Appendix B: Evaluated Project Descriptions and Multi-Species Conservation Strategy Milestone Linkages

This table presents a compilation of the ERP, Water Quality Program and Watershed Program contracts of the CALFED Program, and AFRP and CVPIA contracted projects reviewed as part of the Milestone assessment. This table identifies projects by their appropriate contract or program ID number, presents a description of each project based on information obtained from individual contracts, and lists associated milestone number linkages. All projects listed in this table were reviewed to determine any linkages to the milestones, and subsequent progress being made by each project towards those milestones. Associated linkages were derived from rationales presented in Appendix A.

Project ID Number	Title	Description	Milestones
ERP-95-M01	Battle Creek - Interim Flow Restoration	Buy small hydro from Page, screen diversion in lower river; remove blockage to migration and restore spawning habitat and flow (3cfs to 50 cfs at Wildcat Diversion). Benefits to Winter-run Chinook and other anadromous species. Phase 1 Tasks include: 1) Site preparation for project; 2) modernize water conveyance system between Coleman Hatchery and Coleman Powerhouse tailrace; 3) construct fish barrier to exclude adult salmon from Coleman Powerhouse; 4) construct fish screen on Eagle Canyon Canal; 5) expand Coleman Hatchery egg facilities; 6) implement interim flow schedule in lower elevations reaches of Battle Creek. Phase 2 tasks include:1) Construct fish screens on Wildcat, North Battle Creek Feeder, Coleman, Inskip and South Diversions; 2) improve fish ladders at Eagle Canyon, wildcat, North Battle Creek Feeder, Coleman, Inskip and South Diversion to function at higher flows; and 3) install permanent bypass flows at all PG &E Battle Creek diversions.	59D, 62F, 64A
ERP-95-M02	Durham Mutual Fish Screen & Ladder Project	This project will provide funds for completion of a fish ladder and screen located on Butte Creek east of Chico. In addition to construction of the new structures, the Durham Mutual Water Company will also purchase riparian and appropriative water rights for the middle portion of Butte Creek. Purchase of water rights will ensure sufficient instream flows during critical spring-run Chinook salmon spawning and migration periods of the year. Funding from this proposal will also go to hire a project manager who will be responsible for completing the project, including permitting, engineering designs, budgeting, cost control, reporting, and oversight. Tasks include: 1) project management; 2) Environmental documentation and permits; 3) Surveying and mapping; 4) Geotechnical Investigations; 5) fluvial morphologic surveys; 6) project feasibility; 7) financial feasibility; 8) Engineering design; 9) construction management.	67J, 72A
ERP-95-M03	Construct Fish Ladder on Parrott-Phelan Dam	This project is a portion of the action that will lead to the replace the existing fish ladder at the Parrott-Phelan Dam on Butte Creek to improve fish passage for anadromous fish. The project will be conducted in several stages beginning in the fall of 1994 and will be completed in 1995. Funding under this project will cover engineering and design, construction, and construction oversight costs.	67J
ERP-95-M04	Gravel Restoration Project	This project will restore portions of the Sacramento River to improve spawning success for Chinook salmon by introducing spawning size gravel below the Keswick Dam on the Sacramento River. This project would involve trucking in gravel to the site and dumping it into the river. High river flows would eventually spread it downstream for use by salmon.	58A
ERP-95-M05	M&T/Parrott Pumping Station and Fish Screen Project-Relocation Construction	This project is a phase of a program to replace the existing unscreened M&T Chico Ranch Pump Station on Big Chico Creek. A new irrigation 150 cfs pumping facility will eventually be built on the Sacramento River just downstream of the confluence with Big Chico Creek. Task for this contract include: Construction surveys; subsurface geotechnical surveys; environmental documentation; preliminary project design, develop pre-purchase equipment documentation; and select contractor. Tasks include: 1) Surveying; 2) geotechnical evaluation; 3) Environmental documentation; 4) preliminary design, 5) equipment pre purchase documents; 6) contractor prequalification; 7) Final design; 8) Permits; 9) bidding services; and 10) construction management.	72B

Project ID Number	Title	Description	Milestones
ERP-95-M06	Implementing Programs to Reduce the Use of Pesticides and Fertilizers in Sacramento and San Joaquin Watersheds (BIOS)	This is a three year information and technology transfer pollution prevention program for eliminating the use of diazinon and reducing other pesticides used in California almond production. Tasks include: 1) Hire Farm Advisor; 2) Provide ongoing technical and financial support to expansion cooperator through farm visits, administration of discounts programs on available products, cost-share programs, monthly information meetings and newsletters; 3) Field monitor 9 BIOS demo sites; 4) development of management teams in each expansion county; 5) community outreach for 2 year grower recruitment; 6) Grower recruitment for 2nd year BIOS expansion with demo field days, and development of customized farm plans.	107E, 107F, 109B
ERP-95-M07	Suisun Marsh Wetland Diversion Screening Project (Phase 1)	This project is Phase 1 (diversion evaluation and selection) of a program to construct fish screens on 5 diversions in the Suisun Marsh. The program consists of an entrainment assessment and wetland diversion screening assessment. The entrainment study will determine the magnitude of entrainment of winter-run Chinook salmon, delta smelt, longfin smelt, and Sacramento splittail for various diversions in the Suisun Marsh. Entrainment of other races of salmon and steelhead will also be determined. Tasks for each evaluation are: The entrainment evaluation consists of: 1) diversion evaluation, 2) reconnaissance and diversion selection, 3) fyke net evaluation; and 4) a mark-recapture evaluation. The diversion evaluation will determine which ones qualify for modification. Reconnaissance and diversion selection will consists of selecting 15 diversions with the greatest potential to divert the target species. Selection will be based on criteria such as location and orientation.	44B, 44C
ERP-95-M08	Winter-run Chinook Salmon Captive Broodstock Program	The primary objective is to contribute to the development of molecular and statistical tools for stock discrimination among Central Valley Chinook salmon. Tasks include: 1) Identification of winter Chinook among adult salmon captured in the mainstem Sacramento River or in Battle Creek for possible use in artificial propagation or for relocation; 2) Continue to assist in the design of pedigree mating systems for wild-caught and captive broodstock winter run to ensure genetic integrity of progeny and avoid possible negative impacts of supplementation on the wild/natural population; 3) Assistance in the development of a winter Chinook genetic management plans; 4) Provide updates of all research advancements; 5) Molecular genetic identification of Spring Chinook; and 6) Verification of baseline population molecular characterization; testing and verification of diagnostic model WHICH-RUN.	112B
ERP-96-M01	Construct Siphon & Associated Improvements.	This project includes the construction of the Butte Creek Siphon and a number of associated delivery improvements to allow removal of four diversion dams on Butte Creek to enhance fish passage and augment Butte Creek flows while maintaining water deliveries to existing western Canal WD customers. Task include: Removal of McGowan and McPherrin Dams on Butte Creek; construction of a siphoned under Butte Creek; construction of a well to replace delivery from Butte Creek; construction of a delivery facility for Feather River water to Western Canal; construction of connection of Llano Seco Refuge to Western Canal Water District system; construction of new canal from Little Butte Creek to DFG Wildlife refuge; and construction of delivery structure from Western Canal to Little Dry creek drain near Butte Creek.	67J
ERP-96-M02	Prospect Island - Shallow Water Habitat/Wetlands Restoration Plan	Design, implement and monitor restoration of shallow water habitat/wetlands on Prospect Island.	9A, 13I, 13K

Project ID Number	Title	Description	Milestones
ERP-96-M03	Riparian Habitat Restoration Verona-Collinsville (Phase 1-Feas.)	This project represents Phase 1 of the Lower Sacramento River Riparian Habitat Restoration Project which ultimately aims to increase the amount of shaded riverine aquatic habitat through revegetation of selected sites along the Sacramento River. Phase 1 will support completion of a feasibility study to identify potential sites of which five will be chosen for revegetation. Plans and designs for revegetating these sites will be developed to a level of detail to estimate the costs for plants at the water/revetment interface. Inwater habitat, such as berms and fish groins, will also be considered and evaluated. One or more of the candidate sites will be developed further as a demonstration project. An important goal of this project is to evaluate the impact, if any, that riparian habitat restoration has on both the Sacramento Flood Control System and the non-project levees in the Delta and adjoining areas. Tasks include: 1) Develop site selections criteria; 2) Develop 5 different vegetation types of shaded riverine aquatic habitat - Berm planting, Remediate damage site, offset or setback levees, preservation of existing, and combinations of these; 4) Maintain flood reduction; and 5) develop and construct demonstration site.	13I, 13K, 62G
ERP-96-M04	Princeton Pumping Plant Fish Screen (Phase 1-Feas.)	This project will prepare a feasibility study, preliminary design, design criteria and a preliminary cost estimate for the final design of a positive barrier fish screen Reclamation District 1004's Princeton Pumping Plant, the District's primary water diversion on the Sacramento River. The goal of the project is to decrease the number of fish being entrained by the diversion facility to help increase the genetic diversity of the species. The final phases of this project were funded under ERP-97-C02. Tasks include: 1) Engineering and design; 2) analysis of benefits associated with the design and installation of a positive barrier screen effectiveness in reducing entrainment losses; and 3) legal services for contract agreements, right-of-way acquisition and possible condemnation procedures.	72A
ERP-96-M05	Sacramento River Princeton-Codora-Glenn Irrigation District and Provident Irrigation District Fish Screen (Phase I: Feasibility Study/Engineering)	Princeton-Codora-Glenn Irrigation District and Provident Irrigation District will investigate the feasibility of consolidating three existing pumped diversions along the Sacramento River into one new diversion that would be equipped with state of the art fish screens. Work performed during the period includes preliminary engineering, mapping, geotechnical and fluvial morphologic investigations, and environmental documentation. Tasks include: 1) Project management; 2) Environmental compliance; 3) Surveying and mapping; 4) geotechnical investigation; 5) fluvial morphologic investigation; 6) Project feasibility; 7) Fiscal feasibility; 8) Engineering design; 9) Construction management; 10) contract negotiations; 11) feasibility of construction and equipment installation; and 12) feasibility of demolition of existing pump.	72A
ERP-96-M06	Cosumnes River Preserve (Valensin Ranch Acquisition)	Acquire the Valensin ranch and include it in the Cosumnes River Preserve to protect the few remaining examples of Central Valley topography without significant human intervention including 500 acres of seasonal and permanent wetlands, 270 acres of mature, closed canopy valley oak forest and 60 acres of vernal pools. Tasks include: 1) acquisition of agricultural easements 940 acres; 2) implement controlled grazing plan; 3) install fencing to protect Badger Creek riparian area; 4) evaluate feasibility of installing a livestock watering device near the Middle Fork of Badger Creek for rotational grazing; and 5) plant cottonwood and willow samplings as necessary in riparian areas.	5B, 12A, 14C

Project ID Number	Title	Description	Milestones
ERP-96-M07	Princeton-Codora-Glenn Irrigation District and Provident Irrigation District Pumping Station and Fish Screen Project (Phase II: Construction)	This project will provide funds to complete construction for the consolidation and fish screening of 3 pumping sites in the Princeton-Codora-Glenn Irrigation District (PCGID) and Provident Irrigation District (PID). For several reasons, retrofitting of the existing facilities was not feasible. The proposed alternative is to consolidate the three sites into one pumping facility and screen this facility with a state-of-the-art fish screen. To this end, a feasibility study has been conducted, and environmental documentation under CEQA and NEPA has been completed. This project will provide funds for construction work to consolidate the plants and screen the new plant's diversion structure. Implementation of the proposed project will protect outmigrants of winter-run, spring-run, and fall-run salmon and enhance the visual and aesthetic attributes of the Sacramento River. The preliminary design phase (Phase I) of this project is funded under ERP-96-M05. Tasks include: 1) project management; 2) environmental documentation; 3) Design and construction surveys; 4) project feasibility; 5) Engineering design; 6) Construction management; and 8) demolition of existing pumps.	72A
ERP-96-M10	Predicting the Evolution of Ecological Functions from Restoration of Diked Wetlands in the Sacramento River/San Joaquin Delta	This project will analyze historically-breached dike wetlands in SF Bay-Delta as a means to predict the feasibility, patterns and rates of restoration to natural function that would be expected from breached-dike restoration strategies. Tasks include: development of conceptual model, compilation of historic and extent data on wetland histories and status and identification of study sites; field investigations (site history, wetland processes, performance as fisheries habitat); synthesis and recommendations.	1A, 1B, 112B, 112D
ERP-96-M11	Applied Research to Identify Chinook Salmon Runs via Genetics	In support of applied research to identify Chinook salmon runs with genetics, this project will provide all the husbandry necessary to rear the test fish to maturation. Tasks include: 1) providing broodstock personnel, 2) supplies, 3) genetic molecular analysis; 4) equipment; and 5) project management.	112B
ERP-96-M12	Battle Creek - Chinook Salmon & Steelhead Restoration Study	The information provided by this research will complete an overall watershed plan for implementing the Battle Creek Salmon and Steelhead Restoration Project, comprised of the "community plan" being conducted by the Western Shasta Resource Conservation District (ERP-96-M25) and this "technical plan". This research from this project will include: 1) a GIS system of physical features of interest and technical data; 2) a management plan for opening the Coleman National Fish Hatchery fish barrier that addresses genetic and disease implications of rebuilding the remnant populations; 3) an updated series of habitat analyses for sequencing restoration actions; and 4) monitoring of water temperature, disease organisms, genetic characteristics, and riparian habitat and gravel conditions using aerial photography.	62F, 64A, 67D, 69B
ERP-96-M13	Yolo Bypass Habitat Restoration Study	The objectives for this study are to examine the relationship between the Yolo Bypass and the rest of the Estuary and to develop recommendations for restoration actions that would improve Bypass habitat for fisheries and other aquatic organisms. The ecological dynamics pertinent to fisheries of three hydrologic phases in the Yolo Bypass will be examined: Inundation, drainage and seasonal pond.	54B
ERP-96-M15	Invasion of the Bay-Delta Estuary by Introduced Species-Introduction of Non-indigenous Aquatic Species Research Program	This project is the preparation of five reports which will serve as the basis to begin an overall monitoring and research program of nonindigenous species in the Bay-Delta estuary. Tasks include: Development of a monitoring program for nonindigenous species; assessment of priorities for control of Nonindigenous Marsh plants; assessment of the potential range and abundance of zebra mussels in California; an evaluation of the status of ballast water invasions; and an examination of post-invasion control mechanisms.	20A

Project ID Number	Title	Description	Milestones
ERP-96-M16	Sacramento River and Major Tributaries Corridor Mapping Project	The California State University, Chico Geographic Information Center will create a GIS package detailing riparian corridors along the Sacramento river and its major tributaries in portions of Glenn, Sutter, Colusa, Yuba, Yolo, and Sacramento Counties. Tasks include: 1) obtain infra-red and enlargement aerial photographs; develop base-maps; interpret vegetation and ground-truth; digitize photo/vegetation information; develop GIS files; and complete the USVSCPP coverages.	59A, 59B, 60A, 60G, 62G, 112B
ERP-96-M17	Yuba River Fish Screen Replacement	This project will fund the position of a project manager to oversee development of design and construction plans, and manage the construction process for a flat plate, wedge wire fish screen at the Browns Valley Irrigation District diversion facility approximately 10 miles northeast of Marysville on the Yuba River. The Yuba River is thought to contain essentially the only wild steelhead fishery remaining in the Central Valley. This project will help to maintain both steelhead and Chinook salmon stocks in the Yuba River which will conserve the genetic diversity of these stocks and species. Preliminary engineering studies and environmental analysis are already underway. Tasks include: 1) appoint project manager; 2) Acquire permits; 3) Prepare bids; 4) construction and fabrication; 5) Complete instream work; and 6) project operational.	72A
ERP-96-M19	Wilkins Slough Fish Screen Project - Phase 2 Feasibility Study and Preliminary Design	This study is Phase 2 of a 5 phase project to install a positive fish barrier intake screen at Reclamation District 108's (RD108) Wilkins Slough Diversion on the Sacramento River for protection of Chinook, splittail, and other fish species. This phase will provide funds for preliminary design of a fish screen. Phase I is complete. Phase 2 includes the following tasks: 1) analyzing each element to insure that the intake screen meets RD108 water requirements, and NOAA Fisheries/DFG design criteria; 2) assessing the operational constraints and reliability; 3) quantifying the capital, operating, and maintenance accosts; 4) developing a specific schedule for design and construction; and 5) identifying specific construction impacts for completing all environmental documentation and permitting. Phase III will included completing of engineering design specifications. Phase IV is construction of the intake screen, and Phase V will include field documentation and monitoring. Phase IV and V were funded under ERP-97-C01. Tasks include: 1) Hydraulic modeling; 2) Review existing data; 3) develop design criteria; 4) develop design alternatives and components; 5) evaluate project alternatives; 6) geotechnical and corrosion investigation; 7) cost estimate and engineering report; and 8) environmental documentation.	72A
ERP-96-M21	Adams Dam Fish Screen & Ladder Feasibility Study	This project provide funds for the preliminary design work for constructing a fish screen and ladder feasibility study at Adams Dam on Butte Creek. This project includes the following tasks: 1) project management, 2) project coordination, 3) environmental documentation, 4) permitting, 5) surveying and mapping, and 6) engineering design work. The final phase of this project was funded under ERP-97-M04.	67I, 67J, 72A
ERP-96-M22	Gorilla Dam Fish Screen & Ladder	This project will provide funds to conduct a feasibility analysis for construction of a fish screen and ladder on the Gorrill Dam on Butte Creek. Construction was funded under ERP-97-M03. Tasks include: 1) project management; 2) cost estimation; 3) preliminary design work; and 4) completion of the required environmental documentation.	67I, 67J, 72A
ERP-96-M23	Innovative Fish Screen for Small Diversions Demonstration Project	This project will evaluate the feasibility of the application of an overflow weir horizontal profile bar fish screen design with .05 mm openings for smaller (less than 7cfs) diversions in the Central Valley of California. Tasks include: 1) Laboratory prototype hydraulic testing; 2) laboratory prototype biological performance evaluations; and 3) on site field testing.	72A

Project ID Number	Title	Description	Milestones
ERP-96-M24	Butte Creek - Watershed Management Strategy Plan	This project provides funds for the development of the Butte Creek Watershed Management Strategy to address concerns over endangered species protection, water supply demands, land use practices, recreational impacts, fire and flood hazard, and urban development in the watershed. This Strategy is designed to accomplish the goal of maintaining a sustainable river ecosystem for the Butte Creek watershed while specifically addressing the concerns of stakeholders on 7 topics: education and public outreach, recreation, fisheries, fuel load/timber management/roads, groundwater and water supply, water quality, and flooding. The Strategy will serve as a guideline for actions in the watershed by spelling out specific implementation actions meant to meet clearly identified goals on each of these topics while simultaneously addressing stakeholder concerns. Tasks include: 1) data collection; 2) scoping meetings; 3) prepare GIS mapping; 4) prepare existing conditions report; 5) Workshops; and 6) Prepare draft watershed management strategy.	62B, 65B
ERP-96-M25	Battle Creek Watershed Management Strategy Project - Chinook Salmon & Establish Watershed Conservancy	This project will provide funds to create a watershed plan for Battle Creek. Special attention will be given to focusing on collaboration between stakeholders through involvement from local landowners; local, state, and federal agencies; and other interested parties and groups. The watershed plan will not duplicate the existing "technical plan" (ERP-96-M12) addressing hydropower, water flow, hatchery production, and water supply issues. Tasks include: 1) identification of factors affecting spring-run Chinook salmon aquatic habitats; 2) recommendation of projects and programs to address these factors; 3) description of a monitoring program to evaluate current conditions and results from such projects and programs; 4) combine "technical plan" and "community plan" for a two-tiered plan for the watershed; and 5) public outreach includes organize meetings; tours of potential restoration sites or significant sites; development of articles for publication in local newspapers; arranging on-site television coverage of restoration plans/activities; development of written materials for use in meetings and disseminating to interested parties.	57G, 62F, 64A, 66A, 67D, 69A, 69B
ERP-96-M26	Prospect Island - Develop Monitoring Plan	A monitoring plan to evaluate the biological, chemical and physical effects of the Prospect Island Restoration Project will be developed under this contract. The monitoring plan will evaluate the extent of benefits of conversion of agricultural land to shallow water tidal habitat to aquatic, terrestrial and avian species. Monitoring elements include fisheries, wildlife, vegetation, phytoplankton, zooplankton, benthic, water quality, and bathymetric parameters. Tasks include:1) Monitoring plan outline - literature search, establish monitoring objectives, form tech ad groups for various elements of monitoring plan outline; 2) Draft monitoring plan - develop monitoring plan from outlines submit for review and 3) Final monitoring plan	112A, 112B
ERP-96-M27	North Delta Area-Inventory of Rearing Habitat for Juvenile Salmon	This project is an inventory of rearing habitat for juvenile Chinook salmon and other native fishes in the northern Sacramento-San Joaquin Delta. Tasks include: 1)Selection of sampling sites; 2) appropriate surveys, and 3) interpretation of survey results.	112B
ERP-97-B01	Watershed Improvements/Sediment Stabilization (Deer, Mill, Antelope Creeks)	This project represents Phase I of a two-phase effort to reduce generation of fine sediment from upland and riparian road-related sources in the Deer, Mill, and Antelope Creek watersheds. Phase I would update and expand existing problem road inventories, leading to the development of a comprehensive road management plan for the National forest portion of those watersheds. Phase I would prepare for Phase II, which would consist of extensive construction contracts to remedy road-related problems identified in Phase I and to complete land acquisition actions identified in Phase I. Tasks to be completed during Phase I include: 1) stabilizing of known problem areas; 2) inventorying, designing, and planning stabilization actions for remaining road-related problems; and 3) identifying willing sellers or private parties interested in land exchange, with priority to acquiring riparian parcels.	58H

Project ID Number	Title	Description	Milestones
ERP-97-B02	Sedimentation Movement and Availability and Monitoring in the Delta	Describe the movement and availability of sediment in the Delta, as needed for habitat restoration. The objective of this project is to describe the movement and availability of sediment for ecological benefits. Tasks include site installation of sediment measurement devices, data collection, and data analysis.	1A
ERP-97-B03	Liberty Island Acquisition	Protect and restore tidally influenced wetlands, riparian corridors, and upland habitats. This project would acquire the 4760 acres of Liberty Island. Tasks include: 1) TPL will purchase property and deed over to the Service; and 2) Service will complete NEPA and take ownership of property.	9A
ERP-97-B04	Acquisition and Restoration of Refuge lands (SJR NWR)	This is Phase 1 of a project which acquire lands for protection and eventual restoration of riparian corridors, and other wetland habitats along the San Joaquin River. Second phase funded as ERP-01-N08. Phase 1 tasks include:1) land acquisition/permanent easement; 2) site clean up; and 3)habitat restoration planning and engineering studies.	87C, 94B, 95A, 112A, 112B
ERP-97-B05	Bear Creek Floodplain Restoration Demonstration Project (SLNWR)	The purpose of this project is to restore unimpeded overflow to existing and future dedicated wetlands along the San Joaquin River system to the extent that impacts to adjacent lands and facilities can be mitigated and accepted. Tasks include: 1) Map baseline conditions and develop topographic map; 2) Refine nonstructural alternatives for floodplain restoration project; 3) Identify lands for transient storage of flood waters;4) Calculate Bear Creek flood capacity; 5) Estimate local and regional flooding scenarios; 6) evaluate geomorphic effects of flood hydraulics; 7) Describe ecological benefits of flood plan; and 8) develop criteria for identifying additional transient flood storage sites.	87D, 89A
ERP-97-B06	Assessment of Organic Matter in the Habitat and its Relationship to the Food Chain	This project will provide an assessment of the capacity of different Delta habitats to support the nutritional requirements of the invertebrate biota that sustain upper trophic level organisms. Tasks include:1) measurements of food quantity/quality and sources, 2) compilation of budgets of food production and losses, 3) analysis of long-term IEP measures of plankton populations; 4) development of a numerical model of phytoplankton and nutrient dynamics in the Delta, and 5) development of a synthesis of results to define the capacity of Delta habitats for supporting secondary production.	1A
ERP-97-C01	Wilkins Slough Pumping Plant Fish Screen Project	This project provides funds for Phase 4 of ongoing efforts to construct a positive fish barrier intake screen at Reclamation District 108's diversion structure at Wilkins Slough for the protection of Chinook, splittail, and other fish species. The fish screen project was divided into five phases. Phases 1,2 and 3 are complete (ERP-96-M19). Phase IV consists of construction and operational start-up of the positive barrier fish screen, and Phase V includes performance testing and evaluation of the fish screen facilities to demonstrate compliance with NOAA Fisheries/DFG design criteria and long term operations capabilities. Tasks include: 1) Project management; 2) Environmental documentation; 3) Design and construction surveys; 4) Engineering design; 6) Construction management and 7) post construction testing to ensure functioning operating unit.	72A
ERP-97-C02	Princeton Fish Screen Construction	This project provides funds for Phase 4 of the installation of a positive barrier fish screen for Reclamation District 1004's unscreened Princeton Pumping Plant diversion on the Sacramento River. This project consists of five phases. Phase 1,2,and 3 are complete (ERP-96-M04). Phase 4 consists of the construction and operational start-up of the fish screen. Tasks for Phase 4 include: 1) Construction; 2) utility relocations; 3) construction supervision; 4) Legal and administration; and 5) geotechnical and surveying.	72A

Project ID Number	Title	Description	Milestones
ERP-97-C03	Watershed Management Planning for Sacramento River Riparian Program	This project will provide funds to hire a coordinator to begin implementation of the riparian ecosystem portion of the Upper Sacramento River Fisheries and Riparian Habitat Management Plan (SB1086) . At the end of this 2-year contract, it is anticipated that the non-profit entity will be established and able to do its own staffing and fundraising. Tasks include: 1) Hire coordinator; 2) establish a non-profit riparian land management entity to coordinate SB1086 activities; and 3) coordinate an associated public outreach program to resolve outstanding issuers in developing site-specific plans for implementing natural process and meander zone restoration.	59A, 59B, 60A, 62G
ERP-97-C04A	Selected Fish Screens on Sacramento River and Tributaries	This project will provide funds to install two demonstration fish screens on previously unscreened or inadequately screened water diversions on the Sacramento River between Red Bluff Diversion Dam and Keswick Dam. The results of the demonstration fish screens will be used to encourage other private owners to participate in voluntary screening of their diversions. Overall project elements include: developing a priority list for screening smaller water diversions on the upper Sacramento river; reducing fish entrainment associated with small water diversions on this critical reach for juvenile salmonids; installing fish screens on the two candidate diversions; evaluating the screens; and soliciting funds and support to screen remaining diversions via executing an outreach program. Tasks include: 1) develop priority list for screening; 2) select sites, obtain permits, complete subcontract, design, construct, install and evaluate fish screens on two diversions; 3) solicit funds for support for screening other diversions; and 4) install new fish screen at Upper Mill Creek diversion; South Stanford Vina Diversion, Lake California pumps on Sacramento River, Gover Fish Screen on Battle Creek, and Canyon Mouth diversion on Deer Creek.	72A, 72B
ERP-97-C05	Effects of Wetlands Restoration on Methyl Mercury Levels	This project will evaluate the extent of methyl Hg produced through the restoration of previously diked lands into wetlands. Area of study comprises representative sites throughout the Delta. Tasks include inventory of sites, site evaluations and history, evaluation of the potential methyl Hg production, and recommendations for related restoration plans.	30A, 32C, 48, 77A, 79A, 106A
ERP-97-C06	Contaminant Effects on Smelt	This project will evaluate the effects of contaminant exposure on delta smelt populations. Tasks include conducting analyses to evaluate relationships between tissue and genetic condition and growth rate, and coordinating field sampling for additional specimens. Geographic areas of study correspond to range of smelt: lower Sacramento & San Joaquin Rivers, Delta, Suisun Bay & Marsh, San Pablo Bay, and Napa River.	37A, 37B, 83A, 83B, 112B
ERP-97-C07	Preventing Exotic Introductions from Ballast Water	This project is aimed at preventing the introduction of new aquatic nuisance/exotic species into the Bay-Delta Estuary and to ensure compliance with the National Invasive Species Act of 1996. The goals of this project are to 1) to provide education on NIS and ballast management issues; 2) to educate the maritime industry about ballast management practices and technologies, and to facilitate communication an cooperation between industry, regulators, and researches; and 3) to facilitate industry interest and participation alternatives to open water ballast exchange. Tasks include: formation of an advisory group representing various involved parties; development and distribution of ANS publications; development and hosting of forums on ballast practices; newsletter initiation; website development and maintenance; and the creation of presentations and participation in other forums. This two-year project will be conducted in cooperation with several other local support groups, related programs, and public agencies.	20A

Project ID Number	Title	Description	Milestones
ERP-97-C08	San Joaquin River Real-time Water Quality Management Program	Increase water user awareness of real time data and its beneficial use This project will expand water quality monitoring activities in the San Joaquin River to enhance water resource management. Tasks would include installation of conductivity and temperature sensors, operate and maintain monitoring stations, conduct periodic sampling, and provide modeling/informational support.	85B, 112D
ERP-97-C09	Developing a Genetic Baseline for San Joaquin Salmon	Characterize the genetic makeup of San Joaquin River Fall run Chinook salmon. This project will develop a genetic baseline for fall run Chinook salmon in the San Joaquin River Basin. Tasks include developing analytical methods for revealing DNA, acquiring baseline data, evaluating difference among spawning stocks, developing statistical methods for estimating relative contributions of stocks to catches in the Delta, and validating the mixed stock analysis.	112B
ERP-97-C11	Gravel at Basso Bridge	Improve the quality and quantity of spawning habitat, use, and durability. This project would place gravel in the Tuolumne River from La Grange Dam to the Basso Bridge for enhancement of spawning habitat. Tasks include site evaluation, gravel placement and monitoring.	86A, 86D, 112B
ERP-97-C12	Evaluation of Alternative Pesticide Use Reduction Practices	Phase II of a program to address pesticide impacts from other agricultural and urban sources. This project will evaluate alternative practices in the use of agricultural pesticides to reduce offsite movement into surface waters. Urban pesticide user education/outreach locus is Stanislaus County; agricultural pesticide education/outreach locus includes all counties whose pesticide use affects Bay-Delta, including Glenn, Colusa, Butte, Sutter, Yuba, Yolo, Sacramento, San Joaquin, Stanislaus and Merced counties. Tasks include: 1) evaluation of alternatives; 2)development of use/management guidelines, modeling, and training/educational workshops; and 3) field surveys to evaluate efficacy of alternative practices.	33C, 33D, 33E, 33F, 49C, 49D, 49E, 49F, 80C, 80D, 80E, 80F, 107C, 107D, 107E, 107F
ERP-97-E01	Watershed Planning (Big Chico Creek)	This project will develop a Watershed Management Strategy for Big Chico Creek to serve as a tool for the protection and restoration of the watershed, with an emphasis on the recovery of special-status fish and wildlife. Phase I and II are funded as a part of this project. Tasks for Phase I include: 1) survey of issues and concerns of stakeholders; and 2) development of a report documenting the existing conditions within the watershed. Tasks for Phase II include: 1) develop the Watershed Management Strategy handbook; 2) identify and develop implementation measures, monitoring protocol, restoration projects, educational programs, and educational projects to improve and provide high-quality habitat for fish and wildlife.	57C, 58H, 59I, 59J, 61B, 62B, 64F

Project ID Number	Title	Description	Milestones
ERP-97-E02	Watershed Planning (Deer Creek) - Implementation Program	This project will provide funds to support ongoing watershed monitoring activities and education programs in the Deer Creek watershed as directed by the Deer Creek Watershed Management Strategy (WMS). This project is considered Phase II of implementing the Watershed Plan. Tasks include: 1) develop preliminary engineering of the evaluation of alternative flood control practices compatible with protection of fish and wildlife; 2) provide electronic equipment; develop necessary GIS layers; create website for monitoring results; 3) develop and disseminate range management program for grazing activities; 4) create emergency response plan for Hwy 32-Deer Creek corridor in event of a hazardous materials spill; 5) develop fire management plan to characterize fire risk assessment, current level of fire protection and pre-fire management projects to control and mitigate sedimentation and habitat loss from wildland fires and 6) develop education and outreach program to land owners and local communities.	57D, 58H, 59I, 59J, 61B, 62B, 64C
ERP-97-M02	Battle Creek Screens and Fish Passage	This project consists of the planning and design phase for construction of fish ladders and fish screens to improve passage of anadromous fish along the North and South Forks of Battle Creek. Installation of fish screens and ladders on Battle Creek will significantly improve fish passage for salmon and steelhead. Tasks include: 1) collection of field data; 2) preliminary design work for fish ladders and fish screens at three sites; 3) reconnaissance investigation work at two other sites; 4) draft CEQA work for all five sites, and 5) pre-reconnaissance work for some alternative fish screen sites.	67D, 69B, 72A
ERP-97-M03	Gorrill Dam Fish Screen and Ladder Project	This project will provide funds for construction of a fish screen and ladder on the Gorrill Dam on Butte Creek. Addition funding from other programs contribute to this project. The feasibility study for this action was funded under ERP-96-M22. Tasks include project management, construction surveys, prepare as-built drawings, construct structures and install equipment, start up and testing and post project performance evaluation.	67J, 67I, 72A
ERP-97-M04	Adams Dam Fish Ladder and Screen Construction	This project will provided funding for continued work on the construction of a fish ladder and fish screen at Adams Dam on Butte Creek. Completion of this project will improve fish passage and habitat for spring-run and fall-run Chinook salmon and steelhead by reducing entrainment. The earlier phase of this project was funded under ERP-96-M21. Tasks in this phase are: 1) project management for engineering and construction, 2) project coordination with collaborating agencies, 3)preparing environmental documentation, obtaining permits, 4) performing surveys for design and construction, 5) preparing construction plans and specifications,6) constructing facilities and installing equipment, 7) preparing operations and maintenance manuals and training operators, and 8) evaluating fish behavior with new facilities.	67J, 72A
ERP-97-M05	Saeltzer Dam Fish Passage	This project is Phase 1 in which permitting and design work will be done in support of replacing Saeltzer Dam on Clear Creek with a "fish-friendly" alternative consisting of a structure lower in height. The program will ultimately improve fish passage to aid in restoring anadromous fisheries resources at Clear Creek and the upper Sacramento River. Tasks include: 1) environmental documentation and permitting; and 2) engineering design.	67D
ERP-97-M06	Hastings Tract Fish Screen (Phase I: Feasibility Study)	This project investigate the feasibility of abandoning the two 48 inch gravity unscreened pipes diverting water from Cache Slough and installing a new gravity intake on the Lindsay Slough end of Hastings Cut. Tasks include: 1) feasibility study and 2) a biological study.	24A, 24B, 24C, 24D

Project ID Number	Title	Description	Milestones
ERP-97-M07	Banta-Carbona Irrigation District Fish Screen Project	Reduce entrainment of outmigrating fish. This project is the for the design and construction of an improved fish screen at the BCID's water diversion facility on the San Joaquin River, in order to reduce associated mortality of out-migrating salmon. **Construction and final testing of fish screen performance for fishery criteria will be completed. Passage effectiveness monitored by DFG. Tasks include: 1) project management; 2) preliminary design; 3) final design; 4) environmental permits; 5) construction management; and 6) construction.	24A, 24B, 24C
ERP-97-M08	Tuolumne River Channel Restoration (Pool 9)	Increase survival of outmigrating smolts. The project will rebuild a select portion of the Tuolumne River channel, at river mile 25.9 where past instream gravel mining created a large deep lake area in the main channel. The channel will be changed from a warmwater predator species habitat to a 400 to 500 foot wide riparian flood plain-recreating a riffle and run pattern that follows the restored meander channel of the river along with native vegetation planted on fill terraces in a mix similar to that found on undisturbed segments of the river. Tasks include: 1) Construction bidding; 2) construction; 3) revegetation bidding; and 4) revegetation.	88A, 88B, 88D, 94B, 95A, 97D
ERP-97-M09	Tuolumne River Setback Levees and Channel/Mining Reach Restoration (7/11 Segment)	Increase survival of outmigrating smolts. This project will fill mining pits and construct setback levees for 6.1 miles along off-stream gravel mining reaches on the Tuolumne River below La Grange Dam, to remove predator habitat and encourage a more natural dynamic riverine morphology and habitat. Tasks include: Project designs, permits, civil engineering, construction, and revegetation.	87C, 88D, 94B, 95A, 97D
ERP-97-N01	Assessment and Implementation of Urban Use Reduction of Diazinon and Chlorpyrifos (Sacramento County)	Characterize baseline temporal and spatial trends of diazinon and chlorpyrifos levels in urban runoff in the Sacramento region. Develop and implement education and outreach programs for residential and other urban users of these pesticides in Sac county This project will identify, evaluate and control the toxicity runoff caused by elevated levels of diazinon and chlorpyrifos within Sacramento County. Tasks include: 1) water quality monitoring to determine baseline conditions, 2) developing outreach/education program for residential and other urban users (through the use of surveys and subsequent evaluations), and 3) performing analyses of the fate, transport and risk assessment for the chemicals.	33A, 33B, 33C, 33D
ERP-97-N02	Sacramento River Floodplain Acquisition - Natural Process Restoration	Increase extent of channel meander and flood zones. Mapping of aquatic and terrestrial habitats. Increase native riparian growth and reduce exotic distribution adjacent to the river. The project funded in 1997 would acquire (via title or easement) approximately 1500 acres of flood-prone lands adjacent to the Sacramento River between Keswick and Verona, to support the river's natural ecological processes. Acquisition only. Tasks include: 1) evaluation of target properties and acquisition, 2) start up stewardship work and 3) initiation of a endowment account for maintenance work.	59A, 59B, 60A, 62G
ERP-97-N03A	Sacramento River Floodplain Acquisition - Riparian Forest Restoration	Increase extent of channel meander and flood zones. Mapping of aquatic and terrestrial habitats. Increase native riparian growth and reduce exotic distribution adjacent to the river. The US Fish and Wildlife Service (FWS) and The Nature Conservancy (TNC) will actively restore 200 acres of flood-prone agricultural lands to native riparian forest along the Sacramento River between Keswick and Verona. Restoration will be conducted on 200 acres of public lands within the 100 year floodplain. All steps will take place in one year and the last three will continue into years 2 and 3. Tasks include:1) site evaluation; 2) restoration plan development; 3) seed collection; 4) plant materials propagation;5) cuttings collection; 6)field preparation; 7)layout; 8)planting; 9) irrigation; 10) weed control; 11) field monitoring, and 12) biological monitoring.	59B, 62G, 112C

Project ID Number	Title	Description	Milestones
ERP-97-N03B	Sacramento River Floodplain Acquisition and Riparian Restoration	Increase extent of channel meander and flood zones. Mapping of aquatic and terrestrial habitats. Increase native riparian growth and reduce exotic distribution adjacent to the river. The Wildlife Conservation Board/Dept. of Fish and Game (DFG) will actively restore 100 acres of flood-prone agriculture lands to native riparian forest along the Sacramento River between Keswick and Verona. This project will increase shaded riverine aquatic habitat and improve degraded instream aquatic conditions. Restoration will conducted on 100 acres of state-owned lands managed by the DFG within the 100 year floodplain. All steps will take place in one year and the last three will continue into years 2 and 3. Tasks include:1) site evaluation; 2) restoration plan development; 3) seed collection; 4) plant materials propagation;5) cuttings collection; 6)field preparation; 7)layout; 8)planting; 9) irrigation; 10) weed control; 11) field monitoring, and 12) biological monitoring.	62G, 112C
ERP-97-N04	Sacramento River Meander Restoration	Increase extent of channel meander and flood zones. Mapping of aquatic and terrestrial habitats. Increase native riparian growth and reduce exotic distribution adjacent to the river. This project will acquire and partially restore flood prone agricultural land (80 acres) to riparian habitat along the Sacramento River in Tehama Country, between Oat Creek and Elder Creek. Tasks include: 1) acquisition/easement rights, 2) restoration planning and 3) implementation on an initial ten acres.	59B, 60A, 62C, 112A, 112C
ERP-97-N05	Restoration Planning (M and N Fork American River, Auburn Ravine, Coon Creek)	This project will develop Coordinated Resource Management Plans (CRMPs) for the North and Middle forks of the American River and the Auburn Ravine Coon Creek watershed. A emphasis will be on protection and restoration of riparian and aquatic habitats, protecting watershed integrity, improving water quality, reducing the risk of catastrophic wildfire, improving wildlife habitat, and improving the ecological functioning of the watershed, including ecological factors such as connectivity with the mainstem Sacramento River and the integrity of watershed processes. Tasks include: 1) assess the status of environmental and human resources in the watersheds; 2) integrate trends in land use an development with watershed planning; 3) assess environmental and human needs, opportunities, and objectives; 4) identify conflicts and alternatives for meeting needs and resolving conflict; 5) evaluate approaches to conflict resolution, 6) emphasizing a balance between long-term environmental needs and 7) planned economic development.	58L, 59N, 62A, 65A, 66F, 76A, 76B, 76C, 76D, 76E, 112A, 112B
ERP-97-N06	Butte Creek Acquisition and Riparian Restoration	The acquired property will be from a known willing seller and consists of critical riparian habitat adjacent to the Ecological Preserve. The Butte Creek Education Project is coordinating restoration efforts and will be responsible for development of an education strategy that will focus on riparian plantings and bank stabilization to recover the quality of the shaded riverine and aquatic habitats. Much of the work will be conducted by students and volunteers from local organizations interested in supporting these efforts. Tasks include: 1) acquisition of real property in the critical riparian corridor adjacent to spawning and holding pools in Butte Creek; 2) development of a management plan for the contiguous DFG-managed Ecological Preserve; and 3) incorporation of the acquired site into the Butte Creek Education Project.	62B
ERP-97-N07	Cottonwood Creek Channel Restoration Planning	This project will restore streambank habitat on Cottonwood Creek Channel, which is currently used as non-natal rearing habitat for salmonids. The project consists of three phases. Phase 1 would involve geomorphic and hydrologic analyses and re-surveys of historic data to document trends. Phase 2 would involve detailed site surveys and restoration projects design development, and Phase 3 would involve project construction. Funding of this project covers Phases 1 and 2. Tasks to be covered in Phase 1 include: 1) compilation of background information, 2) conducting channel surveys/particle size analysis, 3) hydrologic analysis, 4) geomorphic analysis, and 5) report preparation. Phase 2 tasks include: 1) conducting detailed site surveys, 2) design and specification development, and 3) coordination of implementation (permitting, etc.).	57H, 58E, 59E, 62D, 63A, 63B

Project ID Number	Title	Description	Milestones
ERP-97-N08	Lower Mill Creek Riparian Restoration (Phase II)	This project represents Phase II of the Mill Creek Riparian Restoration Project to restore and enhance native riparian vegetation on one or more parcels along Mill Creek. The project has three primary objectives: 1) to help maintain and restore native shaded riverine aquatic habitat for native fisheries and other species; 2) to enhance instream aquatic habitat by moderating water temperatures and reducing erosion, and monitoring effectiveness of planting and erosion control measures; and 3) to engage students and local landowners in restoration activities to demonstrate the feasibility and benefits of ecological restoration and to foster community support for restoration activities. Phase I was funded under ERP-98-F04. Tasks include: 1) Site planning and preproject monitoring; 2) Planting and irrigation system installation; 3) 2-3 years of maintenance and monitoring; and 4) quarterly reports.	64D
ERP-97-N09	Monitoring of Delta Contaminants	Evaluate toxicity and water quality in the Delta. This project would support continuation of the toxicity monitoring program, directed to provide data on contaminants in the Delta that are harmful to fish and other aquatic species. The tasks would include develop a sampling and assessment/monitoring plan, evaluate potential monitoring sites, recruit and train volunteers, and conduct field sampling and laboratory assessment.	37A
ERP-97-N10	Jepson Prairie Restoration and Conservation Plan	Restore habitat along two northwest Delta sloughs and adjacent perennial grasslands at Jepson Prairie. This project will restore SRA, tidal slough habitat (approximately 1 mile), and perennial grasslands (approximately 600 acres) along/adjacent to Barker Slough and Calhoun Cut, and evaluate plans for further habitat restoration as part of developing a habitat corridor to Prospect Island. Efforts include non-native plant controls, new plantings and further restoration planning efforts. Task include: Procure materials and staff training programs to support riparian planting; NIS plant eradication; and develop a site conservation plan which includes a biological assessment, wetland survey, and a threats and opportunity analysis.	7A, 13I, 13K
ERP-97-N11	In-Channel Island Restoration/Demonstration (Phase 1: Permitting and Design)	Demonstrate effective biotechnical methods to reduce erosion of in-channel islands and adjacent delta island banks. This project intends to demonstrate restoration of in-channel islands (Little Tinsley, Webb Tract 3, 10 and 21) in the Delta. Tasks include: 1) pre-construction planning, 2) environmental compliance; 3) design of the restoration plans; and 4) demonstration projects.	11A
ERP-97-N12	Franks Tract Restoration	This project is Phase 1 which includes "preconstruction services" for a larger project to construct low islands in the flooded portion of Franks Tract. The project will ultimately restore approximately 45 acres of flooded subtidal habitat to tidal perennial aquatic habitat which can be adapted to become midchannel islands and shoals habitat. Phase 1 tasks include: 1) coordination for initial study which is being done by JSA; 2) support for permit applications being done by JSA; 3) prepare basis of design document that will address engineering criteria for project; and 3) prepare plans, cross sections and details for habitat islands.	9D, 11A, 11B
ERP-97-N13	Tyler Island Levee Protection and Habitat Restoration Pilot Project	Evaluate alternative vegetative and biotechnical techniques for restoring and stabilizing levee and bank erosion and riparian and shallow water habitat. This project will restore SRA and riparian habitat along 2000 ft of Georgiana Slough and 3000 ft along Mokelumne River on Tyler Island. Tasks include: 1) surveying; 2) the development of a restoration plan; 3) securing plant materials, and 4) project construction.	9B, 13G, 13K, 112A, 112B

Project ID Number	Title	Description	Milestones
ERP-97-N14	Cosumnes Start-up Stewardship and Restoration	This project contributes substantially to the acquisition and conservation of 4600 acres of seasonal wetlands, riparian woodlands, perennial/annual grasslands, fresh emergent wetlands, instream aquatic habitat, shaded riverine habitat and agricultural wetlands. Task 1: Complete the purchase of 2,947 acres in the Cosumnes River's lower floodplain. Key parcels include Shaw (598 acres), Whaley (287acres), Denier (1,234 acres), Park (735 acres) and Bejelland (93 acres); Task 2: complete purchase of McCormack-Williamson Tract (1655 acres); and Task 3: perform initial clean-up, install irrigations systems, and plan for biological monitoring and surveys; Task 4: establish and maintain an endowment account for long-term management of properties within Cosumnes River Preserve.	5B, 12A, 14A, 14C
ERP-97-N16	Bay Point Shoreline Restoration Plan	This project will develop a restoration plan for the Bay Point Regional Shoreline aimed a restoring 35 acres of natural marsh that was diked and partially filled for industrial development land back to tidal salt marsh habitat and natural ecosystem function. EBRPD proposes to contract with an environmental consulting firm to develop a restoration plan for the 52 acre property which contains upland, saline emergent tidal wetlands and disturbed isolated brackish wetlands. Tasks include: 1) consultant contracts for threatened and endangered species analysis, topographic mapping, aerial photograph, hydrologic studies and soils analysis.	39A, 112A
ERP-97-N18	Cullinan Ranch Restoration	This project will restore 1,495 acres of saline emergent wetland habitat at Cullinan Ranch. The restoration will focus on supplying the necessary sediments through accretion to restore saline emergent wetlands at the project site. Research at the Department of Civil and Environmental Engineering at the University of California, Davis also showed that restoration should include breaching the north levee of Cullinan Ranch at three points into Dutchman Slough (this project) and excavation of two 150-foot wide tidal channels from San Pablo Bay into Cullinan Ranch (possible future project). Monitoring and evaluation of this project will be conducted in Part II by the U.S. Fish and Wildlife Service and U.S. Geological Survey, Biological Division. Tasks include: 1) Permitting; 2) Environmental education program; 3) Survey, engineering and design of project area; 4) assemblage of equipment and supplies; 5) tree removal and site preparation; 6) Building demolition; 7) Pump station removal; 8) reinforce southeast levee; 10) Levee breaching of Dutchman Slough Levee; 11) Construction management; and 12) reports.	39B
ERP-97-N19	Tolay Creek Restoration	This project will restore and enhance 435 acres of saline emergent wetlands in the Tolay Creek floodplain for the benefit of threatened and endangered species. This project is located within the San Pablo Bay National Wildlife Refuge and the Tolay Creek Unit of the Napa/Sonoma State Wildlife Management Area. The project will restore two agricultural fields to tidal salt marsh, enhance existing marsh areas, and increase tidal action on Tolay Creek. This will be achieved through construction of channels to connect tidal areas and widening of the creek channel to improve upstream tidal action. This will improve habitat for threatened and endangered species, resident and migratory waterfowl, shorebirds, and passerine birds. The project will also reduce mosquito production and help to mitigate flooding events. Monitoring and evaluation will be conducted for threatened and endangered species, bird species, vegetation, sediment deposition, and channel morphology. Tasks include: 1) Permitting; 2) Survey, engineering and design; 3) Assemblage of equipment and supplies; 4) Grade east levee of Tolay Creek to facilitate drainage; 5) Construct perimeter levee around proposed 53 acre field for DFG pond: 6) Construct new parking area for public access and access gate; 7) Excavate Channel 1; 8) Core and cap Dickenson's Levee; 9) Excavate Channel 2; 10) Dredge channel 3; 11) biological monitoring and report.	39B

Project ID Number	Title	Description	Milestones
ERP-97-N20	Implementing Programs to Reduce the Use of Pesticides and Fertilizers in Sacramento and San Joaquin Watersheds	Increase awareness of farmers to detrimental impacts of synthetic chemicals and demonstrate possible mitigation approaches. This project would expand the BIOS program in Sacramento and San Joaquin valleys with the goal of shifting farming practices to reduce/eliminate use of synthetic pesticides and fertilizers. Education/demonstration will reach into others w/significant almond acreage, including Kern, Fresno, Glenn, and Kings counties. Tasks include 1) planning a media campaign to reduce pesticide use among farmers; 2) upgrade CAFF databases and computers; 3) increase Lighthouse Farm Network coordinators by 2; 4) report to CALFED; 5) implement planned media campaign; 6) Continue to coordinate BIOS in San Joaquin, Madera and Colusa counties; 7) Transition BIOS projects to local leadership; 8) evaluate pesticide use changes as a result of the BIOS project; 9) Offer technical support to farmers through Lighthouse coordinators.	33C, 33D, 33E, 35A, 35B, 80C, 80D, 80E, 81A, 81B, 107C, 107D, 107E, 109A, 109B
ERP-97-N21	Knights Ferry Gravel Replenishment	The goal of this project is to improve the quantity and quality of spawning habitat for fall-run Chinook salmon on the Stanislaus River between Two-Mile Bar (rivermile 56.9) and Oakdale (rivermile 40) and to evaluate different methods of restoring spawning habitat. Eighteen project riffles and seven control riffles have been selected. Tasks include: 1) development of ecological monitoring plan, site access permission, and other administrative needs; 2) environmental documentation and permitting work; 3) Pre project habitat evaluations; 4) Gravel placement; 5) post project habitat evaluation; and 6) 2nd round of post project habitat evaluations.	86A, 86B, 86C, 88E, 102A, 105
AFRP-1998-39	Provide Funding for Watershed Group Leaders to attend the "Working at a Watershed Level" Course	Improve cross-agency watershed training and provide a basic educational program for agency personnel newly assigned to watershed teams, veteran watershed managers in need of a refresher course and members of citizens groups interested in cooperative approaches to watershed planning and management activities.	Educational
ERP-98-A01	Prospect Island Habitat Protection Project	Repair levee breach and pump out island, no restoration. (Prospect Island Habitat Protection Project)	9A, 13I, 13K
ERP-98-B01	Richter Brothers Screen, Phase I	This project will evaluate alternative concepts for the screening of three water diversion facilities owned by the Richter Brothers and Furlans on the Sacramento River near Knights Landing. The facilities divert water for irrigation purposes to the east of the river. The screens would reduce entrainment of out-migrating salmon and steelhead. This project represents Phase 1 and will include evaluation of feasible alternatives and completion of the required environmental documentation. Phase 2 will consist of obtaining the appropriate permits and preparing plans and specifications for construction of the preferred alternative. Tasks to be completed under Phase 1 include: performing project management for engineering and construction; coordinating with the Anadromous Fish Screen Program Technical Team and regulatory and funding agencies; identifying and evaluating alternatives to screen and select a preferred alternative; preparing environmental documentation for CEQA/NEPA compliance; obtaining permits; and performing surveys for preliminary design.	72A, 72B

Project ID Number	Title	Description	Milestones
ERP-98-B02	Boeger Family Farm Screen - Feasibility Study Phase I	This project will conduct the required initial studies for screening of the Boeger Family Farm pumping plant, which is currently diverting water for agriculture from the Sacramento River near Colusa. Installation of a fish screen would reduce entrainment of out-migrating steelhead and winter-, fall-, and spring-run salmon. This project represents Phase 1. Phase 2 will consist of engineering and design, biological consultation, regulatory permits and consultation, construction, post-project monitoring, and maintenance. Phase 2 was funded under ERP-98-B26. Tasks to be completed under Phase 1 include: 1) performing project management for engineering and construction; 2) coordinating with the Anadromous Fish Screen Program Technical Team and regulatory and funding agencies; 3) identifying and evaluating alternatives to screen and select a preferred alternative; 4) preparing environmental documentation for CEQA/NEPA compliance; 5) obtaining permits; and 6) performing surveys for preliminary design.	72A
ERP-98-B03	Anderson-Cottonwood Irrigation District Fish Passage	This project represents Phase 1 of the construction of fish passage improvement structures at the Anderson-Cottonwood Irrigation District (ACID) main diversion dam, near Redding. Installation of fish screens and ladders would reduce entrainment of anadromous fish and promote safe passage for all runs of Chinook salmon, steelhead trout, green sturgeon, and white sturgeon. Phase II consists of construction, construction management, mitigation, and monitoring and was funded under ERP-98-B24. Phase I tasks include 1) preliminary design, 2) final design, and 3) environmental documentation, and permitting.	67B, 72A
ERP-98-B05	Sand and Salt Creek Watershed Project	This project funds the Sand and Salt Creek Watershed project (SSCW), which assists private landowners in addressing non-point source pollution issues associated with the Clean Water Act, particularly for agricultural land uses. The project consists of selecting 20 cooperating sites, developing a Resources Management System (RMS) plan for each site, and assisting the land owner in implementing the plan. RMS plans focuses on management practices aimed at reducing surface runoff, Diazinon residues, and sit and sedimentation into the Colusa Basin Drain and the Sacramento River. Tasks to be completed under the first phase include: project management and administration, public participation, selection of cooperating sites, establishing monitoring sites, obtaining baseline resource data, developing RMS plans, scheduling workshops and tours, implementing RMS plans, implementing grad stabilization structures, conducting workshops and tours, and preparing a final report.	73A, 73B, 74A, 74B, 74C, 74D, 75A, 76A, 76B, 76C, 76D, 81A, 81B
ERP-98-B07	Evaluation of Selenium Sources, Levels, and Consequences in the Delta	Evaluate sources of selenium and impact of selenium on critical prey/indicator species, and measure levels and kinetics in species of concern. Tasks include: 1) Determine contributions of SE from various sources and how contamination is influenced by river flows; 2) Monitor selected prey species along with water column studies; 3) Laboratory experiments to examine the transfer of different forms of SE through food webs; 4) Construct qualitative and quantitative model of SE cycling though water, sediment and food web.	34A, 50A, 108A
ERP-98-B08	Cache Slough Habitat Enhancement	This project is the first phase of a program to restore and vegetate (with SRA habitat) 2000 ft of levee bank along Cache Slough in the northwestern Delta. Tasks include: 1) surveying; 2) preliminary design; 3) permitting, and 4)environmental compliance.	13I, 13K

Project ID Number	Title	Description	Milestones
ERP-98-B09	IPM Partnership to Improve Water Quality in Suisun Bay and Local Creeks	The project will aim to reduce the use of toxic pesticides and increase awareness and use of integrated pest management (IPM) tactics to improve water quality in the Suisun Bay and local creeks. Monitoring and evaluation includes: preparation of quarterly reports; tracking pf project participation; request of feedback from participants; collection of pesticide sales information from local stores; measurement of public awareness through a follow-up survey compared with baseline survey; and periodic evaluation of the toxicity of effluent and the presence of diazinon and chlorpyrifos. Project tasks include: 1)working with additional stores/nurseries so they provide IPM information and products; 2) expansion of the partnership with Master Gardeners; 3)purchase and distribution of IPM video; 4) publicity of IPM strategies used by existing public gardens; 5) creation and implementation of an "eco-friendly" yard campaign; 6) training of Pest Control Operators (PCO) on IPM techniques; and 7) monitoring and evaluation of results.	49A
ERP-98-B10	Inventory of Forest Road Systems, Cat Creek Watershed	This project will develop a watershed restoration plan to reduce erosion in the Cat Creek Watershed. Note: This phase may not require monitoring, planning only to decide on a watershed-wide basis which roads are needed and which could be shut down. Field survey in 1999. Tasks include: 1) inventory roads; and 2) develop a prioritized plan for repairing, relocating, and/or decommissioning roads in the Cosumnes River watershed.	29P
ERP-98-B11	Woodbridge Fish Screen and Passage	This design phase of a project to increase upstream passage of returning adults. Reduce entrainment of outmigrating fish. This project will provide for improved passage of salmon and steelhead by Woodbridge Dam and thus increase the use of upstream habitat on the Mokelumne River, near Lodi. Screen improvements will also occur at water diversion facilities. Tasks for this phase include: 1) completing the environmental compliance and permitting; and 2) finalizing the designs.	12B, 18D, 23A, 23B, 23C, 23D
ERP-98-B13	South Napa River Wetlands Acquisition	This project will acquire 115 acres of diked, historic wetlands along the Napa River for the purpose of restoring estuarine, riparian and aquatic habitat. The properties proposed for restoration comprise some of the most important potential restoration sites in the San Francisco Bay estuary and will, when restored, improve habitat quality for several federally-listed species, inducing the Delta smelt and Sacramento splittail. Once these lands are acquired, proposed restoration will modify or remove levees and other structure interventions to restore and enhance natural wetland functions. These activities will promote habitat goals specific to this region. This project is related to additional restoration activities in the area under ERP-98-F14. Tasks include: 1) acquiring properties; 2) developing a restoration plan, and 3) undertaking restoration activities.	39B, 41A, 42A
ERP-98-B14	Bacterial treatment of Selenium in the Panoche Drainage	Demonstrate the effectiveness of microalgae as a substrate for nitrate and selenium reduction in agricultural discharge water. Evaluate treatment effectiveness, operational issues and estimate costs of process. Tasks include: 1) Field studies: O& M of ABSR demonstration facility; Nutrient and elemental mass balance experiments at facility; 2) laboratory studies: algal biomass pretreatments for se reduction; 3) Economic analysis of application of facility on larger scales; 4) Technology transfer to ag users; and 5) reports.	34A, 34B, 108A, 108B
ERP-98-B15	Evaluation of Tagging Data	This project will evaluate current tagging practices and demonstrate a technique for the mass marking of hatchery produced salmon, to support subsequent evaluation of harvest practices. **Data analysis only, no data collection. Tasks include: 1) evaluation of hatchery stocking, tagging, recovery data, alternative tagging approaches and concomitant benefits/risks, and 2) demonstration tagging of hatchery stock at various Central Valley hatcheries.	112B, 119A

Project ID Number	Title	Description	Milestones
ERP-98-B16	Battle Creek Screens and Fish Passage	This project is a planning and design investigation of fish ladders and screens for improving fish passage on Battle Creek. The target species for this project are adult salmon and steelhead traveling upstream and juveniles traveling downstream. The objective of this proposal is to provide data and preliminary designs for various fish ladder and fish screen locations which will provide reliable passage and operation. The goal of the project is to develop preliminary designs and environmental work substantially complete so that final design and construction can move ahead in the phased restoration program. Tasks for this phase include: 1) collect field data; 2) preliminary design work for fish ladders and fish screens at three sites; 3) reconnaissance investigation work at two other sites; 4) draft CEQA work for the five sites; and 5) pre-reconnaissance work for some alternative fish screen sties.	55A, 55D, 67D, 69A, 72A, 112D
ERP-98-B17	Cosumnes Floodplain Acquisition and Restoration	Restore and improve floodplain functions. Restore riparian and wetland vegetation. Project funded for acquisition only. (Cosumnes Floodplain Acquisition and Restoration) This acquisition of the properties is the first step towards protection of approximately 2,256 acres containing seasonal wetlands, riparian woodlands, perennial/annual grasslands, fresh emergent wetlands, instream aquatic habitat and shaded riverine aquatic habitat and agricultural wetlands. Tasks include: 1) Complete purchase of the Park property (735 acres) in the Cosumnes River's lower floodplain; 2) Complete purchase of the Denier property (1,225 acres) in the lower Cosumnes River floodplain; and 3) Complete the purchase of the Whaley property (287 acres) in the lower Cosumnes River floodplain;	5B, 12A, 14A, 14C
ERP-98-B21	Anadromous Fish Passage at Clough Dam on Mill Creek	This project is for the final design and construction of fish passage facilities off Mill Creek at the Los Molinos Mutual Water Company (LMMWC) diversion ditch, a cross creek water diversion siphon near the Clough Dam and the removal of a part of the dam to enhance fish passage on Mill Creek. Improving fish passage at this location is expected to benefit salmon and steelhead adults and juveniles. The objective of this proposal is to provide funds for final designs, including plans and specifications; completing a construction contract; awarding a bid; overseeing construction; and paying out to the contractor. Design development will be in collaboration with stakeholders and other resources agencies. Tasks include: 1) design a fish screen facility in the LMMWC diversion ditch; 2) assist DFG in the construction of the screen facility; 3) perform design of siphon and dam removal; 4) prepare the required environmental documentation; 5) construct siphon and 6) remove dam.	67J
ERP-98-B22	Fish Passage Improvement Project at the Red Bluff Diversion Dam	This project will examine alternatives for operating the Red Bluff Diversion Dam (RBDD) in a way that maximizes fish passage while minimizing the impacts to agricultural water supply by means of a new screened intake structure to the Tehama-Colusa Canal and Corning Canal. The approach of this study will be to identify concepts and potential sites for facilities that will provide a year-round water supply to the Canals with reduced or eliminated reliance on gravity diversion a the RBDD. Tasks include preliminary cost estimates and a project implementation plan via the completion of 13 tasks, including: 1) data compilation/review; 2) map study; field reconnaissance; 3) hydrologic/hydraulic studies; 4) development of preliminary concepts for pipelines/canals, pump station, fish screens, and other structures; 5) development of a biological monitoring plan; 6) identification of permitting requirements, environmental issues, and rights-of-way; 7) cost estimating and financial planning; development of a preliminary concept report; 8) presentation to the Board; and 9) project management.	67B, 72A
ERP-98-B23	Steelhead and Chinook Salmon Fish Passage Barrier Remediation on the Guadalupe River	This project will increase upstream passage of returning steelhead and Chinook salmon adults on the Guadalupe River by constructing fish passage structures past two diversion facilities. Tasks include: 1) Remediation of fish passage barrier on the Guadalupe river at Hillsdale Avenue; and 2) Remediation of fish passage barrier at the San Jose water Company's low-flow crossing.	Upper Watershed

Project ID Number	Title	Description	Milestones
ERP-98-B24	Anderson-Cottonwood Irrigation District Fish Passage and Fish Screen Improvement Project, Phase II, Final Design	This project will provide funds for completing the final design, environmental documentation, and permitting for improved fish passage structures on the Anderson-Cottonwood Irrigation District diversion dam on the Sacramento River. This project will enhance the survival of returning adult salmon to the spawning habitat between the Anderson-Cottonwood Irrigation District (ACID) diversion dam and Keswick Dam on the Sacramento River by constructing a fish ladder and screen at the dam. Phase III will include construction, construction management, mitigation, and monitoring. Phase I was funded under ERP-98-B03. This project represents the second phase, which includes; 1) completing the final design, 2) environmental documentation, and 3) permitting for the new structures.	67B, 72A
ERP-98-B25	Cosumnes River Salmonid Barrier Program	Increase upstream passage of returning adults. This project would evaluate and implement construction of structures to improve adult salmonid passage over existing diversion structures in the Cosumnes River. Preliminary planning is underway, with construction targeted for summer 1999. Tasks include: 1) evaluation of alternatives, 2) finalizing engineering specifications; 3) bidding and construction.	17A, 112B
ERP-98-B26	Boeger Family Farm Fish screen Phase II: Construction	This project will provide funds for Phase 2 of the Boeger Family Farm Fish Screen Project by constructing a fish screen at their diversion structure on the Sacramento River. The objective of this project is to reduce entrainment of out-migrating steelhead and winter-, fall-, and spring-run salmon on the mainstem of the river. Phase I was funded under ERP-98-B02. Tasks to be completed as a part of this project include completion of engineering designs, biological consultation, obtaining regulatory permits and consultation, construction, and post-project monitoring and reporting.	72A
ERP-98-B27	Hastings Tract Fish Screen (Phase II: Construction)	Reduce entrainment of outmigrating fish. The 1997 funding was utilized to evaluate diversion and screening alternatives to reduce the entrainment of smelt in the Cache and Lindsay Slough area in the northwest Delta. Using funds authorized in 1998, the project will finalize designs and construct/install screens on diversion intakes and relocate diversion pipes. Some Post-Project biological monitoring is included. Construction and final testing of fish screen performance for fishery criteria will be completed 12-6-01. Also recommended that the additional funds for construction be requested through the next PSP cycle & that the proponents seek cost share oppty's. Tasks include: 1) Engineering design; 2) biological consultation; 3) Environmental permits; 4) construction - relocation of Cache Slough intake pipes to Lindsay Slough on Hastings Tract; and proponent monitoring.	24A, 24B, 24C, 24D
ERP-98-B28	City of Sacramento Fish Screen Replacement Project Phase 2 - Design	This project will conduct a feasibility study and environmental analysis for the replacement of fish screens at the Sacramento River Water Treatment Plant (SRWTP) on the Sacramento River and the E.A. Fairbairn Water treatment Plant (FWTP) on the lower American River. The screens will be replaced to make them consistent with DFG and NOAA Fisheries criteria. The effort to replace the screens will be completed in three phases: 1) development and evaluation of alternatives including environmental documentation and engineering feasibility studies; 2) final design and construction; and 3) monitoring and evaluation. This project represents Phase 2 and includes completion of the following four tasks: 1) preparing the draft final design report; 2) Reviewing the draft final design; 3) preparing and distributing the draft final design report; and 4) preparing quarterly progress reports.	72A

Project ID Number	Title	Description	Milestones
ERP-98-B29	American Basin Fish Screen and Habitat Improvement Project phase 1	This project will provide funds for Phase I and Phase II of the American Basin Fish Screen and Habitat Improvement Project. The project ultimately involves the removal of a diversion dam, the consolidation of diversion dams, and the addition of state-of-the-art fish screens for Natomas Mutual Water Company (NMWC) diversions to remove migration barriers and prevent straying and entrainment of winter-, spring-, and fall-fun Chinook salmon, steelhead trout, splittail, greenhead sturgeon, and other high risk species. The American Basin Fish Screen and Habitat Improvement Project is divided into 5 phases. Phase I is the feasibility study. Phase II is the preliminary design and environmental compliance work. Phase III is the final design and permitting. Phase IV is the bidding and construction phase, and Phase V consists of project evaluation. Tasks for this phase of the project include: 1) performing the feasibility studies, 2) preliminary design, and 3) environmental documentation.	67B, 67N, 72A
ERP-98-B30	San Joaquin Valley Salmonids in the Classroom Program Enhancement	Increase student awareness of issues and needs of aquatic and terrestrial natural resources. This project will continue the existing classroom education program in the San Joaquin basin regarding life cycles and issues for salmonids. Tasks include translating materials into non-English languages. ** Only for translating the materials. Project has been completed. **Education project-no monitoring required, but all include information on effectiveness of efforts. Task (from proposal) include: 1) Translate 6 student activity and reference past from the Salmonids in the Classroom curriculum into four more languages; 2) conduct historical research of anadromous fisheries in the San Joaquin Basin; 3) Develop lesson plans which discuss historical perspective of salmon and steelhead in Central Valley; and 4) create educational videos about history of salmon and steelhead in the Region;	Educational
ERP-98-B31	Traveling Film Festival / Heron Booth / Video Archive	Increase public awareness of issues involved in maintaining a functional river system. This project will develop and distribute documentary films about Bay and Delta habitats, wildlife and restoration. Education project-no monitoring required, but all include information on effectiveness of efforts. Tasks include: 1) Plan and implement organization of conference; 2) Plan and implement conference program; 3) Develop conference sponsorship; 4) Conference publicity; 5) develop participant packets; and 6) conference.	Educational
ERP-98-B32	Environmental Agriculture Conferences and Field Tours	Increase local growers, ranchers, ag advisors and ag industry-related business farmer awareness of issues involved in maintaining a functional river system. Education project. Tasks include: 1) develop and conduct conferences and 2) field tours to inform farmers, ranchers, and local businesses in the Stanislaus River watershed on non-source pollution impacts and evaluation of alternative	101A, 105B, 105G, 105L
ERP-98-B33	Sacramento River Discovery Center, Headwaters to the Ocean, Public Information and Education	This project will provide funds to support the ongoing efforts of the Sacramento River Discover Center (SRDC) to educate the public about the importance of restoring the Sacramento River. The programs will be incorporated into schools throughout the watershed and will be the result of a collaborative effort between federal and state agencies, the agricultural and timber industries, fisheries and environmental interests, schools and colleges, and private groups and individuals. This project will support Phase II efforts Continued SRDC efforts were funded under ERP-99-B20. Tasks include: 1) expansion of facilities to allow for expanded public events, teacher trainings, and student learning experiences; 2) expansion of the teach training program and other education/information programs to broaden the overall programs at SRDC goals; and 3) expansion of the high school/college natural resource academy to include planning an development of the bird monitoring and training program with emphasis on migratory birds.	Educational

Project ID Number	Title	Description	Milestones
ERP-98-B34	Discover the Flyway	Increase student awareness of wetlands and wildlife issues in the Yolo Basin. This project will expand the educational program to enhance awareness of wetland and environmental issues through public schools. Education project-no monitoring required, but all include information on effectiveness of efforts. Tasks include: 1) in-class activities, 2) site field trips and 3) volunteer restoration activities.	Educational
ERP-98-B35	The Butte Creek Watershed Educational Workshops and Field Tours Series	This project funds the Butte Creek Watershed Project (BCWP) to create education workshops and outreach materials focused on watershed issues. Tasks include: 1) initial logistical preparation, 2) completion of draft and final outreach newsletter, 3) presentation/slideshow introducing the project and future events, 4) presentation of the history of Butte Creek, 5) a field tour on the creek zones and morphology, 6) a timber harvest and upper watershed grazing field tour, 7) wildland road networks workshop and field tour, 8) riparian habitat and fluvial geomorphology workshop/field tour, 9) a float trip down the creek, 10) hydroelectric general plants, flumes, and infrastructure tour, 11) fisheries workshop, 12) levees and altered floodplain hydrology workshop/field tour, 13) cumulative effects workshop, 14) current restoration project field tour, 15) water rights issues workshop, 16) compile exit surveys and final report for funding agency's).	Educational
ERP-98-B36	Bay-Delta Environmental Restoration Education Program	Increase public awareness of environmental issues in the Bay-Delta and environmental restoration process. This project will develop and implement a broad based educational outreach program in Sacramento, San Joaquin and tributary watersheds and the Bay-Delta. Education project. Tasks include: 1) developing and distributing literature, slide cards, and 2) conducting journalist tours and teacher workshops.	Educational
ERP-98-B38	Stone Lakes Water Hyacinth Education Program	Increase public awareness of issues related to the control of water hyacinth. This project will increase public awareness of release of water hyacinth into natural waterways. Tasks include: 1) developing and distributing flyers and 2) meetings with nursery owners to discuss management strategies.	Educational
ERP-98-B39	Water Challenge 2010	Increase public awareness of environmental and water management issues in the Bay-Delta. **Education project-no monitoring required, but all include information on effectiveness of efforts. Tasks include: 1) develop and present public exhibits addressing water management and resource issues, for use at the Bay Model Visitor Center and at fairs, other visitor centers, etc.	Educational
ERP-98-B40	Tuolumne River Natural Resources Program	Increase public awareness of ecological issues in a river system environment. This project will implement educational programs to increase public knowledge and awareness of ecological issues and opportunities in Modesto, adjacent to the Tuolumne River. Education project-no monitoring required, but all include information on effectiveness of efforts. Tasks include: 1) developing and distributing informational brochures, 2)conduct camp and educational trips for youth and adults, and 3)provide workshops.	Educational
ERP-98-C01	Twitchell Island Subsidence Study	Evaluate techniques to reverse the subsidence of Delta island habitat. Objective is to restore island surface elevations and habitat on Twitchell Island. A small cross levee will be constructed and tidal flow will be controlled onto restoration plots through the use of siphons. Tasks include: 1) analysis of methods of sediment deposition to reverse effects of subsidence; 2) analysis of water quality impacts associated with restoration of Delta islands using biomass accretion and identification of water-management practices that will minimize water quality effects; and 3) analysis of the interrelationship of biomass accumulation and sediment deposition .	9D, 112D

Project ID Number	Title	Description	Milestones
ERP-98-C02	Culture of Delta Smelt	Develop culture methods to supply all life stage of delta smelt for research studies. This project will establish a functional culture system for delta smelt. Tasks include: 1) upgrading site facilities; 2) collecting and maintaining brood fish and rotifer culture; 3) evaluating larval culture procedures; 4) collecting and incubating eggs; 5) providing larval rearing; and 6) collecting post-larvae.	112B
ERP-98-C03	Hamilton Wetlands Restoration Planning	This project consists of Phases II, III, and IV of the Hamilton Wetlands Restoration Project. Ultimately, the project will restore subsided diked baylands to a diverse mix of seasonal and tidal wetlands, while making beneficial use of up to 33 million cubic yards of dredged material. The goal of the project is to sustain viable fish and wildlife populations, while ensuring no net loss of wetland habitat functions. Activities for other phases of the project include: development of final construction design (Phase V); implementation of project construction (Phase VI); and management and monitoring of the restored site (Phase VII). Phase I is complete (Project Initiation). Project tasks include: 1) completion of project planning and analysis (Phase II); 2) acquisition of the Bel Marin Keys property (Phase III); and 3) completion of environmental documentation and permitting (Phase IV).	38E, 39A, 41A, 42A
ERP-98-C04/C05	Basso Bridge and Merced River Ranch Land Acquisition	Protect spawning riffles, and protect and enhance riparian species. This project would acquire 318 acres along the Merced River near Snelling, for the protection of riparian, wetland and riverine habitats. No restoration activities are being funded at this time. However, the property contains significant gravel deposits which could be used for spawning and rearing projects in the basin. Task include: 1) Land acquisition.	86B, 86B, 94A, 94C
ERP-98-C06	Water Quality Criteria for Chlorpyrifos and Diazinon	Develop water quality criteria for chlorpyrifos and diazinon. This study will provide a more accurate assessment of the impacts of water-borne concentrations of diazinon and chlorpyrifos on aquatic life in the Sacramento-San Joaquin watershed, and will thus provide the toxicity data necessary for the Regional Water Quality Control Board to promulgate water quality standards for diazinon and chlorpyrifos to protect fish and wildlife in the Sacramento-San Joaquin watershed. Tasks include: Four standard 96-hr acute toxicity tests will be performed with chlorpyrifos and diazinon using U.S. Environmental Protection Agency (1991) methods for C. dubia (three tests) and American Society for Testing and Materials (1996) for Physa spp. (one test).	33A, 80A, 107A
ERP-98-C07	Fathead Minnow Toxicity Study in the Sacramento River	Evaluate toxicity and water quality in the Delta. Tasks include: 1) Determine causative agents to mortality of fathead minnow (test species); and 2) determine significance of toxicants to the indigenous aquatic ecosystem.	37A, 37B, 83A, 83B, 112B,112D
ERP-98-C08	Algae Toxicity Study	Evaluate toxicity and water quality in the Delta. (Evaluate toxicity and water quality in the Delta). Tasks include: 1) Determine agents responsible for algal toxicity; 2) Determine ecological significance of toxicity; and 3) develop implementation plan to eliminate toxicity.	37A, 37B, 83A, 83B, 112B,112D
ERP-98-C09a	Delta Dredging Reuse Strategy	The regional board and DFG will develop a Dredge Disposal and Reuse Study for assuring that dredging and dredge sediment reuse option are conducted in a manner that is protective of water quality and fish and wildlife resources. The DDRS will consist of interim sediment quality objectives and a streamlined permitting process for delta dredge projects as well as a plan for implementing additional studies and pilot projects for filling data gaps. It is anticipated that the DDRS will be used in the development of a Regional Dredge Material Management Plan. Tasks include: 1) Select and convene a technical advisory panel; 2) do meetings; 3) compile proposed delta dredging project information; 4) collate existing sediment quality data and guidelines; 5) evaluate existing sediment quality data; 6) draft waste discharge requirements; 7) develop DDRS for Delta sediments; 8) gain appropriate approval for DDRS; and 9) pilot project studies; DPC will do task 1.	112A

Project ID Number	Title	Description	Milestones
ERP-98-C09b	Delta Dredging Reuse Strategy	The regional board and DFG will develop a Dredge Disposal and Reuse Study for assuring that dredging and dredge sediment reuse option are conducted in a manner that is protective of water quality and fish and wildlife resources. The DDRS will consist of interim sediment quality objectives and a streamlined permitting process for delta dredge projects as well as a plan for implementing additional studies and pilot projects for filling data gaps. It is anticipated that the DDRS will be used in the development of a Regional Dredge Material Management Plan. Tasks include: 1) Select and convene a technical advisory panel; 2) do meetings; 3) compile proposed delta dredging project information; 4) collate existing sediment quality data and guidelines; 5) evaluate existing sediment quality data; 6) draft waste discharge requirements; 7) develop DDRS for Delta sediments; 8) gain appropriate approval for DDRS; and 9) pilot project studies; DFG will participate in tasks 2-8.	112A
ERP-98-C09c	Delta Dredging Reuse Strategy	The regional board and DFG will develop a Dredge Disposal and Reuse Study for assuring that dredging and dredge sediment reuse option are conducted in a manner that is protective of water quality and fish and wildlife resources. The DDRS will consist of interim sediment quality objectives and a streamlined permitting process for delta dredge projects as well as a plan for implementing additional studies and pilot projects for filling data gaps. It is anticipated that the DDRS will be used in the development of a Regional Dredge Material Management Plan. Tasks include: 1) Select and convene a technical advisory panel; 2) do meetings; 3) compile proposed delta dredging project information; 4) collate existing sediment quality data and guidelines; 5) evaluate existing sediment quality data; 6) draft waste discharge requirements; 7) develop DDRS for Delta sediments; 8) gain appropriate approval for DDRS; and 9) pilot project studies; Regional Board will perform work under tasks 2-6, 9 and 10.	112A
ERP-98-C10	Comprehensive Monitoring Assessment and Research Program - CMARP	The purpose of the CMARP is to provide those facts and scientific interpretation necessary for the CALFED program to be fully implemented and for the public to judge the program's success. Tasks include: 1) Program management; 2) Facilitator to assist in process; 3) Monitoring program design admin support; 4) Monitoring; Water quality; 5) monitoring- levee; 6) Monitoring-ecosystem; 7) monitoring - Watershed management; 8)Data management; 9) development institutional structure for CMARP.	112A, 112B
ERP-98-C11	Chinook Salmon Movement in the Lower SJR and South Delta	The objective of this project is to identify movement of adult salmon in the lower Delta and lower San Joaquin River and evaluate impacts of barrier operations and dissolved oxygen (DO) levels. Tracking will occur in late fall of 1999. Tasks include: 1) tag and track adult fall run salmon in the lower Delta and San Joaquin River; and 2) Evaluate movement against water quality information to assess the relationship of DO levels and operation of barriers.	112B, 112D, 119A
ERP-98-C12	Genetic Comparison of Steelhead Stocks in Clear Creek	This project will obtain fine-scale information on the genetic diversity of steelhead/rainbow trout from the Coleman National Fish Hatchery; the mainstem of the Upper Sacramento River; and Mill, Deer, and Clear Creeks. Information gathered will be used primarily to determine the preferred sources of a founding stock for re-establishing a self-sustaining steelhead population in Clear Creek following the removal of McCormick-Saeltzer Dam. Tissues will be collected from naturally spawning steelhead/rainbow trout adults and juveniles at alternative sample locations in upper and lower Clear Creek, the Upper Sacramento River, Mill Creek, and Deer Creek through the spring emigration period. Tasks include: 1) field collection of tissue samples from steelhead adults returning to CNFH; 2) analyze nuclear microsatellite DNA analysis immediately after sample acquisition for each of the various locations sampled; 3) Data evaluation; and 4) project coordination reports will also be completed.	112B, 112D

Project ID Number	Title	Description	Milestones
ERP-98-C13	Spawning Areas of Green Sturgeon in the Upper Sacramento River	This project will characterize green sturgeon habitat and life history patterns in the upper Sacramento River for the purpose of providing information useful to restoration and management activities in the area.	112B, 112D
ERP-98-C14	Monitoring Spring and Winter-run Chinook Salmon and Steelhead in Battle Creek	This project will monitor adult and juvenile spring- and winter-run Chinook salmon and steelhead in Battle Creek in order to obtain life history information to assess the suitability of the current habitat and provide an evaluation tool for restoration activities. The following twelve objectives will be determined separately for spring-run Chinook salmon and steelhead: number of returning adults; timing of adult migration; age, size, and gender of returning adults; timing of spawning; location of spawning; timing of fry emergence; growth rate of juvenile salmonids; timing of juvenile emigration; size of emigrating salmonids; number of juveniles produced; potential limiting factors effecting survival at various life stages; and collect tissue samples from adult and juvenile salmonids for genetic analysis.	112B, 112D, 119A
ERP-98-C15	Biological Assessment of Green Sturgeon in the Sacramento-San Joaquin Watershed	This project will investigate green sturgeon's biological requirements, such as food and oxygen requirements at different water temperatures, swimming performance, larvae and fry development needs, and effects of stressors on reproductive functioning. The project will also evaluate genetic stock structure. Tasks include: 1) capture of juvenile and adult sturgeon; 2) tagging and tracking; 3) egg and larval sampling; and 4) laboratory evaluation of live fish.	112B
ERP-98-C17	Assist in Developing Appraisal & Planning with TNC for the McCormack-Williamson Property	DWR will provide services and support for Project 97-N14, acquisition and initial site planning for the McCormack-Williamson Tract. Tasks include: 1) an appraisal; 2) a legal transaction review; and 3) initial planning activities.	8A, 9A, 13G, 13I, 13K, 13L, 13N, 14A, 16A, 22A
ERP-98-C18	DWR - HAZMAT Review for ERP Land Acquisitions	DWR will provide expert environmental site assessment related services to Agency, on an as-needed basis. These services are required for land acquisitions purchased w/CALFED Bay-Delta Programs 1997 CAT III funds for several approved ERP projects which involve land acquisitions. DWR will provide oversight of site assessment work for recipients on properties proposed for purchase. The goal of Agency & DWR is to attempt to protect the State from future liability associated w/the purchase of potentially contaminated properties. Tasks include: 1) Oversight or evaluation of the work of outside consultants and contractors to ensure that all applicable regulatory requirements and standard operation procedures for environmental site assessments and remedial actions are complied with; DWR will provide as needed site screening, Phase I ESA, Phase II ESA, and Phase III ESA.	12A, 14A, 14C, 62B, 62C, 62G, 94A
ERP-98-C19	Conduct/Facilitate Meetings on the Upper Yuba River, Engelbright Dam	FWS is to coordinate & facilitate meetings designed to gain agreement on the initial components of a study plan which will evaluate the feasibility of restoring anadromous fish runs above Engelbright Dam on the Yuba River. Tasks include: 1) three stakeholder meetings to prioritize a set of studies to be accomplished in a Phase I reconnaissance study; 2) database of participants; 3) create an on-line email list; 4) produce meeting products; and 5) provide information on the CBDA process by which the Upper Yuba River Studies would proceed; 6) a Sierra Nevada Ecosystem Project Report on Yuba Salmon; 7) responded to public questions via email and phone calls, and 8) developing a list of potential organizational representatives for the next set of smaller stakeholder group meetings.	57A, 66E, 67L

Project ID Number	Title	Description	Milestones
ERP-98-E01	Napa River Watershed Stewardship	This project will implement the recommendations listed in the Napa River Watershed Owner's Manual, which is considered a framework for integrated watershed management of the Napa River watershed. The second year of this project is funded under ERP-99-N20. Tasks include: 1)expansion of locally based Stewardship Watershed Management of the tributary watersheds to the Napa River; 2)supporting those Stewardship groups through Watershed Monitoring and Computer Modeling of watershed functions; 3)and providing direct support for implementation of Riparian Corridor and Aquatic Habitat Restoration and Management that includes demonstration sites to encourage restoration expansion, cost sharing to assist with floodplain and spawning habitat restoration, and levee setbacks to attenuate flood damages while improving the natural biological support of floodplain and riparian habitats.	38, 47A
ERP-98-E02	Sonoma Creek Watershed Enhancement Plan - Phase II	This project is Phase II of the Sonoma County Watershed Conservancy (SCWC) Watershed Restoration Program to assist in implementing restoration, monitoring, and educational outreach actions in the Sonoma Creek Watershed aimed at restoring the watershed. Tasks in include: 1) supporting the continuing implementation of the 1997 Sonoma Creek Watershed Enhancement Plan; 2) funding a watershed coordinator to oversee watershed projects; 3) implementing a scientifically based, technically sound method of assessment of watershed resources; and 4) facilitating local organizations' efforts to implement restoration, monitoring, and conservation programs. Watershed enhancement will be achieved through implementation of streambank stabilization, riparian corridor enhancement, fish passage improvements, vineyard demonstration projects, and removal of exotic species.	38C, 47D, 49E, 51B
ERP-98-E03	Regional Wetlands Goals Project	This project will enable implementation of tasks identified by the Goals Project. Tasks include: digitalization of habitat metrics; development of a planning model to facilitate habitat scenario planning: application of model to develop alternative scenarios to illustrate various ways of attaining the habitat goals; distribution of the EcoAtlas to all of the RMG agencies; assisting to prepare a draft Habitat Goals document for public review and comment; preparation of large-format poster displays of the technical team materials and the draft goals for public workshops; assisting Goals Project participants to prepare a final Habitat Goals document for public dissemination; assisting the Goals Project participants to prepare a Bayland's Ecosystem report.	Educational
ERP-98-E04	Petaluma River Watershed Restoration Program	This project implement the restoration and monitoring projects identified in the Petaluma River Watershed Enhancement Plan. The main objective of the PRWRP is to enhance the habitat and ecosystem function along the Petaluma River. Project tasks include: 1) implementation of priority restoration projects as recommended by the Petaluma River Watershed Enhancement Plan (SSCRCD 1998); 2) creation of a full-time position for a watershed coordinator to oversee activities and ensure community outreach; 3) identification of willing sellers to expand lands available for restoration; and 4) implementation of a watershed science program to provide a scientific foundation for monitoring and restoration work. Implementation of several restoration and monitoring projects will be completed with the help of various non-profit and volunteer groups throughout the watershed.	38D, 47D
ERP-98-E05	Cottonwood Creek Watershed Group Formation	This project will create a comprehensive community-based organization that will be able to develop and implement a watershed stewardship plan for the Cottonwood Creek watershed. The organization would evaluate and develop recommendations for watershed stewardship including: timber harvesting, land use, fire and fire suppression, managing oak woodlands to reduce erosion, maintaining riparian zones, and providing more sustained runoff patterns in the upper watershed area. Project tasks include: 1) identifying the watershed's geographic boundaries and sub-regions' boundaries, 2) identifying stakeholders, 3)forming the organization's structure, collecting input from stakeholders,4) researching literature from resource management agencies, and 5) listing the watershed's needs.	57H, 58D, 59E, 62D, 63A, 63B, 66B, 67E, 67F

Project ID Number	Title	Description	Milestones
ERP-98-E06	Battle Creek Watershed Stewardship	This project will support the ongoing work of the Battle Creek Watershed Conservancy by providing funds for direct ecosystem restoration, protection against future ecosystem degradation, improvement of degraded habitats, and public outreach. These tasks were determined based on identified needs within the watershed, requests by landowners, and suggested by professionals working with the Conservancy through the Battle Creek Working Group. Tasks include: 1) implement watershed strategy, 2) develop plans for upper watershed restoration, 3) implement fuels management program, 4) conduct conservation easement planning, and 5) remove noxious weeds within the watershed.	57G, 58C, 59D, 62F, 64A
ERP-98-E07	Local Watershed Stewardship: Steelhead Trout Plan	This project will develop a steelhead trout restoration plan as one component of a comprehensive watershed plan to improve water quality, fishery resources, and native vegetation and wildlife in the Corte Madera Creek watershed. The restoration plan will focus on the factors limiting viability, formulate corrective actions, and monitor the success of those actions. Other components of the watershed plan to be developed in the future will build on these two major components. Tasks include: 1) a review and analysis of relevant existing information on fish surveys, water quality, water flow, and water temperature; 2) a summer fish habitat survey; a summer fish population survey; thermographs of representative areas of each reach of the creek; and 3) an analysis and report of results; 4) preparation of a restoration plan; and 5) preparation of the monitoring plan.	Upper Watershed
ERP-98-E08	Cold Water Fisheries and Water Quality Element	This project is part of the Santa Clara Basin Watershed Management Initiative, which was created in 1996. Through this project, the Initiative will continue to work towards its watershed management goals. The primary ecological objective of this project is to protect and/or restore streams, reservoirs, wetlands, and the South Bay for the benefit of fish, wildlife, and the community. Tasks includes: 1) developing a Watershed Assessment Report based on existing data; 2) initiating a field sampling and monitoring program to fill data gaps; 3) developing a State of the Watershed Report; 4) preparing a Watershed Management Plan; 5) implementing the Watershed Management Plan; 6) conducting periodic reviews and updates of the Assessment and Plan; and 7)continuous stakeholder education.	Upper Watershed
ERP-98-E09	Merced River Corridor Restoration Plan	Facilitate broadbased local stakeholder group in development of watershed plan. This project will develop a habitat and fishery restoration plan for the Merced River downstream of Crocker-Huffman Dam to the San Joaquin River. This is phase II of the project, and it is all baseline studies. There is no field work to be monitored. A comprehensive monitoring plan will be developed in phase III. Tasks include: 1) formation of a stakeholder and technical advisory group, 2) analysis and definition of corridor conditions, and 3) development of a restoration plan.	86A, 87F, 88I, 88J, 88L, 94C, 105F
ERP-98-E10	South Yuba River Coordinated Watershed Management Plan	This project will develop a South Yuba River Coordinated Watershed Management Plan for the 40 miles of South Yuba River between Spaulding and Englebright reservoirs. The goal of this plan is to bring public and private entities together to establish and maintain a healthy watershed for local users and downstream beneficiaries. The overall project is designed to define the problem, identify goals and objectives based on assessment results, and develop a coordinated management, implementation, and monitoring plan to meet the watershed health goals and objectives. Tasks include: 1) design and complete an inventory of existing information, 2) conduct comprehensive survey research regarding recreation uses, 3) public-private use conflicts and their respective impacts on the South Yuba River, and 4) establish and formalize a South Yuba River Stewardship Council as a subcommittee of an existing group of agency, community, and environmental representatives involved in watershed issues.	57A, 58J

Project ID Number	Title	Description	Milestones
ERP-98-E11	Yolo Bypass Watershed Restoration Strategy	Facilitate broadbased local stakeholder group in development of watershed plan. This project will coordinate interaction between stakeholders and facilitate the development of a watershed restoration strategy directed to enhancement of Yolo Bypass habitats. **Planning only. CALFED will review draft Ecosystem Restoration Study. Tasks include: 1) identifying and contacting stakeholders, 2) summarizing existing conditions, 3) hold meetings and conduct workshops, and 4) develop a draft plan.	6A, 7A, 8A, 13I, 13K
ERP-98-E12	Local Watershed Stewardship Plan for the Lower Mokelumne River	Facilitate broadbased local stakeholder group in development of watershed plan. This project will facilitate community based discussion and meetings in the lower Mokelumne River Watershed, in order to provide an umbrella coordination effort for various habitat and fishery enhancement activities.	12B, 112B
ERP-98-E13	Union School Slough Watershed Improvement Program	This project will provide funds implement restoration practices identified in the Willow Slough Integrated Resources Management Plan of which Union School Slough is a part. The project is based on a landowner stewardship group that serves as the information-sharing, problem-solving, and "neighbor-convincing" nerve center. Project staff will work with the landowner groups to implement a set of conservation and restoration practices, identify further opportunities and project partners, overcome barriers and constraints, and disseminate technical, practical, and legal information. Tasks include: 1) convening a landowner stewardship group and advisory committee, 2) landowner training workshops, 3) upper slough riparian restoration, 4) upper slough restoration, 5) construction of hill ponds for wildlife, 6) construction of tail water ponds, 7) revegetation of irrigation canals, 8) lower slough and floodplain planning and restoration, and 9) project management and administration, reporting, and legal compliance.	54B, 62H, 81B
ERP-98-E14	American River (North and Middle Forks) Integrated Watershed Stewardship Strategy	This project will develop a Watershed Management Plan and Stewardship Strategy addressing a wide range of environmental, institutional, social, and economic issues in an integrated manner on a watershed basis for the American River. A major emphasis will be on improving the ecological functioning of the watershed, including protection and restoration of riparian and aquatic habitats, protecting watershed integrity, improving water quality and flows, reducing the risk of catastrophic wildfire, avoiding and mitigation growth-related watershed impacts, and addressing factors such as connectivity with the mainstem Sacramento River. Tasks include: 1) conduct preliminary scoping meeting; 2) collect relevant biophysical, social, economic, and institutional data; 3) develop these data to the extent possible using GIS; 4) prepare a report integrating data collected under tasks 2 and 3 and provide a holistic understanding of watershed condition, functions, and processes; 5) develop a Watershed Management Plan and Stewardship Strategy, using a significant level of community participation; 6) conduct a pilot implementation of the Watershed Management Plan and Stewardship Strategy on one privately-owned and one publicly-owned site; and 7) conduct an evaluation of the project, including monitoring of pilot implementation and prepare a final evaluation report.	Upper Watershed

Project ID Number	Title	Description	Milestones
ERP-98-E15	Sulphur Creek Coordinated Resource Management Planning Group	This project will support the ongoing activities of the Sulphur Creek (northeast of Redding) Coordinated Resource Management Planning Group (CRMP) by All other expenses, such as meeting rooms, meeting facilitation, and presentation materials, will continue to be volunteered by SWAG and CRMP members. The Sulphur Creek CRMP has at least one public meeting every month, coordinates and promotes volunteerism, writes grant proposals, provides community education and awareness, encourages and facilitates public participation in the CRMP process, provides on-site training opportunities for students at all levels, and pursues land acquisitions within the watershed. The activities of Sulphur Creek CRMP heighten public awareness in Sulphur Creek about watershed issues and provide a forum for collaboration. Tasks include: 1)providing funding for a part-time staff and office supplies.	57I, 58B, 59C, 62F, 64B, 66B, 67C, 67D
ERP-98-E16	Lower Putah Creek Watershed Stewardship Program	This project objective is to develop a watershed stewardship program for the lower Putah Creek to restore ecosystem processes; reduce environmental stressors; and integrate aquatic and riparian habitat enhancement, vegetation management, water quality protection and improvement, agricultural economic viability and water use, and public education. Tasks include: 1) organizing the stewardship group; 2) collecting, analyzing, and presenting resources information needed to develop the watersh3ed strategy; 3) conducting meetings and workshops; 5) soliciting input from resources agencies; and 6) preparing the watershed strategy.	62H
ERP-98-E17	Alhambra Creek Watershed CRMP Program	This project will develop a watershed management plan for the Alhambra Creek (Martinez, California) watershed The plan will address natural resource issues including restoration of degraded aquatic and riparian communities; prevention of soil erosion; reduction of non-point source water pollution; preservation of property rights; and prevention of catastrophic wildfire. Tasks include: 1) Development of goals and objectives; 2)public outreach; 3) Watershed plan development; 4) Plan implementation and monitoring; and 5) Computer equipment acquisition.	38A, 47A, 112B
ERP-98-F01	Butte Creek Watershed Restoration Implementation	This project will evaluate roads in the upper Butte Creek watershed to assess the impacts of road related erosion on stream water quality. This project will involve the systematic survey of all roads with the objectives of assessment of the extent and relative magnitude of sediment contribution from road systems in the watershed; identification, mapping, and prioritization of specific road-related sediment sources of treatment; and identification of patterns of recurring problems that can help redirect road construction and road maintenance practices to minimize problems in the long-term. Tasks include: 1) gathering existing data; 2) developing base maps; 3) training survey crews; and surveying, 4) cataloging, and entering data from inventoried sites into an electronic database for analysis of factors and identification of site attributes and 5) completion of a final report.	58H, 59I, 59J, 61B, 62H, 64E
ERP-98-F03	Butte Creek Acquisition and Riparian Restoration	This project will acquire and restore riverine habitat adjacent to spawning and holding pools in Butte Creek. The project will provide an opportunity to develop and demonstrate methods of channel and floodplain management that would help to stabilize the sediment and bedload input from the remains of the gravel mining operation. The Research Foundation of California State University, Chico (CSUC) and the Butte Creek Watershed Conservancy will partner to purchase 80 acres with approximately 4000 feet of creek frontage to create an Ecological Preserve. The project will develop a management plan for the preserve and incorporate the site into the Butte Creek Education Project. The management plan will be developed through the Recreation Department at CSUC with training from other non-profit groups with experience in managing land trusts. The Butte Creek Education Project is coordinating restoration efforts and will be responsible for development of an education strategy that will focus on riparian plantings and bank stabilization to recover the quality of the shaded riverine habitat.	62B, 64E

Project ID Number	Title	Description	Milestones
ERP-98-F04	Lower Mill Creek Riparian Restoration (Phase I)	This project is Phase II of the Mill Creek Riparian Restoration Project, which will restore and enhance native riparian vegetation on one or more parcels along lower Mill Creek, a high priority tributary of the upper Sacramento River. The project has three primary objectives, which are to help maintain and restore native shaded riverine aquatic habitat for native fisheries and other species; enhance instream aquatic habitat by moderating water temperatures and reducing erosion and monitor the effectiveness of planting and erosion control measures; and engage students and local landowners in restoration to foster community support for restoration activities. Tasks include: 1) planting native shrubs and trees adjacent to existing vegetation to fill gaps in the riparian corridor, 2) controlling invasive non-native plants, and 3) monitoring plant survival and water temperature.	64D
ERP-98-F06	Tuolumne River Setback Levees and Channel Restoration	Improve and restore spawning habitat and durability. Tasks include: 1) Monitor geomorphology (pebble counts, tracer rocks, stabilization) and channel characteristics, pre and post project and after flow events. Conduct redd counts and other use surveys.	86A, 86D, 87C, 88B
ERP-98-F07	Grayson River Ranch Perpetual Easement and Restoration	Restore naturally self-sustaining riparian floodplain. This project would provide funding to complete a perpetual conservation easement for 140 acres adjacent to the Tuolumne River and restore riparian habitat on that easement. Tasks include: 1) easement purchase, 2)restoration design and 3) restoration activities.	94B, 95A
ERP-98-F08	Hill Slough West Habitat Demonstration Project - Phase I	This project proposes to restore 200 acres of seasonal and permanent wetlands in northeastern Suisun Marsh at Hill Slough through implementation of four different phases over approximately five years. The project will be a collaborative effort to restore a transition from perennial aquatic habitat to low marsh, high marsh, and upland transition. Primary restoration methods will include selective or complete levee removal, limited excavation of higher order channels, limited replanting of sensitive plant species, and a program of invasive species management. Phase II consists of completing the necessary environmental documentation. Phase III consists of implementing the restoration plan, and Phase IV consists of reestablishing rare plant communities, beginning monitoring, and implementing the interpretive program. Phase I will consist of conducting a topographic survey and hydrologic evaluation of the area.	39A, 39F, 39K, 39L, 42A, 44C
ERP-98-F09	Rhode Island Floodplain Management and Habitat Restoration - Phase I	Restore and improve floodplain functions and shallow water and riparian habitat. This project will evaluate and implement floodplain and SRA habitat within/adjacent to Rhode Island (Old River) in the eastern Delta. Missed 1999-2000 construction funding deadline. Feasibility study only. Tasks include: 1) developing a restoration improvement plan, 2) engineering, 3) construction, and 4) monitoring.	9D, 13K, 16D
ERP-98-F11	Merced River Salmon Habitat Enhancement (Phase III)	Eliminate predator habitat. Improve spawning and rearing habitat. Replant riparian vegetation. This project will restore natural conditions to Merced River habitat at river miles 42 to 43.5. Restoration will include filling/isolating deep pools, reconfiguring channel and floodplain characteristics, and increasing riparian habitat. Tasks include: 1) finalizing restoration plans and engineering designs; 2) completing environmental compliance, and 3) construction and monitoring.	86G, 87F, 88I, 88J, 88L, 94C, 97F
ERP-98-F12	Stone Lakes NWR Land Acquisitions	Protect tidal and seasonal wetlands, riparian corridors and upland habitats. This project would acquire fee title to approximately 658 acres of land adjacent to Stone Lakes Refuge, maintaining the wetlands habitat conditions beneficial to fish and wildlife. Appears to be acquisition only at this time, but would subsequently have restoration activities. Land acquisition only. Tasks include: land acquisition.	8A, 13I, 13K

Project ID Number	Title	Description	Milestones
ERP-98-F13	Petaluma Marsh Expansion Project - Marin County	This project will preserve a total of 181.46 acres of baylands west of the Petaluma River at the Marin-Sonoma border. A total of 109.72 of these acres will be restored while the remaining 71.74 acres is already tidal marsh. This project proposes to acquire, restores, and permanently protect this site. The primary ecological objective is to restore and permanently protect this tidal marsh as part of the 2,000 acre Petaluma Marsh, the largest undiked tidal marsh remaining in the Bay. This project will benefit Chinook salmon, steelhead trout, longfin smelt, splittail, green and white sturgeon, and various special status species including the black rail, California clapper rail, salt marsh yellowthroat, san Pablo song sparrow, and migratory shorebirds and waterfowl. The project uses a collaborative partnership approach between state and federal agencies, a non-profit organization, and private industry to reduce costs and facilitate the project.	39D, 39G, 42A
ERP-98-F14	South Napa River Wetlands Acquisition and Restoration Program	Acquire estuarine, riparian, and aquatic habitat, flood plain, and marsh. This project will acquire and restore over 600 acres of historical wetlands adjacent to the Napa River from four different private property owners, representing a unique opportunity for restoration of native marshland habitat in the North Bay. Once these lands are acquired, proposed restoration will modify or remove levees and other structural interventions to restore and enhance natural wetland functions for the benefit of several important endangered and threatened species. The project will also include elements to buffer the wetlands from surrounding land uses (e.g. vineyards, grazing) to minimize impacts from the community and the creation of a continuous buffer zone along the edge between the uplands and the wetlands. This project is related to additional restoration activities taking place in the area under ERP-98-B13. Project tasks include: appraisal, planning, feasibility analysis, design, and restoration.	39B, 41A, 42A
ERP-98-F15	Lower Clear Creek Floodway Restoration Project (Phase II)	This project will implement the Lower Clear Creek Watershed Management Plan on lower Clear Creek in the Sacramento Valley to support anadromous fish populations. The proposal outlines a strategy for restoring 2.9 miles of floodplain and riverine aquatic habitats in two locations on lower Clear Creek. Objectives of the project are to reverse channel degradation caused by historic aggregate extraction in the Mined Reach by reconstructing a properly sized bank full channel and floodplain; restore the ability of the channel to route coarse sediment downstream and deposit fine sediment on floodplain surfaces; restore native riparian vegetation on floodplain and terrace surfaces by focusing on species that provide canopy structure and removing competing exotic species; reduce salmonids stranding and mortality in floodplain extraction pits; and provide improved habitat conditions for native fish and wildlife species including priority salmonids species of central concern to CBDA, CVPIA, and AFRP programs. This project will be carried out in four phases.	62F, 64B
ERP-98-F16	Fern-Headreach Tidal Perennial Aquatic and Shaded River Aquatic Conservation Project	Protect riparian and tidal shallow water habitat. This project will acquire permanent conservation easement for Fern-Headreach Island Complex on 168 acres along the main channel of the San Joaquin River (near McDonald Island) in the Delta. No specific restoration or management plans are identified, but would be expected as a subsequent action. Funded acquisition and easement; no active restoration.	13Q, 16D

Project ID Number	Title	Description	Milestones
ERP-98-F17	Benicia Waterfront Marsh Restoration - Phase I	This is phase I of a project will restore approximately 8 acres of degraded salt marsh habitat along the Benicia waterfront located along the Carquinez Straits at the foot of First Street in downtown Benicia. The goals of this restoration project are to reestablish open tidal flows within the marsh area, enhance the overall health and habitat quality of the existing saline emergent wetlands, and provide transitional uplands habitats adjacent to the marsh planted in native grasses. The restoration project will occur in two phases. Phase 2 focuses on the actual physical implementation of the project, including construction of tidal channels, removal and disposal of fill materials, planting, and removal of exotic vegetation. The projected timeframe for the project is 1 year. Phase 1 tasks include: 1) preparing a final restoration plan, including channel refinements, a planting plan, weed control strategy, and 2)preparing a monitoring plan and 3) completion of environmental compliance.	39A, 39F, 39H, 42A
ERP-98-F18	Floodplain Acquisition, Management, and Monitoring on the Sacramento River	Protect large continuous blocks of existing and restorable aquatic and riparian habitat. The project funded in 1997 would acquire (via title or easement) approximately 1500 acres of flood prone lands adjacent to the Sacramento River between Keswick and Verona, to support the river's natural ecological processes. The project authorization would acquire (via title or easement) several hundred acres. Project funded for acquisition only. Tasks include: 1) evaluation of target properties and acquisition, 2) plus start up stewardship work and initiation of an endowment account for maintenance work.	60A, 62G
ERP-98-F19	Cosumnes River Acquisition, Restoration Planning and Demonstration	Acquire and restore floodplain and wetland habitat and functions. This project associated with 1997 is intended to acquire and restore 4600 acres of property adjacent to the Cosumnes River. Tasks include acquisition, initial cleanup of properties, and restoration planning. 1998 funding provides for the acquisition of 300 acres of wetlands habitat along the lower Cosumnes River floodplain. Project funded for acquisition only. Tasks include: 1) acquisition; 2) initial cleanup of properties; 3) restoration and management planning, 4) an outreach program and 5) monitoring.	5B, 12A, 14A, 14C
ERP-98-F20	Deer and Mill Creeks Acquisition and Enhancement	This project will acquire and restore almost 2,500 acres of critical riparian and floodplain habitat along the lower and middle reaches of Deer and Mill Creeks in the upper Sacramento River watershed. The proposed project includes the acquisition of conservation easements on four key properties on Deer and Mill Creeks. Each will be purchased from a willing seller. In addition, the project will also include the revegetation and enhancement of three of these properties. The expected benefits of this project are to protect and restore riparian and aquatic habitats, improve the long-term sustainability of natural production of anadromous fish, retire flood-prone lands, and foster community support for habitat protection. Tasks include: 1)acquisition, 2) start-up stewardship, 3) revegetation, 4) monitoring, 5) community outreach, and 6) long-term management.	62A, 64C, 64D
ERP-98-F21	Lower San Joaquin River Floodplain Protection and Restoration Project	Protect and enhance riparian and floodplain habitats. This project will acquire property (fee title or easement) adjacent to the San Joaquin River and eastside tributaries to preserve and enhance riparian and wetland habitats. Only funded for part of acquisition. Tasks include: 1) acquisition and restoration planning, including biological inventories.	89A, 94B

Project ID Number	Title	Description	Milestones
ERP-98-F22	Biological Restoration and Monitoring in the Suisun Marsh/North San Francisco Bay Ecological Zone	This project will restore, maintain, and monitor at least three major eastern San Pablo Bay and southern Suisun Bay restoration areas within the Suisun Bay/North San Francisco Bay area and compare and improve these restorations through an integrated monitoring program. Using areas recently acquired and designated for restoration, the primary objectives of this project will be to restore emergent and immersed marshland, monitor the restored ecosystems, and seek to improve restoration success. This project is planned for three years and includes small-scale, followed by larger-scale restoration (years 1-2) and integrated, non-destructive physical-chemical-biological monitoring of replicate stations throughout each restoration area to evaluate and improve restoration success (years 1-3). The combined tasks will enable adaptive management and ecological maintenance of these marshes. Task include: Retrieval of vegetation and animals as levees are breached and channels are established at Shell Marsh; 2) seasonal planting and maintenance of native emergent vegetation and animals; 3) physical and biological monitoring of environmental parameters and ; 4) monitoring of sediment and plants for heavy metals.	39A, 39C, 48A, 112C, 112D
ERP-98-F23	South Napa River Tidal Slough and Floodplain Restoration Project	This project is Phase 1 of the South Napa River Tidal Slough and Floodplain Restoration Project which acquisitions 461 acres of wetlands from the Port of Oakland. Restoration of tidal wetlands (Phase 2) would be achieved by removal of approximately 30 acres of City of American Canyon-owned sewage ponds, breaching existing levees, restricting cattle grazing, and creating wetlands in upland areas. This project would contribute to the restoration of priority habitats, including wetlands and perennial grasslands and would also provide habitat for many target species, including delta smelt, splittail, Chinook salmon, California clapper rail, California black rail, slat marsh harvest mouse, shorebirds, wading birds, and waterfowl. Phase 2 was funded under ERP-99-B11. Phase 1 tasks include: 1) acquisition of the Port of Oakland property; 2) preliminary design work for level breaches; 3) completion of an environmental constraints study; and 4) completion of CEQA/NEPA documentation and permitting.	39B, 39F, 40B, 40C
ERP-98-F24	Butte Creek Riparian Restoration Demonstration	This project will restore the Virgin Valley Ecological Preserve by eliminating unauthorized vehicle access, providing over 6000 feet of walking trails, restoring damaged areas, and providing educational materials and signage at the site.	62B, 64E, 112C, 112D
ERP-98-N01	Reclamation District 2035 Fish Screen	This project is a feasibility study of four unscreened diversion pumps which are allowed to divert a maximum of 300 cfs during the irrigation season on the Sacramento River west of Woodland and north of West Sacramento. Reduce entrainment of outmigrating fish. After conclusion of the feasibility study, RD2035 will pursue the funding for design, construction, and permitting. The feasibility study will result in the selection of a preferred alternative to be developed further in the engineering and permitting phase. This project will conduct a feasibility study for installing positive barrier fish screens at a Reclamation District 2035 (RD2035) diversions on the Sacramento River west of Woodland and north of West Sacramento.	72A
ERP-98-N02	Expanding California Salmon Habitat to Alter Dams and Diversions	Inventory dam and diversions in the Central Valley and develop a mechanism to purchase dams and diversions from willing sellers to improve fish passage This project will assess the opportunity for improving fish habitat as a result of reoperation of small hydroelectric facilities in California. Research study; no physical work. Tasks include: 1) an inventory of potential candidate facilities; 2) developing a template for evaluation of potential and costs; 3) identifying cooperative strategies, and 4) conducting community workshops.	18B, 18D, 18F, 67, 97, 98A, 98B, 98C

Project ID Number	Title	Description	Milestones
ERP-98-N03	Life History and Stock Composition of Steelhead Trout	This project will characterize the life history patterns and stock composition of steelhead in the Yuba River to support ecosystem restoration and species recovery programs. Tasks include 1) use scale characteristics to assess the population and life-history characteristics of Yuba River steelhead; 2) estimate the contributions of hatchery and wild steelhead to Yuba River runs; and 3) evaluate the utility of scale characteristics as a tool for distinguishing between hatchery and wild Central Valley steelhead. The primary benefit of this study will be to provide basic information on the life history and stock composition of steelhead trout in the lower Yuba River for use in identifying and devaluation the effectiveness of proposed restoration and management actions directed at the species. The following tasks will be completed for this project: 1) coordination with other fish monitoring programs in the Yuba River and other Central Valley rivers; 2) design and construct fish traps; 3) fish trapping and data collection at the north fish ladder at Daguerre Point Dam; 4) scale preparation and analysis; 5) genetic analysis, and 6) report preparation.	112B, 112D
ERP-98-R01	Small Diversion Fish Screen Program	Reduce entrainment of outmigrating and resident fish. This project is directed toward the continuing goal of screening diversions on the Sacramento River between Keswick and the RBDD. This project consists of getting as many screens installed between the above-mentioned dams as possible. The only monitoring with this as the objective would be to find out how many have been installed. There is no mention of collecting data to ensure that the screens are doing their job. It seems that it is implied that the fish screens will work. Tasks include: 1) prioritizing screening needs; 2) obtaining permits; and 3) completing design and construction of screens at various locations along the Sacramento River or its tributaries and in Suisun Marsh.	72B
ERP-99-B01	Battle Creek Salmon and Steelhead Restoration Project	This project will restore 42 miles of habitat for anadromous fish populations and improve water quality for the Coleman National Fish Hatchery in the Battle Creek Watershed. Battle Creek is a cold, spring-fed stream with exceptionally high glows during the dry season, making it the only Sacramento River tributary resistant to catastrophic droughts. Extensive historical records document Battle Creek's enormous potential for all four races of salmon and steelhead. The primary objective of the project is to restore and maintain those ecosystem processes that provide for the needs of the animals using the ecosystem; especially focusing on species that indicate ecosystem health and are prioritized for restoration by CBDA and other agencies. Tasks include: 1) decommission five PG&E diversion dams on Battle Creek; 2) ladder three diversion dams and screen their associated diversions; 3) increase flow releases from all remaining diversion dams in the creek's anadromous fish reaches; and 4) construct powerhouse tailrace connectors to eliminate redundant screening requirements and mixing of North and South Fork waters.	57H, 58C, 62F, 64A, 66A, 67D
ERP-99-B02	Lower Butte Creek Project (Phase II: Preliminary Engineering and Environmental Analysis)	This project is Phase II of the Lower Butte Creek Project. The objectives of this project are to develop a set of mutually beneficial structural modifications and operational alternatives for fisheries and water users while maintaining the viability of commercial agriculture, managed wetlands, and associated waterways. Phase III was funded under ERP-01-N54. Tasks to be completed under Phase II are 1) completion of preliminary designs of major structural modifications at up to four sites in the Butte Sink; 2) environmental review at proposed construction sites; 3) completion of final engineering design for the upgrade to flow-through flood-up system for the Butte Sink; 4) scoping of fisheries issues for Butte Sink flow-through and structural modification upgrades; 5) facilitation of a cooperative operations agreement of the flow-through system with Butte Sink Clubs; and 6) project management.	67J

Project ID Number	Title	Description	Milestones
ERP-99-B03	Anderson-Cottonwood Irrigation District Fish Passage and Fish Screen Improvement Project, Phase III	This project will provide funds for Phase III of the Anderson-Cottonwood Irrigation District (ACID) Fish Screen Project to improve fish passage and habitat for salmon and steelhead on the Sacramento River. Phase III includes completion of a construction contract with construction beginning sometime in 2000. The project will directly benefit all anadromous fish species within this important spawning reach for federal and state-listed endangered winter-run Chinook salmon and all other upper Sacramento River salmon runs. The project will reduce stranding and entrainment, improve access to under utilized habitat, and increase production of natural runs of anadromous salmonids and sturgeon. Phase I was funded under ERP-98-B03, and Phase II was funded under ERP-98-B24. Tasks to be completed under Phase III are: 1) project management; 2) pre-construction activities which includes preparing documents for subcontractor and copies of all project plans, diagrams, etc.; 3) Construction of the fish screen and viewing facilities; 4) Engineering services during construction which involves construction management, submittal review, inspection, environmental permit compliance monitoring, supervising start up tests, final drafting of record drawings, and preparing the O&M manual; 5) Environmental Impact Mitigation which involves the work required to implement mitigation measures described in the CEQA/NEPA doc.; 6) Hydraulic monitoring; and 7) Biological monitoring.	67B, 72A, 112D
ERP-99-B04	Merced River Salmon Habitat Enhancement: Lower Western Stone Site	Reduce entrainment of outmigrating fish. Improve river and floodplain dynamics and enhance the riparian corridor. Preliminary design and engineering only. (Merced River Salmon Habitat Enhancement: Lower Western Stone Site). Task was to prepare preliminary design and engineering plans for the restoration of the site, and coordinate with the Army Corps of Engineers and the Merced Irrigation District.	88I, 97F
ERP-99-B05	Merced River Salmon Habitat Enhancement (Phase I: Ratzlaff Reach)	Reduce entrainment of outmigrating fish. Improve river and floodplain dynamics and enhance the riparian corridor. This project is characterized by 3.5 miles of gravel pits created during the last thirty years. The pits were excavated to a depth of fifteen to twenty feet, or about 10 feet below the low water level. At that level the mining operation encountered a thick layer of clay. The berms which once separated the gravel pits from the river have been reduced over the years to low islands along the river channel. Until early 1997, the reach still had one functioning berm at the upstream end of the project, but it failed due to sustained high flows during January. Failure of berms in the proposed project site (Ratzlaff Reach Site) has allowed the river to flow through the large (45 acres) abandoned gravel pit. This allowed the river to abandon a river channel that was already heavily constricted and overgrown with vegetation. The failed berms have limited the river width to fifty feet in some areas. [Merced River Salmon Habitat Enhancement (Phase I: Ratzlaff Reach). The task covered by this contract is the construction task which includes; a) cost estimate, specs, bid process, and contract management; b) construction management and survey; and c) construction. All other tasks to complete the project are funded through other sources.	88L, 94C, 97F

Project ID Number	Title	Description	Milestones
ERP-99-B06	Assessment of Ecological and Human Health Impacts of Mercury in the Bay-Delta Watershed	Determine bioavailable sources of mercury in the Bay-Delta Watershed. Obtain data on mercury levels in fish and complete pilot mine remediation feasibility studies. Studies to determine what are the most bioavailable sources of mercury in the watersheds, where the most active methylation is taking place downstream, and what environmental factors accelerate the methylation of mercury in sediments. Tasks include: quantification of mercury loads to the Bay-Delta from the tributaries, quantification of loads within Cache Creek watershed, assessment of fish tissue concentrations, field and lab assessment of effects to bird populations, assessment of methylmercury flux rates from sediment, and bioavailability of mercury from sediment.	30A, 31A, 31B, 31C, 31D, 31E, 32A, 32B, 32C, 48, 77A, 78A, 78B, 78C, 78D, 78E, 79A, 79B, 79C, 106
ERP-99-B07	Fish Passage Improvement Project at the Red Bluff Diversion Dam	This project will provide funds for a portion of Phase II of the Tehama-Colusa Canal Fish Passage Project at Red Bluff Dam, which involves modifying the Red Bluff Diversion Dam (RBDD). The biological/ecological objectives of this project are to reduce or minimize the impacts of the RBDD on upstream and downstream migration of juvenile and adult anadromous fish migration. The remainder of Phase II is funded under ERP-01-N58. Tasks include: 1) preliminary design of the feasible alternatives identified in Phase I; 2) evaluation of the alternative designs; 3) screening of alternatives; and 4) environmental documentation.	67B
ERP-99-B08	Improve Upstream Ladder & Barrier Weir @Coleman Nat'l Fish Hatchery at Battle Creek	This project will provide funds to improve the fish ladder at the Coleman National Fish Hatchery (CNFH) barrier weir and modify the barrier weir to repair existing damage to assist management in restoring fish populations. The success of fish restoration efforts in upper Battle Creek will hinge on the operational capabilities and management of the barrier weir at CNFH. Tasks include: 1) completing a topographic survey and map; 2) geologic and environmental inspection; 3) completing preliminary engineering designs; 4) completing final designs; 5) bid solicitation for a construction contract; 6) environmental compliance; 7) construction; 8) monitoring; 9) project management; and 10) public outreach by the Battle Creek Watershed Conservancy.	67D, 69B, 112B, 112D
ERP-99-B09	Development of Implementation Plan for Lower Yuba River Anadromous Fish Habitat Restoration	This project will provide a restoration plan for the Yuba River to restore fish habitat. Tasks to be completed by this project include: 1) development of a detailed conceptual model; 2) public involvement, development of an outreach plan, and support of local public involvement; 3) development of evaluation/prioritization criteria and protocols; 4) implementation of plan preparation and production of draft and final versions of the plan; 5) conducting presentations; 6) providing quarterly and final reports; and 7) project management.	64I, 62E

Project ID Number	Title	Description	Milestones
ERP-99-B10	Species & Community Profiles of the SF Bay Area Wetlands Ecosystem Goals Project	This project will provide funds for the completion of the Species and Community Profiles Report as part of the Goals Project. The Profiles Report will include information on 97 species of insects, fishes, amphibians, reptiles, mammals, and birds. It will also include five major plant communities. The Profiles Report is expected to be a companion document to the Goal Report, providing additional scientific information on species needs, distribution, life history, and population trends. The Profiles Report will be prepared primarily by staff of the U.S. EPA and the San Francisco Bay Regional Water Quality Control Board, with assistance provided by several contractors. Funding of this project will include completion and reproduction of the report for public dissemination. Tasks include: 1) Design the species and community profiles format; 2) print 2,200 copies of the report; 3) distribute report to scientists and decision makers throughout and beyond the project area.	112A
ERP-99-B11	South Napa River Tidal Slough & Floodplain Restoration Project	This project will restore 453 acres of wetlands adjacent to North Slough and the Napa River, from the Port of Oakland (Phase 2). The property was acquired with funding from ERP-98-F23 (Phase 1). Restoration of tidal wetlands would be achieved by removal of approximately 30 acres of City of American Canyon-owned sewage ponds, breaching existing levees, restricting cattle grazing, and creating wetlands in upland areas. This project would contribute to the restoration of priority habitats, including wetlands and perennial grasslands and would also provide habitat for many target species, including delta smelt, splittail, Chinook salmon, California clapper rail, California black rail, slat marsh harvest mouse, shorebirds, wading birds, and waterfowl. Phase 2 tasks include: 1) completion of CEQA/NEPA documentation, permitting, final design plans and specifications; 2) levees breaching, restoration of tidal action; 3) removal of wastewater ponds; 4) new levees construction, 5) restoration of upland areas; 6) construction of viewing areas/facilities, and 7) monitoring data collection.	39B, 39F, 40B, 40C, 112A, 112B
ERP-99-B12	Riparian Corridor Acquisition & Restoration Assessment	This project will protect critical habitat through conservation easements and fee title acquisitions, and provide a foundation for ecosystem restoration specific to the project area. Approximately five miles of Sacramento River frontage, four and one-half miles of Battle Creek frontage, and one mile of Anderson Creek frontage will be preserved.. ** Will review draft monitoring plan developed as last task of project. Tasks include: 1) Acquisition of conservations easements; 2) topographic mapping and GIS development; 3) course sediment supply assessment; 4) stream meander assessment; 5) natural floodplain and flood processes assessment; 6) riparian and riverine aquatic habitats protection assessment; 7) monitoring and monitoring plan development.	58A, 58B, 59A, 59B, 60A, 62G, 64A
ERP-99-B13	Understanding Tidal Marsh Restoration Processes & Patterns	The inter-disciplinary team involved in this project will build on initial CALFED Category III-supported research in the Sacramento-San Joaquin Delta to address considerable uncertainty in predicting the outcome and ecological benefit of restoring shallow-water tidal habitat in three different regions of the Bay Delta: the Delta, Suisun Bay, and San Pablo/North Bay. Tasks include: 1) Refine conceptual model development for Delta; 2) Extend conceptual model development to Suisun Bay and San Pablo/No. Bay; 3) Asses relationship of fish, macro invertebrates, and avifauna to restoration status; 4) Evaluate food web and other ecosystem linkages; 5) Prepare synthesis document and presentations.	1A, 1B, 112B, 112D

Project ID Number	Title	Description	Milestones
ERP-99-B14	Biological Ag Systems in Cotton-BASIC-Reducing Synthetic Pesticides & Fertilizers in the North San Joaquin Valley	The Sustainable Cotton Project (SCP) is a non-profit, farmer-based organization that works to reduce farmers' use of agricultural pesticides and fertilizers through its Biological Agricultural Systems in Cotton (BASIC) program. The BASIC program focuses on biodiversity, soil building, and making use of intensive monitoring, thereby enabling cotton farmers to reduce their use of pesticides and fertilizers without increasing farming costs or decreasing quality or yields. Tasks include: 1) continue expansion of the BASIC program in the Northern San Joaquin Valley; 2) increase acreage under BASIC management by 100 percent per year through 2002 in the Northern San Joaquin Valley, and 3) scientifically document changes in biodiversity, volumes of toxic chemical release, and economic performance as a result of BASIC management practices; and 4) conduct on-farm tests of new methods designed to further reduce the use of toxic herbicides and synthetic fertilizer.	107A, 107B
ERP-99-B15	Duncan/Long Canyon Paired - Watershed Project	This project will conduct a paired-watershed evaluation of watershed process and function and of the influences of land use and resources management activities on watershed yield and flow in the high elevation headwater areas of the Sierra Nevada. The primary objective of this project is to improve upper American River health by implementing improved practices by identifying land use influences on watershed yield and streamflows and developing an understanding of headwater watershed process/function and flow generation of the various watershed hydrologic attributes and their spatial distribution. Tasks include: 1) setup of precipitation-runoff modeling system, stream gauge and streamflow evaluation, climatic data evaluation, and development of hydrological response unit development; 2) develop GIS framework; 3) develop land use disturbance and watershed condition chrono-sequence; 4) run PRMS, identify natural and land use influenced watershed yield and flow, and develop natural and land use disturbance and watershed process/function assessment; and 5) develop a project report.	Upper Watershed
ERP-99-B16	Determination of the Causes of Dissolved Oxygen Depletion in the SJ River	This project will produce a management action plan to eliminate the oxygen depletion in the San Joaquin River during the fall.	26A, 26B
ERP-99-B17	Dissolved Organic Carbon Release from Delta Wetlands, Part 1	Evaluate the concentration, quantity and microbial alteration of organic carbon from different carbon sources to the Delta and effects on drinking water quality and the food web. The goals of this project are to: 1) characterize the concentration and quality of DOC released from different wetland types within the Delta and by agricultural activity, assessing both incorporation into Delta food webs and public health concerns that arise when Delta waters are used as drinking water; and 2) determine how microbial alteration affects the quality of the DOC and thus changes the concentration of the small fraction of DOC causing public health concerns. Tasks include: 1) Characterize the quality and concentration of organic carbon contributed to the Delta by different land-uses; 2) Determine the disinfection by-product (DBP) formation of material from different sites; 3) Characterize the value to the Delta foodweb of DOC from the various Delta sources; 4) Characterize the chemical transformations of the DOC generated by the different Delta sources and mediated by the microbial community and photolysis; 5) Estimate the origins of DOC contributing to the pool of DBP precursors in drinking water by correlating the isotopic ratios of DBPs with that of the various DOC sources; 6) Develop a synthesis of the results; 7) appoint a scientific advisory panel consisting of experts in wetland organic carbon production.	112B
ERP-99-B18	Evaluation of Potential Impacts of Chinese Mitten crab on Benthic Communities in the Delta	The purpose of this project is to provide information regarding the relationship between the Chinese mitten crab (Eriocheir sinensis) and the benthic invertebrate community within the Sacramento-San Joaquin Delta and Suisun Bay. Tasks include: 1) mitten crab monitoring; 2) benthic monitoring; 3) water quality monitoring; 4) project management.	112B

Project ID Number	Title	Description	Milestones
ERP-99-B19	Health Monitoring of Hatchery & Natural Fall-run Chinook in SJ River	This project would characterize the health and physiological condition of both natural and hatchery juvenile Chinook in the San Joaquin River and Delta. Tasks include: 1) Acquire supplies/train bio-sampler; 2) collect samples; 3) Perform lab assays, ship supplies; 4) input data into spreadsheets; 5) prepare quarterly & final reports; 6) present data for CALFED cooperators.	112B
ERP-99-B20	Sacramento River Discovery Center	This project funds the on-going educational programs at the Sacramento River Discovery Center. This project will provide a model for connecting students to their watershed through curriculum, extensive on-site activities, and community connections. These educational programs teach, through cognitive and field experiences, about the complexities of watersheds, including topics on various habitat types, river corridors, meander zones, birds, fish, macro-invertebrates, groundwater, invasive plants and animals, revegetation, and the need to build partnerships with all watershed stakeholders to best management resources for the health of the system. Tasks include: 1) expansion of bird monitoring and volunteer recruitment and training in cooperation with Point Reyes Bird Observatory; 2) develop a native grass plot for study and to provide plants for revegetation sites; 3) enhance public involvement with and access to the two acre native/drought tolerant plant garden surrounding the Discovery Center.	Educational
ERP-99-B21	Estuary Action Challenge Environmental Education Project	The Estuary Action Challenge (EAC) is an environmental education project, founded in 1992, focusing on environmental education in the San Francisco Bay Estuary. The biological/ecological objectives of this project include increasing the number of teachers using local bay and creek habitats as educational resources; adopting, cleaning-up, and restoring urban creeks; increasing public awareness of methods to reduce urban runoff; and increasing public awareness of bay pollution issues. To support these objectives, the EAC will either implement or provide continued support to several individual projects including the Urban Creek Restoration Program, Pollution Reduction/Safe Bay Food Consumption Program, Creek and Bay Field Trip Exploration Program, Bay Estuary Scientist Program, Community Creek Clean-Up Program, and an Estuary Action Challenge Newsletter. Tasks include: 1) Urban/community creek restoration program; 2) pollution reduction/safe bay food consumption program; 3) creek and bay field trip exploration program; 4) bay estuary scientist program; 5) estuary action challenge newsletter.	Educational
ERP-99-B22	Water Challenge 2010 Exhibit	An interactive, hands-on environmental education exhibit. Tasks in this phase includes: 1) Fabricate and assemble the framework and other key elements of the exhibit structure; 2) fabricate the tanks, valves, pumps and piping of the exhibit and install in the exhibit structure; 3) AV hardware and show control system purchased and installed; 4) install and paint remaining architectural elements of the exhibit; 5) test the exhibit 6) dissemble and reassemble the exhibit at the Bay Model; 7) publicity campaign.	Educational
ERP-99-B23	The Learning Watershed Project	This project will provide funds to support the efforts of the American River Watershed Institute (ARWI) to implement the Learning Watershed Project, which is a comprehensive, learning project with a focus on the watershed and community. As part of this project, the ARWI will conduct seven workshops in conjunction with the pre-restoration monitoring, prescription and restoration, and post-restoration monitoring on two tributaries to Deep Creek on the Middle Fork of the American. ARWI will also establish a core presentation team from the Todd Valley Miwok/Maidu Cultural Foundation to be built into all ARWI education workshops. ARWI will also construct two 11 x 17 foot interactive educational exhibits within the new building at the Placer County Nature Center that will explore issues related to water and people and water and nature. ARWI will integrate upper and lower American River watershed education programs and will partner with the Red Bluff Sacramento River Discovery Center to focus on learning networks.	Educational

Project ID Number	Title	Description	Milestones
ERP-99-B24	Traveling Film Festival Exhibit	Educational outreach project. Task includes extending the distribution and showing of the film festival for one year.	Educational
ERP-99-B25	River Studies Center Exhibits & Programs	To develop environmental education program exhibits for Riverview Ranch. Tasks include: 1) program development, information gathering, and research; 2) construction of exhibits, displays, and video production; 3) project management.	Educational
ERP-99-B26	1999/2000 Bay-Delta Education Program	To increase the public's awareness and understanding of the issues affecting the Bay-Delta, and make it feasible for members of the public to support CALFED while altering their behavior to be a part of environmental solutions. Tasks include: 1) Briefing paper on wetlands and marshes which will include researching the issues, writing the paper, providing review and editing, design and printing and adding major portions of the briefing paper to the foundation's web site; 2) Journalists tour of the bay-delta which includes planning the tour, publicizing the tour nationally, and implementing the tour.	Educational
ERP-99-B27	Watershed Educational Training	This project will increase public awareness of watershed issues through implementation of the Colusa County Resource Conservation District's (CCRCD) Watershed Educational Training (WET) project. The WET project links community watershed health with the ecological objectives and goals identified by the CBDA. The project will supply the knowledge that enables the public to make sounds environmental decisions that come with appreciation for our natural resources. The WET project revolves around the use of the EnviroScape interactive watershed models to teach the importance of how the public's actions can have both positive and adverse effects on the watershed ecosystem. Tasks include: 1) provide for the purchase of the EnviroScape software; 2) create an exhibit at the annual Colusa County Farm Show; 3) provide for multiple presentations at the 5th Annual Farm Day; 4) provide for a Watershed Nonpoint Source Pollution presentation offered annually to all 5th grade students and teachers.	61C, 62C, 65C, 66D, 67G, 71D
ERP-99-B29	San Joaquin River Pilot Project	Entails monitoring the downstream effects of the augmented flows at ten recommended cross sections, including the response of riparian seedlings and saplings. This pilot project will release 35,000 acre-feet of water during the period of June through October 1999. The purpose of this is to promote dispersal and germination of seed from native riparian plant species. Tasks include: 1) Release flows; 2) acquire water and conveyance and reimburse O&M and pumping; 3) monitoring which includes tree seed maturation, piezometers, alluvial groundwater monitoring wells, flow measurements and Wolman counts, and vegetation sampling. Also data analysis and interpretation.	86A, 90, 94B
ERP-99-B30	Water Acquisition	During water year 1999, US Bureau of Reclamation shall acquire up to fifty thousand (50,000) acre-feet of surplus water from the Oakdale Irrigation District and the South San Joaquin Irrigation District which the Districts shall make available to Reclamation upon notification of the Districts. Oakdale Irrigation District and the South San Joaquin Irrigation District will sell 50,000 acre feet of New Melones water to USBR at the cost of $60.00/ac ft.	96B

Project ID Number	Title	Description	Milestones
ERP-99-C01/C02	Cosumnes and Mokelumne Rivers Feasibility Study	Feasibility Study of Ecosystem Restoration opportunities on the Cosumnes and Mokelumne Rivers. The project has been combined with the Mokelumne River Feasibility Study, which was planned to be simultaneously conducted by the Corps and the Mokelumne River Feasibility Study. The proposed study will identify, design, and estimate costs for environmental restoration and flood damage reduction opportunities along the Cosumnes River. Implementation of these opportunities will occur in the future as funding and land management allows. Environmental compliance documents as required by NEPA and CEQA will also be prepared. The project will be carried out in conjunction with an extensive public involvement program to ensure that all potential stakeholders are provided a format for project-related discussion, education and decision-making. The project will be managed as a Feasibility study under the Corps' General Investigation process. Tasks include: 1)Complete the Project study proposal; 2) design and initiate a public involvement process; 3) refine challenges and opportunities, and goals and objectives; 4) conduct preliminary baseline studies; 5) conduct site prioritization; 5) develop preliminary site designs; 7) develop final project design; 80 define final project benefits; 9) refine cost estimates; 10) conduct environmental compliance. There is no signed contract for this project.	8A, 9A, 12A, 12B, 13G, 13I, 13K, 13M, 13O, 13L, 13N, 14A, 14B, 14C, 14D, 16A, 22A
ERP-99-F01	Tuolumne River Run Pool 10 Restoration	Restore instream aquatic habitat and shaded riverine aquatic habitat for the primary benefit of San Joaquin fall-run Chinook salmon. The fall-run Chinook salmon in the tributaries of the San Joaquin River are currently listed as a species of concern by the USFWS. Anadromous salmonid populations in the lower Tuolumne River require adequate ecosystem health to achieve and sustain their potential productivity. Restoring and maintaining dynamic geomorphic processes are crucial for insuring healthy river ecosystems with natural productive salmonid populations.	88A, 88B, 88D, 94B, 95A, 97D
ERP-99-F02	Tuolumne River Mining Reach Restoration	Develop a Riparian corridor Habitat Restoration Plan to restore instream aquatic habitat and shaded riverine aquatic habitat for the primary benefit of San Joaquin fall-run Chinook salmon. The Tuolumne River Technical Advisory Committee (TRTAC), under the auspices of the 1995 Don Pedro Project Settlement Agreement (FERC License No. 2299), is developing a Riparian corridor Habitat Restoration Plan to restore instream aquatic habitat and shaded riverine aquatic habitat for the primary benefit of San Joaquin fall-run Chinook salmon in the Tuolumne River below la Grange Dam. The TRTAC has identified as a high priority project the restoration off a 6.1 mile reach (River Mile 34.2 to 40.3) damaged in the January 1997 floods. This is called the "Mining Reach" because there exists active sand and gravel mining operations with this reach. Tasks include: 1) Monitor pre-project habitat and populations 2) repair dike breach; 3) construct MJ Ruddy segment improvements; 4) plant native vegetation.	88A, 88B, 88D, 94B, 95A, 97D
ERP-99-F03	Habitat Restoration on McCormack-Williamson Levees	Protect riparian habitat on levees. This is a directed action project. TNC will maintain title to & manage the tract for up to 3 yrs from the date TNC takes title (see 99-F04), during this period TNC will cooperate w/CALFED and other agencies/dept's in planning the future of the property. Tasks include: 1) design, development, permitting & implementation of a long-term restoration plan; 2) identify a long-term agency owner of McCormack-Williamson Tract; and 3) test, though pilot implementation, levee improvement strategies that achieve multiple benefits.	14A

Project ID Number	Title	Description	Milestones
ERP-99-F04	McCormack-Williamson Tract Acquisition	Protect key riparian, wetland, native grassland, and aquatic habitats within the Cosumnes River. Expand the floodplain to help establish a naturally functioning ecosystem for native fish and terrestrial species, and create a buffer of agricultural land. See 99-F03. The recording of deed & title transfer to TNC for the McCormack-Williamson Tract (1512 acres). Tasks by TNC included doing due diligence and acquiring the property, working with Cosumnes Preserve partners in developing a long-term management plan, and finding a partner willing to take over long-term ownership. If no willing partner was found, TNC would place a conservation easement on the property and sell it.	8A, 9A, 13L, 13N, 14A, 16A, 22A
ERP-99-F05	Non-native Invasive Species Advisory Council	To develop and maintain an organization which is responsible for the coordination and implementation of activities and projects that address the issues of NIS in the CALFED area of concern. Other than the development of the Nonnative Invasive Species Advisory Council, it is unclear what other tasks were to be accomplished by this contract.	20A, 22A, 22B, 22C, 22D
ERP-99-F06	Reducing Risk of Importation & Distribution on Non-native Invasive Species Through Outreach & Education	Project foci are to develop a series of directed educational products and services that will bring together experts in NIS biology with members and representatives of a wide range of industries that may potentially be involved in the importation, sales, or distribution of NIS; to minimize risk of introduction and damage of aquatic nonindigenous species in San Francisco-Bay-Delta. Goals will be implemented through outreach and education (i.e., workshops, publications, websites, etc. Elements of the project include: 1) Workshops to facilitate communication among industry, agencies and academia; 2) Publications to help facilitate transfer of information to a wide spectrum of industry members and representatives; 3) Video presentations to more visually present the problem of NIS as a Bay/Delta-wide problem; and 4) NIS website to develop an accessible central location for relevant information regarding the importation and distribution of NIS.	20A, 22A, 22B, 22C, 22D
ERP-99-F07	Zebra Mussel Detection & Outreach Project	Implement a combination of public outreach and monitoring to, first provide information to educate the public about zebra mussels and the means by which they spread and, second to set up and operate an early detection system in the Central Valley, Bay/Delta and water storage and delivery systems. Tasks include: 1) Identify areas in the Bay/Delta and Central Valley watershed susceptible to zebra mussel infestation; 2) Develop standard monitoring and reporting program at representative sampling sites; 3) Establish a cooperative monitoring and reporting program at representative sampling sites; 4) Develop a zebra mussel education/outreach program.	112B, 112D
ERP-99-F08	Purple Loosestrife Prevention, Detection & Control in the Sac/SJ Delta & Associated Hydrologic Units	Over a three year period, the Integrated Pest Control Branch of the CA Dept of Food & Ag will carry out a series of tasks which will result in purple loosestrife prevention and control. Tasks include: 1) survey of the Sacramento-San Joaquin Delta; 2) local eradication of loosestrife in Phase I and II areas; 3) focused delimitation and survey of all loosestrife infestations in the CALFED focus area; 4) training of agency personnel, working in and near the Delta, to recognize purple loosestrife and other aquatic non-native invasive species; and 5) education of the boating, water fowl hunting, and similar public citizenry.	22A, 22B, 22C, 22D

Project ID Number	Title	Description	Milestones
ERP-99-F09	Introduced Spartina Eradication Project	The Introduced Spartina Eradication Project (ISEP) proposes to significantly reduce or eliminate the estimated 1,000 acres of introduced Spartina in the San Francisco Bay estuary. ISEP is a regionally coordinated program with the primary objectives of preventing further spread of introduced Spartina species to the North Bay and Delta, preventing its introduction to new restoration projects and halting the degradation of CALFED priority habitat. Tasks include: 1) establishment of a management structure and implementation plan necessary for a successful regionally coordinated control program; 2) coordinate and plan actions to prevent the spread of introduced Spartina to the North Bay and Delta by reducing populations north of the San Francisco Bay Bridge; 3) coordinate and plan actions to produce significant reduction or elimination of populations where prior restoration actions have created habitat most likely to be aggressively invaded by S. alterniflora; 4) develop a mapping/monitoring/assessment plan for ISEP; 5) develop a public education and outreach strategy; 6) provide a map of the Spartina population distribution/controlled target populations; 7) produce ISEP slide show and information brochure; and 8) conduct research essential for responsible land management decisions regarding ISEP.	39E
ERP-99-F10	Practical Guidebook to Prevent & Control for Non-native Invasive Plants in Shallow Water Habitats of the Bay-Delta Ecosystem	The development of a guidebook that would provide practical information for local control of the highest priority species of non-native invasive plants of shallow water habitats of the landscape of the Bay-Delta watershed. Tasks include: 1) assemble an exhaustive list of NIS plants for the Bay-Delta ecosystem with cross-references to habitat type, institutional sources for entries, and contacts at the associated institutions; 2) assemble a list of NIS plant experts in the region; 3) establish a technical advisory group to select key NIS plant species to be represented in the guidebook; 4) establish NIS key plant selection criteria and select key species to be represented in the guidebook; 5) identify contributing authors as needed and contract with them; 6) identify primary audience; 7) work with the contributing authors and advisory group to design the guidebook; 8) coordinate among contributing authors to assure their deliverables; 9) finalize guidebook and post on web sites.	22A, 22B, 22C, 22D
ERP-99-F11	Effects of Introduced Clams on the Food Supply of Bay-Delta Fishes	This project will research the effects of the introduced clam Potamocorbula amurensis on the food web of San Francisco Bay. The objective of this project is to answer: How has the introduced Asian clam altered the feeding environments of young fish species of interest (longfin and delta smelt and striped bass)? and How has Potamocorbula amurensis affected the production rate of food, both native and introduced, for young fish in the Bay/Delta and could production be increased? The project will analyze existing data and use relatively simple simulation models. Tasks include: 1) analyze existing data on co-occurrence of fish and their prey and on inputs of various sources of organic matter to the estuarine ecosystem; 2) model a framework for the analyses/experiments to investigate the limits that system productivity places on increases in fish populations; and 3) synthesize the overall results into a comprehensive and detailed description of the current status of the food web and likely impediments to rehabilitation.	112B
ERP-99-N01	Anderson-Cottonwood Irrigation District Fish Screen	Reduce entrainment of outmigrating fish. Same project as 99-B03 & 98-B03. Tasks include: 1) Preconstruction activities such as NEPA/CEQA compliance, permits, resolving other outstanding implementation issues, and subcontracting; 2) construction; 3) engineering services during construction; 4) environmental impact mitigation; 5) hydraulic monitoring; 6) biological monitoring; 7) fish viewing facility for public.	67B, 72A, 112D
ERP-99-N02	Fish Treadmill Developed Fish Screen Criteria for Native Sacramento-San Joaquin Watershed Fishes	The primary ecological/biological objective and benefit of the Fish Treadmill project is to provide the data necessary to develop the "proven technology" for protective positive barrier fish screens for priority native fishes in the Sacramento-San Joaquin watershed. Tasks include: 1) fish treadmill operation; 2) biological studies; 3) fish collection; 4) biological monitoring/research plan; 5) quarterly reports; 6) final technical reports.	112B, 112D, 115A

Project ID Number	Title	Description	Milestones
ERP-99-N03	East Delta Habitat Corridor Tidal Marsh and Riparian Habitat Restoration (Georgiana Slough)	This tidal marsh and riparian restoration project will continue to improve habitat conditions by building on work previously accomplished. This phase will address new and include previous work in 1) planning and permitting for new work; 2) development of restoration and monitoring plan; 3) Riparian enhancement on poorly vegetated berms; and 4) Improve existing tidal marshes through erosion control, revegetation with native plants.	9B, 13G, 13K, 22B, 112A, 112B
ERP-99-N04	Lake Red Bluff Riparian Area Restoration & Education Support Project	This project will restore 2 acres of riparian habitat in the Lake Red Bluff Riparian Area on the mainstem of the Sacramento River. The area will be cleared of invasive exotic plant species, including tree of heaven. The primary ecological objectives are to reduce the destruction of habitat in the area, improve the habitat by eradication of invasive exotic species and the reintroduction of native plants, reduce silt and runoff to the Sacramento mainstem by reducing erosion, and provide an outdoor classroom for use by students in the area. The project forms part of a larger USFS plan for the area, which includes the elimination of several incidental trails with one designed, half-mile trail to reduce the impacts of visitors. The area has been designated as a State of California Watchable Wildlife Site and is part of the National Sacramento River Wildlife Refuge Corridor. The project will be monitored by the USFS, who plans to operate and maintain the site in perpetuity for the benefit of the public.	62G
ERP-99-N05	Reintroduction of Endangered Soft Bird's Beak to Restored Habitat	This project consists mainly of a study to reintroduce endangered soft bird's beak (Cordylanthus mollis ssp. mollis) to its historic range within Suisun Marsh in order to provide critical ecological data that will facilitate rare plant restoration. This proposed study will provide adaptive management insight to how changing physical processes my effect this rare plant. Tasks include: 1) investigate habitat factors critical to soft bird's beak, 2) develop reintroduction criteria and screen reintroduction sites, 3) implement experiment rare plant reintroduction, and 4) develop a long term monitoring and education outreach program emphasizing local involvement.	39L, 112A
ERP-99-N06	Linked Hydrogeomorphic Ecosystem Models to Support Adaptive Management	The Cosumnes Consortium will focus on on-going and planned restoration efforts within the Cosumnes and Mokelumne watersheds with the intent of providing technical and informational support for restoration planning and design, developing new analytical tools and information systems that support implementation of the CBDA's ERP, Watershed Management, Water Quality and Levee Integrity programs, and providing baseline studies and targeted research for long-term biologic and hydrogeomorphic monitoring in support of CMARP. Tasks include: 1) describe hydrological flow processes over the land surfaces, within the soil root zone, in deeper soils, and in groundwater aquifers; 2) assess the relationship between hydrogeomorphic processes and ecosystem function within the Cosumnes basin and the reach of the Mokelumne River below Camanche Dam; 3) develop a paired basin water quality and aquatic food resource monitoring and modeling program; 4) develop vital baseline studies that will allow evaluation of the ecosystem/species benefits of planned or on-going restoration projects within the basins and comparison of the naturalized aquatic ecosystems of the Cosumnes Basin with the regulated ecosystems of the Mokelumne River; and 5) manage and support a website and GIS for all core programs in the Cosumnes Consortium.	1A, 1B, 4A, 5A, 5C, 12A, 12B, 14A, 14C, 17A, 17B, 23A, 29E, 29J, 29O, 29T, 112A, 112B

Project ID Number	Title	Description	Milestones
ERP-99-N07	Chronic Toxicity of Environmental Contaminants in Sacramento Splittail - A Biomarker Approach	This study proposes to evaluate a suite of biomarkers of exposure and effect indicators at several levels of biological organization to quantitatively assess the potential chronic effects of contaminant exposure on various life stages of splittail under laboratory and field settings, establish a link between the contaminant exposure and the deleterious health of individual splittail, and identify indicators of contaminant exposure that are most cost-effective for use in future monitoring studies. Four functional categories of biological indicators will be measured: indicators of contaminant exposure; indicators of general condition indices; indicators of organ and reproductive dysfunction; and indicators of individual-level response.	112B, 112D
ERP-99-N08	Assessment of Pesticide Effects on Fish & Their Food Resources in the Sacramento/San Joaquin Delta	This project will integrate lab and field study to provide information on pesticide toxicity to resident species, develop the data needed to apply laboratory-derived toxicity measures to field conditions. Efforts will be focused on salmon and the invertebrate prey upon which they feed, but our results will most likely be relevant to other fish species as well which are in the Delta at the times of elevated pesticide concentrations and feed upon anthropod organisms that may be susceptible to pesticide toxicity. Tasks include: 1)conduct an data review to identify pesticides of concern and field sites; 2) develop toxicity tests with resident species and chronic endpoints such as abnormal development, and target enzyme inhibition; 3) evaluate the influence of local conditions on pesticide bioavailability and/or toxicity; 4) assess toxicity in which multiple pesticide pulses vary in magnitude, frequency, and duration; 5) integrate existing information and data to formulate recommendations for a pesticide monitoring and management strategy in the Delta; and conduct a comprehensive field study to determine magnitude and duration of toxic pulses at selected sites; 6) demonstrate the effect of pesticide on resident aquatic species in both lab and in situ exposures; 7) determine the pesticide (s) causing toxicity through Toxicity Identification Evaluations; and 8) examine salmonid diet composition throughout these pesticide events to link invertebrates impacts to habitat trophic value for fish.	37A
ERP-99-N09	Effects of Introduced Species of Zooplankton & Clams on the Bay-Delta Food Web	This research project will study the effects of introduced species in the San Francisco Bay-Delta food web supporting several fish species of concern in this estuary. The research will focus on the early life stages of delta smelt, longfin smelt and striped bass. These three species were chosen due to their contrasting life histories and likely responses to environmental conditions and introduced species, particularly the clam, P. amurensis. The goal of the project will be to determine how food web alterations influence the key fish species that depend on that food web, and what rehabilitation efforts and actions might be effective in the context of that altered food web. Products from this project will be detailed reports of introduced species in the food web, and the effects of these species on the estuary as a whole and the fish species of interest. Tasks include: 1) examination of gut contents and condition of fish to assess the extent to which fish prey on introduced versus native species; 2) zooplankton experiments will be conducted to determine growth and production rates of common species of zooplankton; 3) predation experiments will be conducted to examine selective predation by fish on alternative zooplankton prey, and predatory relationships among the zooplankton; and 4) growth rate of key species will be measured and the degree of food limitation will be determined.	112B, 112D

Project ID Number	Title	Description	Milestones
ERP-99-N10	Assessing Ecological & Economic Impacts of the Chinese Mitten Crab	This project will monitor the abundance and distribution of Chinese mitten crab, quantify habitat associations and impacts to banks and levees, and the impacts of the Chinese mitten crab on commercially-valuable species. This project has four goals: 1) to monitor the abundance and distribution of the mitten crab, 2) define habitat preferences and quantify impacts on levees and banks, 3) using field and laboratory methods, evaluate the impacts of the mitten crab on commercially valuable species, and 4) research the role of the mitten crab in the food web, emphasizing impacts to endangered and commercially-valuable species. The primary field site for this project is the estuary of the South Bay and its major tributaries. Five core and fifteen additional sites along the major tributaries will be established in order to monitor mitten crab seasonal patterns in abundance, migration and distribution, habitat preferences and areas where the threat to bank and levee integrity from crab burrowing activities will be the highest. Additional data will be analyzed from trawl data collected by the Marine Science Institute (MSI) to compare freshwater population dynamics of the mitten crab with dynamics in the Bay.	112B, 112D
ERP-99-N11	Purple Loosestrife Prevention, Detection & Control Actions for the Sacramento-San Joaquin River Delta System	Purple loosestrife may be present in multiple locations in the Sacramento-San Joaquin Delta and it can possibly be eradicated implementing an adaptive management program which addresses each infestation with the most appropriate management technique. A tactical adaptive management plan will be developed addressing three main treatment options: 1) Manual Control – hand eradication or mowing/cutting, 2) Chemical Control – using herbicides, and 3) Biological Control – using beetles. Tasks include: 1) yearly surveys of the Sacramento-San Joaquin Delta; 2)local eradication of loosestrife in the Delta and other hydrological units; 3) focused perimeter delimitation and survey of all loosestrife infestations in the CALFED focus areas; 4) train agency personnel, working in and near the Delta, to recognize purple loosestrife and other aquatic non-native invasive species; and 5) education of the boating, waterfowl hunting and similar public citizenry.	22A, 22B, 22C, 22D
ERP-99-N12	Central Valley Steelhead Genetic Evaluation	The purpose of this project is to evaluate and describe the genetic and population structure and genetic variation of Central Valley Steelhead populations by analyzing mtDNA and microsatellite DNA, yielding information on phylogenetic relationships among native rainbow trout/steelhead, naturally spawning steelhead, and hatchery steelhead. Tasks include comparison of genetic profiles to describe phylogenetic relationships of Central Valley naturally-spawning and hatchery-raised steelhead populations; will analyze genotypes of self-sustaining, putative native Central Valley rainbow trout populations that are presently isolated above artificial barriers to determine their phylogenetic relationship to anadromous and stream-dwelling rainbow trout populations and strains; will provide genetic information on steelhead populations of specific stream systems; and evaluate and describe genetic and population structures and genetic variation of Central Valley steelhead populations.	112B, 112D
ERP-99-N13	Development of a Comprehensive Implementation Plan for a Statistically Designed Marking & Recovery Plan	This project would result in the development of an implementation plan for a comprehensive and statistically sound marking and tagging program for hatchery-produced fish Central Valley Chinook salmon.	112B, 119A

Project ID Number	Title	Description	Milestones
ERP-99-N14	Colusa Basin Watershed Project	This project will serve as a watershed management project to assists private landowners in addressing non-point source pollution, flood control issues, exotic invasive weed abatement, and reactivating important ecological processes and function s of riparian corridors in the Colusa Basin Drain watershed. The project will consist of six selected sites which will implement riparian enhancement and restoration practices to existing degraded riparian corridors and associated wetlands to reduce the amount of surface runoff, chemical residues, and sediments flowing into the Colusa Basin Drain. Each cooperating site will have a Resource Management System (RMS) plan developed utilizing an ecosystem-based planning approach. The plans will include conservation practices, improved water quality/water conservation management goals, and a monitoring and educational component. Tasks include: 1) project management and administration; 2) coordination of public participation; 3) selection of the six cooperating sites within the watershed; 4) establishment of the monitoring sites; 5) collection and analysis of document baseline data; 6) development of RMS plans; 7) scheduling of workshops and tours; 8) implementation of RMS plans; 9) conducting workshops and tours; and 10) preparation of final project report.	56, 58F, 58G, 59H, 62C, 66L, 71D, 73A, 73B
ERP-99-N15	Lower Mokelumne Stewardship	This project will continue the Lower Mokelumne River Watershed Stewardship Program (WSP) initiated in 1998-1999 (Phase 1: ERP-98-E12). Phase 1 has built a strong foundation of community support for the program, and will result in the formation of a steering committee and a vision for future watershed development. This two-year project will initiate phases II & III of the WSP. Tasks include: 1) expanding upon the work of Phase I by preparing a Watershed Stewardship Plan, Watershed Owners Manual (describing the stake holder's common watershed land management goals and objectives and to coordinate these actions), prepare and Action Plan, and to implement initial watershed stewardship actions and an WSP Monitoring and Evaluation Program; 2) expand and continue to implement the Environmental Farm Plan, which are documents prepared by growers to raise awareness of the environment on their farms.	5C, 6A, 12B, 112A, 112B
ERP-99-N16	Clear Creek Prescription	This project will create an ecosystem-based watershed management prescription for the Clear Creek watershed that can serve as a model for other watersheds in the state. The overall goal is to achieve CBDA's vision of restoring important fishery, wildlife, and plant communities to a healthy condition. Specific social, biological, and ecological objectives of the project are to use a collaborative, non-regulatory forum for addressing watershed issues; enhance existing partnerships; use education and information to promote acceptance of watershed projects; use "Eco-Morph" software to show landowners how the landscape can change based on their management choices; create and maintain wildlife habitat; assess the transportation system and rank rehabilitation of roads; conduct base planning, implementation, and monitoring of watershed projects; and develop a monitoring strategy allowing adaptive response changes to watershed management.	58B, 58C, 62F

Project ID Number	Title	Description	Milestones
ERP-99-N17	Yuba Watershed Council	This project will support the ongoing efforts of the Yuba Watershed Council (YWC) by funding a watershed coordinator, materials, equipment, and office space. The YWC is working towards achieving the long-term ecosystem objective of a fully rehabilitated, self-sustaining Yuba River watershed and Bay-delta ecosystem by developing the local capacity to improve and enhance watershed management, identifying good management practices, providing assistance and training for monitoring programs, and supporting locally developed education programs. The role of the watershed coordinator will be to provide coordination and assistance, adaptive management and monitoring, education and outreach, and continuity and program oversight of current and future watershed projects. Using a collaborative approach, the watershed coordinator will work in conjunction with other project coordinators working on watershed restoration, stream rehabilitation, forest improvement, and water quality enhancement programs in the Yuba River watershed. The following tasks will be completed as part of this project: 1) initial community outreach and collaboration; 2) hiring a watershed coordinator; 3) creating a detailed work plan providing direction for the YWC, and 4) program development and implementation of the work plan.	57A, 58J, 58K, 62E, 64I, 71C
ERP-99-N18	Levee Setback Geomorphic Model	This project will develop a geomorphic model that allows simulation and demonstration of the response of riverine systems to levee removal and setback. The levee setback simulations will be based upon a physics-based meander migration model that predicts channel evolution in response to measured or estimated hydraulic and geologic conditions. This model can then be linked with an empirical model of the response of riparian forest and floodplain vegetation to channel dynamics and floodplain inundation. The geomorphic model will be used to simulate channel and floodplain changes in response to levee setbacks. The model will be able to estimate spatial and temporal changes in floodplain development. These simulations can be used to inform decisions across a multitude of areas including ecosystem benefits, land uses, water quality impacts and economic impacts. This two-year project will develop levee and infrastructure-placements component of the migration model, apply this model to simulate levee setback scenarios, develop interactive computer visualization of model output, and prepare model simulations. This will add to the public understanding of promoting natural processes as a means of restoration.	1A, 1B
ERP-99-N19	American River (South and Middle Fork) Watershed Stewardship Project	This project will produce a Watershed Management Plan and Stewardship Strategy for the South and Middle Forks of the American River. The plan will address a wide range of environmental, institutional, social, and economic issues in an integrated manner at a watershed scale. A major emphasis will be on improving the ecological functioning of the watershed, including protection and restoration of riparian and aquatic habitats, protecting watershed integrity, improving water quality and flows, reducing the risk of catastrophic wildfire, avoiding and mitigating growth-related watershed impacts, and addressing factors such as connectivity with the main stem Sacramento River. Tasks include: 1) conducting a preliminary public scoping meeting for the overall project; 2) collecting relevant biophysical, social, economic, and institutional data; 3) developing these data, to the extent possible, in GIS and making it accessible to all interested parties; 4) preparing a report integrating data and information collected and providing a holistic understanding of watershed conditions, functions, and processes; 5) developing a Watershed Management Plan and Stewardship Strategy, using the Coordinated Resource Management Plan (CRMP) process and extensive community participation; 6) preparing a monitoring assessment and volunteer monitoring plan; and 7) conducting an evaluation of the overall project, including monitoring of pilot implementation, and preparing a final evaluation and monitoring report for CBDA, CRMP members, and other interested parties.	Upper Watershed

Project ID Number	Title	Description	Milestones
ERP-99-N20	Napa River Watershed Stewardship Year 2	This project represents the second year efforts to restore the Napa River watershed as begun under ERP-98-E01. This project is intended to address a broad range of ecological and biological values in the watershed, including steelhead and salmon restoration. The program objective is to implement the recommendations of the Napa River Watershed Owner's Manual, which include: 1) stabilize streams using natural process, 2) promote contiguous habitat, 3) increase biological diversity, 4) increase migratory and resident fish habitat, 5) coordinate natural resource protection and planning, and 6) encourage local land stewardship. Under the Second Year of this program, additional restoration and hydrologic modeling work will be done and additional stewardship groups will be supported an initiated. The primary biological and ecological objectives of this project are to restore the following priority habitats: seasonal wetland and aquatic habitat, instream aquatic habitat, and shaded riverine aquatic habitat. The primary species that will benefit from this project are steelhead trout and California Freshwater Shrimp. Project goals and objectives will be accomplished through continued development of local partnerships to encourage long-term effective habitat management while reducing conflicts related to those resources.	38B, 47D
ERP-99-N21	Development of a River corridor Management Plan for the Lower American River	This project will develop a River Corridor Management Plan (RCMP) for the lower American River between the Sacramento River and the Nimbus Dam in Sacramento County. This reach is highly managed with a history of planning for water management, open space, and flood control. However, it lacks a comprehensive, broadly supported river corridor management plan that would assist CBDA in determining what restoration actions to fund in the future. The proposed RCMP will create a planning framework and consensus-building process for pursuing CBDA's vision and objectives for ecosystem restoration along the lower American River. Tasks include: 1) consensus building and facilitation, creation of a River Corridor Steering Committee (RCSC), creation of a Fisheries and Aquatic Habitat Working Group (FAHWG); 2) development of the Fisheries and Aquatic Habitat Element, preparation of a literature review summary report, preparation of Fisheries and Aquatic Habitat Element; 3) floodplain management, use of SAFCA's hydraulic model, conducting geomorphic assessment, and mapping ecological resources; and 4) project management.	55A, 58A, 58L, 62A, 66F, 112A, 112B
ERP-99-R01	Floodplain Easements; Lower Tuolumne and San Joaquin (DA9)	Acquire floodplain easements on 9 properties totaling 1,200 acres of seasonal wetland habitat and shaded riverine aquatic habitat in area currently cultivated. Tasks include: Acquire perpetual floodplain easements on 1,200 acres from 9 willing property sellers identified during 1998 floodplain easement application process; Natural Resource Conservation Service will be the easement holder; 2) NRCS will obtain all necessary land surveys and appraisals to determine CALFED contribution needed. NRCS will complete environmental requirements.	88, 94A
AFRP-2000-01	Study the Feasibility of Restoring Floodplain and Riparian Processes at the La Barranca Unit of the Sacramento River National Wildlife Refuge	Determine the feasibility of eliminating a source of fish mortality resulting from past gravel mining operations at the site and to restore riparian processes lost to the existing levee system.	59A, 62C
AFRP-2000-02	Protect Riparian Habitat on the Leininger property on Deer Creek	Exclude cattle year-round from the riparian zone to protect existing or recently planted riparian vegetation from grazing and trampling.	62B, 64C

Project ID Number	Title	Description	Milestones
AFRP-2000-06	Continue to Restore the 7/11 Segment of the Mining Reach on the Tuolumne River	To restore and increase riparian and instream habitat to support natural production of the San Joaquin fall-run Chinook salmon; Reconstruct a natural channel geometry scaled to current channel forming flows; Restore native riparian plant communities within their predicted hydrological regime; and Reduce the occurrence of salmonid fish predator habitat. Transferred to CALFED.	88B, 88D, 95A, 94B, 97D
AFRP-2000-07	Enhance Salmon and Steelhead/rainbow Trout Spawning Habitat by Adding Gravel to Three Riffles below the Old La Grange Bridge on the Tuolumne River	The purpose of the project is to restore the course sediment supply to the Tuolumne River by introducing clean gravels into the river between La Grange Dam and Old Basso Bridge. Increased and improved Chinook salmon spawning habitat can be expected.	86E
AFRP-2000-08	Evaluate Proposed Non-structural Flood Control Management Alternatives on the San Joaquin River National Wildlife Refuge (SJRNWR)	To conduct an engineering and hydraulic analysis of the proposed non-structural flood control alternative (NSA) within the San Joaquin National Wildlife Refuge (SJNWR) to evaluate frequency, duration, and location of floodplain inundation and to predict potential benefits and impacts to anadromous fish. Incorporate information from the engineering analysis with management objectives of the SJRNWR to develop additional floodplain management recommendations and manipulations that could potentially be implemented to benefit anadromous fish.	87A
AFRP-2000-09	Evaluate Channel Restoration and Aggregate Source Potential for Two-mile Bar on the Stanislaus River	Assess the floodplain restoration potential and develop a conceptual restoration strategy for a 50-acre parcel known as Two-mile Bar, and to conduct aggregate and mineral appraisals to establish a fair market value of the land and provide the basis for acquisition in either fee or easement.	87B, 88E, 88F, 88G, 88H, 86A, 86B, 94A
AFRP-2000-10	Acquire a Conservation Easement on the Eagle Canyon Ranch (Pelton property) at the Confluence of Digger Creek and the North Fork of Battle Creek	This project will fund the purchase of a conservation easement on approximately 990 acres along Digger Creek and the North Fork of Battle Creek. The Eagle Canyon Ranch (Pelton property) begins at the confluence of the North Fork and Digger Creek and includes approximately 2.5 miles of frontage on the south side of the North Fork and riparian water rights on Digger Creek. The Eagle Canyon Ranch (Pelton property) had previously been used as a sheep ranch, although new owners have reintroduced cattle. By purchasing a conservation easement on the property, The Nature Conservancy intends to protect a significant portion of winter-run and spring-run Chinook salmon spawning habitat in the North Fork from land use conversion and loss of riparian vegetation. Digger Creek also provides an additional source of cool waters for the North Fork.	62F, 64A

Project ID Number	Title	Description	Milestones
AFRP-2000-11	Acquire a Riparian Easement on the Hidden Marina Resort Property at the Confluence of Mill Creek and the Sacramento River	To protect riparian land for fish and wildlife; To improve the long-term sustainability of natural production of anadromous fish populations, in particular spring-run Chinook salmon and steelhead; and To support local community efforts toward habitat protection and enhancement.	62B
AFRP-2000-12	Tuolumne River: Special Run Pool 10 Dike Repari and Pre-Project Monitoring	A levee separating a gravel extraction pit from the Tuolumne River was damaged during the 1997 floods connecting the deepwater habitat with the Tuolumne River. This project will reduce juvenile salmonid fish predator habitat by repairing the levee and isolating the mining pit from the Tuolumne River. This project will also collect a second year of pre-project monitoring to better establish base line conditions for the full SRP 10 restoration project.	88A, 88B, 97D
AFRP-2000-13	Provide Preliminary Engineering and Environmental Documents for Several Erosion Control Projects in the Upper Watershed	This project will initiate the implementation of several projects aimed at restoring the aquatic and riparian habitat crucial to spring-run Chinook salmon and other anadromous fish in Deer Creek. Objective: (1) Prepare preliminary engineering reports;(2) prioritize project list; (3) prepare environmental documentation; (4) conduct outreach.	62B
AFRP-2000-14	Acquire Simmons Ranch on Big Chico Creek	This project seeks the initial funding to acquire a 2,724-acre site in the Big Chico Creek watershed known as the Simmon's Ranch. Big Chico Creek is one of only four streams in the Sacramento Valley that provide habitat for a wild, persistent population of spring run salmon. The Simmon's Ranch acquisition would protect 2.5 miles or half of the spring-run holding habitat on Big Chico Creek.	62B, 64F
AFRP-2000-15	Acquire the Nock property on Big Chico Creek	The Nock property is 125.2 acres located at the confluence of Mud and Big Chico Creeks near the Sacramento River in Butte County, Ca. The protection and restoration of the Nock property will help create more complex and continuous shoreline vegetation, increase available woody debris, and broaden the riparian buffer providing improved refugia for juvenile fish. The anticipated long term ecological benefits of the proposed project are to help protect and facilitate enhancement of the meanderbelt and associated floodplain of the Sacramento River. Objective: Conduct baseline biological and environmental surveys, implement interim restoration and start up stewardship actions and develop a long term restoration and management plan prior to acquisition by The Nature Conservancy.	59J, 62B, 64F
AFRP-2000-16	Acquire the Singh Property of Big Chico Creek	The Singh property is 40.4 acres located west of Mud Creek, north of the Bidwell-Sacramento River State Park and adjacent to the Sacramento River in Butte County, Ca. Objective: Conduct baseline biological and environmental surveys, implement interim restoration and start up stewardship actions and develop a long term restoration and management plan prior to acquisition by The Nature Conservancy.	59J, 62B, 64F

Project ID Number	Title	Description	Milestones
AFRP-2000-17	Promote Re-vegetation of Recently Rip-rapped Areas in the Vicinity of Okie Dam on Butte Creek	Revegetate extensive areas of rip-rap, coordinate a pilot study investigating a methodology for establishing riparian vegetation on cobble fields, and develop a comprehensive restoration plan for the entire 4-mile reach of Butte Creek. The proposal will be carried out in 3 phases: 1) revegetate a 1,000 foot section of rip-rap; 2) coordinate a pilot study investigating a methodology for establishing riparian vegetation on cobble fields to be coordinated by a restoration ecologist; and 3) develop a comprehensive restoration plan for the entire 4-mile reach of Butte Creek utilizing information derived from the cobble field revegetation pilot study.	62B, 64E
AFRP-2000-18	Protect 23 acres of Riparian Habitat and Reduce Streambank Erosion 1.5 Miles Downstream of Camanche Dam on the South Side of the Mokelumne River.	The objectives of the proposed Project are to reduce streambank erosion and the subsequent input of fine sediment into the salmonid spawning gravels, increase the riparian canopy to reduce stream temperatures and provide important substrates for aquatic insects and escape and resting cover for fish.	4E, 12B
AFRP-2000-19	Develop a Final List of Pumping Plants Requiring Screens and Collect Site Specific Information for Each Pumping Plant for the East Side of Sutter Bypass on Lower Butte Creek	Determine the exact location of each of the pumps in the East Side Sutter Bypass and characterize the pumping plant sites including elevations, cross-sections, pumping plant specifications and annual pumping durations and determine the feasibility of pumping plant consolidations.	72C, 72D
AFRP-2000-20	Develop Recommendations for Enhanced Fish Passage in the Butte Slough Area on Lower Butte Creek	Within the Butte Slough Sub-area, reduce or eliminate delay and injury to Butte Creek adult salmon and steelhead and reduce or eliminate entrainment of juvenile Butte Creek and Sacramento River salmon and steelhead and other listed fish species under controlled-flow conditions while maintaining the viability of associated managed wetlands and agricultural operations.	57B, 66D, 67B
AFRP-2000-21	Improve Fish Passage on the Cosumnes River	Improve passage for adult Chinook salmon and steelhead to access 7.2 miles of suitable spawning habitat upstream of Granlees Diversion Dam by 1) constructing new fish ladder at Granlees Dam, and 2) improving hydraulic conditions at three sites downstream (a flow barrier wall on Granlees dam to eliminate misdirecting attraction flows that occur at low/mid range flows, and two low flow fish passage structures on the lower river).	17A, 18B
AFRP-2000-22	Genetic Maintenance of Hatchery and Natural-Origin Winter-Run Chinook Salmon	Continue on-going screening and development of nDNA markers (loci) to allow positive identification of individual salmon adults for use in the Service's winter-run Chinook salmon captive propagation and captive brood stock programs, and determine genetic impacts of the program on the wild population through genetic analysis and verification and refinement of an effective population size model.	112B, 112D

Project ID Number	Title	Description	Milestones
AFRP-2000-23	Study the Feasibility of Developing a Long-term Aggregate Source for San Joaquin Tributary Channel Restoration Projects	Evaluate the potential (legal, economic and engineering feasibility) to use dredger tailings from the Merced River near Snelling as fill for channel and floodplain restoration efforts.	86A
AFRP-2000-24	Analyze archived San Joaquin Basin Chinook Salmon Scale Samples and Develop a Comprehensive Database Accessible to Interested Parties	Process and analyze the existing scale samples for the San Joaquin Basin to determine age structure of returning adult fall-run Chinook salmon. This information will provide managers with a clearer understanding of the variables that affect the ultimate production of the San Joaquin salmon. Results from this project will provide the information needed to carry out a detailed cohort analysis.	112B, 119A
AFRP-2000-28	Yuba River Chinook Salmon and Steelhead Life History Evaluation	The objectives of the project are to document timing of emergence, size and condition at emigration, duration of emigration, and a measure of abundance or relative abundance.	112B
AFRP-2000-29	Winter-run Carcass Survey on the Upper Mainstem Sacramento River	To estimate escapement of hatchery-produced and wild-origin winter Chinook salmon; collect baseline information on the spawning population of winter Chinook salmon (i.e. age, sex ratio, temporal distribution of spawning); evaluate the effectiveness of the winter Chinook salmon propagation program; and collect tissue for future genetic analysis. Collected information will serve to assess AFRP restoration goals, determine the effectiveness of the hatchery supplementation program and assist in the maintaining genetic diversity in hatchery and natural stocks.	118A, 119A
AFRP-2000-31	Install and Maintain Real-time Flow Monitors at the Sanborn Slough Bifurcation Structure on Butte Creek	Provide real-time flow and water quality data to monitor stream conditions during the upstream migration of spring-run chinook salmon and the down-stream migration of juvenile spring-run and late fall-run chinook salmon and steelhead at the Butte Creek/Sanborn Slough bifurcation. The monitoring system will also be used to verify surface water exchanges and the adjudicated division of flow at the bifurcation.	57B
AFRP-2000-33	Continue to Extend Outmigrant Survey and Salvage at the Hallwood-Cordua Diversion in the Yuba River through the Summer of 2000	The primary objective is to salvage juvenile fish at the Hallwood-Cordua fish screen and identify the general attributes of juvenile steelhead and Chinook salmon emigration in the lower Yuba River, including timing, relative abundance, fish condition, and length frequency, in order to help guide habitat restoration and management actions on the lower Yuba River.	112B
AFRP-2000-35	Evaluate use of PHABSIM/2D Modeling of Spawning and Rearing Habitat to Assess Benefits of Channel Restoration on the Merced River	The primary objective of the project is to use a 2-dimensional hydraulic and topographic model to help evaluate benefits to salmon spawning and rearing habitat created by a large scale channel restoration project on the Merced River.	88I, 88J, 88K, 88L, 112B

Project ID Number	Title	Description	Milestones
AFRP-2000-36	Assist with Analysis of Alternative Hatchery Management Strategies in Order to Integrate Operations with the Restoration of Natural Populations of Chinook Salmon and Steelhead in Battle Creek	There are four major components or objectives of the reevaluation process: Compilation and analysis of historical hatchery operations and evaluation work; Determine mitigation responsibilities; Conduct impact analyses of current/proposed production programs on listed stocks of anadromous salmonids; Suggest potential management alternatives where appropriate.	118A, 118B
AFRP-2000-37	Provide Support to the Newly Established Sacramento River Conservation Association	Hire a manager and office staff to assist in the development and implementation of site-specific plans for areas within the Sacramento River Riparian Conservation Area, and to manage a new non-profit riparian land management entity that will coordinate activities and continue the process of building broader support and understanding for the goals of the SB1086 program.	Educational
AFRP-2000-38	Sacramento River and Battle Creek: Environmental Education Program for Battle Creek Area Residents	The tasks completed for this agreement are: 1) Develop forestry curriculum unit for middle schools, 2) Compile, writings, photographs, and illustrations and submit draft curriculum for review (task 2a complete, task 2b not completed), 3) Publish educational newsletter, 4) facilitate six presentations by local resource representatives, 5) Design BCWC website, and 6) Build public awareness	Educational
AFRP-2000-39	Provide Support for Kids and Creeks: Restoration Ecology in Action" for Students in Grades 2 through 12 in the Big Chico, Butte Creek and Feather River Watersheds	This is a project of Streaminders Hands-On Environmental Education, a local program of the Izaak Walton League of America that presently includes more than thirty-five classrooms in Butte County. Objective: Teach students and their teachers about the value of healthy riparian ecosystems, and encourage a stewardship ethic through direct involvement with restoring and enhancing local riparian habitat in areas damaged by human abuse. The goal is for students, their teachers and families, to develop a lifelong commitment to environmental stewardship.	Educational
AFRP-2000-41	Develop a Sediment Management Plan for the Tuolumne River	The purpose of this project is to develop and implement a coarse sediment management plan (Sediment Plan) for the 23 mile alluvial reach of the Tuolumne River between La Grange Dam (River Mile 52) and Waterford (River Mile 29). Implementation of this plan will provide direct benefits to a broad range of ecosystem components, including dynamic geomorphic processes, Chinook salmon, and other native aquatic and riparian species and their habitats. Specific objectives of the plan include: Quantify the volume of coarse sediment augmentation needed to maintain sediment supplies stored in the channel; Assess the effects of coarse sediment management on the river channel form and geomorphic processes; Assess the response of biological resources to changes in habitat conditions by refining and applying the EACH (Chinook salmon) production model; Develop a plan to reduce fine sediment supply to the Tuolumne River spawning reach from the Gasburg Creek watershed and other sources.	86A

Project ID Number	Title	Description	Milestones
AFRP-2000-42	Initiate Broader Stakeholder Outreach and Community Awareness of Restoration Issues on the Lower Stanislaus River	Develop and produce presentation quality display materials of the work underway or completed by the Stanislaus River Stakeholder Group and related subgroups to restore and manage anadromous fishes on the Stanislaus River. This includes informational material that is educational, will enhance the public's knowledge of anadromous fish habitat, and supports the mission of the agencies involved in this undertaking. This will provide the general public with information on various agency efforts to restore anadromous habitats along/within the Stanislaus River.	Educational
AFRP-2000-43	Develop a River Corridor Physical Habitat Assessment and Restoration Plan for the Stanislaus River	Evaluate current channel, floodplain, and river corridor processes and habitat condition of the entire lower Stanislaus River in the context of historical and current agents of change; develop a restoration strategy document for floodplain, riparian and channel habitats of the Stanislaus River corridor.	87B, 94A
AFRP-2000-45	Develop an Adaptive Management Forum for Large-scale Restoration Projects	To establish a multi-disciplinary technical forum where large-scale channel restoration project planning, implementation, and monitoring will receive input and review to provide a more structured process of peer review and adaptive management.	86A, 87A, 87B, 87C, 87DM 87E, 87F, 94A
AFRP-2000-46	Merced River Wing-Dam Gravel Monitoring	The monitoring in this project will evaluate how spawning-sized gravel moves from wing-dam sites, comparing two techniques: painted tracer rocks and radio-tagged rocks. This information can be used to assess whether these diversions are suitable locations for gravel introductions.	86A, 112B
ERP-00-B01	City of Redding Water Utility Fish Screen Rehabilitation	To install a positive barrier fish screen structure on its intake structure at Pump Station #1 which will meet National Marine Fisheries Service and California Department of Fish and Game screen criteria. Tasks include: design, engineering, permitting, construction, installation, inspection and monitoring.	72B
ERP-00-B02	Maxwell Irrigation District Tuttle Pump Relocation Project	The project consists of relocating Tuttle's diversion to the District's pumping plant and removing the existing pumping facilities approximately 450 feet south of the District's plant. Tasks include: 1) Project Management; 2) Project coordination; 3) Environmental documentation; 4) Permitting; 5) Surveying and Mapping for design and construction; 6) engineering design; 7) Construction, equipment, installation ; 8) construction management; 9) operation and maintenance document and training; and 10) Project evaluation.	72B
ERP-00-B03	Culture of Delta Smelt Phase II & III	This project continues the on-going Delta Smelt Culture Project (Phase I: ERP-98-C02). The main objectives of this project are to develop a reliable and technically feasible culture system for all life stages of delta smelt; initiate the supply of live animals for testing in laboratory and field research; and provide data and observations on the development and behaviors of delta smelt. Tasks include: 1) continue to refine the advanced methods for the capture, spawning, incubation and rearing of smelt that were developed on a pilot scale during phase I; 2) apply these methods to the culture of delta smelt in the hatchery facility. This project will also produce a supply of cultured smelt to serve a variety of research interests.	112B, 112D

Project ID Number	Title	Description	Milestones
ERP-00-B04	Focused Action to Develop Ecologically-based Hydrologic Models and Water Management Strategies in the San Joaquin Basin	The project will identify flow regimes that have a widespread effect on the entire length of the San Joaquin River tributaries, Delta and San Francisco Bay through analysis and modeling of hydro-biologic issues and water management. Tasks include: 1) Demonstration of a range of methods for identifying the high flow regimes necessary to achieve ecological restoration objectives; 2) Identification and modeling of integrated management strategies designed to achieve high flow restoration targets without creating water supply impacts in the SJ basin; and 3) Development of criteria for optimizing compensated water acquisitions to achieve hydrologic restoration targets beyond those already evaluated.	112A, 112B, 115A
ERP-00-B05	Adaptive Real-Time Water Quality Management of Seasonal Wetlands in the Grassland Water District	This project proposes monitoring, modeling and adaptive management of field operations, in cooperation with the currently funded CALFED San Joaquin River Real-Time Water Quality Management Project, to coordinate seasonal wetland drainage with the assimilative capacity of the San Joaquin River. Tasks include: 1) Design of a monitoring system for measurement of wetland drainage flow, EC, and temperature; 2) Development of a habitat and salinity management program to optimize wetland values while minimizing water quality impacts on the SJR; 3) Installation of a water quality monitoring system; 4) Development of a spreadsheet accounting model for estimation and forecasting of seasonal wetland salt loading to SJR; and 5) Demo of return flow and SJR water quality relationships.	85B, 85D, 112B
ERP-00-B06	Biological Assessment of Green Sturgeon, Phase II	This multi-phase project will determine baseline information regarding green sturgeons' biological requirements and the feasibility of this species' culture for further research and potential mitigation considerations in the lower Sacramento-San Joaquin watershed. This project is phase II and ERP-98-C02 is Phase I of a multi-phased project. Tasks include: determine juvenile green sturgeon food and oxygen requirements at different environmental temperatures; determine temperature-related requirements for green sturgeon embryo and larval growth and development; determine potential environmental stressors effects on green sturgeon reproductive functioning and well being; determine the degree of reproductive isolation between Sacramento-San Joaquin watershed green sturgeon and those from the Klamath and Rogue watersheds; and provide green sturgeon adults, sub-adults, larvae and egg tissue, and live specimens from the Sacramento system to UC Davis scientists conducting the studies outlines in the first four objectives.	112B, 112D
ERP-00D-C01	Department of Conservation Directed Action - Mine Remediation Assessment	This contract is to provide qualified staff to perform technical services on behalf of CALFED. Technical services are needed from DOC so that CALFED can carry out the proposed actions under the EIS/EIR and Proposition 13. Tasks include: GIS analysis, performing queries, geo-environmental modeling on mine sites, field evaluations, etc.	79A
ERP-00-E01	Last Chance Creek Watershed Restoration Project--Ferris Meadow Reach--Feather River Coordinated Resource Management (FR-CRM)	The objective of this project is to restore 9.1 miles of hydrologic function and 4,330 acres of meadow the Ferris-Meadowview reach in the Last Creek watershed on the Feather River. This will be done by returning stream flow to abandoned remnant or reconstructed channels and rehabilitating 1 mile of county road through relocation and/or surfacing which will increase summer base flows for priority species; improve water quality by reducing temperature and sediment; potentially decrease the magnitude of floods. Tasks include: 1) collect project specific data; 2) reconstruct the upper 5.3 miles of Last Chance Creek and its associated meadows; 3) remediate PC Road 101; 4) Reconstruct the lower 3.8 miles of Last Chance Creek from Jordan Flat to the low-water crossing at the bottom of Ferris Meadows; 5) conduct project monitoring; and 6) conduct project management/coordination activities.	Upper Watershed

Project ID Number	Title	Description	Milestones
ERP-00-E02	Panoche/Silver Creek Watershed Management/Action Plan	Building upon the completed Panoche/Silver Creek Watershed Assessment, this project seeks to evaluate recommended Best Management Practices (BMPs) to reduce loads of sediment in the watershed. Information gathered will be used to develop the Action Plan component of the Panoche/Silver Creek Coordinated Resource Management Plan. Tasks include:1) Implementation of selected BMPs on feasible test sites throughout the upper watershed, and 2) monitor the test sites and the watershed at large to determine the effectiveness of BMPs for reducing loads of sediment, selenium, and other contaminants delivered during high flow events.	105, 108D
ERP-00-E03	Cottonwood Creek Watershed Monitoring and Assessment	Continued management of the Cottonwood Creek Watershed Group to oversee the implementation of a watershed plan. This phase would assess current conditions in the watershed, both as to the land and stream conditions, to give a baseline for future projects. The next phase effort would evaluate and develop recommendations for watershed stewardship including: vegetation management, land use, fire and fuel suppression, managing oak woodlands, erosion reduction, maintaining riparian zones, and providing more sustained runoff patterns in the upper watershed area. The plan will also seek to return to natural or near natural functions, reactivate and maintain natural sediment supply; floodplain and flood processes, gravel recruitment and stream meander, and protect salmon spawning and rearing habitat in the lower watershed area. Tasks include: 1) Project management - facilitate meetings; manage consultants work; report to CALFED; 2) watershed assessment - request for proposal for consultant to review known reports on Cottonwood Creek watershed; verify information accuracy; coordinate technical team; identify potential projects to meet ERP goals.	57H, 58D, 59E, 62D, 63A, 63B, 66B, 67E, 67F, 112B
ERP-00-E04	Sonoma Creek Watershed Conservancy	The primary objectives are to protect, restore and enhance riparian and shaded riverine aquatic habitat in the Sonoma Creek watershed to improve water quality, fish, freshwater shrimp and riparian species habitat and freshwater inflow to San Pablo Bay by implementing a series of restoration and enhancement projects. Tasks to be performed: 1 Fish passage Enhancement, Asbury Creek at Arnold Drive; Task 2: Pool habitat enhancement and Restoration, Sonoma Creek tributaries; Task 3: Riparian corridor restoration, Carriger Creek; Task 4 Bank Erosion repair and stabilization, Nathanson Creek; Task 5: Vineyard demonstration projects to implement BMPs; Task 6 Expand stream stewards volunteer monitoring programs; Task 7 Workshops on watershed-related regulations for public employees; Task 8: Education coordination for Watershed studies; Task 9: Publication of anecdotal ecological history; Task 10: Watershed coordinator and Task 11 Project management.	38C, 47D, 112B, 112D, 119B,
ERP-00-E05	Merced River Corridor Restoration Project Phase III	To develop a publicly supported, technically sound, and implementable restoration plan for the Merced River corridor from Crocker-Huffman Dam downstream to the San Joaquin River. The plan will focus on reestablishing geomorphic and ecological functions, processes, and characteristics given current regulated flow and sediment conditions in the Merced River to reverse long-term trends of degradation and improve habitats from existing conditions. Tasks include: 1) Coordinate with the Merced River Stakeholder group and TAC; 2) Develop geomorphically functional channel and floodplain morphology design guidelines; 3) develop Merced River Corridor Restoration and Monitoring Plan; 4) Develop conceptual designs for 5 priority projects; and 5) Project management.	86A, 86F, 87, 88I, 94A, 94C, 112A, 112B
ERP-00-F01	Tuolumne River Bobcat Flat Floodplain Acquisition	This is acquisition of 280 acres of alluvial floodplain on the Tuolumne River at river miles 42.7 to 44.3. It includes 1.6 miles of river frontage. The objective is to restore self-sustaining natural floodplain processes, protect sediment sources, etc. Tasks include: 1) appraisals, including mineral values, surveys; 2) Land acquisition; 3) Conceptual restoration plan and public outreach; 4) Restoration plan and engineering; 5) Restoration including permits; and 6) Monitoring and annual reporting.	86E, 87B, 88A, 94B

Project ID Number	Title	Description	Milestones
ERP-00-F02	Canal Ranch Habitat Restoration Phase II	During this Phase (Phase II), the Conceptual Habitat Management Plan will be ground truthed with the survey data from Phase I. Feasibility Level Habitat Management Plan for Canal Ranch will include management strategies for the restoration of native plant communities; potential reintroduction of the Sacramento perch in selected ponds on Canal Ranch; development of seasonal wetlands and habitats suitable for Northern pintail, other waterfowl, and greater sandhill cranes; educational and interpretive opportunities; and to provide high quality public hunting and education opportunities. Implementation of this plan will be carried out in several phases over multiple years. There are four phases for completion of the restoration project. (Canal Ranch Habitat Restoration Phase II The overall goal of this entire project is the restoration of seasonal wetlands, riparian and shaded riverine aquatic habitats and enhancement of agricultural management for fish and wildlife on 3,070 acres located in the northeastern Delta, San Joaquin County. Tasks include: develop interdisciplinary work team to develop habitat mosaic; 2) Conduct public workshops about balance between agriculture and native habitat; 3 and 4) refine infrastructure development and design plan; 5) complete environmental documentation.	6A, 7C, 7D, 8C, 8D, 9B, 15C, 16B
ERP-00-F03	Floodplain Acquisition and Subreach/Site-Specific Management Planning on the Sacramento River (Red Bluff to Colusa)	Completion of this project will result in the acquisition of 9 parcels (1,733 acres) within the SB 1086 Sacramento River Conservation Area (Red Bluff to Colusa); baseline assessment/start-up stewardship for newly acquired parcels; site specific management planning for the "Beehive Bend Sub Reach"; monitoring; and project management. Tasks include: 1) acquisition; 2) Baseline assessment/ start-up stewardship; 3) Site-specific management planning - assess hydrology, geomorphology, local economic impacts etc of restoration projects; 4) monitoring channel movement and biota; and 5) project management.	59B, 60A, 62G
ERP-00-F04	A Mechanistic Approach to Riparian Restoration - San Joaquin Basin, Phase I & II	Project will identify the physical and biological mechanisms affecting establishment of riparian vegetation, in particular Fremont cottonwood and willow communities in the San Joaquin Basin, in order to identify the most cost-effective strategies and sites for riparian protection and restoration. Phase 1 tasks include: 1) Project management; 2) Collect and analyze pilot data; 3) Outline a mechanistic conceptual model of San Joaquin Basin riparian processes and develop a study plan; and conduct field reconnaissance in the San Joaquin Basin and select study sites. Phase 2 tasks include: 1) Document physical and biological aspects of site; 2) evaluate seedling establishment; 3) Make management recommendations; and 4) develop reports.	94A, 94B, 94C, 112A, 113A
ERP-00-F06	Liberty Island Acquisition and Restoration Phase I	This project proposes to acquire fee title interest in the remaining two privately-owned properties on Liberty Island, to conduct restoration planning for Liberty Island, implement the restoration plan for Liberty Island, implement a monitoring program for the restoration, operate and manage the restored island for three years, and acquire fee title interest in two additional properties within the proposed North Delta National Wildlife Refuge (NWR). The two remaining properties (Tract 65 and 66) encompass 181 and 268 acres respectively. The two additional nearby properties (Tract 68 and 64) encompass 1,808 and 3,426 acres respectively. Tract 64 is north of Liberty Island and Tract 68 is located within Egbert Tract. This project will facilitate the acquisition of the remainder of the island with the intent to restore tidal influence to this strategically-located 5,209-acre island in the North Delta corridor. Tasks include: Preparation of feasibility study; 2) initial contact with willing seller (permission to appraise); 3) Preparation of preliminary project proposal; 4) Appraisal of approved Federal appraisal standards; 5) Option for purchase agreement; 6) Preparation of environmental documents; 7) Title search; 8) Survey of property; 9) Escrow and closing; and 10) recording of deed and purchase of property.	8A

Project ID Number	Title	Description	Milestones
ERP-00-F07	McCormack-Williamson Tract Phase II Restoration Planning	This project will perform baseline studies necessary for project planning and design, and the development of long-term monitoring programs of the McCormack-Williamson Tract (M-W), which is a 1,600-acre Delta island. The goal of design alternatives will be to configure the M-W Tract to support CALFED ERPP goals for retention of agricultural areas and restoration of functional and sustainable tidal freshwater marsh habitat and to enhance flood management and water conveyance objectives. This project is closely related to project ERP-00-F08, which is being funded for tasks 1-4 & 6. This project is being funded for the design and environmental documentation for the M-W Tract planning. Task 5 may be contracted to DWR. Tasks include: 1) analysis of historic hydrogeomorphic conditions; 2) calculations of suspended load and bedload flux rates from the Cosumnes and Mokelumne rivers; 3) conduct baseline studies of aquatic and riparian resources; 4) to design engineering alternatives; and 5) develop software to manage and analyze biologic data developed for this project.	8A, 9A
ERP-00-F08	McCormack-Williamson Tract Phase II Monitoring Project	This project will perform baseline studies necessary for project planning and design, and the development of long-term monitoring programs of the McCormack-Williamson Tract (M-W), which is a 1,600-acre Delta island. Major tasks include analysis of historic hydrogeomorphic conditions; calculations of suspended load and bedload flux rates from the Cosumnes and Mokelumne rivers; conduct baseline studies of aquatic and riparian resources; to design engineering alternatives; and develop software to manage and analyze biologic data developed for this project. The goal of these design alternatives will be to configure the M-W Tract to support CALFED ERPP goals for retention of agricultural areas and restoration of functional and sustainable tidal freshwater marsh habitat and to enhance flood management and water conveyance objectives. This project is closely related to project ERP-00-F07. This project however, is being funded for tasks 1-4 & 6. ERP-00-F07 is being funded for the design and environmental documentation for the M-W Tract planning. Task 5 may be contracted to DWR.	112A, 112B
ERP-00-F10	Determining the Biological, Physical and Chemical Characteristics of Ballast Water Arriving in San Francisco Bay	This project will analyze the data on ballast biota arriving in the San Francisco Bay Estuary to assess the risk of exotic introductions, determine treatment standards, and provide baseline data to assess management or treatment efforts and conduct critical comparative analyses between estuaries. This project is meant to focus on better understanding the mechanisms of introduction of exotics from ballast water in the San Francisco Bay Estuary. Tasks include: 1) acquiring and analyzing data on ship arrivals over the past two decades to determine changes and trends in the sources and volumes of ballast water arriving; 2) analyze data on non-indigenous biota for comparative studies with other estuaries regarding assessment of the potential for ecological, economic, and public health risks; 3) develop effective treatment options, enable assessments of regulatory approaches of management and treatment methods, and 4) to test for correlations between the timing of changes in ballast water source regions with establishment of non-indigenous species in the San Francisco Bay Estuary.	20A
ERP-00-F11	Arundo donax Eradication and Coordination	This project will direct eradication funds for on-the-ground eradication of Arundo, the state's most invasive riparian weed, to eradication partners in six watersheds. An umbrella will be created by this project that will reduce the need for CALFED to administer numerous individual projects while providing a structure for long term eradication and monitoring of this NIS throughout the CALFED solution area. The objective is to protect the remaining native riparian habitat from destruction by the non-native invasive plant, Arundo donax. Tasks include: 1) eradication planning, eradication at specific sites and monitoring through eradication partners; 2) Eradication effort coordination, data collection and reporting, identification and assistance to potential eradication partners; and 3) Eradication effort and information data integration, exchange and publishing on a created web site.	22A, 22B, 22C, 22D, 38B, 38C, 62B, 62H

Project ID Number	Title	Description	Milestones
ERP-00-G01	Dissolved Organic Carbon Release - Delta Wetlands Part 2	This is Phase 2 of a two part project to quantitatively assess loads of organic carbon released by wetlands and agricultural activities into Delta channel waters. Part 1 of this study will focus on the concentration and quality of dissolved organic carbon/total organic carbon (DOC/TOC) released from different carbon sources to the Delta (wetland types, rivers and agricultural activities), assessing both disinfection byproducts (DBPs) and the incorporation into Delta food webs, and determines how microbial alteration affects the composition of DOC and DBPs. Phase I is ERP-99-B17. Tasks for phase two include: determine the amounts (loads) of Doc and DBPs contributed by tidal and non-tidal wetlands and agricultural operations.	112B
ERP-00-R01	Sacramento River Small Diversion Fish Screen Program - Mechanical Monitoring and Maintenance Project	To provide technical assistance, planning, engineering, design, environmental documentation, administration and oversight of projects to install fish screens for agricultural land users along the Sacramento River and to monitor fish screens installed under the small diversion fish screen program of the CALFED Bay Delta program. Tasks include: 1) Modify existing fish screens to include a monitoring device approved by NRCS as needed; 2) Monitor fish screens as requested by NRCS as funding permits; 3) Perform maintenance checks on installed screens as agreed to ; 4) Provide information gathered from maintenance checks for planning future activities; 5) one initial video will be provided per site as requested by NRCS for documentation and education; 6) provide copies of all environmental documentation; and 7) timely progress reports.	72B
AFRP-2001-01	Narrows II Hydro Power Plant Full Flow Bypass Final Design and Environmental Documentation	The objective is to reduce impacts to salmonid populations due to flow fluctuations by increasing the bypass capacity at the Narrows II Power Plant from 650 cfs to 3000 cfs. Engineering Final Design will be produced for a synchronous bypass at the existing Narrows II Power House. Environmental Documentation appropriate for this project will also be conducted.	57A, 66E, 71C
AFRP-2001-02	Warner Deardorff Segment – Mining Reach Project No. 3 Tuolumne River Restoration Projects	Restore proper channel characteristics to produce and improve spawning and rearing habitat for salmon between river miles 35.2 to 36.5. Restoration of the Warner Deardorff Segment of the Mining Reach has been split in to two phases; with Phase I the final design and appraisals followed by Phase II the ROW acquisition and actual project construction. The AFRP provided funding for Phase I of the Warner Deardorff segment which involves restoration of instream aquatic habitat and shaded riverine aquatic habitat for the primary benefit of San Joaquin Basin fall-run Chinook salmon within a 6.1 mile reach (River Mile 34.2 to 40.3) of the lower Tuolumne River below La Grange Dam. Restoration efforts will return this reach of the river to a more natural, dynamic channel morphology that will improve, restore, and protect instream and riparian habitat for fall run Chinook salmon survival, including restoring hydrological and geomorphic processes. Portions of the 6.1-mile long reach will be reformed with a system of setback dikes to create a 500-foot wide riparian floodplain corridor. This includes recreating a riffle and run pattern that follows the restored meander channel of the river along with native vegetation planted on restored river terraces in a mix similar to that found on undisturbed segments of the river.	88B, 88C, 94B, 97D
AFRP-2001-03	Spawning Habitat Restoration in the Stanislaus River, Lover's Leap Reach	To restore spawning and rearing habitat in the Lover's Leap Reach. Same as CVPIA-01-F02.	86B

Project ID Number	Title	Description	Milestones
AFRP-2001-05	Using Molecular Techniques to Preserve Genetic Integrity of Endangered Salmon in a Supplementation Program	Continue on-going screening and development of nDNA markers (loci) to allow positive identification of individual salmon adults for use in the Service's winter-run Chinook salmon captive propagation and captive brood stock programs, and determine genetic impacts of the program on the wild population through genetic analysis and verification and refinement of an effective population size model.	112B
AFRP-2001-06	Biological Assessment of Green Sturgeon in the Sacramento-San Joaquin Watersheds	Help resolve, through directed laboratory and field observations, green sturgeon life stage spatio-temporal patterns in the Sacramento-San Joaquin watershed and linked ecosystems.	112B, 112D
AFRP-2001-07	Lower Calaveras River Chinook Salmon and Steelhead Life History Limiting Factor Analysis	The ultimate goal of this project is to help provide the scientific basis for real-time management of the Lower Calaveras River (LCR) to optimize conditions for water supply, flood control, power production and natural production of anadromous fish. The principal goals of the first-year effort are to (1) initiate a quantitative evaluation of salmonid habitat, population density, distribution and life history and (2) facilitate stakeholder involvement in anadromous fish habitat restoration in the LCR. In addition to information on salmonid populations and habitat, the project will provide ancillary information on non-salmonid fish community species composition and distribution.	17C, 112B
AFRP-2001-08	Merced River Water Temperature Management Feasibility Study	To develop information that can be used to evaluate effective options for water temperature management in the Merced River and improve conditions for anadromous salmonids, principally during the fall and spring seasons. Same as CVPIA-01-F07.	84I, 84J, 84K, 84L
AFRP-2001-09	Non-structural Alternative at the San Joaquin River National Wildlife Refuge: Refinement of Habitat Enhancement	To conduct an engineering and hydraulic analysis of the proposed non-structural flood control alternative (NSA) within the San Joaquin National Wildlife Refuge (SJNWR) to evaluate frequency, duration, and location of floodplain inundation and to predict potential benefits and impacts to anadromous fish. Incorporate information from the engineering analysis with management objectives of the SJRNWR to develop additional floodplain management recommendations and manipulations that could potentially be implemented to benefit anadromous fish. Same as CVPIA-01-F03.	87A
AFRP-2001-10	Battle Creek Watershed Stewardship, Phase II	Since its inception in 1997, the Battle Creek Watershed Conservancy (BCWC) has become an important link between the community and the resource agencies currently implementing CALFED's Battle Creek Salmon and Steelhead Restoration Project. The objective of the Watershed Stewardship, Phase II project is to enhance the BCWC's contribution to this linkage effort while also gathering field data addressing land-use factors affecting the watershed and its fishery.	57G, 58B, 58C, 59D, 62F, 64A, 74A, 76A, 112D

Project ID Number	Title	Description	Milestones
AFRP-2001-12	Tuolumne River Watershed Outreach and Stewardship Proposal	To create and utilize outreach materials as tools to build awareness, understanding and support for the Tuolumne River Technical Advisory Committee Plan, "Habitat Restoration Plan for the Lower Tuolumne River Corridor." Same as CVPIA-01-F04.	84E, 84F, 84G, 84H, 86B, 87B, 88A, 88B, 88C, 88D, 89A, 105A, 105C, 105D
CSP-01-C01	Science Program Directed Action for Ecological Evaluation of Yolo Bypass to Support Floodplain Restoration	Evaluate the potential for pesticide effects on fish in the Yolo Bypass.	31B, 31C, 31E, 78A, 78B, 78C, 78E
CVPIA-01-F09	San Joaquin River Chinook Salmon Age Determinations: Phase II	Provide clarification of the age of chinook salmon that have returned to the rivers in the San Joaquin Basin to spawn. Laboratory age determinations will be made using scales that were collected from chinook carcasses during surveys in the 1980s and 1990s.	112B
CVPIA-01-F10	Health Monitoring of Hatchery and Natural Fall-run Chinook Juveniles	This project would build on data collected in the 2000 (April - June) monitoring project and will characterize the health and physiological condition of both natural and hatchery juvenile chinook (Oncorhynchus tshawytscha) in the San Joaquin River System and Delta. Propose to increase the number of juvenile natural chinook sampled from 90 to a maximum of 270. The increased sampling would occur at ongoing monitoring operations in the Stanislaus, Tuolumne, and Merced Rivers as well as the San Joaquin (mm 50 - 80). Sampling would occur in late March - July 1, 2001 and be in conjunction with the Interagency Ecological Program bio-sampling program.	112B
CVPIA-01-F11	Evaluate Use of a Two-Dimensional Hydraulic and Habitat Simulation Model to Assess Benefits of Channel Restoration	Quantify features of fall-run chinook salmon spawning and rearing habitat, before and after restoration, in the Robinson restoration project, located at RM 42-43.5 on the Merced River. The primary fishery objective of the project is to evaluate whether the Robinson restoration project on the Merced River increases spawning habitat (and thus potentially increases spawning success) and rearing habitat (and thus potentially increases juvenile survival) as measured and quantified by the method described in this proposal. The tasks comprising this project are: 1) project management; 2) field reconnaissance and site selection; 3) hydraulic data collection; 4) construction and calibration of hydraulic and habitat simulation models; and 5) biological validation of the habitat simulation model.	112B

Project ID Number	Title	Description	Milestones
CVPIA-01-F13	Fish Treadmill-Developed Fish Screen Criteria for Native Sacramento-San Joaquin Watershed Fishes	The Fish Treadmill project is an ongoing, multi-agency, targeted research program that addresses the uncertain impacts of water diversions and fish screens on priority fish species (e.g., delta smelt, splittail, chinook salmon, and steelhead). The objective is to provide the data necessary to evaluate and improve aspects of fish protective facility design and operation at the State Water Project, Central Valley Project (including the Tracy Fish Test Facility), and other existing and proposed fish screen facilities (e.g., Hood-Mokelumne Connection). This will expand program in its scope to include other priority fish species (e.g., sturgeon) and complementary investigations on the effects of debris on fish screen function and fish-fish screen interactions.	112B
ERP-01-C01	Invasive Spartina Project (ISP)	Project objectives include: 1)Undertake an expanded effort to plan and implement control of invasive Spartina to prevent an invasion of San Pablo and Suisun Bays and significantly reduce invasive Spartina populations bay wide; 2) contribute to the overall scientific understanding of how ecological engineers can physically alter the S.F. Bay ecosystem and specifically, how the process of introgression can potentially lead to extinction of native species; and 3) Build a bay-wide infrastructure to detect and prevent future invasive species in the inter-tidal zone. Tasks include: 1-2) project administration; 3-4) Population surveys and field sampling; 5) public outreach; 6) site-specific veg control and native veg restoration; 7) monitor population dynamics, control efficacy and control impacts; 8) genetic research on hybrids; 9) Control method research; 10) identify Spartina hybrid impacts on shore birds; 11) Environmental compliance; and 12) GIS and report activities. Was ERP 01-N05.	39E, 112C, 112D
ERP-01-C02	Real-Time Flow Monitoring	This project provides funds for the continued operation and maintenance of flow monitoring stations at Antelope, Mill, Deer, Big Chico, and Butte Creeks. Each of these creeks supports at-risk species, including spring-run salmon and steelhead. The creeks have been significantly altered and recent restoration plans have identified the need to provide adequate base flows dedicated for instream use. Analysis of flows and diversions shows that the exercise of legal water rights often exceeds instream flows critical for spring-run salmon and steelhead migration. Additional efforts to determine appropriate instream flows are currently in progress and will require a long-term record of the daily hydrograph for the various reaches of the tributaries. This project will provide data at the five creeks on water temperature and turbidity with the goal of using this information to improve the recovery and long-term survival of spring-run Chinook salmon and steelhead in these creeks. Tasks include: 1) perform annual operations and maintenance of the CALFED funded stream gauging station recording and telemetry equipment and provide the final annual processed and computed data for water stage, discharge, temperature, and turbidity for the stations operated by CDWR; and 2) perform same service for those gauging stations operated by USGS.Was ERP-01-N02.	66D, 66E, 115A
ERP-01-C03	Revised Phase 2 - Merced River Salmon Habitat Enhancement: River Mile 42 to 44 (Robinson Ranch Site)	Phase 2 covers the actual construction of the Merced River salmon habitat enhancement project. The multi-phase project ultimately restores a reach of the Merced river that is degraded as a result of gravel mining activities and the aggregation downstream of dams, tailings and pits within the river. Restoration activities will include channel reconfiguration, creation of a large floodplain with native vegetation, and berm reconstruction. Improving channel dynamic/sediment transport includes: reconfiguring channels, creating a large floodplain with native vegetation, and reconstructing berms. These actions improve salmon spawning and rearing habitat by creating spawning riffles, runs, and pools and improving water quality. Tasks include: 1) earthwork within the Merced River channel as shown in construction bid spec No. 01-02; 2) Screen, process and relocate graded material from work site native material to area within the work site to the lines and grades as shown.; 3) Place select borrow material from work site native material to areas within the work site to the lines and grades in plans; and 4) progress reports. Was ERP 01-N06.	86G, 87F, 88I, 88J, 88L, 94C, 97F

Project ID Number	Title	Description	Milestones
ERP-01-C04	Suisun Marsh Property Acquisition & Habitat Restoration	This project attempts to acquire property in the Suisun Marsh, along Hill Slough, currently managed as seasonal wetland and restore the area to a fully functioning self-sustaining tidal wetland ecosystem which includes low-marsh, high-marsh, and upland transition zones, increasing the area and contiguity of saline emergent wetlands thereby assisting in the recovery of at-risk species. This is Phase II which develops a restoration plan involving a topographic survey and hydrologic evaluation of the acquired parcels. Phase III includes completing the required environmental documentation and obtaining the necessary permits. Phase IV will involve execution of the restoration plan and initiation of adaptive management. Phase V provides for implementation of the monitoring plan. Tasks include: 1) development of a restoration plan involving a topographic survey and hydrologic evaluation of parcels.	39A
ERP-01-C05	Feasibility Study of the Ecosystem & Water Quality Benefits Associated with Restoration of Franks Tract, Big Break, and Lower Sherman Lake Was ERP 01-N18.	Project objectives include: 1)Develop and evaluate methods to restore tidal marsh in flooded islands including cost-analysis for large -scale implementation; 2) Recreate dendritic channels to provide ecological benefits to native plants, fish, and wildlife, and impeded the success of invasive, non-native fish and aquatic plants; 3) Evaluate restoration of shoreline levees with strategically-located openings designed to alter salt trapping and mixing characteristics of flooded islands while retaining tidal flow to the island interiors; and 4) evaluate opportunities to improve recreation, aesthetics, and flood control at the three flooded islands. Tasks include: 1) Agency coordination/ public outreach/project management; 2) Gather data and define baseline; 3) Develop and calibrate model of three flooded island sites; 4) Review and confirm objectives and priorities; 5) Define alternative restoration concepts; 6) Model and evaluate alternative concepts; 7) Estimate costs of alternative concepts; 8) Refine concepts and define preferred pilot program; 9) Prepare monitoring and adaptive management program; and 10) prepare feasibility report.	1A, 112A
ERP-01-C06	Sedimentation in the Delta and Suisun Bay	The objectives of this study are to describe the movement of sediment affecting habitats in the Delta and describe the availability of sediment needed for habitat restoration. Tasks include: Bedform surveys in lower Sacramento River and other Delta waterways; Analysis of transport rates calculated from survey data; time series suspended-sediment measurements at gaging stations; suspended sediment discharge calculated using data from gaging stations.	1A
ERP-01-C07	Transport, Transformation & Effects of Se and C in the Delta: Implications for ERP.	The objectives of this targeted research is to determine how the Delta system transports and distributes conservative materials delivered from the rivers; evaluate transformations of Se and C in the Delta - within a transport context - and their consequent distributions; and determine how transport and transformation of Se will affect critical food webs in the Delta and the Bay. Phase 1 of this project is ERP-97-B06. Tasks include: 1) model forecasts of Se and C dynamics under a variety of flow regimes, with and without biological transformation reactions;2) Delta-scale transects of water column Se and bioindicators; 3) analysis of Se transformation and transport within critical habitats;4) integrating 3D hydrodynamic models, physical experiments, detailed studies of water, and sediment information, 5) bio-uptake studies with local biota; and 6) analysis, modeling and effects studies of Se within the food web. Was ERP 01-N20.	1A, 34A, 34B, 50A

Project ID Number	Title	Description	Milestones
ERP-01-C07-D	Directed Action for Cache Creek Settling Basin Study	This study is being performed by the COE to assess the potential for increasing sediment deposition and mercury removal in a proposed flood control structure at the mouth of Cache Creek. The deliverables will include a mid-study report that will be reviewed by independent technical reviewers, a draft study report, and a final study report. (was 02D-C09). Tasks includes: 1) identifying existing mercury related problems in the settling basin,2) review of existing models, 3)evaluating baseline hydraulic and sediment transport conditions for the settling basin; 4) evaluate effects of one proposed flood control structure on mercury retention: 5) formulate and evaluate proposed flood control structure on mercury retention; 6) formulate and evaluate at least 3 additional settling basin alternatives,7) develop cost estimates, 8)rate alternatives and 9)recommend an implementation strategy.	31C
ERP-01-C08-D	Technical and Scientific Services for the Upper Yuba River Studies Program	U.S. Geological Survey is investigating water quality and sediment transport and yield in the Yuba River watershed in support to the Upper Yuba River Studies Program's objective of determining whether it is biologically, environmentally, and socioeconomically feasible over the long term to introduce wild Chinook salmon and steelhead trout to the Yuba River above Englebright Dam. Tasks include: 1) Operation, maintenance, and discharge measurements at gagging stations from January to September, 2001; 2) Monitoring of water quality and sediment from January - September, 2001; 3) a quality assurance project plan to describe data collection activities in for the study; 4) Coordination of technical review panel; 5) geophysical survey to map reservoir sediment elevations; and 6) installation of new cableway below Englebright Dam.	Upper Watershed
ERP-01-C09	Hill Slough West Habitat Restoration Demonstration Project, Phase II	Phase 2 objective is to complete the environmental documentation and permitting for a multi-phased project to restore tidal action to seasonal and permanent wetlands. Proposal to restore tidal action to approximately 200 acres of seasonal and permanent wetlands in the northeastern Suisun Marsh. Implementation of the plan will be carried out in 4 phases over approximately 5 years. Tasks include: 1) Species surveys for listed species to be included in environmental documentation; 2) Complete environmental documentation and permitting process; and 3) contract administration. Was 01-N14.	39A, 39F, 39K, 39L, 42A, 44C
ERP-01-C61-1-D	Directed Action for Dissolved Oxygen	This information will be used to develop a management action plan for elimination of DO concentration below 5 mg/L during the winter, spring and summer and 6 mg/L in the DWSC during the fall. This project provides the funding to conduct the second-year studies. These studies are being conducted through a set of 10 component projects. The project will conduct a second and final year of baseline water quality monitoring in the upper and lower San Joaquin River during fall 2001. Tasks include: 1) measurement of the contribution of algal load from growth in the San Joaquin River Deep Water Ship Channel (SJR DWSC); 2) measurement of net transport from upstream sources to oxygen demand in the DWSC; and 3) field measurements to identify and quantify mechanisms that control the impact of algal load on oxygen depletion in the DWSC.	26A, 26B, 26C, 26D
ERP-01-C61-2-D	Directed Action for Sources and Causes of Oxygen Demand from Algal Biomass in the San Joaquin River Deep Water Ship Channel	This monitoring program will measure the contribution of algal load from growth in the SJR Deep Water Ship Channel (hereafter DWSC) and net transport from upstream sources of oxygen demand in the DWSC. In addition, field measurements will identify and quantify mechanisms that control the impact of algal load on oxygen depletion in the DWSC. This information will be used to develop a management action plan for elimination of DO concentration below 5 mg/L during the winter, spring and summer and 6 mg/L in the DWSC during the fall. This project provides the funding to conduct the second-year detailed scientific studies. These studies are being conducted through a set of 10 component projects. The project will conduct a second and final year of baseline water quality monitoring in the upper and lower San Joaquin River during fall 2001.	26A, 26B, 26C, 26D

Project ID Number	Title	Description	Milestones
ERP-01-C61-3-D	Directed Action for Dissolved Oxygen, IEP Data Management	The SJR DO TMDL project data from the summer/fall 1999 and the CALFED 2000 studies are being entered into the IEP database. Data will be accessible through the internet. This project provides the funding to conduct the second-year detailed scientific studies. These studies are being conducted through a set of 10 component projects. Tasks include: 1) continue storing the data from the Directed Action component projects in the IEP database; 2) provide local database development as-needed; and 3) load time series data into the HEC/DSS database maintained by IEP.	26A, 26B, 26C, 26D
ERP-01-C61-4-D	Monitoring of Nutrients and Oxygen Depleting Substances in the San Joaquin River Basin Upstream of Vernalis	This project will evaluate 1986-1988 data to determine the major sources of nutrient loads for June through November and to sample for nutrients and oxygen-demanding substances at four sites in the San Joaquin River (SJR) during July - Oct 2000. USGS collected and analyzed samples at four San Joaquin River sites in July through October 2000, and June through November 2001, and at eight tributary sites in 2001. Data from this study were supplemented with data from a separate study.	26A, 26B, 26C, 26D
ERP-01-N01	The Influence of Flood Regimes, Vegetative and Geomorphic Structures on the Links between Aquatic & Terrestrial Systems	This study will examine the floodplain dynamics in the Cosumnes watershed. This project will examine newly flooded levee breaches and other flow restoration efforts for ecological relationships. This project is related to ERP-99-N06. Tasks include; 1)examine conditions the food web dynamics; 2) examine vegetation structure; 3)develop remote-sensing technologies will be used to assess the impacts of flood regime, groundwater, soil, and land use on the establishment of riparian forest structure; 4) Examine primary productivity relationships using flow and water quality models, field trapping, nutrient and isotope assays, and structural analyses; 5) survey riparian birds and bats; and6) use developed information to develop standard methods, training materials, software and technical support that can be applied widely within the Delta region.	1A, 1B, 112A, 112B, 113A
ERP-01-N03	Tuolumne River Restoration: Special Run Pool 10	This is Phase 1 of a multiphase project. The ultimate project goal is to reduce predator (bass) habitat and restore riparian and aquatic habitat for fall run Chinook salmon by filling in in-channel mining pit to pre-mining conditions for .5 mile segment of Tuolumne River. Tasks include: 1) Preliminary design consisting of hydraulic modeling, 30% level schematic design of cross sections, and revegetation planting; 2) Riparian Planning Assessment and Design; 3) Surveying and mapping right of way and conservation easements; 4) Environmental permitting; 5) conservation easement appraisals, and 5) development of monitoring plan pending project construction (no construction in this phase).	88A, 88B, 88D, 94A, 116C
ERP-01-N04	Arundo Donax: Survey and Eradication	This project will examine the success of native plants to revegetate areas formerly occupied by the invasive weed Arundo donax. Arundo donax has become a problem in riparian habitats by overtaking native plants while providing little ecosystem benefits to native wildlife. This project proposes to provide new information regarding the ability of native vegetation to return once Arundo donax has been removed. Eight creeks have been chosen for the research. They include Reeds, Red Bank, Brickyard, Burch, Jewett, Stony, Big Chico, and Little Chico Creeks. Tasks include:1) mapping of exact locations of Arundo; 2) public outreach to landowners; 3) obtain appropriate permits; 4) eradication and removal of Arundo; 5) restoration of selected areas; and 6) evaluation and monitoring of results. Final results and a final report will be shared with public agencies and related professionals through meetings and conferences.	62C
ERP-01-N08	San Joaquin River NWR Riparian Habitat Protection & Floodplain Restoration Project - Phase II	Phase II will fund the easement acquisition of approximately 400 acres of habitat adjacent to the San Joaquin River National Wildlife Refuge. Tasks include: 1) acquisition of approximately 400 acres of habitat; 2) restoration of approximately 1000 acres of riparian and wetlands habitat on refuge lands through replanting and NIS removal; 3) a pilot re-introduction of riparian brush rabbits onto refuge lands; and 4) biological monitoring and evaluation.	89A, 92A, 94B, 95A, 95E, 95F, 112A

Project ID Number	Title	Description	Milestones
ERP-01-N09	Tuolumne River Fine Sediment Management Plan	The purpose of this project is to reduce the supply of fine sediment to increase substrate permeability for Chinook salmon on the lower Tuolumne River near La Grange. Tasks include: 1) construction of a sedimentation basin in Gasburg Creek, and monitoring Lower Dominici Creek, both tributaries to the Tuolumne River 2) Removal of sand and cleaning the channel bed, pools and riffles in the spawning reach of the Tuolumne River; and 3) Quantify the relationship between substrate permeability and Chinook salmon survival-to-emergence.	88A, 88B, 105A, 105B
ERP-01-N10	Cosumnes/Mokelumne Corridor Floodplain Acquisitions, Management, and Restoration Planning	The primary objectives of this project are to protect existing riparian, wetland, and aquatic habitats and associated species; increase the capacity of the floodplain to store floodwaters by restoring channel-floodplain connectivity; and protect the habitat values on existing farmland by purchasing conservation easements that promote wildlife-friendly farming practices. All restoration sites will be monitored to establish baseline conditions and floral and fauna response to restoration efforts. The properties targeted for acquisition in the proposal are located in southern Sacramento County, within the floodplains of the Cosumnes and Mokelumne Rivers. Tasks include: 1) Acquisition of the 122.07 acres Valley Oak Vineyard Tract (native grasslands and 3 finger sloughs), 788.8 acres on Terminous Tract (wildlife friendly ag); 648.77 acres Giovannoni Property (row and grain crops agriculture); 2) Stewardship: Hydrological and baseline biological monitoring and studies; Maintenance and repairs of infrastructure; exotics control; trash removal and restoration planning.	5B, 5D, 6A, 7D, 12A, 14A, 14C, 15A, 15C
ERP-01-N11	Habitat Acquisition for Riparian Brush Rabbit and Riparian Woodrat	This grant is for Phase 1 in which USFWS will acquire fee title or conservation easements on 400 acres of riparian habitat to provide secure sites for release of captive-bred riparian brush rabbits on the north or south bank of the Stanislaus River near Caswell Memorial Park. Agencies in the Department of the Interior launched a captive breeding effort for the rabbit. Riparian habitat is needed to provide secure sites for release of captive-bred rabbits. Tasks include: acquire appropriate properties (fee title/conservation easement); secure property with gates and signs; and 3) conduct preliminary surveys for all rabbits species and determine tasks necessary for reintroduction.	95E, 95F, 112A
ERP-01-N12	Yolo Bypass Management Strategy, Phase II	The objective of this project is to continue the technical research, planning, and stakeholder development efforts begun under the current Management Strategy project(ERP-98-E11) to ensure existence of the necessary data, assurances, and support for implementation of potential habitat enhancement projects of the Yolo Bypass. Tasks include: 1) establishing baseline ecological condition of the Bypass,2) continuing the Working Group public outreach process,3) conducting analyses of: the costs and benefits associated with potential ecological enhancements; 4)compensation for land-use changes; hydrologic and hydraulic impacts, and mitigation; and 5) developing a Memorandum of Understanding addressing the assurances required by landowners and all other affected parties.	Educational

Project ID Number	Title	Description	Milestones
ERP-01-N13	Demonstration Project for the Protection and Enhancement of Delta In-Channel Islands (Phase 2: Construction & Monitoring)	The project will install various combinations of biotechnical erosion control techniques on 3 in-channel islands to demonstrate their effectiveness in controlling shoreline erosion and the potential for accreting new fine sediments for habitat substrate. The project will monitor the effects of the techniques on local hydraulic and sediment movement. Biological indicators will also be monitored to determine any positive effects on target organisms. Structures will be installed around two in-channel islands, one in the San Joaquin River, north of Webb Tract; the other located on Little Tinsley Island in the San Joaquin River. Years two and three will include physical and biological monitoring of these sites and a third site in False River, where similar methods were installed in 2000. CALFED will be able to use the results produced from this study to protect other sensitive wetlands in the Bay-Delta system. . Phase 1 is ERP-97-N11. Tasks include: 1) Project management; 2) Webb Tract construction including - floating breakwaters of planted log boxes, anchored root wads, planted ballast buckets and planted coconut fiber mattresses. Tinsley Island construction including - floating breakwaters of planted log-boxes, stacked 20 inch fiber rolls, 10 -12 in live willow wattling rolls, anchored root wads, planted ballast buckets, brush boxes, stacked rock rolls, and planted coconut fiber mattresses; 3) construction maintenance- erosion control; and monitoring.	11A, 112A, 112B
ERP-01-N16	Butte Creek/Sanborn Slough Bifurcation Upgrade Project	This project is the implementation of the Butte Creek/Sanborn Slough Bifurcation upgrade project. Engineering design, permitting and portions of construction were previously completed by AFRP and CWA. Tasks include: 1)complete upgrading the high-flow spillway according to design; 2) install remote operation hardware and software and 3) monitoring the structure for two hydrologic cycles to establish operational criteria for fish passage at the Butte Creek/Sanborn Slough Bifurcation Structure.	67J
ERP-01-N19	Ecological Monitoring of Tolay & Cullinan Ranch Tidal Wetlands Restoration	This project will implement the ecological monitoring phase of the Tolay Creek (ERP-97-N19) and Cullinan Ranch (ERP-97-N18) Tidal Wetland Restoration Projects in the North San Francisco Bay and follow the transition from project construction to a developed wetland. Tasks include:1) Physical measurements (Sediment accretion, continuous water level, integrated water quality parameters); 2) Biological measurements (Vegetation transects; 3) aerial photography for veg mapping; 4) invertebrate and insect identification and enumeration,5) Fish species assemblages; 6) Bird surveys; and 7) Mammal surveys.	112C, 112D
ERP-01-N21	Large-Scale Pilot Demonstration of Passivation Technology For Restoration of Newton Copper Mine	The intent of this project is to conduct an on-site full-scale pilot demonstration of passivation technology in controlling the acid drainage from the inactive acid-generating Newton Copper Mine site. (Amador County). Tasks include: 1) sample collection for laboratory passivation tests; 2) characterization of samples; 3) conduct batch and column passivation tests; 4) establish performance criteria; 5) perform accelerated weathering tests to establish the long-term stability of the passivation process; 6) establish the stability/degradation and 7) develop an implementation plan to remediate the site using the passivation process.	36F

Project ID Number	Title	Description	Milestones
ERP-01-N22	Rainbow Trout Toxicity Monitoring: An Evaluation of the Role of Contaminants on Anadromous Salmonids	In this 3-year project, the Rainbow Trout Embryo Development (RTED) Test protocol will be evaluated with a suite of reference toxicants including cationic metals and pesticides that are identified as contaminants of concern in the Sacramento and San Joaquin watersheds. Ambient samples from these watersheds will be tested using this protocol to determine if toxicity is present in the study areas. If toxicity is identified, the temporal and spatial distribution of toxicity will be determined. Finally, standard Phase I and II Toxicant Identification Evaluation (TIE) procedures will be confirmed and new TIE procedures will be developed to identify the contaminants responsible for the toxicity. Once contaminants are identified, the ecological significance of the toxicity can be determined and consensus solutions reached by SRWP participants. Tasks include: 1) Develop work plan based on input from SRWP Toxics subcommittee and CALFED biological monitoring workgroup; 2) Subcontract management of toxicity testing, and analytical chemistry; 3) project management; 3) provide technical guidance for project Technical Advisory Committee.	37A, 37B, 73A, 73B, 80D, 83A, 112B, 112D
ERP-01-N23	Staten Island Acquisition	This project will facilitate restoration of 9,106 acres of significant acreage of riparian, freshwater tidal emergent wetland, shallow water, and aquatic habitats. This project will also protect critical agricultural wetlands. Phase II is ERP-02-P08. This project is part of a joint three phase conservation initiative for Staten Island designed to ensure permanent protection and optimal management. Tasks include: 1) acquire 9,106 acres commonly known as Staten Island in fee from a willing seller; 2) continue to farm most of the acreage in a manner consistent with achieving CALFED ecosystem objectives for the East Delta; 3) execute and record a conservation easement to be held by the DWR; 4) start-up stewardship tasks; 5) participate in the North Delta Planning process being implemented by DWR and coordinated through the Delta Protection Commission; and 6) pursue potential acquisition of subsurface mineral rights.	6A, 8C, 13G
ERP-01-N24	Battle Creek Riparian Protection	This project will fund the acquisition of conservation easements on three properties in the Battle Creek watershed for the benefit of Chinook salmon and steelhead restoration efforts. The intended goals of this Program are 1) to limit future impacts (from landscape fragmentation, instream physical disturbance, and the addition of new wells and septic systems) and 2) to preserve high quality riparian habitat adjacent to wildlife compatible agriculture. This project will provide funds to obtain conservation easements at three properties within the watershed. The three properties are Miller Ranch (1,600 acres), Pelton “Eagle Canyon” Ranch (990 acres), and Winning Ranch (700 acres). Acquisition of conservation easements will help maintain and enhance functional riparian habitat and stream bank conditions and minimize threats from human impacts by ensuring protection of the riparian habitat, helping to prevent excessive water extraction and use, and ensuring connectivity of the stream to the surrounding land. Tasks include: 1) secure conservation easements on Miller Ranch and Winning Ranch; and 2) Conduct stewardship and monitoring activities on acquired easement properties.	62F, 112A

Project ID Number	Title	Description	Milestones
ERP-01-N25	Sustaining Agriculture and Wildlife Beyond the Riparian Corridor	This project represents a collaborative effort to assess watershed conditions and test the efficacy of agricultural conservation practices primarily for water quality and wildlife benefits in the Bay-Delta region. This project is expected to result in 1) a working assessment of the Union School Slough watershed (east of hwy 505 at the end of Road 27); 2) installation of conservation sites; 3) quantified and published results of water quality and wildlife habitat benefits of all practices; 4) a beta-stage conservation planning-assistance tool (One Plan); and 5) a highly directed project outreach program. Tasks include: 1) develop compressed protocols to assess watershed function and prioritize conservation work; 2) conduct on-farm demonstration projects; 3) quantify the effects of the practices through multi-year trials and monitoring; 4) develop a web-based landowner conservation decision assistance tool (Yolo One Plan) to facilitate small-scale planning for large-scale watershed improvements; and 5) increase participation in education and outreach program.	62H, 76A, 76B, 76E, 81B
ERP-01-N26	Lassen National Forest Watershed Stewardship Within the Anadromous Watersheds of Butte, Deer, and Mill Creeks	This project represents Phase II of a previously funded project (ERP-97-B01) to restore the Deer, Mill, and Butte Creek watersheds. The primary biological/ecological goals of this project are to improve riparian and fisheries habitat, restore wetlands and natural stream morphology, and promote and maintain important ecological processes and functions. Tasks include: 1) sediment reduction projects on Deer and Mill Creeks; 2) conducting meadow surveys and restoration demonstration projects; 3) installing interpretive displays at seven recreation areas; 4) providing campground education programs, and 5) establishing Watershed Stewardship education programs at Chester Elementary and High Schools.	62B, 76B, 76D, 112B, 112D
ERP-01-N27	Sonoma Creek Watershed Conservancy, 2001-2003	This project will assess the state of and need for planning, education, and restoration actions in the Sonoma Creek watershed. Tasks include: 1)expanding on the Conservancy's existing efforts to inform and engage the public in watershed issues while providing critical data for adaptive management; 2) monitor ongoing fish passage and pool enhancement projects; 3) assist in implementation of projects restoring natural fish passage; 4) provide technical assistance and monitoring to projects in the watershed; 5) continue to analyze and monitor factors limiting steelhead populations; 6) generate a preliminary land use and riparian assessment map; 7) support landowner outreach efforts; and 8)create a database on the ecological history of the Sonoma Valley.	38C, 47D, 112B, 112D, 119B
ERP-01-N28	Sacramento River Conservation Area Program	This project will provide funding to continue the efforts of the Sacramento River Conservation Area Program to act as a coordinating body between local, state, and federal agencies regarding restoration activities in the Sacramento River watershed. This project will provide funding for the second and third years of a coordinator position for the Sacramento River Conservation Area Program. Extensive development within the river's floodplain, its headwaters, and tributaries has negatively impacted fish and wildlife and their habitat. The first grant provided funds for completion of an MOA, which was signed to establish the Program in 2000. Tasks include: 1) continue the efforts of the newly formed non-profit to implement the MOA; 2) coordinate management activities; 3)continue working with local government and landowners to resolve outstanding issues; and 4) implement natural process and meander zone restoration.	59B, 60A, 61D, 62G, 63B, 64A, 112B, 112D

Project ID Number	Title	Description	Milestones
ERP-01-N29	Kirker Creek Watershed CRMP Program	This project is to create a watershed management plan for the Kirker Creek watershed (Contra Costa county from Black Diamond Mines Regional Park to Suisun Bay at Pittsburg) using the Coordinated Resource Management & Planning (CRMP) process. The plan will address restoration of wetland and riparian communities, prevention of soil erosion, reduction of non-point source pollution and flooding, and the preservation of property rights. The timeframe for this project is two years. Tasks include: 1)identify goals, objectives, and methods to develop the watershed management plan; 2)conduct an initial assessment of watershed resources; and 3) host educational workshops and seminars on a variety of specific natural resource management topics.	112A, 112B
ERP-01-N30	Digital Soil Survey Mapping and Digital Orthophotoquad Imagery Development	This project aims to improve the accuracy and availability of soils data in the Bay-Delta region. NRCS as the project applicant will also provide matching funds which will be used to rectify and digitize a large portion of the county-based soil maps in Bay-Delta region within a 3-year timeframe. The final project will produce two digital data layers for 9 Soil Survey Areas. The nine study areas are located in the Shasta Area, Glenn County, Nevada County, the Amador Area, the Eastern Stanislaus Area, the Merced Area, the Madera Area, Tehama County, and Sonoma County. Tasks: 1) obtain updated imagery; 2) recompile original soil survey atlas sheets; 3) develop soil attribute tables; 4)digitize soil boundaries; 5)release the data to public; and 6.) manage all phases of the project.	76A, 105A
ERP-01-N31	Willow Slough Watershed Rangeland Stewardship Program	This project builds upon the efforts of a previously funded project (ERP-98-E13) in the Union Slough watershed to develop an expanded watershed stewardship program to the greater Willow Slough watershed. Tasks include: 1) development of ranch conservation plans which identify priority areas and applied practices such as prescribed fire, controlled grazing, reseeding, targeted weed control riparian fencing, water development, stock pond habitat enhancements, erosion control projects and others as identified by the landowners; 2) Implement conservation plans; 3) conduct research, assessment and monitoring activates to evaluate conservation plan effectiveness; 4) Adjust conservation plan to incorporate knowledge gained in the first year.	62H, 76C, 76D, 112A
ERP-01-N32	Watershed Stewardship in Marsh Creek: A Project to Protect Water Quality in the Western Delta	The goal of the project is to organize and implement a community-based watershed analysis to improve scientific understanding of ecological trends and processes shaping Marsh Creek which flows from Mt Diablo to the Delta. Tasks include: 1) Develop coordination among Natural Heritage Institute, Delta Science Center, cities of Oakley and Brentwood, East Bay regional Park District, the local Resource Conservation District and local land owners and residents; 2) compile existing baseline data to describe and map the resource; 3) Coordinate a community-based watershed monitoring program; and 4) Process data into electronic database, develop graphics, maps and reports illustrating data.	112A, 112B
ERP-01-N33	Watershed Education, Headwaters to the Ocean	The objective of this project are to develop programs that help populous that understands, natural resource systems and expand existing student programs to include watershed ecological studies. Tasks include: 1) Expansion of bird monitoring and volunteer recruitment and training in cooperation with Point Reyes Bird Observatory; 2) train interns about native grasslands for school presentations includes demonstration plots; 3) lesson outlines for Native and drought tolerant gardens; and 4) Mapping and development of eradication plan NIS plants along 15 miles of the Sacramento River.	Educational

Project ID Number	Title	Description	Milestones
ERP-01-N34	Estuary Action Challenge Environmental Education Project	This organization works with elementary school teachers and students to: 1) explore, clean up and restore creek and bay habitats; 2) increase awareness of methods to reduce urban runoff pollution; 3) increase public awareness of bay pollutions issues and safe bay food consumption practices; and 4) further education about the ecological value of waterways by providing educational resources for teachers. In this project, the programs will take place in Richmond, San Pablo, Oakland and Berkeley and focus on urban creek and bay habitats. The early stage of the SRDC was funded under ERP-99-B20.This project provides funding for five different education outreach program conducted by the Sacramento River Discovery Center aimed at education citizens about natural systems. Tasks include: 1) Purchase supplies; 2) Fall newsletter; 3) Eight Bay Estuary Scientist Workshops; 4) Six Urban Creek Restoration programs; 5) Sic pollution Reduction /safe Bay Food Programs; 6) eight Bay and Creek Field trip explorations; 7) Recruit participants; 8) Prepare curriculum guides; 9) Plan projects with collaborators; 10) Meet with teachers; 11) Teacher evaluation meeting; and 12) programs evaluations.	Educational
ERP-01-N35	Watershed Education Project	This project will provide funds for the ongoing efforts of the Watershed Education Project (WEP) to provide coordination and training for the development and implementation of watershed curriculum to teachers primarily in the Chico, Durham, and Paradise School Districts. In addition to continuing current efforts, the program will expand coordinator functions to other school districts, provide continued training in appropriate curriculum and field study protocols, continue and expand restoration activities and enhance linkages with watershed education efforts in the region. Tasks include: 1) Continued education coordination; 2) establish coordinator for other districts; 3) purchase Adopt-a Watershed Kits; 4) Provide project wet training; 5) Maintain and expand restoration/field site; 6) Enhance linkages with other programs; 7) Support Americorp educational involvement; and 8) project management.	Educational
ERP-01-N36	Traveling Film Festival/San Joaquin River Oral History Film	This project will expand the impact and reach of the Independent Documentary Group's popular CALFED-funded Traveling Film Festival & Exhibition by booking additional screenings in the Bay Area and further east into the Central Valley through a unique collaboration with the California Council for the Humanities; and produce a short film for television broadcast, the "San Joaquin River Oral History Film". IDG proposes to expand its Traveling Environmental Film Festival to Central Valley locations by scheduling screenings in conjunction with the photography exhibit, "Awakening from the California Dream". This expanded film festival and oral history movie are designed to provide information to the public in a medium the public enjoys and understands. Phase I is ERP-98-B31.	Educational
ERP-01-N37	Environmental Stewardship Educational Conferences and Tours	This project aims to increase the awareness of local wine grape growers and regional landscapers about the impacts of their farming and operations practices on water quality in the Bay-Delta region and to improve and increase aquatic and terrestrial habitats and ecological functions in the Bay-Delta by increasing knowledge of biointenstive Integrated Pest Management techniques and other sustainable land management techniques, such as erosion control and improved irrigation efficiency. Project proponents will provide this information through a series of conferences and tours either in or impacting the Suisun Marsh/North San Francisco Bay area and the East San Joaquin Basin. Expert presentations and facilitated discussions will allow participants to explore state-of-the-art material and research on agriculture and landscape conservation techniques. Tasks include: Organize the following conferences 1) Sustainable Landscape Management in Stanislaus County Conference and Tour; 2) Sustainable Wine grape Production in Madera and Fresno counties conference and Tour; 3) Sustainable Landscape Management in Stanislaus County conference and Tour; 4) Sustainable Wine grape Production in Madera and Fresno counties Conference and Tour; and 5) Final report.	Educational

Project ID Number	Title	Description	Milestones
ERP-01-N38	Delta Studies Program: San Joaquin County Schools	This project is an effort to educate thirty thousand kindergarten through twelfth grade students in sixty San Joaquin County schools area students and teachers about the Delta. Tasks include: 1) develop a Delta Studies Curriculum that is focused on twelve topic areas of the CALFED Bay-Delta Ecosystem Restoration Program; 2) assemble ten kits of materials and equipment to support above curriculum will be developed and multiple kits of each will be made available for checkout by teachers from a Delta Education Resource Center; and 3) a cadre of teacher leaders will be trained as Delta Educational Leaders and Action to forward the implementation of the Delta Studies Curriculum and provide leadership at targeted school sites for implementation of the curriculum.	Educational
ERP-01-N39	Adopt-A-Watershed Leadership Institute	Provide teacher training on environmental education and science focused on long term restoration of the ecosystem, so teachers can provide classroom training/education for grades K-12. This project is to send 10 new leadership teams each year for 3 years (30 teams) to the Adopt-A-Watershed leadership Institute. No institute address found in documentation. contact in Hayfork, Ca. Task 1: Promotion, Planning, and Preparation; 2)Summer Institute; 2001; 3) follow up workshop, 2002; 4) Spring retreat, 2002; 5)planning, 2002; 6) Same for 2003.	Educational
ERP-01-N40	Discover the Flyway II	The mission of the Yolo Basin Foundation is to educate and inspire people about wetlands and wildlife in the Central Valley. This has been carried out in the pilot phase (phase I – ERP-98-B34). The goal of phase II (this project) is to provide new teacher training opportunities and program expansion to reach a larger communal audience. The educational content includes ecosystem relationships, special status species, wetland habitats and their benefits to humans, biotic communities, water quality, and an emphasis on habitat restoration and protection based on the concept that enhanced learning comes through meaningful real-world experiences. Phase I is ERP-98-B34. Task include: 1) Teacher Watershed Academy; 2) Expanded Teacher Workshop with Student Event opportunities; 3) General public education programs; 4) Student based project specific learning program; and 5) Project management.	Educational
ERP-01-N41	Bay-Delta Learning Initiative	The goal of this project of to make continuous, reliable, and impartial information about Bay-Delta issues to boaters, anglers, the media, and K-12 educators and provide curriculum materials to K-12 teachers in underserved communities with workshops. Tasks include: 1)Production and distribution of posters addressing the introduction and spread of non-native invasive species; 2) development of 3rd annual Journalists Tour of the Bay-Delta and 3) an internet Bay-Delta briefing on CALFED progress.	Educational
ERP-01-N42	Educating Farmers and Landowners in Biological Resource Management	The project includes establishing two specific demonstration sites that will be evaluated, cleaned up, revegetated, restored, and simultaneously used as a working model for educational purposes. This project will fund activities in Solano and Merced Counties The objectives of this project are to increase farmer/landowners' knowledge about restoration practices; increase the use of biological management practices that benefit the ecosystem; improve water management practices related to sedimentation, erosion, and water use efficiency; and increase the use of beneficial wildlife habitat management practices. Tasks include:1) data collection to select site; 2) planning and project management; 3) provide technical assistance; 4) plan demonstration activities; 5) organize educational events; 6) develop supporting publications; 7) outreach, evaluation and assessment, and reporting of results.	86A, 86I, 94A

Project ID Number	Title	Description	Milestones
ERP-01-N43	Genetic Identification of Watershed-Dependent Species of Special Concern in the Central Valley	This project will characterize spatial population structure in Central Valley amphibians, reptiles, and songbirds to provide resource managers with information linking population structure with demographic processes. By taking a cross-species approach this project hopes to identify potential concordant patterns to aid in making informed conservation decisions that maximize the biodiversity of the region as a whole. Tasks include: 1) use two complementary molecular markers to elucidate the genetic structure of Central Valley populations in three species of amphibians, one species of reptile, and four passerine songbird populations; 2) propose management units will from derived genetic information; 3) characterize the boundaries and connectivity of distinct population units in these three Central Valley species; 4) test whether the Central Valley populations show a pattern of "isolation by distance," and if so, to determine whether distance should be measures as watercourse distance or as a straight-line distance; 5) assess whether subsets of these amphibian, reptile, and songbirds species exhibit congruent patterns of genetic variation such that they could be managed in concert; and 6) provide explicit recommendations on which local populations should be considered distinct Management Units.	112B
ERP-01-N44	Estimating the Abundance of Sacramento River Juvenile Winter Chinook Salmon with Comparisons to Adult Escapement	This project will develop juvenile winter run production indices and correlate these indices with estimated escapement from adult counts at RBDD and the winter run carcass survey. Task include: 1) conduct rotary screw trap field sampling of Chinook salmon (all runs), and green sturgeon from July 1, 2001 through June 30, 2004; and 2) final report.	112B, 112D, 119A
ERP-01-N45	Battle Creek Anadromous Salmonid Monitoring Projects	This project will provide information on salmonid monitoring for use in adaptive management of the Battle Creek Salmon and Steelhead Restoration Program. Monitoring may show that, given time, salmonids will be able to access target habitats, produce juvenile outmigrants, increase escapement, and meet AFRP/CALFED goals. This project consists of three elements: 1) adult fish counting and trapping at the Coleman barrier weir; 2) adult, redd, and carcass (snorkel) surveys; and 3) juvenile fish monitoring with two rotary screw traps addressed at four stages: Post-Construction Evaluation and Assessment, Facilities Monitoring Plan, Operations and Maintenance Plan, and an Adaptive Management Plan (AMP).	112B, 112D, 119A
ERP-01-N46	Sacramento River Winter Chinook Salmon Carcass Survey	This project is a monitoring program designed to estimate escapement in adult winter-run Chinook salmon in Shasta County from the Keswick Dam to the power line below Clear Creek Riffle. This project will estimate abundances with greater accuracy than those generated through the Red Bluff Diversion Dam fish ladder counts. The primary importance of this study will be to test the hypothesis that current and future implementation of AFRP, CVPIA, CALFED, and/or other restoration program actions are resulting in a measurable and scientifically defensible increase in abundance of this endangered species. Tasks for this project include: 1)collection of baseline information on several important life history attributes of winter Chinook salmon; 2) evaluating the effectiveness of the winter Chinook salmon propagation program to assist in species recovery; and 3) collecting tissue for genetic analysis to characterize winter-run Chinook salmon population.	112B, 112D, 119A

Project ID Number	Title	Description	Milestones
ERP-01-N47	Clear Creek Juvenile Salmonid Monitoring Project	This project will provide funds to continue monitoring juvenile salmonid condition and outmigration in Clear Creek, Shasta County to provide information to managers in assessing the effectiveness of restoration activities funded through the Central Valley Project Improvement Act (CVPIA). The expected outcome of this project is that there will be a higher arithmetic mean in fish population than prior to restoration efforts. This project will provide funds for continued monitoring of juvenile salmonid conditions and outmigration in Clear Creek to provide information to managers in assessing the effectiveness of restoration activities funded through the CVPIA. Tasks include: 1) count juvenile fish from rotary screw trap as they leave Clear Creek; 2) determine fish abundance, size, and physical condition; 3) compare information with environmental data such as season, flow, temperature, and climate to evaluate empirical relationships between habitat and fish abundance; and 3) determine how the data relate to restoration activities within the Clear Creek basin.	112B, 112D
ERP-01-N48	Juvenile Salmon Migratory Behavior Study in North, Central and South Delta	This study will evaluate the behavior of radio-tagged juvenile Chinook salmon with the objective of determining how young salmon migrate through the north Delta under varied hydrodynamic conditions after release at two locations during a four week period; study how localized net flow conditions in the south Delta will affect juvenile salmon migratory behavior; and evaluate what occurs during the telemetered salmon migration past the flow splits at Turner Cut, Columbia Cut, and lower Middle and Old Rivers in the central Delta; twelve to thirteen radio-tagged salmon will be released and monitored. This study will provide detailed, definitive data on individual fish behavior and very specific fish migration routes in the Delta in relation to Delta hydrodynamics. Information derived from this project will significantly improve the technical understanding of juvenile salmon outmigration behavior through the Delta. Tasks inlcude:1) North Delta radio tagged juvenile salmon migration pattern study; 2) South Delta - study to segregate specific effects of net flow and tidal flow on juvenile salmon migratory behavior and 3) study to evaluate during telemetered salmon migration at the flow splits at Turner Cut, Columbia Cut and lower Middle and Old Rivers.	112B
ERP-01-N49	Butte Creek, Big Chico Creek, and Sutter Bypass Chinook Salmon and Steelhead Evaluation	The objectives of this project are 1) to build on knowledge of the life history of spring-run Chinook salmon in Butte and Big Chico Creeks; 2) to evaluate steelhead trout adult migration timing and abundance in Butte Creek; and 3) to evaluate the importance of the Sutter Bypass to the rearing of juvenile salmon. Determination of the importance of the Sutter Bypass to the rearing of juvenile salmon will be evaluated by determination of differential survival of juveniles in the Bypass compared with that of mainstream Sacramento River (data from the Coleman National Fish Hatchery). Tasks on spring-run Chinook salmon will include: 1)determination of spawner escapement; 2) monitoring of time of alevin emergence; 3) documentation of juvenile salmon size at emigration; 4) measuring relative abundance; 5) monitoring of instream rearing and emigration patterns; 6) determination of contribution to ocean harvest; and 7) determination of growth rates. Studies on steelhead trout life history and adult escapement will be accomplished by trapping adult fish at selected sites.	112B, 112D

Project ID Number	Title	Description	Milestones
ERP-01-N50	Food Resources for Zooplankton in the Sacramento-San Joaquin River Delta	This study will investigate how copepods utilize the food resources available in different Delta habitats and compare our findings to those for cladocerans; this project will also compare the diets and habitat requirements of the formerly very abundance copepods, Eurytermore affinis and Cyclops vernalis, with those of the new dominant exotic species, Pseudodiaptomus forbesi, Sinocalanus doerri and Limnooithona sinesis; and will analyze historic zooplankton and phytoplankton compiled by IEP for relationships between phytoplankton food quality and zooplankton abundances. This project does not propose specific restoration efforts, but the data derived from this project will directly benefit restoration and preservation objectives in the Delta. This research will be carried out in sites with ongoing restoration and preservation efforts, or in sites representative of restoration outcomes, as well as in unrestored reference sites. Tasks include: 1) Establish and maintain copepod cultures; 2) Field sampling - physical parameters, Particulate organic carbon, C:N ratios, C:P Ratios, polyunsaturated fatty acids, chlorophyll a, pheophytin a, carbon and nitrogen isotopic ratios, phytoplankton and zooplankton; 3) Growth and grazing experiments; 4) Long-term relationships between zooplankton abundances and algal food quality in the Delta experiment; 5) Data synthesis; and 60 project management.	112B
ERP-01-N51	City of Sacramento Intake Fish Screen Replacement Project	This project will provide funds for an ongoing effort to replace fish screens on the Sacramento River for the benefit of aquatic resources in the lower American and Sacramento Rivers. This project consists of two components, replacing the intake and access bridge for the Sacramento River Water Treatment Plant (WTP) and modifying the intake at the EA Fairbairn WTP. The benefits of this project are expected to be realized as soon as it is completed, particularly for juvenile fish such as all four runs of Chinook salmon, steelhead trout, Sacramento splittail, and green sturgeon. Another benefit of this project is improved flood control. The proposed Sacramento River WTP replacement intake project will reduce the risk of possible flooding of the Sacramento River by relocating two raw water pipelines outside of the 100-year floodplain. The design phase of this project was funded under ERP-98-B28.	72A
ERP-01-N52	Sacramento River Fish Small Screen Project Vertical River Pump Diversions	This project will provide technical and financial assistance to landowners along the Sacramento River interested in installing small fish screens (40 cfs and less) through a collaborative process between several interest groups, agencies, and private organizations. The project will explore and develop the necessary technology to address vertical diversions, while refining slant pump science, emphasizing technological development for vertical pumps that may include on and/or off site testing. Tasks include: 1)characterization of pre-project conditions; 2) testing of alternatives in technology; 3) post installation evaluation and monitoring; and 4)recommended operations and maintenance guidelines.	72B
ERP-01-N53	White Mallard Dam and Associated Diversions	This project will provide funds for preconstruction activities for fish passage improvements for White Mallard Dam and associated diversions on Butte Creek. Additionally, two biological/ecological objectives of this project are to determine if adult Chinook salmon and steelhead are blocked or hindered in their upstream migration past the upgraded White Mallard Dam and fish ladder and to determine if design and operation of the White Mallard Dam and associated diversions meet proposed hydraulic standards for fish passage. Tasks include: 1)complete engineering design; 2) permitting; and 3) bidder's assistance for fish passage improvements. In addition to completion of regular quarterly reports, there will also be presentations of progress to stakeholders including landowners, water user groups, and regulatory agencies.	67J

Project ID Number	Title	Description	Milestones
ERP-01-N54	Lower Butte Creek Project: Phase III Facilitation/Coordination and Construction of Three Fish Passage Modifications to Sutter Bypass West Side Water Control Structures	This project includes implementation of fish ladders, to increase critical fish passage to essential spawning and rearing habitat, and fish screens, to decrease mortality of juvenile outmigrants. These proposed structures will modify three major water control structures within the Sutter Bypass reach of lower Butte Creek (Weir #3, Weir #5, and the East-West Diversion Weir). Construction will be spread over a two year period. The preliminary engineering and environmental analysis phase of this project was funded by ERP-99-B02. For each structure, tasks include: 1) Solicit bids from construction contractors; 2) Award contract to winning bidder; 3) Construction; 4) Construction management; and 5) monitor and test facilities.	67L, 72B
ERP-01-N55	RD 2035 Fish Screen Design and Environmental Review	This goal of this project is to prevent the entrainment of fish in Reclamation District (RD) 2035's 110 cfs diversion from the Sacramento River upstream from the Vietnam Veterans Bridge via installation of a fish screen. This project will include preparation of technical specification, environmental analysis as required by NEPA/CEQA, and the acquisition of necessary construction permits and approvals. to determine if the screens are effective and underwater visual inspection of the screens to determine if fish are impinged on the screens. If the screens are not precluding entrainment and impingement of fish, the facilities and operations will be reevaluation/modified to protect the fish. The following tasks will completed as a part of this project: 1) detailed surveying, 2) detailed geotechnical evaluation, 3) conducting 30% design, 4) 90% design, 5) completion of technical specifications, 6) final design and specifications, 7) environmental review, 8) permitting, and 9) project management. Monitoring for this project will include periodic netting of the pump station discharge.	72A
ERP-01-N56	Patterson Irrigation District Positive Barrier Fish Screen on San Joaquin River Diversion	This project is a feasibility study to design, construct, and complete a positive barrier fish screen on Patterson Irrigation District's San Joaquin River Pumping Plant. The feasibility study reviews various ways of eliminating the impacts on the San Joaquin River Chinook salmon species. Tasks include: 1) project management; 2) select and examine in sufficient detail to complete the feasibility report 4 alternatives; 3) Data collection and design criteria - geology and soils, hydrology and water quality, project operational requirements, topographical and bathymetry information, vegetation and wildlife, fisheries, and cultural resources; 4) design criteria for the four alternatives; and 5) feasibility report	99D
ERP-01-N57	Lower Mokelumne River Restoration Program - Phase 2 (Woodbridge)	This project would result in the production of a feasibility study for the construction of a positive fish barrier fish screen on the district's San Joaquin River Pumping Plant. Tasks include: 1) Fish screen intake and preliminary and final design; 2) Environmental permitting; 3) survey of 58 riparian diversions for location, pump size, and assessment of potential impacts on juveniles; 4) facility design and construction related surveys; and project management.	18D, 24A, 24B, 24C, 24D
ERP-01-N58	Fish Passage Improvement Project at the Red Bluff Diversion Dam - Balance of Phase II Funding with Requested Change of Scope	Provides funds for the ongoing effort of the second phase of the Fish Passage Improvement Project at the Red Bluff Diversion Dam (RBDD) on the Sacramento River. The objectives of the overall project are to reduce or minimize the impacts of the RBDD on upstream and downstream migration of juvenile and adult anadromous fish while improving the reliability of agricultural water supply. This will be accomplished by the following tasks including completion of: 1) preliminary design of feasible alternatives; 2) evaluation of the alternatives; 3) screening of alternatives; 4) environmental documentation; 5) initiation of permitting; 6) implement plan refinements; and 7) project management. Tasks 1 through 4 were funded under ERP-99-B07.	67B

Project ID Number	Title	Description	Milestones
ERP-01-N59	Stockton East Water District and Calaveras County Water District Fish Screen Facilities - Calaveras River	This projects are Phase 1 (feasibility study) and Phase 2 (preliminary design) for screening 29 diversion structures that exist between Bellota and New Hogan Dam on the Calaveras River. Phase 1 (feasibility) tasks include; Identification of project concepts to be evaluated; environmental reconnaissance and site assessments; baseline fisheries monitoring at Bellota Weir; and draft data collection and monitoring plan, Phase 2 (Preliminary design) tasks include: evaluation of short list of alternatives; preferred alternative selection; preliminary design development; initiation of NEPA/CEQA process; baseline fisheries monitoring at Bellota; implementation plan and final data collection and monitoring plan.	18E, 18F, 21A, 21B, 112B, 112D
ERP-01-N60	American Basin Fish Screen & Habitat Improvement Project	This Phase 3 of a 5 phase project which supports ongoing efforts which involves the removal of a diversion dam and pumps from the Natomas Cross Canal and the consolidation of 5 diversions on the Sacramento River to 1 or 2 facilities with positive barrier fish screens. Phase 3 includes; final design, completion of environmental documentation and obtaining permits, licenses, and agreements as required for project construction. At the completion of Phase 3, the project will be ready for public bid and will have the necessary permits and approvals required for beginning construction. Part of the funding for preliminary design was provided for by ERP-98-B29. This project will support the American Basin Fish Screen and Habitat Improvement Project which will improve fish passage, reduce entrainment, and improve aquatic, riverine, and riparian habitats along the Sacramento River. Phase 3 tasks includes; 1)final design, 2) completion of environmental documentation; and 3) obtaining permits, licenses, and agreements as required for project construction.	67B, 67N, 72A
ERP-01-N61-01	San Joaquin River Dissolved Oxygen Depletion Control Project: Coordination, Integration, and Technical Administration	This report will discuss the results of the past year's studies, where the technical information developed by the component projects will be translated into terms that stakeholders can understand in formulating policy for control of low DO in the DWSC. This project will also continue assistance on the 'Strawman development'. This activity is devoted to integrating data from the results of the past year's project and other sources into a form that can be used by the SJR DO TMDL SC of stakeholders to begin to formulate initial approaches for allocation of responsibility for control of oxygen-demanding substances that enter the DWSC and cause DO depletion below the water quality objective. This project was amended a new task :Aeration Planning, which funds the organization of all the information available on aeration and monitoring in the DWSC after external peer review and the development of solicitation materials for a pilot aeration and monitoring project in 2003.	26A, 26B, 26C, 26D
ERP-01-N61-02	San Joaquin River Dissolved Oxygen Depletion Control Project: San Joaquin River Diversion Data Assimilation, Drainage Estimation, and Installation of Diversion Monitoring Stations	This project provides the funding to conduct the second-year detailed scientific studies. These studies are being conducted through a set of 10 component projects. This project also provides funds for overall project quality control, data management, project integration, and preliminary management plan development. The objective of this specific component project is to provide data on the flow volume of agricultural and non-agricultural diversions and return flows in the lower San Joaquin River between Lander Avenue and the DWSC that will assist in the assessment of watershed nutrient loading to the DWSC. This project will survey the agriculture diversion and return points and storm water discharge points. In two locations, water quality monitoring data will be collected during the critical months of July through October. The data will be provided to the dissolved oxygen model(s) for set up and calibration purposes.	26A, 26B, 26C, 26D

Project ID Number	Title	Description	Milestones
ERP-01-N61-03	San Joaquin River Dissolved Oxygen Depletion Control Project: City of Stockton Water Quality Sampling	For this project, the City of Stockton has conducted very extensive river monitoring as part of NPDES permit conditions for many years. The current NPDES permit requirements for weekly sampling at eight river stations will be augmented by the City to provide a more complete description of water quality conditions in the lower San Joaquin River during the summer and early fall of year 2001. The increased sampling efforts will contribute to the San Joaquin River DO studies and investigations that are underway. The proposed stations for river sampling include Vernalis, Mossdale, river stations 1 through 8, with a new station at the upstream end of the turning basin. Samples at Vernalis and Mossdale will allow river water quality conditions to be directly compared with historical Dept. of Water Resources (DWR) samples from these locations and allow the total SJR loads to be estimated. Weekly samples will be collected and analyzed for a total of 25 weeks, beginning in June and continuing through mid-November.	26A, 26B, 26C, 26D
ERP-01-N61-04	San Joaquin River Dissolved Oxygen Depletion Control Project: Sediment Deposition Rates and Associated Oxygen Demand	This project will further assist with oxygen demand balance calculations, and evaluations of the DWSC water quality model and enhancements. This work may also result in the refinement of model algorithms necessary to adequately simulate the oxygen demand arising from particulate matter entering the DWSC. The information derived from these studies is necessary in determining the impact on DO from algae and other particulate matter and assessing its significance relative to the impacts from all oxygen demand sources. This project will take measurements of the mass settling rates of algae, organic matter, and inorganic sediments entering the Stockton Deep Water Ship Channel from the San Joaquin River. These measurements will occur during the summer and fall months of 2001. The dissolved oxygen demand associated with matter captured in sedimentation traps will also be quantified. This work extends the monitoring performed last summer and fall for the CALFED 2000 SJR TMDL studies. Direct sediment oxygen demand measurements and other studies will also be added.	26A, 26B, 26C, 26D
ERP-01-N61-05	San Joaquin River Dissolved Oxygen Depletion Control Project: Aeration Technology	This specific component project will use multiple methods for field evaluation of the existing Army Corps of Engineers jet aerator as well as a complimentary engineering feasibility study of oxygen diffuser (fixed or boat), side-stream waterfall, and pressurized side stream oxygen injection technologies. The jet aeration technology will be evaluated in situ at the Port of Stockton by three methods, including 1) off-gas technique, 2) mass-balance technique, and 3) tracer gas technique. This existing jet aeration device has been in operation since 1993, however the performance of this device has not been evaluated. This current ACOE device consists of an air bubble jet that is injected into a water jet with a specialized air/water nozzle. Multiple aeration technologies exist and the most suitable combination of technologies for application in the Stockton DWSC for correction of the low DO problem should be determined for possible implementation from this study.	26A, 26B, 26C, 26D
ERP-01-N61-06	San Joaquin River Dissolved Oxygen Depletion Control Project: Downstream Tidal Exchange and Residence Time in the Deep Water Ship Channel	This specific component project will measure tidal exchange at the downstream end of the San Joaquin River at Turner Cut and Columbia Cut. Rhodamine-WT dye will be injected at high slack tide into the DWSC upstream of Turner Cut. Continuous sampling (pumped through a flourometer) from a boat will measure the spreading and exchange (movement into Turner Cut and Columbia Cut or downstream areas) during several subsequent high slack tides for a period of 10 days. Two separate dye releases and tracking experiments are planned. The measured movement and exchange of the dye will be used to calibrate the tidal exchange rate simulated in the Stockton Water Quality Model. These dye studies will allow for the exchange of water during several tidal cycles to be directly measured. Loss of water from the DWSC will indicate the replacement of water from further downstream that is transported into the DWSC on flood tides. This will represent an important boundary condition, because this replacement water will generally have lower BOD and higher DO concentrations.	26A, 26B, 26C, 26D

Project ID Number	Title	Description	Milestones
ERP-01-N62	Yuba Feather Work Group	The project will develop a collaborative stakeholder-based approach for providing input into Yuba County Water Agency's Proposition 13 Yuba Feather Flood Control Studies on various non-new dam watershed management techniques to enhance flood protection while maintaining natural processes, habitat and populations of high risk species. Tasks include: set up Yuba Feather Work Group and hiring a facilitator and outreach program manager to ensure stakeholder participation; subcontract with technical experts to provide technical input on proposed elements of Proposition 13 Yuba-Feather flood risk reduction projects, organize 4 public input meetings to help guide the Yuba Feather Work Group and prepare a final report.	57A, 58J, 59L, 62E
WSP01-FP-049	Deer Creek Watershed Conservancy Rangeland and Riparian Management Program	Restore 2 miles of the 10 mile target of riparian habitat along the lower reaches of each of the following tributaries: Battle, Clear, Deer, Mill, Butte, Big Chico, Antelope, Feather, Yuba, and Bear Rivers. Project will contribute to the protection of riparian on Deer Ck. through the development and implementation of individual ranch plans which may include fencing of the riparian areas on each ranch.	64C
WSP01-FP-053	Implementation of BMPs to Mitigate OP Pesticide Runoff.	Develop demonstration orchards to educate landowners on BMP implementation.	81B
WSP01-FP-054	Murphy Creek Restoration Project	Project will restore historical salmon and steelhead spawning habitat with associated improvements to other species, will increase water flows and improve water quality in the Mokelumne River Watershed.	17B
WSP01-FP-065	Promotion of Farming Best Management Practices and Calibration Technology to Mitigate OP Pesticide Runoff into the Sacramento River Watershed	Project sets up demonstration orchards for the implementation of BMPs to reduce the amount of OP chemical runoff into surface water of the Sacramento River. Target orchards are those with riparian habitat adjacent to orchard. Landowners will be educated on the use of the BMPs and their effectiveness.	81B
WSP01-FP-067	South Yuba River Comprehensive Management Plan	Design and begin implementation of an ecologically based streamflow regulation plan for Yuba River, Butte Creek , Big Chico Creek, Deer Creek, Mill Creek, Antelope Creek, Battle Creek, Cottonwood creek, and Clear Creek.	57A
WSP-01-FP-0073	Yolo Bypass Watershed Planning Project	Conduct the following unknown toxicity work (from Phase II Report): Conduct appropriate studies to identify unknown toxicity, and develop management actions as appropriate.	83A
WSP-01-FP-082	Sonoma Creek Watershed Conservancy: Outreach and Restoration	Through the use of ...new programs, monitor adult anadromous salmonid returns to each watershed within the MSCS focus area. Task 3: Steelhead population assessment: Planning to restore a self-sustaining steelhead population requires and assessment of the locations, age distribution, and year-to-year survival rates of the existing population. There has never been a population study in the watershed.	119A
WSP01-FP-0128	Lower Putah Creek Watershed Assessment and Stewardship Implementation Program	Develop and implement a program to establish, restore, and maintain riparian habitat to improve floodplain habitat, salmonid shaded riverine aquatic habitat, and instream cover along at least one tributary within the Yolo Basin EMZ (Cache Creek, Putah Creek, Solano, Willow Slough).	62

Project ID Number	Title	Description	Milestones
AFRP-2002-01	Demonstration Project to Test a New Interdisciplinary Approach to Rehabilitating Salmon Spawning in the Central Valley	Demonstrate that gravel augmentation for enhancing spawning habitat and fluvial complexity is greatly improved when aided by a new computer-aided, 2-dimentional model incorporating fine-scale channel hydraulics, geomorphic complexity, sediment mobility, and spawning habitat conditions.	4D, 4E
AFRP-2002-02	Develop a Consensus Based Plan to Direct the Long Term Implementation of Prioritized Restoration/Research in the Stanislaus River Below Goodwin Dam	Develop a consensus based plan to direct the long term implementation of prioritized restoration/research in the Stanislaus River below Goodwin Dam.	84A, 84B, 84C, 84D, 86B, 86C, 87A, 87B, 88E, 88F, 88G, 88H, 94A, 97A, 97B, 98A, 99E, 105K, 105L, 105M, 105N, 105O
AFRP-2002-03	A Feasibility Investigation of Reintroduction of Anadromous Salmonids Above Crocker-Huffman Dam on the Merced River	Examine the opportunities and constraints of anadromous salmonid reintroduction upstream of Crocker-Huffman Dam by analysis of biological and technical issues associated with the potential for establishing migratory passage and fish protection at Crocker Huffman Dam, investigate the biological production potential of the riverine habitat between Crocker-Huffman and Merced Falls dams for anadromous salmonids, and assess the implications for, and interactions of such a restoration action with ongoing and future planned Merced River Hatchery operations.	98C
AFRP-2002-04	Lower Butte Creek Project: Sutter Bypass-Willow Slough Weir Fish Passage Project - Preliminary Engineering Investigation	The work program consists of developing preliminary engineering drawings, construction cost estimates, and an environmental checklist for structural modifications of the Willow Slough Weir flow control structure and fish ladder. The technical report will present alternatives and solutions for an improved fish ladder and appurtenances meeting current codes and standards. Operation flexibility will be designed into the new structure so that adjustments, based on stream flows, hydraulic criteria, and fish passage performance, can be made to optimize fish passage past the weir structure. The project will be coordinated with overall operations plans for the Sutter Bypass and is supported by local stakeholders involved in the Lower Butte Creek Project evaluation.	67J

Project ID Number	Title	Description	Milestones
AFRP-2002-05	Construct an Exclusion Device to Prevent Yuba River Salmon from Accessing the Goldfields	Replace the existing temporary barrier with a permanent "leaky-dike" barrier to prevent the migration of Yuba River Chinook salmon and steelhead into the Goldfields.	67L
AFRP-2002-06	Comprehensive Assessment of Genetic Population Structure and Diversity for Central Valley Chinook Salmon	Describe population structure and the distribution of genetic variation for Central Valley Chinook salmon populations to help guide recovery and restoration efforts.	112B, 112D
AFRP-2002-07	Test and Demonstrate a Portable Alaskan Weir to Court and Characterize Runs of Anadromous Salmonids in the Stanislaus River	Test and demonstrate the practicality of using a portable resistance board weir to determine total Chinook salmon and steelhead escapement in the Stanislaus River, allow for the collection of data on Chinook salmon and steelhead currently unavailable, and serve as a measure of accuracy of traditional carcass survey estimates in the Stanislaus River as well as other Central Valley tributaries.	97?
AFRP-2002-08	Sex-Reversal in Central Valley Chinook Salmon: Occurrence and Population Genetic Consequences	Perform genetic and histological analyses on fish from the Sacramento and San Joaquin River basins to provide management agencies with information regarding the possible impact sex-reversed fish may have on population persistence of fall-run Chinook.	112B, 112D
AFRP-2002-09	Lower Yuba River Juvenile Chinook Salmon Life History Evaluation - 2002	Better understand the life history, population trends, and thermal requirements of juvenile Chinook salmon in the Yuba River, to best improve the adaptive management, including actions such as fish restoration projects and providing appropriate in-stream flow regimes.	66E, 119A
AFRP-2002-10	Knights Ferry Gravel Replenishment Project, Phase 2	Continue to investigate how the source and size of restoration gravel affect fall-run Chinook salmon redd densities. Phase I was ERP-97-N21.	58A

Project ID Number	Title	Description	Milestones
AFRP-2002-11	Partner with Modesto City and County Parks Departments for Restoration Planning and Implementation on the Gateway Parcel	Incorporate habitat needs of salmonids in developing the updated Tuolumne River Regional Park Land Use and Master plans. Acquisition of the Gateway parcel located in the center of the regional park has necessitated the development of new land use and master plans for the park. The original plans were developed in the 1960s. The principal tasks involved in this planning effort include: (1) development of a preliminary program that broadly defines potential uses and activities within the Park corridor and a set of baseline environmental objectives; (2) soliciting public and agency comment in part by conducting interviews with key stakeholders and facilitating public workshops and meetings; (3) conducting reconnaissance-level field studies to document environmental setting and identify environmental opportunities and constraints; (4) prepare environmental documentation (EIR/EA); and (5) prepare Land Use Plan and Gateway Master Plan. This planning effort will affect a seven mile reach of the Tuolumne River that is used primarily as a migration corridor by fall-run Chinook salmon. The resulting updated plans are expected to improve habitat conditions for salmon by incorporating elements based on increased understanding of the river's ecology, a refined concept of community needs, improvements in the recreation, ecological and planning sciences, and more stringent regulatory constraints.	86D, 87C, 87D, 88A, 88B, 88C, 88D, 94B, 105A
CVPIA-02-V02	White Mallard Dam and Associated Diversions - Phase III Construction	Improve fish passage for anadromous fish in Butte Creek, a tributary to the Sacramento River, while maintaining the viability of agriculture and managed wetlands in the Butte Creek floodplain. The project will upgrade the White Mallard Dam with a fish ladder and new water control structures and screen diversions that depend on the White Mallard Dam for setting stage. The diversions to be screened include Five-Points Diversion, White Mallard Pump, and Foraker Pumps (3). The structures proposed for improvement operate systematically to provide water and drainage for over 20,000 acres of highly valuable managed wetlands and agricultural habitat. Final engineering design and permitting for these structures will be completed by December 31, 2001 (provided under CALFED grant # 99-B02 to Ducks Unlimited).	67J, 72K
CVPIA-02-V03	Lake Natoma Temperature Curtains Pilot Project	The goal is to increase natural steelhead and fall-run Chinook salmon production and survival in the Lower American River by reducing water temperatures. The objectives of the project are to develop predictive tools that will: 1) Reduce to the extent possible the uncertainties in the performance of identified temperature control actions that could be implemented to improve the management of cold water resources in the Folsom/Natoma Reservoir system and the Lower American River; and 2) Be available for daily operations, planning, and salmon and steelhead habitat studies by other project operators and other stakeholders.	55A
ERP-02-C01	Suisun Marsh Land Acquisition and Tidal Marsh Restoration	Multi-phased project. This project is Phase 1 Acquire up to 500 acres of land in Suisun Bay in either fee title or conservation easement for restoration to self-sustaining tidal marsh. Tasks include: Public notification; surveys and appraisal; Land acquisition; Stewardship upon ownership including control of Nonnative Invasive species; Project management; development of preproject monitoring plans	39A, 39G

Project ID Number	Title	Description	Milestones
ERP-02-C01-D	Implement Upper Yuba Studies Program Water Quality and Sediment Studies	The objective of this study is to improve the understanding of the current level of mercury contamination in Englebright reservoir sediments and biota, and to improve the understanding of sediment supply, transport, and storage of sediment in the Yuba River watershed. An assessment of the transport of the existing sediment in the reservoir to the downstream reaches will be performed following several potential management scenarios, yet to be defined. This work contributes to determining if the introduction of wild chinook salmon and steelhead trout to the upper Yuba River is feasible in the long term. Existing water quality data on the upper and lower Yuba River and Englebright Lake will be compiled, reviewed and summarized. A synthesis of this information will include a discussion of the important and relevant information on sediment mercury dynamics and toxicity contained in the scientific literature, and historical evidence of contaminants in the Yuba River watershed. The collection of 50 surface grab sediment samples will be analyzed for mercury, methyl mercury and heavy metals.	58K, 62G, 67B, 77A, 79A
ERP-02-C02-D	Engineering, Environmental, Project Management and Facilitation for Upper Yuba River Studies Program	The objective is to determine if the introduction of wild chinook salmon and steelhead trout to the upper Yuba River watershed is feasible in the long term. CH2MHill will perform services defined by CALFED in writing, under individual task orders. Such work may include: assess upstream and downstream habitat for wild chinook salmon and steelhead, assess the potential impacts to downstream flood risk management, assess water quality issues associated with modification of Englebright Dam, assess sediment in the system, assess water supply and hydropower impacts, assess economic and social impacts, provide project management and coordination and work group facilitation.	Upper Watershed
ERP-02-C03-D	Department of Conservation, Abandoned Mine Lands Unit Mine Remediation Assessment and Field Investigations of the Middle Yuba River and other Watersheds	Furnish staff to provide technical services and perform preliminary field investigations of abandoned mines in the Middle Yuba River watershed and other watersheds relevant to CALFED restoration actions. Task1: Complete Site assessments and Final report for the North Yuba Watershed abandoned mine inventory; Task 2: Perform preliminary site assessments and provide summary report for abandoned mines in the Middle Yuba Watershed and other watersheds identified as a priority by CALFED; Task 3: Work with DOC California geologic survey to prepare summary information on mine sites in the Cache Creek watershed; Task 4: Provide technical support and information related to the abandoned mine inventory and remediation technology and costs: Task 5: Facilitate and coordinate an interagency and stakeholder discussion group to resolve technical and legal issues regarding the remediation of abandoned mine sites.	31A, 31C, 31E, 78A, 78D, 78E
ERP-02-C04-D	Two-Dimensional Detailed Hydraulic Model for Determining Flood Conveyance Impacts of Ecosystem Restoration Projects in the Yolo Bypass	The objective of this project is the topographic update and improvement of the existing Yolo Bypass RMA-2 2-D hydraulic model. The model's geometry would be updated and refined, calibrated, validated, and tested. Task 1: Coordination to achieve consensus on appropriate and feasible model capabilities and usage; Task 2 Acquisition of topography using existing digital topographic data for the basis of the model geometry; Task 3: Model development; Task 4 Calibration, reliability testing and sensitivity analyses; Task 5: Case study application; Task 6: documentation including a users' manual.	1A, 1B
ERP-02-C05-D	Hamilton City Ecosystem Restoration and Flood Damage Reduction	This project will develop a feasibility study to restore connection to the floodplain and expand riparian habitat to the maximum extent possibly, 2,600 acres, in the Hamilton city area while simultaneously reducing the flood risk to local residents. Tasks include: 1) identifying problems and opportunities; 2) Inventorying and forecasting conditions; 3) formulating alternative plans; 4)evaluating alternative plans; 5) comparing alternative plans; and 6) selecting a plan.	59A, 59B, 60A, 60B, 62G

Project ID Number	Title	Description	Milestones
ERP-02-C06-A	Transport, Cycling and Fate of Mercury and Monomethyl Mercury in the San Francisco Delta and Tributaries - An Integrated Mass Balance Assessment Approach	This proposal continues scientific research to understand environmental mercury and monomethyl mercury issues that is a part of the CALFED Mercury Research Project. The focus of this proposal is to understand the transport, cycling, and fate of mercury and monomethyl mercury in the San Francisco Delta and tributary watersheds using a biogeochemical mass-balance framework. These results will be incorporated into a working hydrological transport model that will facilitate the prediction of mercury cycling and transport across the Delta and exported to San Francisco Bay or to Southern California. (was 02-P04). Tasks include: 1) project management; 2) continue ongoing Hg mass loading study in the Bay Delta; 3) 3 atmospheric deposition monitoring stations in the Bay- Delta, 4) Determine Hg and MMhg in surface sediments of different Delta ecosystems; 5) Monomethyl mercury photo demethylation Studies; and 6) integration of GIS into program.	30A, 31C, 31E, 32A, 32C, 48, 77A, 106A
ERP-02-C06-B	Transport, Cycling and Fate of Mercury and Monomethyl Mercury in the San Francisco Delta and Tributaries - An Integrated Mass Balance Assessment Approach	This proposal continues scientific research to understand environmental mercury and monomethyl mercury issues that is a part of the CALFED Mercury Research Project. The focus of this proposal is to understand the transport, cycling, and fate of mercury and monomethyl mercury in the San Francisco Delta and tributary watersheds using a biogeochemical mass-balance framework. These results will be incorporated into a working hydrological transport model that will facilitate the prediction of mercury cycling and transport across the Delta and exported to San Francisco Bay or to Southern California. (was 02-P04). Tasks include: 1) Project administration; 2) Mass loading, riverine characterization and export studies; 3) Atmospheric Mercury deposition studies; 4) Delta wide monitoring and characterization; 5) identification of links between Hg and methylmercury production and destruction and to derive environmental rate dependencies with respect to major biogeochemical processes and constituent concentration; and 6) integration of GIS into the program for data management.	30A, 31C, 31E, 32A, 32C, 48, 77A, 106A
ERP-02-C07-D	Dutch Slough Tidal Marsh Restoration Project (See also 02-P03-D)	The planning/non-acquisition portion of the project was funded under project 02-P03-D. This agreement covers Phase 1 of a three phase project. Phase I includes acquisition and site management of 1,160 acres of three contiguous parcels owned by the Emerson, Gilbert and Burroughs families adjacent to Dutch Slough. Phase II includes detailed design, planning and environmental documentation for the three parcels. Phase III will cover the actual restoration of the 1,166 acre site. Tasks include: 1) manage acquisition of 1,166 acres near Dutch Slough; 2) transfer land to land managing agency; 3) in separate transaction, transfer fee title to city of Oakley, 63 acres north of Contra Costa Canal and a trail easement along the existing levees of the Emerson property.	8G, 9D, 10A, 13K, 16D
ERP-02-C08	Restoration of Eastern Delta Floodplain Habitats on Grizzly Slough in the Cosumnes River Watershed	This project is Phase 1 in an effort to restore function to a historic seasonal floodplain on Grizzly Slough in the Cosumnes River watershed. Phase 1 will evaluate the potential to restore stream and floodplain process through breaching/modification of levees and create habitat for native species on a 489 acre parcel owned by the California Department of Water Resources. Was ERP-02-P05. Task 1: Project management; Task 2: Collection of baseline soil, geo-technical, topographic, bathymetric, biological, hydrodynamic, geomorphic data; Task 3: develop data base; Task 4:develop alternatives; Task 5: Environmental permitting process.	1B, 14A, 14B

Project ID Number	Title	Description	Milestones
ERP-02D-C12	Mercury in San Francisco Bay-Delta Birds: Trophic Pathways, Bioaccumulation and Ecotoxicological Risk to Avian Reproduction	This is a very comprehensive study to determine exposure pathways and effects of mercury exposure and bioaccumulation in 3 bird guilds in the Bay-Delta. The guilds include: terns, diving ducks and recurvirostrids. The project includes both field and lab studies, reproductive effects, dietary exposure and bioaccumulation, and histopathological effects in bird populations. (NOTE: this milestone is somewhat misleading because there are many factors that affect exposure and bioaccumulation of mercury - not just mercury concentrations in sediment - therefore it is unlikely to develop NOEL sediment concentrations). Contract still under development.	30A, 31A, 32C, 48, 77A, 78B, 106A
ERP-02-D01	Tuolumne River - Big Bend Project	To Acquire about 197 acres and restore about 254 acres of floodplain and riparian habitat along the lower Tuolumne River. This project is not funded through the ERP, it is funded through Prop 13 - Flood Protection Corridor Program.	87D, 88C, 94B
ERP-02-P01	Adopt-A-Watershed Leadership Development, Next Phase	The purpose of the Adopt-a-Watershed Leadership development is to provide leadership development for 25 teams from the Sacramento River, San Joaquin River and Delta regions, greater team support from two additional regional coordinators and implement new student and community outreach activities. Task 1: Project management; Task 2: Conduct leadership institute and workshops; Task 3: GIS mapping of data; Task 4 Development of "Patterns of Implementation book and pamphlet; Task 5: Annual site tour; Task 6: Annual Conference; Task 7 Video and copies; Task 8: AAW Database.	Educational
ERP-02-P02	Upper Cosumnes River Watershed Conservation Project	The purpose of this project is to purchase a conservation easement across a 1,814 acre ranch, and either of conservation easement or a fee title interest on a 348 acre property, totaling approximately 2,160 acres of riparian and upslope habitat along the North Fork of the Cosumnes River, within the Upper Cosumnes River Basin. Tasks include: 1) Project management; 2) Public participation; 3) environmental compliance and permitting; 4) conservation easement/fee title acquisition; 5) Initial land Management or stewardship; and 6) Restoration planning.	14D, 29T
ERP-02-P03-D	Dutch Slough Tidal Marsh Restoration Project - (See also 02-C07-D)	The acquisition portion of this project (Phase 1) was funded under project 02-C07-D This is Phase II The Property is composed of three contiguous parcels owned by the Emerson, Gilbert and Burroughs families. Tasks include; 1) planning; 2) technical data collection, and 3) project management activities of the Dutch Slough 1,166 acre acquisition.	8G, 9D, 10A, 13K, 16D
ERP-02-P04-D	Napa-Sonoma Marsh Restoration Project	This project Phase I which will begin water quality improvements and restoration in three former commercial salt ponds (Cargill salt pond complex in North Bay) along the Napa River, totaling approximately 3,000 acres of the 10,000 acre Napa-Sonoma Marsh project site. Tasks include: 1) final design work and construction that will provide for salinity reduction in Ponds 4 and 5 (1,700 acres); and 2) restoration of the Pond 3 (1,300acres) to tidal marsh.	39B, 40B, 42A
ERP-02-P06	Kids for Our Creeks	The goal of this environmental education proposal is to establish partnerships with the local K-8 schools and establish watershed education programs through the use of an education coordinator. The intent of this project is to create a sense of stewardship between the k-8 schools and the Cottonwood Creek Watershed in which they reside. Tasks include: 1)hire watershed educational coordinator and service learning supervisor; 2) curriculum and service training; and 3) development of linkages to agencies and resource professionals to assist in development of program.	Educational
ERP-02-P07	Butte Sink Water Control Structure Modifications - Phase III Construction	Provide passage for adult salmonids by installing fish ladders and overflow gates at the Morton and End Weirs and a control weir at the North Weir site to keep adult salmon and steelhead in the main migration path of Butte Creek. Tasks include: 1) Project management; 2) Construction - North Weir/End Weir, Morton Weir complex, and Drivers Cut Outfall; 3) Construction management and O & M manuals for each project; and 4) final report and distribution.	67J

Project ID Number	Title	Description	Milestones
ERP-02-P08	Staten Island Wildlife-Friendly Farming Demonstration	The project objectives are: 1) to develop an efficient and cost effective water management infrastructure on Staten Island to maintain and improve sustainable agriculture and wildlife-friendly farm practices. This will increase habitat availability by allowing 2,500-5,000 acres of corn to be flooded for a longer duration than is presently possible. 2) To determine the effect of winter flooding strategies on target bird species, namely greater sandhill crane and northern pintail. Task 1: Project management; Task 2: Environmental Permitting; Task 3: Construction of cross levee on Staten for management units for independently controlled water level units; Task 4: Mapping all relevant existing data into a single GIS relational database; Task 5: Crane and waterfowl monitoring; Task 6: Water quality monitoring of island discharge; and Task 7: Project report.	6A, 8C, 13G, 15C
ERP-02-P08-D	M & T/Llanco Seco Fish Screen Facility - Short Term/Long Term Protection Project	To protect the existing M&T/Llano Seco fish-screen facility and its beneficiaries while investigating and identifying a technically and economically feasible long-term solution to adapt the fish-friendly pumping facility to the lateral migration of the Sacramento River. Project location is in Butte County on the east bank of the Sacramento River, six miles SSW of the City of Chico. Tasks include: 1. project management and administration, 2. Literature search and compilation of existing data.3. Preparations of technical memorandums,4 Steering committee participation, 5. Steering committee technical memorandum systemization, 6. Conceptual model development, 7. Gravel Bar reduction, and 8. Final report.	72A
ERP-02-P09	Distribution and Ecology of Lepidium latifolium in Bay-Delta Wetland	The purpose of this project is to conduct research on distribution of perennial pepperweed (Lepidium latifolium) in the Bay-Delta and develop GIS mapping of this region-wide inventory. Task 1: Project management; Task 2: Public participation meetings; Task 3: Research existing data on giant pepperweed; Task 4: Field reconnaissance on foot or in small watercraft to locate populations of pepperweed using GPS for digital field mapping; and Task 5: create a spatial model (GIS) of the distribution of pepperweed.	22A, 22B, 22C, 22D
ERP-02-P09-D	American Basin Fish Screen and Habitat Improvement Project	This project is the removal of a diversion dam, consolidation of diversions and the addition of state-of-the-art fish screens to NMWC's diversion on the Sacramento River, between Verona and the American River, and on the Cross Canal. Task 1: Project Management; Task 2: Construction of new screened pumping plant at the Sankey, Elkhorn and Riverside Diversions; demolition and restoration at Northern, Bennett, Prichard, Elkhorn and Riverside abandoned pumping plants; demolition of the Verona Diversion Dam; Task 3 Construction inspection and environmental compliance activities; and Task 4: Land acquisition for sites.	67B, 67N, 72A
ERP-02-P10	Estuary Action Challenge Environmental Education Program	This is a hands on environmental education project focusing on local water resources and environmental justice issues in underserved urban communities. Tasks include: 1) project management; 2) public participation through meetings; 3) Program preparation - Recruit participants, planning meetings; develop curriculum guides; and 4) program implementation - School Wide Creek Restoration Program, Community Creek Clean-up Program, Urban Creek Restoration Program.	Educational
ERP-02-P10-D	Reclamation District No. 108 Consolidated Pumping Facility and Fish Screen	This phase covers project management, public participation management, environmental compliance and permitting, design development and modeling, and final design for the consolidation and screening of three of seven of Reclamation District No. 108's (45 miles Northwest of Sacramento) seven Sacramento River diversions. The three pumping plants and their diversion capacity, listed in order from upstream to downstream are Boyers Bend (116 cfs), Howells Landing (71 cfs), and Tyndall Mound (190 cfs). Tasks include: 1) project management, 2) public participation management, 3) environmental compliance and permitting, 4) design development and modeling; and 5) final design.	72A

Project ID Number	Title	Description	Milestones
ERP-02-P11	Cultivating Watershed Stewardship	Environmental education program for high school students in Bay, Delta, and both Valley regions. Tasks include: 1) project management; 2) Implement FARMS and SLEWS programs in Sacramento Valley, Delta, San Joaquin, and Bay Regions; 3) conduct Center feasibility study; and 4) final report.	Educational
ERP-02-P12	Sustainable Restoration Technologies for Bay/Delta Tidal Marsh and Riparian Habitat	The objective of this project is protection of natural embankment and reconstruction through passive recruitment of new sediment to create new riparian and shaded riverine aquatic habitat in the Delta channels. Tasks include: 1) Development of new freshwater tidal marsh habitat through direct planting; 2) implementation of experimental technologies for habitat development on riprap levees; 3)removal of non-native invasive weeds such as Arundo donax and Lepidium latifolium and 4) monitoring of effectiveness of experimental technologies.	9A, 9B, 9D, 13G, 13I, 13K, 38A
ERP-02-P12-D	Merced River Corridor Restoration Plan Phase IV: Dredger Tailings Reach	The goal of this project is to design pilot floodplain and channel restoration experiments, in their watershed context, intended to initiate the restoration of natural ecosystem function to the Dredger Tailing Reach of the Merced River and to set in place monitoring and evaluation schemes designed to contribute transferable scientific understanding that assists in reducing uncertainty in restoration design. Tasks include 1: Project management; 2: Public participation; 3: Environmental permitting; 4: Field surveys documenting existing channel conditions to determine the volume and placement for the initial gravel infusion, input to the sediment transport model, input to the HEC_RAS model, and document baseline conditions; 5: Assess the volume and texture of dredger tailings, occurrence of mercury, and refine the restoration concepts for Merced River Ranch; 6: Assess the most effective and efficient revegetation techniques of reconstructed floodplains, design plan to restore approximately 60 acres of floodplain along 3,600 linear feet of river channel at the MRR site, develop in channel gravel infusion plan, 7: Implementation Planning	86A, 86G, 87F, 94C, 106A
ERP-02-P13	INFORM - Integrated Forecast and Reservoir Management Demonstration for Northern California Water Resources	This project will demonstrate the potential for increased efficiency of water conservation, flood control and hydroelectric energy production at Folsom, Oroville, Shasta and Trinity reservoirs through development and implementation of a decision support system. Tasks include: 1)Use global climate change model simulations with historic information to validate models and develop probable runoff conditions;2) Develop forecasts for runoff in the Shasta and Folsom watersheds; 3)Develop Sacramento River decision support system for Folsom and Shasta;4) Develop downscaled global climate models information for hydrologic forecast models; 5)Develop Oroville and Trinity Reservoirs hydrologic runoff forecasts; 6) Develop decision models for Oroville and Trinity Reservoirs; 7)Integrate decision and forecast models; 8)Assemble hydrologic models for downstream evaluations;9) Adjust decision model for all four reservoirs; and 10)Complete policy assessment model.	55A, 55B, 66E, 71A, 71B, 71C
ERP-02-P14	Bahia II Restoration Proposal	The project goal is to acquire and permanently protect a significant area of historic tidal wetlands and adjacent uplands and to restore the former wetlands to tidal marsh by acquiring the 631 acre Bahia site, developing a plan to restore 330 acres of currently diced wetlands to tidal action and implementing that plan. Tasks include: the land has already been acquired; this task will develop reimbursement and transfer of title to the State; Restoration planning; Baseline monitoring; preliminary site design; permitting, and implementation.	39A, 112A, 112B

Project ID Number	Title	Description	Milestones
ERP-02-P15	Meridian Farms Water Company - Positive Barrier Fish Screen Project	This project will provide preliminary and final engineering design services for two new diversion and pumping facilities located at Meridian and Grimes. Tasks include: 1) Preliminary design including river hydraulics analysis; 2) a HEC-RAS hydraulic analysis of the MFWC Main Canal; 3) layouts for the fish screen intake facilities; 4) preliminary design for the new Meridian and Drexler Pumping Plants; 5) evaluation and selection of conveyance pipeline alignments and pipeline design criteria; 6) description of electrical controls for screens and pump stations, corrosion analysis, cost estimate and construction schedule; 7) Geotechnical investigation; 8) Project site surveys; and 9) Final project design package.	72A
ERP-02-P16	Patterson Irrigation District Fish Screen Design and Environmental Review	This project will result in the completion of engineering final design and acquisition of permits and environmental clearances required for the implementation of a positive fish screen barrier on the districts San Joaquin River Pumping Plan. Tasks include:1) Environmental compliance documentation preparation (assumes FONS)I; 2) Confirmation of selection of project components and final design (river hydraulics intake facility layout, pumping plant layout, electrical supply, corrosion analysis, cost/schedule estimate, regulatory requirements; 3)Geotechnical investigation; 4) Surveying and mapping; and 5) final design.	99D
ERP-02-P16-D	Restoration of the Confluence Area of the Sacramento River, Big Chico and Mud Creeks	This Phase II of a four phase project. The objective of Phase II is to acquire and complete restoration and management plans for three properties located in Butte County on the Sacramento River between river miles 194 and 195. The project area is along the east bank of the Sacramento River, and encompasses the confluence of Big Chico Creek and Mud Creek, and just downstream, the confluence of Big Chico Creek and the Sacramento River. This project will provide information about how floodplain habitats with varying physical and biological attributes respond to restoration activities. Tasks include: 1) Land acquisition; and 2) Baseline assessment for restoration: a) soil stratigraphy, b) Arc View Files on field boundaries, c) current land use and ground cover, d) GIS evaluations, e) characterization of adjacent riparian communities, f) compiling wildlife records, and g) analyzing similar successful revegetation sites.	59J, 60A, 62B, 64F, 112A
ERP-02-P17	Songbird population responses to riparian management and restoration at multiple scales: comparative analysis, predictive modeling, and the evaluation of monitoring programs.	The objectives of this project are:1) develop valley-wide models that link bird population information with local and landscape scale habitat characteristics, restoration actions and management; 2) evaluate whether habitat relationships are constant over space and time; 3) identify and validate watershed-specific and region-wide indicators and measures of riparian habitat restoration success and 4) test and revise existing restoration and management recommendations and monitoring strategies for the region. Tasks include: 1) Inventory and organize data from eight intensive monitoring projects and three extensive monitoring projects into a single, easily queried, and accessible database, and incorporate data from ongoing projects; 2): Develop and validate statistical, predictive models relating bird community and population parameters to habitat, landscape features, hydrology; and 3) oversee management and restoration activities.	112A, 112C

Project ID Number	Title	Description	Milestones
ERP-02-P18	Life History of Egeria densa in the Delta: Factors Controlling Production and Fragment Vitality	The objective is to identify points in the life cycle of Egeria densa (E.d.) where management efforts would be most effective. Seasonal variation in the photosynthetic rate and growth of E.d. growing in the Delta will be measured once monthly and net productivity will be measured using light and dark bottle techniques. Demography of double nodes, which control morphology and growth, and resource allocation will be measured on E.d. from the Delta once monthly. Plant fragments will be collected in the fall, winter, spring and summer beginning in 2003 to assess when harvesting would be more or less likely to produce viable stem fragments for future growth. Plants will be collected from the Delta and clipped to mimic harvested fragments. And changes in photosynthetic rate with light intensity for E.d. will be measured under controlled conditions in a greenhouse. This information may be used to restore functional aquatic habitat for native species. Tasks include: 1) determine growth rate of e. densa in field studies; 2) Characterize morphology based on random field samples; 3) Determine fragment viability; 4) determine photosynthetic response to light and temperature; and 5) project management.	22D, 112A
ERP-02-P19	Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I	This project is Phase I of a program to elucidate the mechanisms underlying the fish-X2 relationships. The ultimate purpose is to contribute to the understanding of the factors that control the distribution and abundance of estuarine species, how these factors vary with X2, and how they might change in the future. Planning effort will be mapped out and model studies that need to be revisited for potential improvements will be listed, further data analysis will be determined, examine potential mechanisms underlying the fish-X2 relationship to develop long-term research program. The final outcome will be research plans laying out the projects that will need to be completed to answer the defined research questions. Tasks include: 1) develop a plan for the research, modeling, and monitoring, identify responsible parties, timing dependencies, funding, and additional requirements or opportunities; and 2) use existing data with a 3-dimensional hydrodynamic model of the estuary to explore proposed mechanisms to assess their plausibility and to aid in study design.	1A, 1B, 112B
ERP-02-P19-D	Tuolumne River Mining Reach Restoration: Warner-Deardorff Segment No. 3 - Construction	The Warner-Deardorff segment is a section of the Mining reach project on the lower Tuolumne River. after restoration, the segment will have 73 acres of riparian floodplain habitat and 1.3 miles of in channel riverine habitat for fall run Chinook salmon. The project includes land purchase, conservation easements, and floodplain, riparian and river channel restoration. Summary developed from proposal.	87B, 88B, 88C, 88D, 94A, 97C
ERP-02-P20	Restoration and Monitoring of Riparian Habitat Corridors Along The Lower Mokelumne River	Restore degraded riparian ecosystems through invasive species removal and native plant restoration and to monitor the response of neo-tropical migrant songbirds to the restoration. Project is located in the lower Mokelumne River. Tasks include: 1) develop planting plan, 2) site preparation- remove all non-native invasive species at each site; 3) Plant native vegetation according to plan, 4) monitoring to assess plant health and development, habitat condition, and canopy and cover, 5) provide technical services and labor for maintenance; Task 5: Monitoring of avian response to restoration.	14A, 112A
ERP-02-P21	Restoring Ecosystem Integrity in the Northwest Delta: PHASE II	Restoration of vernal pools on 1,700 acres east of the Jepson Prairie in Solano County. Tasks include: 1) project management; 2) Public outreach; 3) Vernal pool management and restoration - collect baseline info about Wilcox Ranch, Vernal pool restoration; 4) Vernal pool management study - effects of burning; 5) Management plan for Pembco property and 6) report.	6A, 22A, 43A

Project ID Number	Title	Description	Milestones
ERP-02-P22	Shallow open water habitats: Hydrodynamics and benthic grazing	This project will to develop, via field observation and modeling, a detailed view of how tides and wind-generated waves determine the physical structure and hydrodynamics of shallow estuarine waters, and how these physical processes can act to constrain net primary production through their effects on grazing and light. Field experiments will be carried out in Grizzly Bay and in Franks Tract. Turbulence, flows, salinities, temperatures, sediment concentration, and chlorophyll concentrations will be measured to quantify the rate of benthic grazing as a function of bivalve density and physical conditions, and to quantify the effects of waves on shallow water flows, mixing and sediments. Synthesis of these observations will provide info. To estuarine scientists and managers for assessing the effects of grazers, like Portamocorbula and Corbicula, on the estuarine food web, and for the evaluating the effects of restoration activities on shallow water habitat. Tasks include: 1) Design and construct sampling frames; 2) Field study in Grizzly Bay; 3) Field study in Franks Tract; 4) Data analysis; 5) Synthesize data for shallow water hydrodynamics and grazing model; and 6) report.	1A, 1B, 112B
ERP-02-P23	Update Individual Ownership Adaptive Management Habitat Plans	Update 140 Individual Ownership Management Plans for Private Properties with in the Suisun Marsh and to provide wetland management educational information for Private Landowners. Tasks include: 1) Query landowners to update changes on their private property and outline their current management strategies; 2) Field verify land owners information; 3): Develop a management information template, including maps and survey information; and 4) Final report of generated information.	41B
ERP-02-P24	Sutter Mutual Water Company-Tisdale Positive Barrier Fish Screen and Pumping Plant	This project is Phase 3 of a 4 Phase program. Sutter Mutual Water Company has completed a feasibility study and preliminary design (Phase 2) to evaluate the engineering feasibility, environmental considerations, costs, and benefits of several potential alternatives in an effort to install a new screen structure at the Tisdale diversion on the Sacramento River. The selected alternative is a new fish screen structure to work in conjunction with an upgrade and modernization of the Tisdale Pumping Plants. Tasks include: 1) final design; 2) environmental documentation; and 3) permitting for the selected alternative will be completed.	72A
ERP-02-P25	McCormack-Williamson Tract Restoration: Wildlife-Friendly Levee Management	This project will result in the implementation of a full-scale restoration project on McCormack-Williamson Tract levees. The purpose of this project is to reslope 20,000 linear feet of the back slope of the levees on the McCormack-Williamson tract (MWT) to a 5:1 slope using on-site fill, and to plant the resloped levees with native vegetation to protect levees from the interior wave erosion and maximize desired habitat attributes. This will increase the strength and stability of the MWT levee system, increase riparian habitat, and bring them up to acceptable levels of flood protection before tidal inundation or flood flows can be returned to the MWT. The goal is to restore tidal freshwater wetlands on the MWT by restoring tidal circulation to the leveed island; to make the island available for use as a floodway. The selection of the levee sections will be based on the need for repair, adjacent riparian habitat values, presence of elderberry habitat, and potential locations of future levee breaches. Tasks include: 1) environmental documentation and permitting; 2) Construction of wildlife friendly levee project; 3) Project administration; and 4) Report.	9B
ERP-02-P26	Mill and Deer Creeks Protection and Stewardship	This project will obtain conservation easements on Mill Creek (Pfendler Ranch - 26,000 acres; Droz Ranch - 470 acres; Schnapp Property - 19 acres) and Deer Creek (Tod and Elizabeth Leininger Ranch - 10,000 acres; Lazy Y Ranch - 370 acres) watersheds in eastern Tehama County. Tasks include: 1)acquisition; 2) field characterization of property; 3)development of stewardship plan to preserve and enhance ecological values in compatibility with ranching operations; and 4) monitoring for compliance with stewardship conditions.	61B, 62B, 64C, 64D

Project ID Number	Title	Description	Milestones
ERP-02-P27	Sub-Reach Planning for the Sacramento River: River Mile 144-164	This project will lead planning efforts for 20 River miles in the Colusa-Princeton Sub-reach of the Sacramento River (RM 144-164). This is a comprehensive approach to restoration planning that includes a high level of stakeholder involvement to develop conceptual restoration plans and analyzes potential benefits to and impacts of, restoration implementation on surrounding landowners and land uses. This plan is a subset of "The Sacramento river Conservation Area Handbook" developed by the California Resources Agency in 1998. Task 1: establish a model forum for proposing and evaluating restoration alternatives; Task 2; add more information to the SRCA GIS database; Task 3: Provide models calibrated to evaluate current and future restoration and flood damage reduction actions; Task 4: develop concept level designs for integrated flood damage reduction/ecosystem restoration projects; Task 5: develop an understanding of the source and impact of large woody debris on infrastructure and its role in the riparian ecosystem.	59A, 59B, 60A, 62G
ERP-02-P28	Stanislaus - Lower San Joaquin River Water Temperature Modeling and Analysis	This project will perform modeling and analysis of various alternatives for water management in the Stanislaus River basin to: 1)determine the relationship between water operations and river temperatures through Mossdale; 2) Refine and validate current water temperature criteria for Central Valley fall-run salmon and Steelhead; 3) simulate water operational strategies to assess cost versus benefit ratios of various water operational alternative. Tasks include:1) Extending the existing model to downstream SJR reaches to create a Stanislaus-San Joaquin River Temperature model; 2) Refining the S-SJR Temperature Model using current water temperature and meteorological data; 3) perform various operational studies; 3) Perform prefeasibility studies of alternative management actions; 4) Develop implementation plans for alternative that provide effective, feasible, and acceptable improvements in water temperature control:5) Collecting, storing and managing water temperature and meteorological data; 6) Peer reviewing of water temperature objectives used as evaluation criteria.	84A, 84B, 84C, 84D
ERP-02-P29	Tuolumne River Sediment Acquisition and Spawning Gravel Transfusion Project	This project takes place on approximately 308 acres of the Joe Domecq County Park and the Zanker family property on the Tuolumne River. The restored channel morphology is sized to the post-dam flow regime. Gravel augmentation and channel reconfiguration will promote key geomorphic processes such as gravel mobilization and spawning/rearing habitat maintenance. The remaining purchased aggregate will be available for future restoration projects, requiring only excavation, haul and reclamation costs. Tasks includes: 1) purchase of approximately 2.7 million tons of aggregate; 2)development of mining and reclamation plans and permits; 3) extraction approximately 200,000 cu yds of aggregate, and restoration of the excavated area to wetland and riparian habitat; 4) screen and wash gravel material remove coarse and fine material; 5) transported to the Tuolumne River; 6) placed into the channel to supplement spawning habitat.	86A, 112D

Project ID Number	Title	Description	Milestones
ERP-02-P30	Hydroclimatic Reconstruction and Ancient Blue Oak Mapping Over the Drainage Basin of San Francisco Bay	The purpose of this project is to develop 50 moisture-sensitive tree-ring chronologies from ancient oaks, to reconstruct a suite of precipitation and hydrological variables, and to map ancient blue oak forests in the drainage basin of San Francisco Bay. This research is multi-regional and will provide accurate long-term data on the natural hydrodynamics of the Sacramento, San Joaquin, Delta/Eastside Tributaries, and Bay regions of CALFED. This project will provide data on the interannual to decadal variability of precipitation and stream flow across the entire CALFED region. Empirical data on extreme low-flow conditions in various streams over the past several centuries will be produced that will assist in the development of conceptual models of community dynamics for salmonids and other at-risk species. Tasks include: 1) select random sample sites using sample predictive model; 2) Determine property owners; 3) obtain written permission for property owners; 4) Collect tree rings; 5) Process tree ring samples; 6) Compile age and descriptive data; 7) cross date all cores; 8) develop tree ring chronology; 8) prepare hydroclimatic data; 9) interpolate station precipitation data to tree ring site locations; 10) regionalize precipitation data; 11) full hydrology reconstructions for Delta; 12) reconcile hydrology data, precipitation date, and tree ring data; 13) report.	1A, 1B
ERP-02-P31	Delta Smelt Culture and Research Program	This project aims to deliver a reliable and enhanced supply of cultured delta smelt to numerous research programs, while improving culture protocols through investigative work. Tasks include: 10 project management; 2) Environmental compliance and permitting; 3) Development of Delta smelt culture and research - Broodfish maintenance, spawning, and egg incubation; Production of larvae and juveniles; and 4) final report.	112B
ERP-02-P32	Distribution, and abundance of shrimp, plankton and benthos in Suisun Marsh: Tidal marsh as a refuge for native species	The project objectives are: 1) to evaluate the relationships between presence of alien species, on the local community structure and 2) to investigate the influence that habitat type and environmental conditions have on the type and abundance of species present in the tidal marsh community. Tasks include sampling site location selections, benthos sampling, mysid sampling, zooplankton sampling and a draft and final report on methodology, data summary and analyses and conclusions.	112D
ERP-02-P33	Primary Production in the Delta: Monitoring Design, Data Analysis and Forecasting	The primary project goal is to improve understanding of mechanisms governing phytoplankton primary production and biomass in the Delta. Tasks include: 1) providing technical input which identifies critical variables, a spatially stratified sampling scheme, and need for continuous water quality information toward the redesigning of the IEP Environmental Monitoring Program; 2)extension of the delta-wide primary production/producer data analysis to the sub regional and station-specific scale and; 3) development of stochastic time series models for forecasting the response of phytoplankton primary production and related variables to restoration and other impacts.	112B
ERP-02-P34	Restoration of Sacramento Perch to San Francisco Estuary	The project goal is to develop strategies to restore Sacramento Perch to self-sustaining wild populations in the San Francisco Estuary and to assure the Sacramento Perch long-term future in Central California. This will be done by: 1)Summarizing existing information in a white paper; 2) Document the early life history requirements of the population in Lagoon Valley Reservoir; 3) Determine environmental tolerance limits and behavioral tendencies among juvenile and adults; 4) Using genomic markers for assessing genetic variation within and among populations, determine distribution of genetic variation in extant indigenous and transplanted populations and; 5) develop appropriate restoration strategies.	112B, 117

Project ID Number	Title	Description	Milestones
ERP-02-P35	Selenium Effects on Health and Reproduction of White Sturgeon, Acipenser transmontanus, in the Sacramento-San Joaquin Estuary	This proposal examine the toxic effects of selenium accumulation on white sturgeon in the Bay-Delta ecosystem. Tasks included: 1) identification of Se bioaccumulation in different tissues at different ages and stages of maturity; 2) Correlation between Se burdens of different tissues and extent of tissue damage; 3) Correlation between Se burdens and morphometric physiological indices; 4) Identification of Se toxicity thresholds in embryos and larvae of white sturgeon; 5) Characterization of developmental defects in white sturgeon due to elevated Se levels.	34A, 50A, 108A, 112B
ERP-02-P36	The ecological and economic costs and benefits of alternative agricultural practices: Sediment, nutrient, and pesticides in runoff from conservation tillage and cover cropped systems	The project goal is to quantify the ecological and economic costs and benefits of alternative agricultural practices in irrigated row cropping systems, at the farm and societal levels. Tasks include: 1) Measuring quantity and quality of winter runoff at several sites; 2) Evaluating alternative farming systems for feasibility, sustainability, ecological and economic costs; and 3) Demonstrating the farming systems under study and disseminate research results.	76A, 76C, 76D, 80D, 80E, 80F, 81A, 81B, 83A, 83B, 105A, 105C, 105F, 105H, 105K, 105M, 107D, 107E, 107F, 109A, 109B, 111B
ERP-02-P37	Reducing the Introduction and Damage of Aquatic Nonindigenous Species through Outreach and Education, Phase 2	Completion of this project will result in the education of sellers and distributors of NIS. The project will use workshops, industry magazine ads and articles, best management practices manuals, and enhancement of an existing website to educate industries, such as landscapers or hobby aquarium suppliers, that sell or distribute exotic non-native species. Tasks include: 1) Project management; 2) Hold 2 workshops; 3) Develop best management manuals for industries; 4) develop poster for Asian seafood markets; 5) place ads and articles in Industry magazine and develop website; 6) create short video segments for commercial airline and TV.; and 7) website maintenance.	22A, 22B, 22C, 22D

Project ID Number	Title	Description	Milestones
ERP-02-P38	Effects of Climate Variability and Change on the Vegetation and Hydrology of the Bay-Delta Watershed	This project couples and existing hydrologic model of the Sacramento-San Joaquin watershed to a vegetation ecosystem process model. The resulting model will be capable of simulating the effects of climate variability and change on vegetation and hydrology throughout the watershed at time scales from weeks to decades. The model will be validated with high-resolution satellite-derived vegetation data for California. Tasks include: 1) Project management; 2) Model development and validation; 3) development of 13 year data base of satellite- derived vegetation and hydrologic indices and land cover maps; 4) Application of model and satellite data to watershed response to climate changes; and 5) reports	1A
ERP-02-P39	Riparian Restoration Planning and Feasibility Study for the Riparian Sanctuary, Llano Seco Unit	The project goal is to identify feasible management options that will 1) improve habitat and ecosystem processes on 950 acres of the Riparian Sanctuary at the Sacramento River National Wildlife Refuge, Llano Seco Unit; 2) minimize ecosystem damage from pumping plant protection measures and 3)increase scientific understanding of riparian restoration projects. Tasks include: 1) produce a comprehensive riparian restoration feasibility study; 2) evaluate restoration options with hydraulic modeling and assessment; 3) develop a pumping plant protection feasibility study that identifies alternatives that meet PCGID-PID pumping plant and fish screen protection and USFWS ecological objectives.	62G
ERP-02-P40	Evaluation of Mercury Transformations and Trophic Transfer in the San Francisco Bay/Delta: Identifying Critical Processes for the Ecosystem Restoration Program	This research project focuses on factors affecting production of methyl mercury and its bioaccumulation in the food web, focused on contrasting two Delta sites- Frank's tract and the Cosumnes River. The processes to be studied include methylmercury production and degradation, transfer of methylmercury between sediment and water, the entry of methylmercury into the food web, and its transfer and biomagnification in the food web. Tasks include: 1) Project administration; 2) public outreach; 3) Environmental compliance and permitting; 4) Mercury transformation reactions and bioavailability in sediment and water studies; 5) Field studies of Hg in Delta food webs; 6) Laboratory studies of Hg uptake by phytoplankton and consumers; 7) Mercury speciation in water, sediment, and biota; and 8) final report.	30A, 31C, 31D, 31E, 32A, 32C, 48, 77A, 106A
ERP-02-P42	Pyrethroid Insecticides: Analysis, Occurrence, and Fate in the Sacramento and San Joaquin Rivers and Delta	Pyrethroid insecticides are extremely toxic to fish and invertebrates. Use of these insecticides is increasing in the Sacramento and San Joaquin River watersheds and the Delta. This project proposes to develop analytical methods for pyrethroid insecticides in a variety of matrices, and then occurrence and fate in the field. Tasks include: 1) study design - target 6 highest use pyrethroid insecticides: bifenthrin, cyfluthrin, cypermethrin, efenvalerate, lambda-cyhalothrin, and permethrin.; 2) develop sample extraction and analysis procedures for trace levels of selected pyrethroid insecticides; 3) Rice field water sampling; 4) Orchard dormant spray sampling; and 5) process and report.	37A, 53A, 83A
ERP-02-P43	Tiered Public Outreach Program	This proposal is for a multi-faceted education program about the CALFED ecosystem restoration efforts. The proposal includes updating the PBS special To Quench A Thirst; updating the Delta Water Map; journalists' tours of the Bay Delta, and continued providing Water Education Foundation teaching material to instructors. Tasks include; 1) project management; 2) public participation through technical advisory committees; 3) produce public television documentary - "To Quench a Thirst"; 4) develop Delta poster/map; 5) Conduct annual journalist tour of the Bay- Delta; 7) make Water Education Foundation resources available to teachers and 8) report.	Educational

Project ID Number	Title	Description	Milestones
ERP-02-P44	Full-Scale Demonstration of Agricultural Drainage-Water Recycling Process Using Membrane Technology	This project conducts a pilot-system test of a double-pass preferential precipitation reverse osmosis water treatment process for recycling agricultural drainage. Task 1) Design, procure and test pilot nanofilitration unit and slurry recycle/solids blowdown circuit; 2) Integrate components into a complete system; 3) prepare feasibility study for possible next phase demonstration plant.	108D
ERP-02-P45	Geomorphic and Geologic Mapping for Restoration Planning, Sacramento-San Joaquin Delta Region	This project will map geomorphic landforms and geologic deposits along the lower Sacramento, San Joaquin and Cosumnes rivers for input into ecosystem restoration planning and levee engineering. Detailed mapping (1:24,000) will be completed for portions of nine 7.5 minute quadrangles. Deliverables: GIS products designed as base layers for habitat restoration, levee maintenance and construction; maps will delineate sediments that are stable foundations for set back levees, show the distribution of remnant sediments from historic hydraulic mining that have washed downstream into river floodplains. Tasks include development of digital map layers: 1) historical (1906-1916) base maps with 5 foot topographic contours and derivative elevation models; 2) lateral extent of historical geomorphic landforms and distribution and composition of geologic deposits; 3) locations of sediments deposited by historic placer mining; and 4) interpretive map layers showing inferred composition of levees.	5A, 112A
ERP-02-P46	At-Risk Plant Species, Habitat Restoration and Recovery, and Non-Native Invasive Species Management	The goal of this project is to protect, manage and restore habitat quality of vernal pool wetlands, particularly for Crampton's tuctoria and alkali milk vetch, through eradication of non-native invasive species on 320 acres in Yolo County. Tasks include: 1) Baseline studies to quantify existing conditions; 2) Vernal pool surveys that focus on Crampton's tuctoria , alkali milk-vetch, Colusa grass, and vernal pool tadpole shrimp. Additional species status species uncovered during the survey will expand the focus species list. 3) Upland plant surveys; 4) NIS species surveys; 5) baseline rain fall water quality in vernal pool complex; 5) NIS plant eradication method studies; Task 6) development of a conservation and management plan for Yolo County; and 6) a monitoring and adaptive management plan that identifies monitoring activities that will be conducted when NIS eradication are implemented.	112A, 112C
ERP-02-P47	Narrows 2 Powerplant Flow Bypass System	The proposal provides a structural remedy to eliminate flow and temperature fluctuations from emergency and maintenance shutdowns at the Narrows 2 Hydropower Plant on the Yuba River by constructing a 3,000 cfs synchronous bypass system to maintain stable flow releases. Tasks: 1) Procure large diameter hydraulic valves; 2) construct bypass and install valves; 3) conduct power plant modifications; and 4) install turbine shutoff valve at Narrows 2.	66E, 71C
ERP-02-P48	Pine Hill Ecological Preserve	The purpose of this project is to purchase a fee title interest of 248 acres of the Kanaka Valley Property to add to the existing Pine Hill Ecological Reserve in western El Dorado County, which was established to protect an extremely rare natural plant community known as Gabbroic Northern Mixed Chaparral. Tasks include: 1) Project administration; 2) Environmental compliance and permitting; and 3) Land acquisition.	Upper Watershed
ERP-02-P49	East Sacramento County Blue Oak Legacy Acquisition Area-Deer Creek Hills Project	Acquisition of 294 +/- acres of the Deer Creek Hills property located in the middle Cosumnes River watershed, between Deer Creek and the Cosumnes River and contains Crevis Creek and some vernal pools. This parcel is the last portion of a phased purchase totaling 4062 acres. Protection of this land will provide downstream watershed benefits including instream water quality and ecosystem health benefits. Tasks include: 1) Project management; 2) Environmental compliance; and 3) Land acquisition.	12A, 14D

Project ID Number	Title	Description	Milestones
ERP-02D-P50	San Joaquin River DO Depletion Modeling - HydroQual, Inc.	The overall project objective is to develop a technically defensible modeling framework of the DWSC and the SJR that realistically represents the DO dynamics and can be used to develop load allocations for DO TMDL. Tasks 1) Develop accessibility to historical flow and water quality data compilation and review; 2) Interfacing DSM2 output with 3D DWSC water quality model; 3) Development of 3D DWSC Tidal Model; 4) Development of 1D San Joaquin River Water Quality Model; 5): model calculations of corrective management actions required to improve DO concentrations in the DWSC to meet water quality objectives; 6)Supplemental water quality measurements at Rough and Ready Island Station - a. a vertical string of water temperature sensors, b. a surface, mid-dept and bottom turbidity sensor and, c. measurement of diurnal variations in DO and pH in spring and summer.	26A, 26B, 26C, 26D
ERP-02D-P51	San Joaquin River DO Depletion Modeling - UCD	The primary objective for this project is to understand how hydrodynamic and biogeochemical processes interact to produce reductions in dissolved oxygen concentrations along the San Joaquin River (SJR) within the Stockton Deep Water Ship Channel (DWSC). This project will utilize numerical modeling and field data collection. The core modeling effort will be 3D, making use of the USGS-developed hydrodynamic code, SI3D, applied on a high resolution grid. The model will be developed in such a way that the future inclusion of algorithms to model the effects of direct aeration or destratification by large-scale air injection systems is readily achievable. Hydrodynamic measurements in the DWSC will be carried out to provide background data for subsequent modeling efforts. These will be tied into the ongoing measurements that currently are being done by others. The 3D model will be calibrated and validated using the hydrodynamic field data collected and other available data. The model will be run with varying hydrological scenarios, channel bathymetry, and project operations.	26A, 26B, 26C, 26D
ERP-02D-P52	Big Break and Marsh Creek Water Quality and Habitat Restoration Program	This project will improve habitat and water quality on Marsh Creek, which flows from Mt. Diablo into the Delta's Dutch Slough in E. Contra Costa county. Task1: Restoration of 29 acres of tidal marsh and flood plain to provide spawning and rearing habitat for native endangered fish and 1 acre of dune scrub on Marsh Creek delta; Task 2: Restoration of approximately 5,000 linear feet of flood control channel in the City of Brentwood to create a two-staged channel with bio-filtration floodplains and wetlands along Marsh Creek; Task 3: Identify the distribution and abundance of native and invasive species in Big Break and the physical conditions they utilize as well as to measure the efficacy of marsh restoration; Task 4: Water quality monitoring along Marsh Creek to identify the type, source, magnitude of pollutants and measure the effectiveness of pilot restoration treatments; Task 5: Development of a native plant nursery; Task 6: Public outreach.	112A, 112B
ERP-02D-P53	Lower Deer Creek Restoration and Floodplain Management: Feasibility Study and Conceptual Design	This project covers Phase I and II of a three phased project to restore lower Deer Creek flood plain. Phase I is the feasibility study and will identify through mapping, geomorphic analyses and hydraulic and hydrologic modeling, physical alternatives for relieving flood flows and the basic requirements for implementing these options. Phase II will be the selection of the alternative based on the findings from Phase I. Phase 1 tasks include: 1) Public workshops; 2) id range of elements to restore more natural flow conditions to lower Deer Creek; 3) model simulations to evaluate impacts; 4) refine most likely alternatives; and 5) public workshop to select preferred alternative. Phase 2 tasks include: 1) conceptual design of selected alternative; and 2) public workshop to comments.	57D, 59A, 59B, 60A, 62G, 64C

Project ID Number	Title	Description	Milestones
ERP-02D-P54	Restoring Ecosystem Integrity in the Northwest Delta: Phase II	This project proposes to acquire conservation easements along the Barker and Lindsey Sloughs, north Delta tidal channels located west of the Yolo Bypass. These sloughs harbor Delta smelt, juvenile Chinook salmon and steelhead, and other native plants and animals, which benefit from the tule mars, riparian habitats, and grazing lands that border the sloughs. The sloughs also anchor the eastern end of a habitat corridor that stretches west through Jepson Prairie through Suisun Marsh. Conservation easements will be secured from willing sellers to protect these habitats and farmlands. This project will also assess the feasibility of restoring tidal marsh and improving habitat at the DFG's Calhoun Cut Ecological Reserve, adjacent to Barker Slough. Was ERP-02-P11-D. Land acquisition is involved with this project. Tasks include: 1) acquire conservation easements over 1,100 acres bordering Calhoun Cut and Lindsey Slough; and 2) Develop feasibility analysis and plan for restoration of native habitats at Calhoun Cut Ecological Reserve.	7A, 7B, 8A, 9A, 43A
ERP-02D-P55	Physical Modeling Experiments to Guide River Restoration Projects	The purpose of this project is to conduct physical modeling experiments to address some of the fundamental scientific questions underlying the river restoration strategies of gravel augmentation, dam removal, and channel-floodplain reconstruction. This information will be used to create guidelines for the design of future projects. Tasks include: 1)Review past experience in designing and implementing gravel augmentation, dam removal and floodplain and channel reconstruction projects; 2) Establish a scientific advisory panel to help guide the development of the proposed physical modeling experiments; 3) Modify existing hydraulic modeling flume at the University of California's Richmanond Field Station for gravel augmentation experiments; 4) Construct a basin for channel-floodplain re-design experiments; 5) Modify flume for dam removal experiments; 6) Building and flume maintenance; 7) Gravel augmentation experiments; 8) Dam removal experiments; and 9) Channel and floodplain redesign experiments.	86A, 86B, 86D, 86F, 87A, 87B, 87C, 87D, 87E, 87F, 87G
ERP-02D-P56	UC Sea Grant Extension Program: West Coast Ballast Outreach Project	This project proposes to continue three more years of a program to train merchant marine officers about how to improve management of their ships ballast water to reduce the risk of introducing new invasive species into the Bay-Delta system. This training includes the distribution of educational materials, a website, and ballast water management practices. Was ERP-02-P20-D. Tasks include: 1) outreach materials - posters and brochures, newsletter, and web site; 2) sponsor water ballast seminars; and 3) general public outreach and seminars.	20A
ERP-02D-P57	Biological Assessment of Green Sturgeon in the Sacramento - San Joaquin Watershed	This project will elucidate the general biology of green sturgeon (GS) within the Sacramento/San Joaquin River System. This is phase 5 of the project and will focus on determining the movements and distribution of adult GS. Was ERP-02-P21-D. Tasks include: 1) Track adult GS tagged with ultrasonic and radio beacons within the Sac. - SJ Rivers and describe the habitats in which they reside, with particular attention paid to their spawning grounds; 2) capture and tag subadult and adult GS for use in task 1; 3) to determine juvenile GS developmental stage-related swimming performance, salinity tolerance, and other selected stress responses to environmental change; 4) Establish reliable artificial reproduction for research and methodology for determining sex and stage of gonadal maturity; 5) Use unique genetic markers to identify sibling among GS located on their breeding areas by telemetry, plankton tows and egg traps in order to estimate the number of breeding adults at each spawning; and 6) secure integration among the project's multidisciplinary studies.	112B, 112D

Project ID Number	Title	Description	Milestones
ERP-02D-P58	Invasion Dynamics of Perennial Pepperweed, Lepidium latifolium, and Their Consequences for Protection of Natural and Restored Wetlands in the San Francisco Bay Estuary	The primary goal of this project is to determine the properties responsible for the success of Lepidium latifolium (Ll) to support the development of strategies to control or exclude the species in tidal wetlands in the San Francisco Estuary. Was ERP-P23-D. Tasks include: 1) determine the properties of tidal marshes, governing their invasibility by (Ll). Data will be collected at multiple sites ranging from the Cosumnes River Preserve, San Pablo Bay National Wildlife Refuge, and Don Edwards National Wildlife Refuge. 2) To determine the combination of reproductive life history strategies and environmental characteristics that are associated with Ll invasibility, concentrating on the interaction of environmental conditions on seed production and dispersal in the two zones. 3) To evaluate the impact of herbicide treatment on the eradication of Ll and on the recovery of the vegetation community, by establishing treated and untreated semi-permanent quadrants in multiple densities and sampling for multiple years.	22D, 112A
ERP-02D-P59	Recovery Implementation for Riparian Brush Rabbit and Riparian Woodrat on the Lower Stanislaus River	Proposing to establish for riparian brush rabbits a Lower Stanislaus River Riparian Preserve of 500-1,000 acres on the south bank of Stanislaus River in Stanislaus County, within an area defined by the confluence with the San Joaquin River up to river mile 9.5. Additionally, proposing expansion of the habitat at Caswell Memorial State Park, San Joaquin County, while monitoring the riparian brush rabbits response; and monitor the recently reintroduced rabbits at the San Joaquin River National Wildlife Refuge on the San Joaquin River in Stanislaus County to gain a better understanding of the reintroduction process.	87C, 91A, 95A, 95E, 95F, 112C
ERP-02D-P60	Pacific Flyway Center Initial Planning	This project proposes to investigate the potential for development of an educational and interpretive center on the 69-acre parcel site acquired by the Wildlife Conservation Board in 2001, in close proximity to the Vic Fazio Yolo Wildlife area and the City of Davis' wetlands. Initial planning will include site investigations and analysis, the synthesis of prior investigations and documentation, facility program development, schematic design, partnership and stakeholder involvement. The project will undertake and complete required schematic level planning activities for the PFC site, facility and access route in order to advance towards implementing the education center. The ultimate facility and site is anticipated to include the wetland habitats, trail linkages and a 12,000 square foot bldg. presenting educational programs based on regional ecosystems, the functions of the Bypass, and showcasing an array of ERP actions. Was ERP-02-P26D. Tasks include: 1) project management; 2) public participation; 3) environmental compliance and permitting; 4) define facility concepts 5) development of education plan; 6) schematic plans for facility; and 7) Distribution of final schematic plans.	Educational
ERP-02D-P61	Implementing Collaborative Approach to Quantifying Ecosystem Flow Regime Needs for the Sacramento River	This project seeks to quantify key aspects of a "naturalized' flow regime that are compatible with flood damage reduction, agriculture, diversions, storage and conveyance. Tasks include: 1) develop initial hypotheses of ecosystem flow requirements through workshops (State of System, Conceptual design for linked models development); 2) Initiate field studies to reduce critical scientific uncertainties previously identified (quantify relationship between flows and sediment transport; quantify cottonwood root growth rates; quantify fluvial geomorphic processes that create and maintain off-channel habitats; assess bank protection for habitat; refine meander migration model; quantify extent of cottonwood recruitment; 3) build integrated decision analysis model to evaluate flow scenarios against ecosystem components (develop flow-sediment transport model and test criteria; 4) Design future water related experiments and modeling plans; and 5) stakeholder workshops for final presentation. Contract in administrative process.	58A

Project ID Number	Title	Description	Milestones
ERP-02D-P62	Mercury and Methylmercury Processes in North San Francisco Bay Tidal Wetland Ecosystems	This study investigate mercury cycling in tidal wetlands of the Petaluma river, with emphasis on quantifying and understanding processes that influence the abundance of methylmercury. Tasks include: 1) development of peer-reviewed sampling and quality assurance plan; 2) sample analysis; 3) data interpretation, presentations; and 4) final reports and publications.	30A, 31B, 32C, 48, 77A, 78B, 106
ERP-02D-P63	Monitoring and Investigations of the San Joaquin river and Tributaries related to Dissolved Oxygen	This study will provide a comprehensive understanding of the sources and fate of oxygen-consuming materials in the SJR watershed between Channel Point at the head of the Deep Water Ship Channel to Lander Avenue 100 miles south along the San Joaquin River. Tasks include:1) Monitoring program of oxygen demanding materials and related parameters; 2)Analysis of samples; independent measurement of constants used in algal growth models of importance to the load allocation process; 3)river model development; 4)characterization of BOD fractions and destination of their sources; 5) Linking the finding for the San Joaquin River to the Deep Water Channel; and 6) development of a summary report.	26A, 100A, 102
IMM-02-I01	Battle Creek Protection and Stewardship	The goals of this project are to: 1) Protect long-term sustainability of freshwater fish habitat that supports various life cycle stages of Pacific Lamprey, Chinook salmon and Steelhead trout by purchasing conservation easements from willing sellers on over 6,800 acres of habitat lands; 2) Limit future impacts of landscape fragmentation, logging, mining, agricultural conversion, instream physical disturbance, and the addition of new wells and septic systems that would degrade water quality; 3) Preserve streamside vegetation adjacent to wildlife-friendly agriculture; 4) Protect and restore natural riparian, aquatic, and terrestrial habitats in order to maintain continuous habitat corridors on key tributaries and at their confluences with the upper Sacramento River; 5) Foster wildlife-friendly agricultural land uses which are in harmony with the protection and preservation of ecological and species health; 6) Support local community efforts for habitat protection and enhancement; 7) Where applicable, implement livestock fencing measures, invasive weed control actions and/or restoration (revegetation) projects; and 8) Implement monitoring programs to collect data, enforce easement provisions and measure success.	62F, 64A, 67C, 69A, 69B, 112B
WSP02-FP-214	Cottonwood Creek Watershed Management Program	Develop a Watershed Management Strategy through stakeholder workshops that will eventually lead to a management plan. Several watershed issues will be addressed including riparian protection and enhancement.	63B
WSP02-FP-307	Lower Clear Creek Spawning Gravel Injections	This is a gravel infusion project for Lower Clear Creek. It is strictly artificial augmentation.	58B
WSP02-FP-308	Water Quality Improvement in Cow Creek Watershed	This project monitors temperatures in Cow Creek a tributary to Sac River. It will develop a strategy for dealing with high temps in order to improve water temps for anadromous fish. Develop and implement temperature management programs within major tributaries in the Sacramento River Basin.	55
WSP02-FP-419	Gleen County Surface Water Stewardship	Project has developed demo area that shows how BMPs for controlling runoff and stripping pesticides from runoff can work. continuation of demo to educate landowners in project area in BMP implementation.	81B
WSP02-FP-556	Putah Creek - Yolo Housing Authority Project	This project is restoring riparian and oak woodland habitat to a stretch of Putah Creek. It will also restore some instream habitat for anadromous fish in the creek.	62H
WSP02-FP-626	South Yuba Watershed Project	Assist in implementing projects to control erosion, improve water quality, improve aquatic/terrestrial habitats on South Yuba River.	58K

Project ID Number	Title	Description	Milestones
AFRP-2003-01	VAKI Riverwatcher Fish Monitoring System at Daguerre Point Dam	The objective is to purchase two (2) VAKI Riverwatcher fish counting systems with digital camera units in order to track and record fish movement through the fish ladders at Daguerre Point Dam. Systems were installed on the ladders at Daguerre Point Dam in July 2003. The solar systems used to power the VAKI units were not sufficient to provide reliable operation; hence PRAQUA, the sole distributor for the VAKI system in North America, provided additional solar panels at no cost in order to achieve reliable operation of the VAKI units. The additional solar panels should be in place by September 2003.	66E, 67L, 119A
AFRP-2003-02	Up-Migration and Straying of Tuolumne River Salmonids in Response to Fall Attraction Flows and Environmental Factors	The proposed study will examine the relationship of environmental explanatory variables with: a)the annual variation in arrival timing of fall run Chinook salmon in the lower Tuolumne River, and b)the annual proportion of stray coded wire tag (CWT) from the San Joaquin basin that are recovered in Sacramento River tributaries. Environmental variables will include flow (e.g., tributary-specific, Vernalis), water quality (i.e., DO, Temperature) and regional meteorology (e.g., barometric pressure, tributary rainfall). Annual carcass surveys of the Tuolumne River will be used to indicate the upmigration timing of the San Joaquin basin at large because the Tuolumne River both dominates the annual escapement of San Joaquin basin Chinook salmon, and also dominates the fall attraction flow contributions of San Joaquin tributaries in October of each year. CWT recovery of Merced River Fish Facility (MRFF) tag codes released in the San Joaquin basin tributaries (Stanislaus, Tuolumne and Merced Rivers) will be compared to the numbers recovered in the American, Feather and Mokelumne Rivers in the Sacramento River basin. These rivers have been selected on the basis of their consistency in recovery effort and record keeping.	97B, 115A
AFRP-2003-03	Evaluating the Success of Spawning Habitat Enhancement on the Merced River, Robinson Reach	The objective of the study is to determine the location and number of redds in the Robinson Reach and to assess the suitability of spawning habitat based on level of use. Included in this objective is to identify riffle features that increase the number of redds excavated by salmon within a newly constructed spawning riffle. This study will create a knowledge base that can be used to improve the design features of future phases of MRSHEP and that can be applied to other restoration efforts on rivers of similar scale and fluvial character. The following research hypotheses will be investigated to accomplish the objective: 1. Chinook salmon redd densities will be higher in the constructed portion of the Robinson Reach than in the adjacent upstream and downstream natural spawning sites. a.Chinook salmon redd densities will increase over time in the constructed reach compared to those in the adjacent natural spawning sites. 2. Chinook salmon redd densities will be equal to or higher in the constructed portion of the Robinson Reach than those that occurred in the Robinson Reach prior to the reach altering flows of 1997. 3. Spawning is clustered in areas along the Robinson Reach and is not spread evenly or randomly throughout the reach. 4. The quantity of spawning is significantly different among spawning area designs. a.Chinook salmon redd densities are correlated with the number of hydraulic controls (a.k.a., humps) per riffle.	88I, 88J, 88K, 88L, 119A
AFRP-2003-04	SHIRA-Based River Analysis and Field-Based Manipulative Sediment Transport Experiments to Balance Habitat and Geomorphic Goals on the Lower Yuba River	The objectives are to: 1) collaborate with on-going biological, hydrological, and geomorphic studies so that an integrated database of monitoring information useful for SHIRA can be organized; 2) characterize the fluvial geomorphology, sediment transport dynamics, and in-stream hydraulics of key potential spawning reaches above and below the LYR Narrows at the ecologically relevant scale of 0.1-1 m resolution; and 3) experiment on different gravel placement strategies for the LYR, taking advantage of the available annual high discharges to evaluate sediment transport processes.	58A, 58B, 58C, 58D, 58E, 58F, 58G, 58H, 58I, 58J

Project ID Number	Title	Description	Milestones
AFRP-2003-05	Distribution and Relationship of Resident and Anadromous Central Valley Rainbow Trout	To examine the occurrence and distribution of anadromous and non-anadromous rainbow trout. Otoliths of juvenile trout from many Central Valley watersheds will be analyzed to determine parental life history strategy (anadromous or resident). The determination will be based on examination of the ratio of strontium to calcium within the otolith. Same as CVPIA-02-V01.	119A
AFRP-2003-06	Lower American River Temperature Reduction Modeling Project	To develop predictive tools that will: 1) Reduce to the extent possible the uncertainties in the performance of identified temperature control actions that could be implemented to improve the management of cold water resources in the Folsom/Natoma Reservoir system and the lower American River, and 2) Be available for daily operations, planning, and salmon and steelhead habitat studies by other project operators and other stakeholders.	55A, 55B, 115A
AFRP-2003-07	Environmental Compliance and Hydraulic Evaluation of the La Barranca Unit of the Sacramento River National Wildlife Refuge	Conduct engineering analysis, develop several design alternatives, and complete an Environmental Assessment (EA) for floodplain restoration of the non-functioning levees and old gravel pits of the La Barranca site on the upper Sacramento River.	59A, 59B
ERP-03-C01	Research, Outreach, and Education on Fish Consumption in the Sacramento-San Joaquin Delta and its tributaries - Phase 1 Scoping Study	This project provides funds for the initial phase of a study on human consumption of fish with the ultimate goal of reducing human exposure to mercury via public outreach and education. The Department of Health Services (DHS), will work in collaboration with the Central Valley Regional Board, OEHHA, and the Delta Tributary Mercury Council. With joint funding from other organizations, this project will also conduct a needs assessment of outreach and education in 5 priority counties in the watershed (Sacramento, San Joaquin, Lake, Placer and Nevada) and will develop a draft outreach and education strategy. Tasks include: 1)collect and analyze existing information; 2)direct a stakeholder advisory group; and 3)define the goals, objectives, work plan, and budget for future phases of the fish consumption study.	Educational
ERP-03-C03	Regulatory Activities of Inactive Mine Sites Affecting Bay-Delta Water quality	Support development and implementation of TMDL for mercury. This project provides support for TMDL implementation - to support activities that will get inactive mine sites cleaned up by the owners.	31A, 78A, 78D