencies: DFG
Task Category: Planning and Research

Activity: Terrestrial Weed Eradication Monitoring Protocol. Implement monitoring of Arundo eradication sites for restoration success.
Year 10 Activities: Monitoring of Arundo eradication sites for restoration success.
Year 10 Cost: $111,000
Year 11 Activities: Continue Year 10 Activities.
Year 11 Projected Cost: Funded in Year 10
Funding Source: Prop. 204
Agencies: DFG
Task Category: Monitoring

Activity: UCD Project Review Office Services. Contract with UC Davis to provide support in technical and peer reviews, workshops, training, and other relevant activities.
Year 10 Activities: Provided: 1) management of technical peer reviews of ERP projects, proposals, reports, conceptual models, and other work products; 2) coordination and facilitation of meetings, workshops, conferences, and related events; 3) development of training courses to address specific needs of the ERP; 4) development of seminar speaker series in subjects of concern to ERP; 5) development of white papers and other informational documents; 6) technical writing and editing; 7) development and maintenance of data management and web-based information systems.
Year 10 Cost: $3,999,997
Year 11 Activities: In addition to Year 10 activities support to ERP's 2010-2011 PSP.
Year 11 Projected Cost: Funded in Year 10.
Funding Source: Prop. 84
Agencies: UCD
Task Category: Planning and Implementation

Activity: Wildlife Conservation Board ERP Acquisitions.
Year 10 Activities: Support for acquisitions.
Year 10 Cost: $100,000
Year 11 Activities: Support for acquisitions.
Year 11 Projected Cost: $100,000
Funding Source: Prop 84
Agencies: WCB
Task Category: Implementation

Activity: Yolo Heritage Program. Yolo County is completing the Yolo Heritage Program Plan, a county wide NCCP and HCP. The funds would be used to complete the Yolo Heritage Program Plan and integrate it with the BDCP currently under development.
Year 10 Activities: N/A
Year 10 Cost: N/A
Year 11 Activities: Complete the Yolo Heritage Program Plan and integrate it with the BDCP.
Year 11 Projected Cost: $500,000
Funding Source: Prop. 84
Agencies: DFG, Yolo County
Task Category: Planning

Activity: Yuba City Fish Screen Project. The purpose of this project is to construct a new 74 cfs intake structure for the City of Yuba City that includes a fish screen and increased diversion capacity. The new facility will be designed to 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.

Year 10 Activities: Work has not been started due to delay in bond funds.

Year 10 Cost: $500,000

Year 11 Activities:

- Construction of a screened 74 cubic feet per second (cfs) (48 million gallons per day (mgd)) capacity intake structure on the Feather River just upstream of the current unscreened intake;
- Construction of a 54-inch diameter underground pipeline from the new intake structure to the Low-Lift Pump Station (LLPS);
- Removal of the existing traveling screen inside the existing LLPS structure;
- Improvements to the existing LLPS to support auxiliary equipment (i.e., air receivers and control panels for the air-burst cleaning system, manifold piping, etc.) for the new fish screen and an updated facade to protect equipment from the elements and vandalism;
- Removal of the two existing unscreened 37 cfs (24 mgd) intakes; and
- Improvements to the existing road to enable access during winter months and storm events.

Year 11 Projected Cost: Funded in Year 10

Funding Source: Prop. 84

Agencies: DFG

Task Category: Planning and Implementation

Table 2 lists the types and number of projects funded by the ERP through Year 10. Note that most of the projects provide multiple benefits; the table below merely lists them by the primary type of work being done. Specific information about any specific project may be found at the ERP website: http://nrm.dfg.ca.gov/ERP/projects.aspx

Table 2. Types and Number of Restoration Projects Funded by ERP Through Year 10

Type of Restoration Project	Amount Approved	Project Count
Riparian Habitat	$ 158,797,237	79
Fish Screens	$ 119,488,148	68
Ecosystem Water and Sediment Quality	$ 96,844,767	98
Hydrodynamics, Sediment Transport, and Flow Regimes	$ 70,981,252	43
Upland Habitat and Wildlife Friendly Agriculture	$ 38,871,142	5
Fish Passage	$ 35,565,587	6
Local Watershed Stewardship	$ 34,900,850	78
Shallow Water and Marsh Habitat	$ 34,076,836	40
At-Risk Species Assessment	$ 25,954,679	28
Non-Native Invasive Species	$ 25,044,914	19
Administrative or Program Support	$ 23,374,651	19
Harvestable Species Assessment	$ 17,958,478	28
Technical Support	$ 5,866,996	8
Environmental Education	$ 5,363,590	28
Environmental Water Management	$ 5,348,182	6
Lowland Floodplains and Bypasses	$ 4,796,428	4
River Channel Restoration	$ 3,473,610	2
Estuary Foodweb Productivity	$ 1,239,240	2
	$ 707,946,588	561