California Bay-Delta Program

Ecosystem Restoration
Multi-Year Program Plan (Years 4-7)

Implementing Agencies:
Department of Fish & Game
United States Fish & Wildlife Service
United States National Marine Fisheries Service

August, 2003

CALIFORNIA
BAY-DELTA
AUTHORITY

Goals and Objectives

The Ecosystem Restoration Program (ERP) is designed to (1) maintain, improve, and increase aquatic and terrestrial habitats and improve ecological functions in the San Francisco Bay and Sacramento-San Joaquin Delta (Bay-Delta) to support sustainable populations of diverse and valuable plant and animal species; (2) achieve recovery of at-risk species dependent on the Delta and Suisun Bay; and (3) support the recovery of at-risk species in San Francisco Bay and in the watershed above the estuary. The ERP is essential to sustaining environmental regulatory compliance across all Bay-Delta Program elements.

The CALFED Programmatic Environmental Impact Statement/Report identified six strategic goals for ERP to meet. For each goal, strategic objectives were identified. A summary of the goals and objectives follow.

- **Recover endangered and other at-risk species and native biotic communities.**
  - Achieve recovery and then sustain large populations of specific at-risk native species in the Delta, Suisun Bay and Marsh. Recover and sustain specific native at-risk species in the Bay-Delta estuary and its watershed
  - Enhance or conserve native biotic communities in the Bay-Delta estuary and its watershed
  - Maintain the abundance and distribution of specific native species
- **Rehabilitate ecological processes.**
  - Establish and maintain hydrologic and hydrodynamic regimes for the Bay and Delta that support the recovery and restoration of native species and biotic communities, restore and maintain functional natural habitats, and maintain harvested species
  - Increase estuarine productivity and rehabilitate estuarine food web processes to support recovery and restoration of native estuarine species and biotic communities
  - Rehabilitate natural processes to create and maintain complex channel morphology, in-channel islands, and shallow water habitat in the Delta and Suisun Marsh
  - Create and maintain flow and temperature regimes in rivers that support the recovery and restoration of native aquatic species
  - Establish hydrologic regimes in streams to maintain channel and sediment conditions supporting the recovery and restoration of native aquatic and riparian species and biotic communities
  - Reestablish floodplain inundation and channel-floodplain connectivity of sufficient frequency, timing, duration, and magnitude supporting restoration and maintenance of functional natural floodplain, riparian, and riverine habitats

- Restore coarse sediment supplies to sediment-starved rivers downstream of reservoirs to support restoration and maintenance of functional natural riverine habitats
- Increase meandering reaches and other pre-1850 river channel characteristics

- **Maintain or enhance harvested species populations.**
  - Enhance fisheries for salmonids, white sturgeon, pacific herring, and native cyprinid fishes
  - Maintain fisheries for striped bass, American shad, signal crayfish, grass shrimp, and nonnative warm-water game fishes to the extent consistent with ERP goals
  - Enhance populations of waterfowl and upland game for harvest by hunting and for non-consumptive recreation to the extent consistent with ERP goals
  - Ensure that Chinook salmon, steelhead, trout, and striped bass hatchery, rearing, and planting programs do not have detrimental effects on wild populations of native fish species and ERP actions
- **Protect and restore habitats.**
  - Implement and manage restoration actions for all major habitat types to provide connectivity among habitats, in the Delta, Suisun Bay, Suisun Marsh and San Francisco Bay
  - Implement and manage restoration actions for all major habitat types to provide connectivity among habitats, in the Central Valley and its rivers
  - Protect tracts of existing high quality major aquatic, wetland, and riparian habitat types, and sufficient connectivity among habitats in the Bay-Delta and its watershed
  - Minimize agricultural land conversion and maintain open space buffers and encourage wildlife friendly agriculture
  - Manage the Yolo and Sutter Bypasses as major areas of seasonal shallow water habitat to enhance native fish and wildlife
- **Prevent establishment of and reduce impacts from non-native invasive species.**
  - Eliminate further introductions or halting introductions of non-native species from ship ballast into the Bay-Delta estuary
  - Eliminate further introductions of new species from imported marine and freshwater baits into the Bay-Delta estuary and its watershed.
  - Halt the unauthorized introduction and spread of potentially harmful non-native introduced fish species or other aquatic organisms in the Bay-Delta and Central Valley

  - Halt release of non-native introduced fish and other aquatic organisms from private aquaculture, aquarium and pet trades into the Bay-Delta estuary, its watershed, and other central California waters
  - Reduce the impact of non-native mammals on native birds, mammals, and other organisms
  - Limit the spread or eradicate populations of non-native invasive species through focused management efforts
  - Prevent a zebra mussel invasion into California
- **Improve or maintain water and sediment quality.**
  - Reduce loadings and concentrations of toxic contaminants in all aquatic environments in the Bay-Delta estuary and its watershed
  - Reduce loadings of oxygen-depleting substances from human activities into aquatic ecosystems in the Bay-Delta estuary and its watershed
  - Reduce fine sediment loadings from human activities into rivers and streams

Accomplishments

Since its inception nearly seven years ago, the ERP facilitated funding for a variety of projects contributing to ecosystem restoration within the ERP's geographic scope. ERP investments contributed to sustaining regulatory assurances for all Bay-Delta Program elements in Years 1 through 3. There are at least three ways that ERP can assess its accomplishments: (1) tracking funding allocations (the focus of this discussion); (2) tracking progress toward targets; and (3) tracking progress toward specific goals or objectives. Work continues in all three areas, however, current assessment tends to focus on the funding allocations, and the ensuing discussion focuses on this approach. Currently, ERP is beginning to address how to measure progress toward targets as part of an ongoing "look back" exercise. The ERP is also in the process of identifying indicators to track progress toward specific goals and objectives. Because implementing restoration projects takes time, and because of the nature of ecosystem restoration, the ERP is approaching a time when it can now begin to identify and articulate the results of some of its projects.

Listed below is a breakdown of the 393 projects by ERP goal that have been funded as of June 2003. Because many ERP projects address more than one of the Strategic Goals, the following project numbers and percentages total more than 100 percent and more than the total of 393 projects that were funded through June 2003.

Goal 1: Recover Endangered and Other At-Risk Species and Native Biotic Communities

- About 63 percent, 253 projects, address recovering endangered and other at-risk species and native biotic communities.

Goal 2: Rehabilitate Ecological Processes

- About 57 percent, 229 projects, address rehabilitating ecological processes.

Goal 3: Maintain or Enhance Harvestable Species Populations

- About 13 percent, 53 projects address maintaining or enhancing harvestable species populations.

Goal 4: Protect and Restore Habitats

- About 57 percent, 224 restoration projects, address protecting and restoring habitats.

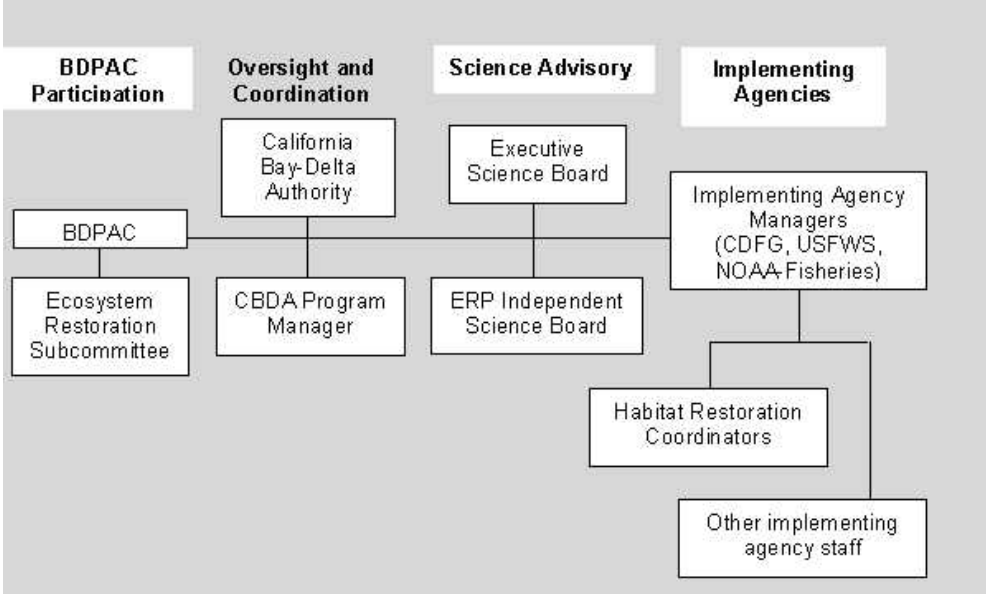
Goal 5: Prevent Establishment of and Reduce Impacts from Non-Native Invasive Species

- About 10 percent, 31 projects, address preventing establishment of or reducing impacts from non-native invasive species.

Goal 6: Improve or Maintain Water and Sediment Quality

- About 30 percent, 117 projects, address improving or maintaining water and sediment quality.

Program Structure



Agency	Roles and Responsibilities
California Bay Delta Authority (CBDA)	Oversight and coordination
Department of Fish and Game (CDFG)	Implementing agency
	Manages State Habitat Restoration Coordinators
	Lead for ERP regional planning
	Administers 1600 Stream Alteration Permits
	Administers the California Endangered Species Act, oversees endangered species compliance for listed fish, wildlife, and plant species
U. S. Fish and Wildlife Service (USFWS)	Implementing agency
	Manages Federal Habitat Restoration Coordinators
	Lead for Environmental Water Program and Non-native Invasive Species Program
	Administers the Federal Endangered Species Act, oversees endangered species compliance for listed non-anadromous fish and listed wildlife
	Administers several restoration efforts under the Central Valley Project Improvement Act, including the Anadromous Fish Restoration Program and the Anadromous Fish Screen Program.
National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) (formerly National Marine Fisheries Service [NMFS])	Implementing agency
	Administers the Federal Endangered Species Act, oversees endangered species compliance for listed anadromous fish

Major Activities

ERP activities are generally identified through open and competitive processes. The ERP intends to continue emphasizing local input, integration with other activities, science (especially independent peer review) and public transparency in decisions about which specific activities to fund in support of priorities identified in ERP planning documents. This list of major activities focuses on ERP commitments specifically identified in the ROD and on continuing ongoing agency efforts. It does not include ongoing activities funded in prior fiscal years through grants or future activities that may be funded as a result of competitive processes. The information below is presented first by ERP task—Planning, Research, Implementation, Monitoring, or Oversight and Coordination—second by ERP goal and then by ERP ROD Commitment, where applicable. The ERP expects to fund projects that will contribute to all ERP tasks, goals, and commitments through Stage 1. More detailed information about the projects, Year 4 work plan, and other issues is available in the Ecosystem Restoration Program Multi-Year Program Plan and Year 4 Work Plan Addendum (draft June 20, 2003), which accompanies this report.

Task: Planning

All Program Goals

- **Develop regional implementation plans** – The ERP is committed to developing and refining regional implementation plans for each of the four ERP regions within the ERP's geographic scope. The ERP expects to refine and prioritize actions during the regional planning process, and to vet the scientific foundation for actions and milestones. Regional plans for most of the Delta Region and part of the Suisun Marsh portion of the Bay Region are underway, and other regional plans will be initiated during Stage 1.

  Schedule: Through ERP implementation period.

- **Develop strategies for high priority topics –** The ERP is committed to developing and refining strategies for addressing high priority topics as needed. The ERP expects to refine and begin implementing a strategy to address mercury, to develop a strategy to address restoration-related dissolved organic carbon issues, and to develop a strategy to contribute to recovery of giant garter snake.

  Schedule: Through ERP implementation period.

- **Develop an annual budget for the Single Blueprint for Restoration and Recovery –** The ERP has produced a Single Blueprint budget document for Years 1 through 3. The ERP will develop a Year 4 Annotated Budget for Implementing the Single Blueprint, and will continue to work with Implementing Agencies to make the document effective and timely.

  Schedule: Completed annually

Goal 2: Rehabilitate Ecological Processes

- **Restore Habitat and Hydraulic Needs on Frank's Tract in the Delta** – The ERP funded the *Feasibility Study of Ecosystem and Water Quality Benefits Associated with Restoration of Frank's Tract, Big Break, and Lower Sherman Lake*. This $1.2 million study is schedule for completion one year after subcontracts are signed. After the feasibility report is completed a preferred pilot project proposal will be submitted for next-phase funding.

  Schedule: Completion one year after subcontracts are signed.

- **Implement Integrated Flood Management, Ecosystem Restoration, and Levee Restoration under the *Sacramento-San Joaquin River Basins Comprehensive Study*** – An interim report and technical

documentation for the Comp Study are complete. Various modeling paradigms, including the Ecosystems Function Model, were developed and are undergoing revisions. Bay-Delta Program funding was secured for the Hamilton City Flood Damage Reduction and Environmental Restoration Feasibility Study, which is an initial component of the Comp Study. ERP will continue working with the USACE as it develops the Comp Study to ensure that future Comp Study projects coordinate with the California Bay-Delta Program.

Schedule: Ongoing

Task: Research

Goal 1: Recover Endangered and Other At-Risk Species and Native Biotic Communities

- **Wild Chinook Salmon and Steelhead Studies in the Upper Yuba River Watershed and Other Fish Passage Projects through the Fish Passage Improvement Program** – ERP established the stakeholder group and identified key issues. ERP also completed the scopes of work for implementing the studies and a Technical Review Panel review of the study plans. The study team has initiated work on the studies and is currently collecting information to characterize current conditions. In addition, work to be accomplished includes: developing analysis scenarios for the five passage options; preparing interim work products for the Bay-Delta Program, stakeholder, and Technical Review panel review; initiating analysis of preliminary fish passage options; and preparing a final feasibility report for the Bay-Delta Program, stakeholder, and Technical Review Panel review.

  Schedule: Ongoing

Goal 6: Improve or Maintain Water and Sediment Quality

- **Assist Existing Agency Programs to Reduce Turbidity and Sedimentation; Reduce Impairment Caused by Low Dissolved Oxygen Conditions; Reduce Impacts of Pesticides; Reduce Impacts of Trace Metals, Mercury, and Selenium; Reduce Salt Sources; and Increase Understanding of Toxicity of Unknown Origin** – The ERP has provided approximately $44 million for 42 water quality projects. Staff will continue to work with state and local water quality agencies to collaborate and coordinate water quality activities such as joint projects and information sharing. Water quality projects that have been funded to date will be evaluated and data gaps will be identified. Additional research, monitoring, and source control projects will be solicited and funded, as appropriate.

  Schedule: Ongoing

- **Improve Dissolved Oxygen Conditions in the San Joaquin River Near Stockton** – The ERP funded studies totaling nearly $4 million that evaluated the sources and causes of low dissolved oxygen in the San Joaquin River. ERP plans to complete the following: gap analysis and screening of non-aeration alternatives; award projects for additional information about possible non-aeration alternatives; identify local agency/sponsor for aeration demonstration project; award aeration demonstration project to local agency/sponsor; and solicit, award, construct, and operate an aeration demonstration project by a local agency/sponsor.

  Schedule: Ongoing

Task: Implementation

Goal 1: Recover Endangered and Other At-Risk Species and Native Biotic Communities

- **Improve Fish Passage on Butte Creek, Pacific Gas & Electric Company diversion dams on Battle Creek, Woodbridge Dam on Mokelumne River, and Clough Dam on Mill Creek** – Since 1995, the ERP has funded 19 fish passage modification or dam removal projects on the above-listed streams for about $66.5 million. The ERP expects projects to continue on lower Butte Creek and Battle Creek and to review restoration plans for Battle Creek.

  Schedule: Completion 2007

- **Improve Salmon Spawning and Juvenile Survival in Upstream Tributaries by purchasing up to 100 TAF per year by the end of Stage 1** – The USFWS, an ERP Implementing Agency, is leading the Environmental Water Program (EWP) efforts to acquire the 100 TAF annually by the end of Stage 1. The EWP has started initial outreach and coordination. Negotiations for specific blocks of water may begin by late 2003. The EWP has a goal of making one to three water acquisitions during Year 4, anticipates making annual water acquisitions from 2004 through the end of Stage 1, and anticipates preparing an annual report

summarizing program acquisitions and the degree to which science and adaptive management have been incorporated into the program.

Schedule: Ongoing to meet 100 TAF annual target

Goal 2: Rehabilitate Ecological Processes

- **Complete Protection and Restoration of the Sacramento River Meander Corridor as part of the Sacramento River Conservation Area/SB 1086 Program (now referred to as the Sacramento River Conservation Area Forum)** – The ERP has allocated approximately $25 million to 11 projects directed at protecting and restoring the Sacramento River meander corridor. More than 2,000 acres have been acquired and 300 acres were restored; additional funding has been allocated to protect another 270 acres. ERP will continue to fund restoration and monitoring and complete sub-reach planning in coordination with the Sacramento River Conservation Area Forum.

  Schedule: Ongoing

Goal 4: Protect and Restore Habitats

- **Implement Large-Scale Restoration Projects on Clear Creek, Deer Creek, Cosumnes River, San Joaquin River, and Tuolumne River** – The ERP has funded more than $79 million for restoration projects on the above-listed streams and rivers. The ERP highlighted critical information gaps; therefore, in Year 4, the ERP is working with the Science Program to institute an Investigative Team to determine the optimal scientific opportunities created by these investments. The ERP will continue to solicit proposals for specific activities.

  Schedule: Ongoing

- **Restore Habitat in the Delta, San Pablo Bay, Suisun Bay and Suisun Marsh, and Yolo Bypass** – Nearly $73 million in ERP funds have been allocated to 34 restoration projects in the areas listed above. The ERP Implementing Agencies, USACE, and the State Coastal Conservancy will complete restoration plans and environmental documents for Hamilton Air Force Base-Bel Marin Keys and Napa River salt ponds. The USACE and Coastal Conservancy, and for Napa River DFG as well, will seek congressional authorization for the USACE to implement the Hamilton Air Force Base-Bel Marin Keys and Napa River salt ponds restorations, which will be carried out by USACE and state co-sponsors. The ERP will continue to develop the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP) and Suisun Marsh Implementation Plan.

  Schedule: Ongoing

Goal 5: Prevent Establishment of and Reduce Impacts from Non-Native Invasive Species

- **Implement an Invasive Species Program** – *Non-native Invasive Species (NIS) Strategic and Implementation Plans* were written and ERP funded many NIS projects for research, technical assistance, and implementation/restoration. In Year 4, a Watershed Coordinator will be hired. A database will be developed of watershed group NIS activities and needs and contact information, distributing information regarding NIS species and pathway of introduction to stakeholders, managing contracts for NIS projects, and working with the California Bay-Delta Program to establish NIS priorities for the next PSP. In addition, technical assistance and coordination to regional efforts and watershed groups and the development and maintenance of a reference collection of aquatic NIS will be completed. In 2002, the Bay-Delta Program renewed a three year contract with the U.S. Fish and Wildlife Stockton office to coordinate the NIS Program.

  Schedule: Ongoing

Task: Monitoring

All Program Goals

- **Continue to develop and assess indicators** – The ERP has been developing indicators since 1996 and recently worked with the Science Program to develop a draft set of prototype presentations of indicators. The ERP expects to develop a plan for further development of indicators, to solicit comments on that plan from the ERP's Independent Science Board, the Science Program, and stakeholders to proceed with further development and monitoring of indicators.

Schedule: Plan complete in fall 2003; development, assessment and refinement continuing thereafter

Goal 3: Maintain or Enhance Harvestable Species

- **Assess the Potential Need for Additional Fish Contamination Monitoring and Consumption Advisories in the Bay-Delta Watershed** – The ERP and other entities are jointly funding Phase I of a fish consumption study that includes public outreach and education. Several potential directed action projects that include fish tissue monitoring and public outreach and education will be revised and combined into one integrated proposal for resubmittal and potential funding in summer 2003. The ERP is working with several agencies to develop integrated data management so that fish tissue data from various sources can be compiled and analyzed. This effort is expected to continue throughout the next year. The ERP is funding an integrated database at CDWR that includes fish tissue data from various sources; this activity will continue into Year 4.

  Schedule: Completion 2007

Task: Oversight and Coordination

All Program Goals

- **Oversight and Coordination for the California Bay-Delta Program ERP –** This task includes agency coordination for restoration, activities for CBDA regional coordinators, review and assistance with regulatory compliance issues, developing annual work plans, developing a Single Blueprint for Restoration and Recovery, administering proposal or grant solicitation processes, developing cross-cut budgets, and developing and reviewing State budget change proposals.

  Schedule: Ongoing

Schedule

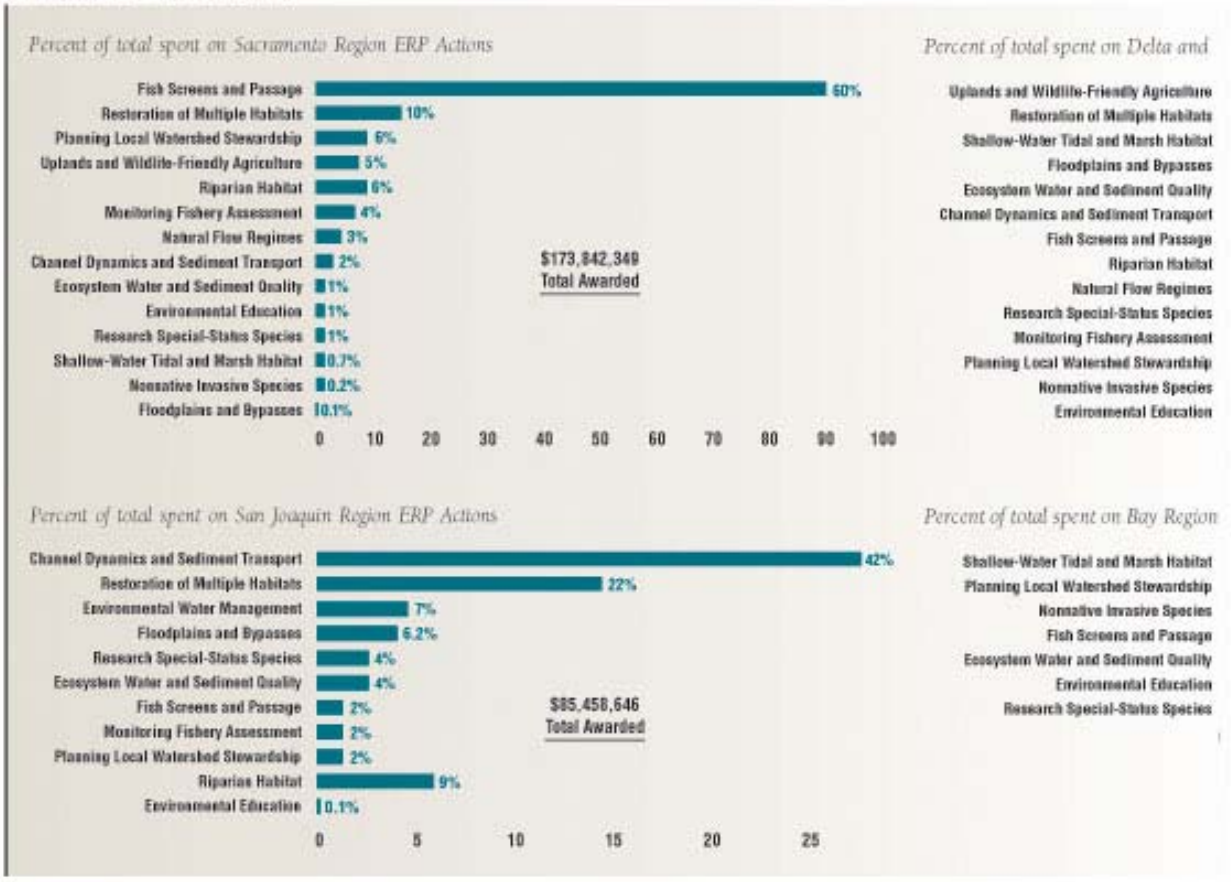
ECOSYSTEM RESTORATION

More than $63 million in funding for ecosystem restoration projects was awarded in 2002. Progress is being made on the Environmental Water Program, Upper Yuba River Studies Program and other ongoing activities, but delays were experienced in Year 3 due to funding and contracting issues. Resource and contracting constraints have delayed preparation of a Delta-wide Ecosystem Restoration Plan and the Single Blueprint for restoration activities.

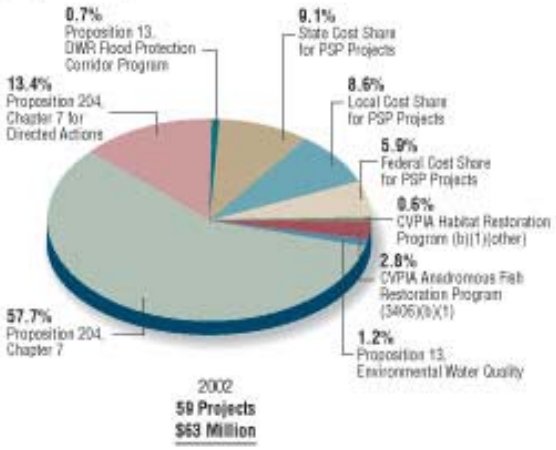
HIGHLIGHTS OF ERP FUNDED ACCOMPLISHMENTS INCLUDE:

- 58,300 acres of habitat funded for protection, including 12,000 acres dedicated to wildlife friendly agriculture and 16,000 acres of floodplain;
- 39,000 acres of habitat funded for restoration, including 9,500 acres of shallow water tidal and marsh habitat;
- 63 miles of instream habitat funded for protection and/or restoration;
- 93 miles of riparian corridor funded for protection and/or restoration;
- 75 fish screens accounting for a total of 2,700 cfs of diversion capacity

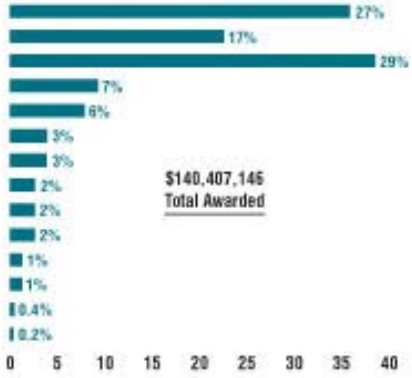
REGIONAL SPENDING



Fund sources and amount of funding to support the selection of projects through the 2002 PSP



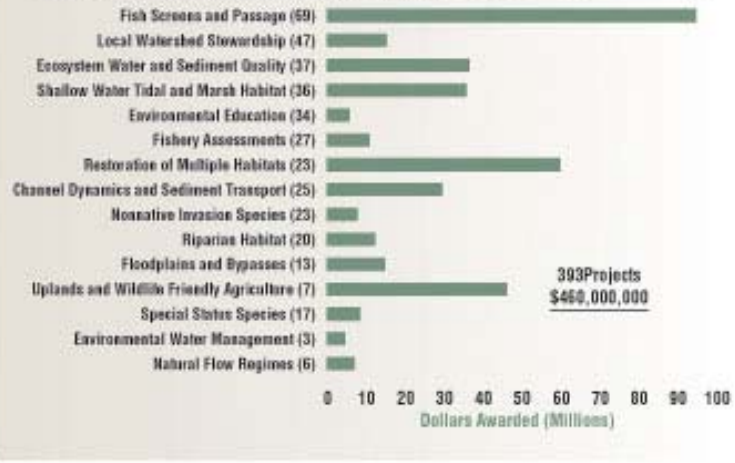
Eastside Tributaries Region ERP Actions



ERP Actions

TOTAL SPENDING

Types and number of restoration projects funded by the ERP (#) Number of funded projects



Year 4 Work Plan Activities

In Year 4, the ERP intends to continue identifying most of the activities supported by the program through open and competitive processes. These activities will be focused on the priorities established in prior program planning documents, including the Draft Stage 1 Implementation Plan, and will incorporate a greater emphasis on signature opportunities and on implementing the developing mercury strategy. The ERP intends to continue emphasizing local input, integration with other activities, science (especially independent peer review) and public transparency in decisions about which specific activities to fund.

This list of Year 4 activities focuses on continuing ongoing agency efforts and on developing regional plans and topical strategies. Similar to the Major Activities section of this report, it does not include ongoing activities funded in prior fiscal years through grants or future activities that may be funded as a result of competitive processes. The information below is presented by ERP task—Planning, Research, Implementation, Monitoring, or Oversight and Coordination. More detailed information about the projects, Year 4 work plan, and other issues is available in the Ecosystem Restoration Program Multi-Year Program Plan and Year 4 Work Plan Addendum (draft July 18, 2003) and the ERP's Year 4 Annotated Budget for Implementing the Single Blueprint (draft July 18, 2003), which accompany this report.

Task: Planning

- **Delta Regional Ecosystem Restoration Implementation Plan (DRERIP)** – CDFG, in collaboration with the CBDA, NOAA Fisheries, and USFWS, and with the support and guidance of the ERP Independent Science Board, is leading the effort to write the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP). The DRERIP is the first of four regional plans envisioned in the ERP Strategic Plan, and will refine the ERP planning foundation specific to the Delta region.

  Schedule: Draft DRERIP is scheduled to be completed during Year 5.

- **Suisun Marsh Implementation Plan –** CDFG, in collaboration with the CBDA, NOAA Fisheries, California Department of Water Resources (CDWR), US Bureau of Reclamation (USBR) and USFWS, is leading the effort to write the Suisun Marsh Implementation Plan (SMIP) for the Suisun Marsh Ecological Management Zone. The SMIP will develop actions to restore habitat for tidal marsh dependent sensitive species by preserving and enhancing managed seasonal wetland, carrying out a comprehensive levee program, and

  Schedule: Completion in Year 5

- **Fish Passage Improvement Program** – The Fish Passage Improvement Program (FPIP) developed CDWR Bulletin 250-2002 which was released for public review in 2003. FPIP established and participates in interagency and stakeholder fish passage forums to study and evaluate constructed structures that impede anadromous fish migration within the Central Valley and Bay-Delta drainages. FPIP staff assists with and conducts engineering and environmental evaluations for migration barrier structure removal or modification, including projects on Bay Area tributaries, Bay-Delta tributaries, Napa River tributaries, Butte Creek, Calaveras, Merced River, Stanislaus River, American River, and Yuba River.

  Schedule: Ongoing

- **Non-native Species and Wildlife Friendly Agriculture** – The California Department of Food and Agriculture (CDFA) will provide staffing to support implementation of exotic species control measures, agriculture related water quality improvement measures, and wildlife friendly agriculture projects.

  Schedule: Ongoing

- **State Water Resources Control Board** – State Water Resources Control Board will provide technical reviews of specific ERP project proposals and evaluate project merits in relation to other Bay-Delta Program projects.

  Schedule: Ongoing

- **Aquatic Restoration Planning and Implementation (ARPI)** (formerly called Yolo Basin Studies) – ARPI is designed to help carryout the ERP actions and programs in the Yolo Basin with local support. Pilot-scale restoration improvements and baseline studies were identified and will be implemented over the next several years. ARPI is working to incorporate bypass-scale restoration into the Sacramento Area Flood Control Agency's Lower Sacramento River Regional Project. Other ARPI work includes developing program alternatives for habitat restoration projects in cooperation with project biologists, Federal and State agencies, and local groups; collecting site data for habitat restoration projects; and carrying out environmental review and permitting.

  Schedule: Ongoing

- **Giant Garter Snake (GGS) and Wetland Dependent Species Conservation Strategy** – CDFG and USFWS will lead an effort to develop a multi-species, habitat-based conservation strategy approach focusing on GGS and other related-wetland dependent species. The giant garter snake conservation strategy will build upon the foundation of the USFWS Recovery Plan for the GGS; ERP Plan; the Draft Stage 1 Implementation Plan; and MSCS-ERP milestones for the species. The strategy is expected to identify a need to solicit proposals for specific activities during the first available PSP cycle in Year 4.

  Schedule: Completion in Year 4

- **Fish Passage Improvement Program (FPIP)** – CDWR leads the FPIP which is assisting with and conducting engineering and environmental evaluations for migration barrier structure removal or modification, including projects on Bay Area tributaries, Bay-Delta tributaries, Napa River tributaries, Butte Creek, Calaveras, Merced River, Stanislaus River, American River, and Yuba River.

  Schedule: Ongoing

- **Database Strategy Development and Implementation –** CDFG, CBDA, NOAA Fisheries, and USFWS will begin developing a comprehensive strategy to integrate the various existing ERP and ERP-related databases. Input from database users regarding their needs will be incorporated into this strategy. This database strategy will provide information to help provide region-specific implementation guidance, program tracking, and performance evaluations to support adaptive management.

  Schedule: Ongoing

Task: Research

- **Salmon and Steelhead Genetics Archive Support** – CDFG is coordinating this directed action to coordinate field sampling and tissue archive activities for the salmon and steelhead genetics program known as the Anadromous Salmonid Genetic Tissue Collection and Archiving Project. This project coordinates efforts to systematically collect samples throughout the Central Valley for genetic analysis and maintain a centralized archive of samples for future analytical needs.

  Schedule:

- **Upper Yuba River** – This effort is to carry out field studies and modeling to determine if introduction of wild Chinook salmon and steelhead to the Upper Yuba River watershed is biologically, environmentally, and socio-economically feasible over the long term. Study areas include water and sediment quality, water supply, economics and social impacts, flood risk assessment, and fisheries habitat upstream and downstream of Englebright Dam.

  Schedule:

Task: Implementation

- **Regional Coordination –** CDFG regional coordination staff participate in the ERP management framework to help ensure that their and CDFG's activities are coordinated and integrated with the activities of the other ERP Implementing Agencies. The regional coordinators and their DFG mangers participate in

Agency/Stakeholder Ecosystem Team meetings, ERP Implementing Agency Mangers meetings, and in Restoration Coordinator meetings in each of the ERP regions.

Schedule: Ongoing

- **Clear Creek Restoration** – This federal Central Valley Project Improvement Act (CVPIA) effort continues to implement Chinook salmon and steelhead habitat enhancement projects through partnerships with local landowners, public and private agencies, and universities. Restoration activities focus on channel restoration, adding spawning gravel, and erosion control. Final designs are being prepared for channel restoration and environmental permits are being obtained for Phase 3 of the four-phase project.

  Schedule: Ongoing

- **Anadromous Fish Restoration Program (AFRP)** – The CVPIA AFRP will continue to make reasonable efforts to at least double natural production of anadromous fish. To this end, AFRP will work with local watershed groups and other local partners to carry out locally developed and supported watershed restoration plans, giving priority to actions that restore natural channel and riparian habitat values.

  Schedule: Ongoing

- **Anadromous Fish Screen Program (AFSP)** – The CVPIA AFSP plans to screen 15 of the largest diversions on the Sacramento River as diverters volunteer and funds become available. Construction will continue on three more: Natomas Mutual Water Company, the city of Sacramento's Fairbairn Water Treatment Plan, and Sutter Mutual Water Company. Additional construction will be started on other high priorities along the Sacramento River.

  Schedule: Ongoing

- **Restoration of Riparian Habitat and Spawning Gravel** – This CVPIA program will fund gravel restoration projects on the Upper Sacramento, American, and Stanislaus rivers immediately downstream from Kewsick, Nimbus, and Goodwin Dams, respectively. Preliminary planning and engineering are underway in newly identified downstream areas to determine optimal gravel placement. Permits and environmental documents will be obtained and processed, engineering completed, and projects carried out.

  Schedule: Ongoing

- **Nonnative Invasive Species (NIS) Coordination** – USFWS will continue to work with the NIS Agency and Stakeholder Teams to implement and administer the NIS program, as developed and documented in the NIS Strategic and Implementation Plans.

  Schedule: Ongoing

- **Tracy Mitigation Program** – Tracy Program plans include funding 18 habitat enhancement projects within the ERP management zones during 2003-04. Projected FY 02-03 funding is $1.33 million. Current annual allocation to the Tracy Program is less than $800,000, however, future Tracy expenditures are anticipated to total approximately $5.8 million during 2003-07.

  Schedule: Ongoing

- **Four Pumps Agreement Mitigation Program –** CDFG, in partnership with CDWR and in collaboration with the Delta Pumps Fish Protection Agreement Advisory Committee, will continue to approve projects to mitigate unavoidable losses at the SWP export facilities.

  Schedule: Ongoing

- **Dedicated Project Yield** – This CVPIA program is to continue efforts associated with dedication and management of 800,000 acre-feet of Central Valley Project yield primarily for anadromous fish restoration as directed by the CVPIA. Operations studies will be conducted to support implementation of objectives established by the Department of the Interior. Agreements will be reached with DWR for their cooperation to support these objectives, including potential conveyance of water through state water project facilities. There will be special monitoring of certain actions to provide for adaptive management.

  Schedule: Ongoing

- **Water Acquisition** – This CVPIA program is to acquire water from willing sellers to help meet the fish doubling goals identified in the Anadromous Fish Restoration Program. Water will be acquired in the 18 tributaries of the Sacramento and San Joaquin rivers, ranked according to their biological priority.

  Schedule: Ongoing

- **Environmental Water Program** – The USFWS is the lead implementing agency working with CDFG and NOAA-Fisheries to carry out this program to acquire the 100 TAF annually by the end of Stage 1 on upstream tributaries to the Bay-Delta system to improve spawning and rearing habitat for salmonids and to implement ERP flow-related objectives on these tributaries. The EWP started initial outreach and coordination and has a goal of making one to three water acquisitions during Year 4. EWP anticipates making annual water acquisitions from 2004 through the end of Stage 1.

  Schedule: Ongoing

- **Other Central Valley Project Impacts** – This CVPIA program funds fee title acquisitions and conservation easements and restoration and management of habitats as well as surveys and studies for listed, proposed, or candidate species to facilitate better management decisions about acquisition, restoration, and management. Projects include two surveys for giant garter snakes and the captive breeding project for riparian brush rabbit.

  Schedule: Ongoing

- **San Joaquin River Riparian Habitat Restoration Program** – Among the budgeted items for Year 4 for this CVPIA program are public involvement, refining groundwater and surface water models, compiling and analyzing Geographic Information system data, implementing riparian restoration projects identified in the Firebaugh to Mendota Corridor Evaluation of Opportunities as well as throughout the program area, continuing the removal of exotic vegetation, and carrying out the restoration plan for the Milburn/Hansen Unit.

  Schedule: Ongoing

- **Control Discharges of Mercury from Mine Sites in Priority Watersheds –** The Central Valley Regional Water Quality Control Board (CVRWCQB) is leading this support for regulatory actions on inactive mercury mines in the Cache Creek and Delta watersheds. CVRWCQB staff will perform site assessments, write permits, and enforcement orders, and review monitoring and perform inspections.

  Schedule: Ongoing

- **San Joaquin Salinity and Selenium Reduction** – The San Joaquin Salinity and Selenium Reduction effort are designed to improve water quality in the San Joaquin River by implementing selenium and salinity control measures. This effort will include implementing projects to reduce drainage water, concentrate, treat, and use or dispose of remaining salts.

  Schedule: Ongoing

- **Dissolved Oxygen Project –** The CVRWQCB is leading the effort for regulatory actions, developing an implementation plan and identifying pilot-scale projects to correct the dissolved oxygen problem in the Stockton Deep Water Ship Channel. Major dissolved oxygen (DO) projects for Year 4 include an aeration scoping and feasibility study; developing a DO Implementation Plan and Implementation Strategy; conducting workshops about non-aeration alternatives; and completing a gap analysis to develop a solicitation package. The Bay-Delta Program is likely to sign an interagency agreement with the SWRCB to provide technical support to the DO projects; the CBDA may also identify directed actions for upstream monitoring and research.

  Schedule: Ongoing

- **Support for Land Acquisition-related Phase I Environmental Assessment Review** – This agreement allows CDWR to provide expert environmental site assessment-related services to CBDA for land acquisitions for approved ecosystem restoration projects purchased with CBDA or Resource Agency funds. These site assessments are necessary to limit future liability associated with the purchase of potentially contaminated properties.

  Schedule: Ongoing

- **Department of General Services Review of Appraisals** – CBDA maintains an account with the Department of General Services (CDGS) to cover expenses incurred by CDGS for review of appraisals required for acquisition projects funded through the CBDA or Resources Agency.

  Schedule: Ongoing

Task: Monitoring

- **Programmatic Quality Assurance and Quality Control for CBDA mercury research and monitoring projects** – CDFG will provide oversight and coordination for quality control and quality assurance of CBDA-funded mercury research and monitoring projects. With multiple projects and labs collecting and analyzing data, it is critical that the quality of the data is accurate and comparable between projects. CDFG oversight will include preparation of Quality Assurance Program Plan, management of Quality Assurance program, Method Detection Limit evaluation, and data set validation. An independent laboratory will perform interlab comparison studies, on-site lab assessments, and analysis of 5 percent field duplicates from the projects.

  Schedule: Ongoing

- **Real-Time Flow Monitoring** – CDWR is manages this project that continues the operation and maintenance of flow monitoring stations that are part of an effort to assess, acquire, and manage minimum base instream flows in five eastside Sacramento River tributaries.

  Schedule: Ongoing

- **Resource Assessment** – CDFG will provide staff for critical population monitoring and assessment of endangered salmon and steelhead resources within the Sacramento and San Joaquin River systems.

  Schedule: Ongoing

Task: Oversight and Coordination

- **University of California Merced Web-Based Proposal Submission, Review and Management System** – The University of California – Merced develops and maintains a web-based system for the submission and review of proposals submitted in response to ERP proposal submittal processes.

  Schedule: Completion in Year 6

- **University of California Davis Technical Support for Proposal Submittal Processes and Project Evaluations** – The University of California – Davis provides technical experts to review proposals, participate in panels evaluating projects submitted in response to ERP proposal submittal processes, and assess and report on projects funded by the ERP.

  Schedule: Completion in Year 6

- **Independent Science Board (ISB) Support** – The 12-member ISB provides expert advice on the development and implementation of the ERP. ISB members review ERP documents, advise ERP staff about critical scientific uncertainties, participate in adaptive management and other workshops, compile an annual ISB report about the ERP, attend scientific and technical meetings relevant to ERP, conduct limited data analyses or design review, and design adaptive management experiments for potential directed actions.

  Schedule: Ongoing

- **CBDA Environmental Request For Qualifications –** This Environmental RFQ was awarded to Jones and Stokes to support ERP activities in the following areas: (1) regulatory compliance, program documentation, and mitigation monitoring; (2) conducting scientific, technical, and issue-specific workshops and related activities, including dissolved oxygen, DRERIP technical tools, and science; (3) developing public information and educational materials and conducting outreach events; (4) developing conflict resolution strategies and other dispute resolution activities; (5) assisting in program tracking and performance measure development; and (6) providing program support such as conducting technical studies, supporting annual implementation plan development, as well as specific ecosystem restoration programs and projects.

  Schedule: Ongoing

- **Program Coordination –** The ERP relies on a variety of groups and mechanisms to ensure that the program is proceeding with a balanced approach, is based on science and is addressing priority actions. CBDA coordinates these processes, including the Agency/Stakeholder Ecosystem Team, the Independent

Science Board, the Ecosystem Restoration Subcommittee of the Bay-Delta Public Advisory Committee, and scientific standing review panels. CBDA provides leadership in developing strategic frameworks, such as for non-native invasive species, and coordinates multi-entity implementation of frameworks, such as the recently developed mercury strategy. CBDA maintains a website and tracking information for coordinated communication.

Schedule: Ongoing

Integration with the Science Program

The ERP is committed to a science-based, adaptive management approach to ecosystem restoration. Ensuring the scientific credibility of the ERP is an important responsibility of the CBDA and the Implementing Agencies because a science-based approach will help maximize the effectiveness of the ERP and build confidence and support for the program's efforts.

The ERP is coordinating with the Science Program to incorporate review, insights, and advice from independent science experts to ensure that the best possible scientific information guides decision-making within the ERP and within programs linked to the ERP. The Science Program's approach for incorporating independent science expertise involves four levels of working groups along with independent peer review by individuals: a the California Bay-Delta Program-wide Executive Science Board, program-specific Science Boards[1], Standing Boards[2], and Technical Panels.

The ERP uses various science boards and panels, and overlap in membership across the panels provides panelists with an increased understanding of ERP-wide issues. The ERP's Independent Science Board (ISB) consists of 13 international and local experts. ERP standing boards (or panels) include the Proposal Selection Panel, the Stockton Dissolved Oxygen Review Panel, the Upper Yuba River Studies Technical Review Panel, the Mercury Peer Review Panel, and the Adaptive Management Forum for Large-Scale River Restoration. The ERP plans to initiate additional standing review panels within the next year including a Wetland and Floodplain Restoration Standing Review Panel and a Sacramento River Corridor Restoration Standing Review Panel.

In Years 1 and 2, the ERP provided more than $15 million to the Science Program to support scientific studies associated with restoration. The ERP and Science Program have worked together to support the ERP's Independent Science Board (ISB). The Science Program is involved in ERP efforts such as the Agency/Stakeholder Ecosystem Team (ASET), provided assistance in developing the *Draft Stage 1 Implementation Plan*, assists with external scientific review and research technical review for proposals, and many more scientific review coordination efforts.

Several linkages exist between the ERP Implementing Agencies and the Science Program to ensure integration and coordination of resource management, policy decision-making, and science program activities. DFG, USFWS, and NOAA Fisheries are member agencies of the Interagency Ecological Program (IEP) of the Sacramento-San Joaquin Estuary. The Science Program is integrated with the IEP at various levels within the IEP organization and is represented in the IEP Science Advisory Group and Agency Coordinators. The Science Program provides input to the IEP work plan and provides updates of its activities at the

[1] Science Boards advise programs regarding the application of science and effectiveness of science practices within that program.

[2] Standing Boards combine the expertise and experience of individuals who together can represent the range of interdisciplinary knowledge of the variety of issues and challenges that converge in a program, a complicated issue, a specific region (e.g., the Delta), or a circumstance where multiple issues need to be addressed.

annual IEP conference. In conjunction with the Anadromous Fish Restoration Program, the Adaptive Management forums for Clear Creek and the Tuolumne and Merced rivers, and independent review processes within both the ERP and Science programs.

Performance Indicators

The Science Program has asked each Bay-Delta Program element to develop plans to develop performance indicators by fall 2003. The ERP has been involved in developing indicators since 1996, along with major participation from agencies, stakeholders, and other interested parties. A framework of desired ecosystem attributes and associated measurable parameters was developed to provide an organized approach to selecting indicators. The framework was further organized by geographic areas. Anthropogenic stressors were then overlaid on the framework suggesting areas of ecological strengths and weaknesses. Using this framework, a slate of about 150 indicators was selected.

These efforts stalled as the Science Program came on line and developed guidance for indicator development. In response to the recent request, and following the guidance from the Science Program, the ERP is convening an indicators workgroup to document the conceptual models applied in the indicators selection process and to further focus the indicators to reflect the ERP goals and objectives, which were developed subsequent to the indicators framework effort.

In context of the Multi-Species Conservation Strategy, species life histories models coupled with ecological process models emerge as good components for the conceptual models needed for indicator selection rationale. This corresponds with the conceptual models being developed by the Delta Regional Ecosystem Restoration Implementation Plan work group. Members of both work groups are organizing technical workshops to develop life history and ecological process conceptual models that will be used to vet potential program actions in the Delta region. The workshops are scheduled to take place between August, 2003 and January, 2004.

In those regions outside of the Delta, the work group anticipates focusing on selected representative indicators and utilizing existing work to document the rationale. Where possible, the selected indicators will be a continuum to the indicators selected for the Delta, such as salmon escapement, water temperature, and miles of riparian habitat.

The indicators work group anticipates developing a draft work plan early in Year 4 to present to the Independent Science Board and CBDA stakeholders for their review. The ERP expects to have completed and begun implementing the work plan by the Science Program's fall 2003 deadline.

Cross-Program Relationships

Environmental Water Account (EWA) – Ensuring that the short- and long-term water management efforts of the projects protect the ecosystem or are consistent with or complementary of the ERP is a key linkage that will be the responsibility of CDFG, NOAA Fisheries, and the USFWS.

EWA Implementing Agencies are CDWR, USBR, USFWS, NOAA Fisheries, and CDFG. USFWS, NOAA Fisheries, and CDFG are also ERP Implementing Agencies.

Storage, Conveyance, and Conjunctive Use – Ensuring that the short- and long-term water management efforts of the projects protect the ecosystem or are consistent with or complementary of the ERP is a key linkage that will be the responsibility of CDFG, NOAA Fisheries, and the USFWS.

Many planned Conveyance Program actions could have ecosystem impacts that will be addressed in project-specific environmental documents. Planned Conveyance Program actions include constructing a new screened intake at Clifton Court Forebay, increasing SWP pumping, constructing operable barriers on the south Delta, revising Delta Cross Channel (DCC) operation, and implementing restoration efforts as part of the North Delta Flood Control and Ecosystem Restoration Improvement Program. ERP involvement in the North Delta Flood Control and Ecosystem Restoration Improvement Program planning efforts includes ongoing participation on the North Delta Agency Team and recently increased communication among ERP agency scientists and North Delta Program staff.

The ERP Implementing Agencies engage in the Storage program through their regulatory processes, participating on technical panels, and in their efforts to develop and share science supporting Storage Program decisions.

Water Transfer – The EWA, ERP, and the Environmental Water Program (EWP) are all interconnected by the shared goal of recovering at-risk fish species. There are undeveloped opportunities for cross-program linkages between ERP and the Water Transfer Program. To develop cross-program linkages, the EWP developed a process for selecting pilot water acquisitions that includes a related program coordination plan (potential EWP projects will be evaluated by staff from all programs that seek to acquire or transfer water).

Drinking Water Quality (DWQ) – The ERP has worked closely with the DWQ Program in developing information and selecting projects to address water quality issues that impact both ecosystem and human health. For example, ERP coordinates its San Joaquin Salinity and Selenium Reduction activities with DWQ. To date, the ERP has invested over $44 million in water quality projects, many of which have drinking and environmental water quality benefits. In addition, ERP investments in other areas, such as watersheds and wildlife-friendly agriculture, are likely to reduce organic inputs and chemical run-off from urban and agricultural sources and therefore improve drinking water quality. An example of an ERP project that meets both ERP and DWQ goals is the *Feasibility Study of the Ecosystem and Water Quality Benefits Associated with Restoration of Franks Tract, Big Break, and Lower Sherman Lake.*

In cases where ERP investments may adversely affect drinking water quality, the ERP has invested in research and monitoring to better understand potential effects. The ERP has invested over $10 million in six different research projects that investigate the potential impacts to drinking water from wetland restoration and organic carbon as a food resource for the aquatic ecosystem.

Water Use Efficiency (WUE) – Improvements in water use efficiency have the potential to benefit aquatic habitats, through improvements in both the quality and quantity of instream flows. The water use efficiency investments take place at the local level, and to that end, the Implementing Agency's regional coordinators play a significant role in the ERP-Water Use Efficiency Program linkage.

Watershed – Prior to the Watershed Program developing its ability to provide funding, the ERP funded capacity building for local watershed groups. Now that the Watershed Program funds such capacity building, the ERP has focused on funding restoration projects developed in support of local watershed plans. Complementary efforts in numerous watersheds have been funded by both programs through close collaboration during project selection processes. Two ERP Implementing Agencies (DFG and USFWS) are also Implementing Agencies for the Watershed Program.

The ERP established the EWP to acquire water on upstream tributaries to the Bay-Delta system to improve spawning and rearing habitat for salmonids and to implement ERP flow-related objectives on these tributaries. EWP water acquisitions will use communication networks established by prior ERP and continuing Watershed efforts.

Levee System Integrity – The ERP has invested more than $85 million in at least 31 projects related to the Levee System Integrity Program, including projects that specifically address levee system integrity and others that help the Levee program meet its habitat enhancement requirements for levee maintenance. An example of an ERP project that meets both ERP and Levee System Integrity needs is a *Feasibility Study of the Ecosystem and Water Quality Benefits Associated with Restoration of Franks Tract, Big Break, and Lower Sherman Lake*. A wildlife-friendly levee habitat restoration and management project on McCormack-Williamson Tract may also contribute to improved levee system integrity.

Stage 1 Funding

Ecosystem Restoration Funding ($ in millions)	Program Year							Total
	1	2	3	4	5	6	7	
State	$64.24	$148.16	$140.00	$129.23	$97.07	$1.61	$1.61	$581.92
Federal	$11.49	$3.49	$4.87	$2.89				$22.74
Local/Water User	$32.64	$51.53	$41.30	$41.33	$20.00			$186.80
Revised Stage 1 (Actual & Expected Funding) [1]	**$108.37**	**$203.18**	**$186.17**	**$173.45**	**$117.07**	**$1.61**	**$1.61**	**$791.46**
Original ROD (Aug, 2000) [2]	**$235.0**	**$198.0**	**$163.0**	**$168.0**	**$220.0**	**$218.0**	**$218.0**	**$1,420.0**
Revised ROD (Dec, 2002) [3]								**$1,420.0**

[1] Funding for Years 1-2 reflects actual State encumbrances & expenditures and federal obligations. Funding for Year 3 reflects final State and Federal budgets. Funding for Year 4 reflects proposed Governor's and President's budgets. Expected funding in Years 5-7 includes remaining state bond funds until spent and ongoing State base funding, plus estimates for local matching to grants for years where bond funding is available. Federal appropriations for Years 5-7 are unknown; therefore, federal funding is not included beyond Year 4.

[2] Original Stage 1 funding estimates from the Record of Decision.

[3] ROD estimates have not been revised and remain targets for program funding. The Stage 1 estimates included in the January 2003 program tracking report are the same as the ROD.

Stage 1 Funding by Task

Ecosystem Restoration Funding ($ in millions)	Program Year							Total
	1	2	3	4	5	6	7	
Planning	$2.73	$9.36	$11.41	$7.76	$4.85	$0.83	$0.83	**$37.77**
Research	$1.21	$3.71	$1.90	$3.33	$1.03			**$11.18**
Implementation	$102.43	$180.65	$165.02	$157.90	$104.85	$0.25	$0.25	**$711.35**
Monitoring		$3.65	$3.13	$1.71	$2.43			**$10.92**
Oversight & Coordination	$2.00	$5.81	$4.71	$2.75	$3.91	$0.53	$0.53	**$20.24**
Revised Stage 1 (Actual & Expected Funding) [1]	**$108.37**	**$203.18**	**$186.17**	**$173.45**	**$117.07**	**$1.61**	**$1.61**	**$791.46**
Original ROD (Aug, 2000) [2]	**$235.0**	**$198.0**	**$163.0**	**$168.0**	**$220.0**	**$218.0**	**$218.0**	**$1,420.0**
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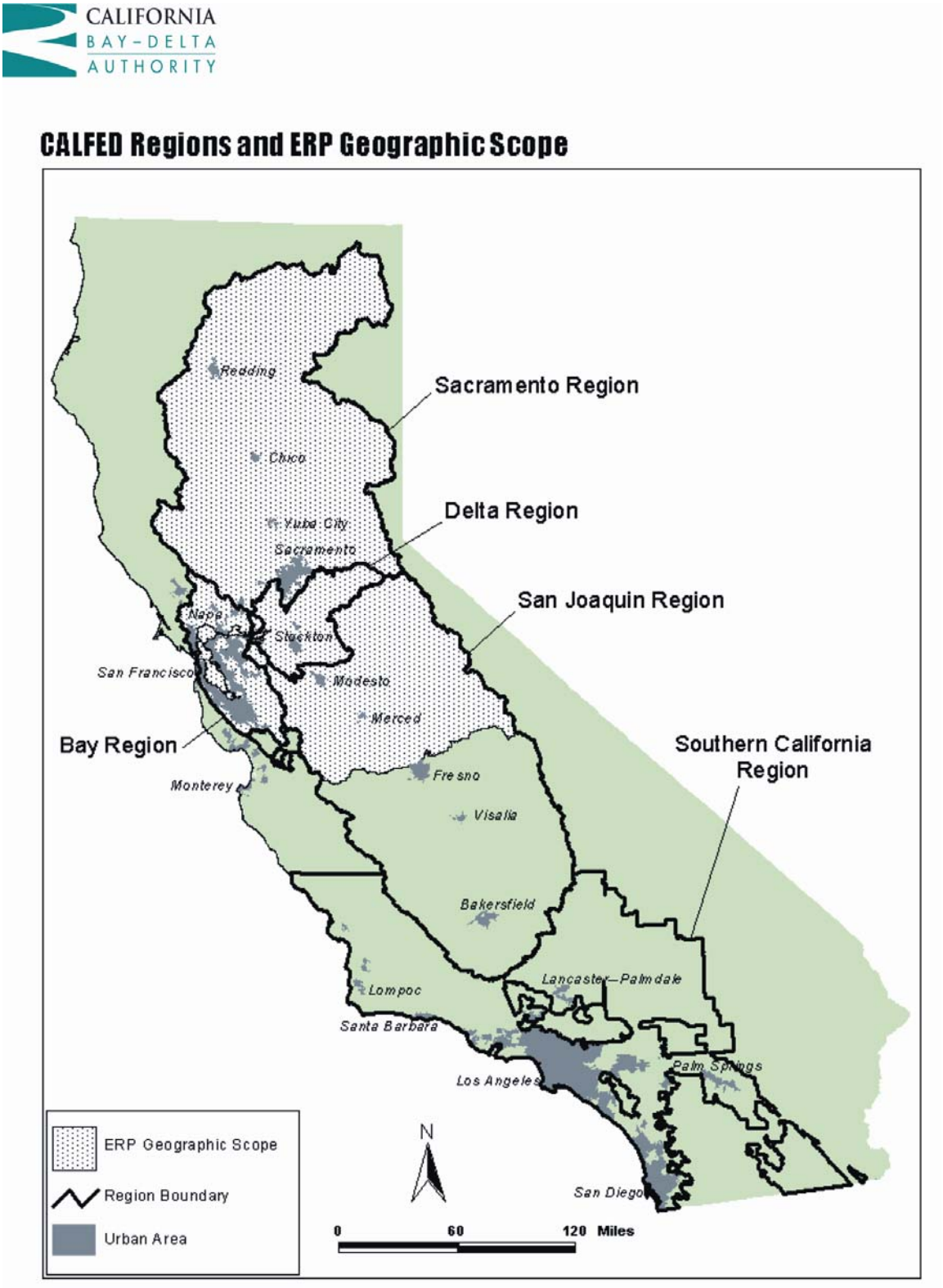
Project Map


CALIFORNIA
BAY-DELTA
AUTHORITY
CALFED Regions and ERP Geographic Scope
Sacramento Region
Delta Region
San Joaquin Region
Bay Region
Southern California Region
Redding
Chico
Yuba City
Sacramento
Napa
Stockton
San Francisco
Modesto
Merced
Monterey
Fresno
Visalia
Bakersfield
Lompoc
Santa Barbara
Lancaster–Palmdale
Palm Springs
Los Angeles
San Diego
ERP Geographic Scope
Region Boundary
Urban Area
N
0
60
120 Miles

Addendum to
Ecosystem Restoration Program (ERP)
Multi-Year Program Plan
and
Year 4 Work Plan

July 18, 2002

Contents

Introduction

This is an addendum to the Multi-Year Program Plan for the Ecosystem-Restoration Program Element of the California Bay-Delta Program (formerly CALFED). This document provides background information regarding the Ecosystem Restoration Program (ERP) the reader may find helpful regarding ERP implementation, approaches, and funding.

Design of ERP:

- To maintain, improve, and increase aquatic and terrestrial habitats and improve ecological functions in the San Francisco Bay and Sacramento-San Joaquin Delta (Bay-Delta) to support sustainable populations of diverse and valuable plant and animal species.
- To achieve recovery of at-risk species dependent on the Delta and Suisun Bay, as identified in the Bay-Delta Program's programmatic Multi-Species Conservation Strategy (MSCS), and support the recovery of at-risk species in San Francisco Bay and in the watershed above the estuary.
- To restore ecological processes associated with streamflow, stream channels, watersheds, productivity, and floodplains. The ERP, along with the Environmental Water Account, are vital to sustaining programmatic Federal Endangered Species Act, California Endangered Species Act, and Natural Community Conservation Plan compliance for all Bay-Delta Program elements.

The Implementing Agencies—California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries)—have a leadership role in planning and meeting ERP goals and objectives. Existing long-term planning documents that will guide the Implementing Agencies include:

- the CALFED Record of Decision (ROD, August 28, 2000),
- the ERP Strategic Plan for Ecosystem Restoration,
- the Ecosystem Restoration Program Plan, Volumes I and II,
- the Multi-Species Conservation Strategy,
- the environmental water quality elements of the Water Quality Program Plan (the last four documents are parts of the CALFED Bay-Delta Program final programmatic environmental impact statement/environmental impact report dated July 21, 2000); and
- USFWS' Final Restoration Plan for the Anadromous Fish Restoration Program is another long-term planning document that helped to inform development of the ERP planning documents and implementation of the ERP .

Each of these long-term planning documents covers the 30-year implementation period, during which the ERP will use an ecosystem-based adaptive management approach.

Short-term planning documents include:

- Draft Stage 1 Implementation Plan (August 2001). This plan presented the restoration and data gathering priorities for the ERP during years 2 through 7 of Stage 1. Elements of this plan will be continuously refined through independent scientific review and regional planning processes. These processes help to establish the actions and data gathering efforts needed to conform to the regulatory commitments contained in the ROD as well as to meet regional restoration and science needs.
- Year 2 Annual Work Plan and Budget for Implementing the Single Blueprint for Ecosystem Restoration,
- The Program Assessment and Work Plan for the Ecosystem Restoration Program – Year 3, and
- The Year 4 Annotated Budget for Implementing the Single Blueprint for Ecosystem Restoration.

Collectively, these long and short-term planning documents form and articulate the "Single Blueprint" concept for restoration and species recovery within the geographic scope of the ERP. The purpose of the Single Blueprint is to provide a unified and cooperative approach to restoration. The Single Blueprint helps ensure coordination and integration, not only within the Bay-Delta Program, but between all resource management, conservation, and regulatory activities affecting the Bay-Delta system. In the past, there has been a significant effort to improve coordination between restoration programs, particularly between the ERP and restoration programs implemented by the USFWS and the U.S. Bureau of Reclamation pursuant to the Federal Central Valley Project Improvement Act (CVPIA). It is the intent of the Implementing Agencies to seek additional opportunities for integration of other programs to facilitate the Single Blueprint.

Institutional Structure

Three agencies are responsible for implementing the ERP in coordination and along with oversight by the California Bay-Delta Authority; these are: CDFG, USFWS, and NOAA Fisheries. The California Bay Delta Authority Act of 2003 defines implementing agencies as those agencies with the primary responsibility for carrying out the program elements.

Agency Roles

California Department of Fish and Game. CDFG is the only state agency designated as an implementing agency for the ERP. As such, CDFG is the state agency responsible for regional restoration coordination including restoration planning, project implementation and monitoring, and administrative support for the ERP. To meet this responsibility, CDFG has almost 30 people, mostly environmental scientists, assigned to ERP-funded projects or assisting with ERP-related programs.

- Six environmental scientists within CDFG are assigned to collaborate on regional restoration coordination throughout the Central Valley to ensure restoration planning, implementation, and monitoring for Central Valley fish and wildlife and their habitats are consistent with the ERP's Single Blueprint. These Restoration Coordinators participate in the Restoration Coordinator meetings described below under "Structure."

- An environmental scientist supports the Interagency Ecological Program (IEP) Program Manager to ensure closer collaboration between IEP and Bay-Delta Program.
- Seven environmental scientists and one Research Analyst specializing in GIS support are assigned to provide the primary staff for preparing the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP). That team will transition into implementation support and ongoing plan refinement once the plan is completed and approved.
- Two biologists and two environmental scientists provide the primary staff for preparing the Suisun Marsh Regional Ecosystem Restoration Implementation Plan (SMIP). They also are helping to implement fish and wildlife habitat restoration projects in the Suisun Marsh and monitor the success of those projects toward addressing the ERP strategic goals for the Suisun Marsh.
- Two environmental scientists are assigned to coordinate ecosystem restoration concerns with conveyance, levee, and in-Delta storage planning efforts.
- An environmental scientist is responsible for providing state-wide coordination of invasive exotic species issues related to Bay-Delta Program.
- One Staff Environmental Scientist provides regional implementation coordination, including coordination with existing CBDA staff.
- One Associate Governmental Program Associate position to assist with contract/grant processing and monitoring, one Management Service Technician position to provide administrative technical support in the areas of procurement, accounting and budgets, and one Office Technician that provide clerical support to program staff. Finally, a Staff Counsel and Senior Typist provide legal review in support of ERP implementation.

CDFG is currently seeking the additional staff and funding needed to allow it to transition into an increasingly larger role in contract management and ecosystem project oversight in support of the ERP PSP process. If those additional resources can be obtained, by the middle of Year 5 CDFG will begin to take on management and tracking ecosystem restoration grants.

CDFG also plans on redirecting other existing staff to ERP regional ecosystem restoration planning activities, implementation support and coordination, and monitoring. By the end of Year 4, more specific staffing strategies will be in place to allow these staffing shifts to occur during Year 5.

U.S. Fish and Wildlife Service. The USFWS is one of two Federal agencies responsible for implementing the ERP, as described in the ROD. The USFWS shares responsibility with NOAA Fisheries in administering the Federal Endangered Species Act (FESA), and as such, oversees endangered species compliance for listed non-anadromous fish as well as listed wildlife. USFWS assists in managing the ERP through participating in the ERP Implementing Agency Manager's Group and in various staff level oversight and coordination groups. USFWS also attends meetings of the Ecosystem Restoration Subcommittee, ASET, and other related subcommittees, as appropriate to coordinate issues relevant to fish and wildlife resources. USFWS is active in assisting in developing indicator

and performance measures for the ERP and is active in regional ecosystem restoration programs, such as the DRERIP and the Suisun Marsh restoration program. USFWS is the lead agency in managing the Environmental Water Program for the ERP, and also manages complementary water acquisition programs for fisheries and wetlands under the Central Valley Project Improvement Act (CVPIA). USFWS also manages the Anadromous Fish Restoration Program (AFRP) under the CVPIA. Five Habitat Restoration Coordinators (HRCs) from AFRP are assigned to geographic regions and represent AFRP and ERP in developing and nurturing partnerships and working with local entities to identify priorities and develop projects.

AFRP also contracts with CDFG to employ four additional regional HRCs to represent AFRP, ERP and CDFG. AFRP HRCs assist ERP with management, review, and coordination of ERP projects. These duties entail product review, ERP-grantee coordination, amendment assistance, and general coordination. All AFRP HRCs are involved in identifying program gaps and needs and are leading this exercise, which will be expanded to include other agencies in the next phase. USFWS HRCs also participate in the HRC meetings described below under "Structure."

The USFWS coordinates Bay-Delta Program's Non-native Invasive Species Program (NISP). The NISP tasks include providing coordination to agency and stakeholder groups to carry out NIS projects, as developed in the NIS Strategic and Implementation Plans, manage contracts for designated NIS projects, provide CBDA staff and other stakeholders with NIS information and materials, as well as provide technical assistance and coordination to regional efforts and watershed groups.

USFWS scientists are part of the IEP and coordinate the Delta Juvenile Fish Monitoring Program, as well as being involved with the PSP working group and the MSCS Interagency Team (MIT).

NOAA Fisheries. NOAA Fisheries is a signatory to the ROD, and is one of the Federal Implementing Agencies for Bay-Delta Program, including ERP. NOAA Fisheries also has FESA responsibilities for anadromous fish. NOAA Fisheries participation in the Bay-Delta Program happens at both the management and staff levels. At the management level NOAA Fisheries participates on the Management Team, ERP Implementing Agencies Managers group, the Key Integrated Milestones group, ASET, ISB meetings, and the Ecosystem Restoration Subcommittee. NOAA Fisheries management staff makes recommendations, provides oversight and coordination efforts through these management level groups, and assigns appropriate staff to various working groups in the ERP.

At the staff level, NOAA Fisheries assists in planning and provides oversight and coordination through the ERP Technical Working Group, the ERP Adaptive Management Planning Team (AMPT), the DRERIP process, the PSP Working Group, the MSCS Interagency Team (MIT), ASET, ISB meetings, Performance Measure Workshops, and Operating Criteria and Plan (OCAP), Environmental Water Account (EWA), and Salmon Science workshops, and various other meetings, including the Ecosystem Restoration Subcommittee. NOAA Fisheries also participates in all PSP reviews, providing recommendations on proposal adequacy and for funding.

NOAA Fisheries Southwest Fisheries Science Center (SWFSC) in Santa Cruz conducts research and contributes to planning, coordination and oversight to the ERP, mainly by working with the Bay-Delta Program Science Program, contributing to development of performance measures and coordinating a salmon science workshop aimed at recovery planning.

In addition to management representation, NOAA Fisheries carries out Bay-Delta Program tasks through a team of four biologists, assigned to cover the four regional planning areas in the ERPP. These biologists coordinate with CDFG's Regional Coordinators, and USFWS's AFRP HRCs and provide planning, oversight, and coordination to the ERP, as well as conduct ESA consultations on actions that may effect federally listed anadromous fish or their habitat. This does not include research, oversight, planning, and coordination provided by the SWFSC, which generally consists of participation of two scientists.

California Bay-Delta Authority. The CBDA was established by the California Bay-Delta Authority Act, signed into law on September 23, 2002, and effective January 1, 2003. The act establishes the roles and responsibilities of the CBDA and lists the implementing agencies for each Bay-Delta Program element. ERP Implementing Agencies are responsible for carrying out the program's goals and objectives and the CBDA is responsible for overseeing and coordinating and those efforts. In addition to its oversight and coordination responsibilities, the CBDA is charged with providing accountability to legislative bodies and the public; ensuring balanced implementation of the Program; providing Program tracking, monitoring, and assessment; providing the use of sound, consistent science across all Program elements; assuring public involvement and outreach; and coordinating and integrating existing and future government programs to advance Program elements.

Because ERP implementation started in 1995, and because the ERP had a well developed institutional structure prior to the California Bay-Delta Authority Act, the Implementing Agencies are gradually assuming responsibilities for implementing the program. In year 4, CBDA staff will continue to have a role in implementing the program as the Implementing Agencies develop capacity to assume their new responsibilities.

Structure

The Implementing Agencies and the CBDA developed an institutional structure for both the programmatic and process or project-specific levels. The programmatic-level structure focuses on coordinating planning and implementing the ERP as a whole and in each of the ERP regions. The structure includes participating in the Implementing Agency Managers meetings and in Restoration Coordinator meetings in each of the ERP regions. Each of these groups is described in the following paragraphs. The ERP Implementing Agency Managers is a group of managers from the ERP Implementing Agencies. The Implementing Agency managers meet weekly with the CBDA Deputy Director for Ecosystem Restoration to ensure coordinated implementation and planning for the ERP, and specifically to guide the activities of the Restoration Coordinators.

The Restoration Coordinators are composed of Restoration Coordinators from the Implementing Agencies and the ERP. These Restoration Coordinators are assigned to geographic regions throughout the ERP's focus area. Within their assigned regions, the Restoration Coordinators represent their respective agencies and the ERP in developing and

nurturing partnerships, working with local entities to identify priorities and encourage project development that contribute to ERP goals, and overseeing implementation of projects in which the ERP invests funds. Other Implementing Agency staff also support ERP implementation, and their activities are integrated into and coordinated with regional coordination efforts. The Restoration Coordinators from all four regions meet quarterly to coordinate activities throughout the ERP focus area. The coordinators in each of the ERP regions meet bimonthly to coordinate their activities within their regions. Details are still being worked out regarding how and by which agency these bimonthly meetings will be run and it is likely that the CBDA will take the lead at least through the transition period. The Implementing Agency Managers and the CBDA Deputy Director for Ecosystem Restoration direct the Restoration Coordinators.

Process or project-specific levels of participation focus on specific processes such as contract management, or on projects such as the Upper Yuba River Studies Program. Specific examples of activities include the ERP Contract Amendment Workshops, the ERP Contracts Administrators meetings, the DERIP Steering Committee meetings, and the Upper Yuba River Studies Program Agency Team meetings.

In addition to the Implementing Agencies and the CBDA, three groups are focused on contributing to the integrity of ERP implementation. These groups the ERP's Independent Science Board (ISB), the AgencyStakeholder Ecosystem Team (ASET), and the Ecosystem Restoration Subcommittee of the California Bay-Delta Public Advisory Committee (BDPAC). A brief summary for each of these groups is provided below. Other groups also contribute to the integrity of ERP implementation, but these groups are not focused on the ERP. They include the full BDPAC and its other subcommittees, especially the Working Landscapes and Environmental Justice subcommittees, and numerous local and regional groups. Only the Working Landscapes Subcommittee is discussed below; other BDPAC subcommittees are discussed elsewhere in this document. Other groups that contribute to the ERP are not individually named here.

Independent Science Board. The ERP's ISB is a standing committee of independent scientists who provide scientific review and advice to the CBDA and the Implementing Agencies. The ISB is composed of recognized experts from many scientific disciplines associated with the Bay-Delta ecosystem. The tasks affiliated with the ISB include reviewing scientific findings, developing restoration guidelines, establishing restoration priorities, designing restoration actions to maximize their information value, and identifying needs for monitoring and research. ISB participation in ERP activities includes both formal recommendations and informal advice.

The ISB meets periodically to assist ERP by providing scientific advice and guidance with a management orientation. Specifically, the ISB assists with:

- Establishing a solid scientific and technical foundation for the ERP;
- Providing scientific review, advice, and guidance;
- Helping integrate ecosystem-based adaptive management into how the ERP is carried out; and

- Engaging the scientific and technical questions that are at the root of policy issues and to help set ERP priorities.

The Science Program also relies on the ISB to assist with scientific review and evaluation of science throughout the Bay-Delta Program. The ISB serves as a *de facto* Bay-Delta Program Science Board in lieu of a standing committee to serve that purpose.

Agency/Stakeholder Ecosystem Team (ASET). ASET is a group of agency and stakeholder scientists and managers that meet monthly to help coordinate agency activities with ERP activities; act as a conduit for information to their agencies and organizations; and help prepare, review, and comment on ERP work products. ASET includes agencies that contribute to ERP implementation although they are not assigned as implementing agencies as well as the CBDA Lead Scientist and the chairs of the ISB.

Ecosystem Restoration Subcommittee. The Ecosystem Restoration Subcommittee reports to BDPAC, formed as a federal public advisory committee chartered by the Department of the Interior to advise the Bay-Delta Program. The role of this subcommittee is to provide BDPAC with guidance and advice regarding ERP and related Bay-Delta Program activities. Other activities include information exchange, issue analysis, and fact-finding. The subcommittee's responsibilities are solely advisory. Issues the subcommittee routinely addresses include:

- ERP implementation as described in the June 2000 Programmatic EIS/EIR and the August 2000 ROD;
- ERP regional restoration and implementation plans, and promoting local and regional partnerships;
- ERP budgets, staffing, and project management activities;
- Adaptive management activities and performance evaluation;
- Environmental Water Program; and
- Cross-program coordination and integration.

The Ecosystem Restoration Subcommittee developed two desired outcomes reports for ERP during Year 3. These reports, a majority report and a minority report, articulate what the Ecosystem Restoration Subcommittee views as the desired outcomes of the ERP regarding areas of process, implementation, funding, and administration. While similar in many aspects, there are significant differences between the two reports. Initially drafted in August 2002, the two reports reflect strongly held viewpoints regarding specific implementation outcomes. Both reports, and the differences, are summarized in the following paragraphs.

Both reports acknowledge that decisions regarding governance, budgets and other matters may influence how these outcomes are achieved. Subsequent to the subcommittee drafting its desired outcomes, both Proposition 50 and the California Bay-Delta Authority Act passed. The Proposition and Act affect the funding available and the manner in which the ERP proceeds. Budget and the State's hiring freeze have also affected the rate of progress. ERP is committed to addressing these outcomes in a manner consistent with the CBDA Act.

Process. Both reports agree about broadening and deepening ERP planning and performance evaluation functions. These include refining the process for regional strategies and local partnerships in carrying out ERP. This refined process is to be included in the Draft Stage 1 Implementation Plan. The objective, to draft a regional implementation plan for one region during Year 3, is likely to be met through the draft DRERIP.

Completing Phase 3 of the "Look Back" exercise, which involves a comprehensive evaluation of all ERP projects, is another outcome listed by the Subcommittees' reports. This evaluation will assist with the third desired outcome for processes, which includes (1) refining and quantifying ecosystem performance metrics, (2) refining management hypotheses, (3) and developing an adaptive management decision making process.

*Implementation***.** The most significant divergence between the majority and minority reports is in incrementally achieving ROD ERP commitments and MSCS milestones for ecosystem restoration and species recovery in all categories. The majority report specifies the desired outcome of acquiring up to 45,000 acre-feet of water in upstream tributaries by the end of Year 3 and acquiring at least 15,000 acre-feet for the rest of Stage 1. The minority report advocates developing and carrying out a pilot water acquisition program for upstream tributaries and high priority watersheds, but does not specify an amount of water to achieve this.

The other issue related to implementation is dealing with habitat restoration, protection, and enhancement. Again, the majority report specifies target amounts based on Stage 1 acreage targets: three-sevenths of Stage 1 habitat acreage by the end of Year 3 and one-seventh Stage 1 acreage targets per year for the remaining years. The minority report recommends focusing on aquatic species of special concern and attaining three-sevenths of Stage 1 acreage targets where "such efforts are necessary to increase populations." The ERP expects to better track progress toward targets through the "Look Back" exercise and with assistance from the Restoration Coordinators.

Funding. Both versions of desired outcomes address pursuing long-term funding and developing continuous funding for ERP implementation activities. The majority report advocates allocating part of ERP funds to the Environmental Water Program while the minority report advocates funding a pilot Environmental Water Program. The majority report supports developing state legislation to create a broad-based user fee while the minority report supports bringing the debate to BDPAC. Proposition 50 contributed funding that should help support the ERP through Year 5. Long-term funding has not been attained.

Administration. Both the majority and minority desired outcome reports support full staffing of ERP and Bay-Delta Program, allowing the ERP manager to manage and direct ERP staff and activities and ERP-related activities as a single unit and to work on solving the contracting bottleneck, with the goal of having contracts in place no later than six months after contract decisions are made. The CBDA Act identified roles for agencies in implementing and overseeing the ERP. The implementing agencies and CBDA are transitioning into their roles as defined in the Act (please see "Institutional Structure" for more information). All agencies hope that the newly-defined roles will facilitate improvements in the contracting process.

Working Landscapes Subcommittee. Although not specifically a part of the ERP institutional structure, another BDPAC subcommittee in which the ERP and CDFG participate is the Working Landscapes Subcommittee. This subcommittee provides advice and guidance to BDPAC to ensure that the Bay-Delta Program's implementation values the role of private land owners and operators in meeting Bay-Delta Program objectives.

The ERP already pursues many of the subcommittee's recommendations through its current activities. For example, the 2002 PSP placed a priority on developing wildlife friendly agriculture programs and on research to better understand relationships between farming and wildlife habitat. Funded Year 2 and 3 projects that exemplify a working landscapes approach include the San Joaquin Resource Conservation District's *Lower Mokelumne River Riparian Habitat Restoration and Monitoring* project, a farmer-initiated effort developed in cooperation with the Lodi-Woodbridge Winegrape Commission; Ducks Unlimited's *Staten Island Wildlife-Friendly Farming Demonstration;* three projects to acquire conservation easements that maintain environmentally sensitive farms and ranches in the Butte and Battle Creek watersheds and the Delta; and University of California at Davis' research on the ecological and economic costs and benefits of conservation tillage, cover cropped systems, and other alternative agricultural practices. Projects like these will likely continue to remain priorities of future PSPs.

The Working Landscapes Subcommittee's "Framework Project Development and Selection Proposal" recommends an approach to soliciting and selecting projects for $20 million of Proposition 50 ERP implementation funds that are earmarked for projects to assist farmers in integrating agricultural activities with ecosystem restoration. The subcommittee's proposal will help guide how working landscapes projects are selected for ERP funding, a primary way the ERP will address the subcommittee's interest in supporting local working landscapes projects and coordinating funding and other activities that support working landscapes approaches to achieving Bay-Delta Program goals. The subcommittee is also discussing approaches to easing concerns about how ecosystem restoration may affect environmental regulation of private lands and the mitigation of other program impacts to agricultural land. In Year 4, the subcommittee plans to assess how Bay-Delta Program projects are affecting farmland, examine approaches to evaluating these impacts' significance, and further outline measures for minimizing adverse effects. The subcommittee's recommendations can help shape the ERP's implementation, especially the program's selection of projects that receive ERP funds and the conditions of their approval.

Strategy

The Strategic Plan for Ecosystem Restoration (July 2000) provides the conceptual framework and process that guides the refinement, evaluation, prioritization, implementation, monitoring, and revision of ERP actions. It defines an ecosystem-based approach that is comprehensive, flexible, and iterative, designed to respond to changes in the complex, variable Bay-Delta system and changes in the understanding of how this system works.

The Strategic Plan guides agency participation in the ERP that happens at the programmatic, process, or project-specific levels. Programmatic-level participation focuses on coordinating planning and implementing the ERP as a whole and in each of the ERP regions. It includes participating in the Agency/Stakeholder Ecosystem Team (ASET)

meetings, the Implementing Agency Managers meetings, and in Restoration Coordinator meetings in each of the ERP regions. Descriptions of each of these groups can be found in this report under "Institutional Structure."

In addition to the Strategic Plan and the Draft Stage 1 Implementation Plan, the concept of "signature opportunities" for restoration also guides ERP strategies and tasks. "Signature opportunities" for restoration are those projects where ERP can achieve rapid restoration progress or gather information necessary to inform future restoration efforts in response to an elevated rate of investment. The criteria for a signature project are designed to provide incentives for watersheds, corridors or regions to put in place the plans and activities that demonstrate that they have the potential to surmount their institutional, restoration and scientific hurdles. Criteria used to select these projects include:

- a strong biological justification for investment, and a high likelihood that the investment will have a short-term, detectable biological impact at a reasonable scale;
- a reasonable expectation that progress can be tracked, and adaptive management can be implemented;
- a reasonable expectation that institutional impediments can be resolved (local support exists, local forums exist); and
- momentum exists for the project (a history of prior investment might be an advantage).

Areas of concentrated ERP grant making that meet these signature opportunity criteria include:

- Battle Creek. Opportunities to restore access to spawning and rearing habitats for winter- and spring-run Chinook and steelhead are emphasized in this area.
- Butte Creek. Opportunities to reinforce local support for improving habitat for spring run Chinook salmon are emphasized here.
- Clear Creek. Spring–run Chinook and steelhead will benefit from restoring access to spawning and rearing habitat
- Sacramento River. All four salmon runs, steelhead, and wildlife like cuckoos, bank swallows, and elderberry beetles will benefit by mimicking natural floodplain hydrology. The Sacramento River Conservation Area Forum helps integrate restoration actions with local priorities.
- Cosumnes River. This last undammed Central Valley river is an important site for studying approaches to restoring fisheries and floodplains, including the application of fish- and wildlife-friendly farming practices.
- Yolo Bypass. The bypass provides an opportunity to integrate flood damage reduction, agriculture, and habitat restoration, especially for splittail and juvenile salmonids. The Yolo Basin Foundation helps coordinate restoration opportunities with local priorities.
- Tuolumne River. Investments from the CVPIA's AFRP and Bay-Delta Program are helping implement local plans to restore the San Joaquin River's largest run of fall Chinook.

- Merced River. Careful investment is helping restore this most southerly run of fall Chinook.
- North Delta. Integrating flood damage reduction, levee integrity, and water conveyance with ecosystem restoration creates many opportunities to restore habitats for salmonids, splittail, Delta smelt, and other species.
- Suisun Marsh and Bay. Activities of the Suisun Marsh Charter Group and the science program provide opportunities to learn how restoring wetlands and other habitats can aid fish and other tidal marsh species while protecting water quality.
- San Pablo Bay. Restoring tidal marshes, floodplains, and streams in the Napa and Petaluma rivers and local creeks is enhancing habitat for salmonids, splittail, Delta smelt, and other tidal marsh species.

Any discussion about ERP strategy and tasks should consider what projects count toward the ROD commitment of $150 million annual funding for ecosystem restoration and toward ERP targets. CBDA, CDFG, USFWS, and NOAA-Fisheries are working on a policy statement to describe three basic items of "what counts." These basic items are: (1) the year that projects funded through either the Category III[1] process, or through the ERP PSP that began to count toward achieving ERP targets, objectives and goals, including but not limited to, the ERP/MSCS Milestones as provided in the 2000 ROD; (2) the funding source for projects that achieve the ROD commitment of $150 million dedicated to annual ERP funding for Stage 1; and (3) which projects implemented outside of the ERP funding processes count towards achieving ERP targets, objectives, and goals.

The "what counts" policy statement is undergoing review by the Implementing Agencies; however, general agreement has been reached on item (1). Using the environmental baseline described in the CALFED PEIS/EIR (July 2000), the Implementing Agencies agreed that what counts included projects funded through the Category III process, which began in 1995 and was transferred to Bay-Delta Program in 1997, and subsequent ERP PSP and directed action processes.

In ERP strategic planning, the recurring concerns regarding potential delays in completing ERP goals and objects are contracting delays and inadequate levels of funding and staffing. Strategies to address these concerns are being developed as CBDA staff and Implementing Agency staff work on the transition. More detailed information about the goals and objectives of the ERP can be found in Chapters 4 and 5 of the draft ERP Strategic Plan.

MSCS-ERP Milestones

The Bay-Delta Program member agencies established, through the ERP and the Multi-Species Conservation Strategy (July 2000), a single blueprint for restoration and species recovery within the geographic scope of the ERP. The Ecosystem Restoration Program Plan (ERPP) (July 2000) is the Program's blueprint for restoration of the Bay-Delta. The MSCS is not a separate blueprint or supplemental restoration program and does not supplant the ERPP. The measures and goals in the MSCS are derived from, or are consistent with, the ERP's measures and goals. The ERP works with the Science Program to monitor and

[1] Category III refers to a special funding source established in 1995 solely for ecosystem restoration.

evaluate ERP actions and to conduct pertinent research. The ERP and the Science Program are important for Federal Endangered Species Act (FESA), California Endangered Species Act (CESA) and Natural Community Conservation Plan (NCCP) compliance ("programmatic determinations"), and are integral to the MSCS. To ensure that the ERP is carried out sufficiently to sustain programmatic FESA, CESA and NCCP compliance for all Program elements, the ERP Implementing Agencies developed the MSCS-ERP Stage 1 milestones. The Implementing Agencies concluded that the milestones define a manner and level of ERP implementation in Stage 1 sufficient to help achieve the MSCS's species goals. The ERP Implementing Agencies expect and intend that the MSCS-ERP milestones will be achieved with annual ERP funding of $150 million.

The Implementing Agencies will participate in an annual process with the ERP and Science Programs to ensure that substantial process is being made to achieve the MSCS-ERP milestones. To do this, the agencies will: (1) develop annual and long-term ERP implementation priorities and strategies; (2) develop annual implementation plans; and (3) assess the implementation and performance of ERP actions, including measuring progress toward achieving the MSCS-ERP milestones. The MSCS-ERP milestones may be revised to reflect new information derived as a result of this process.

Single Blueprint Concept

In the ROD, the ERP committed to integrating its activities with other Bay-Delta Program elements, coordinating with other agency activities such as integrating CVPIA actions with ERP actions, and using a scientifically-based adaptive management approach. The Multi-Year Program Plan lists the cross program relationships within the Bay-Delta Program elements..

An important part of the cross program integration and linkages is the ERP commitment to the "Single Blueprint" concept for restoration and species recovery within the geographic scope of the ERP. The Single Blueprint is not so much a single document as it is the shared vision of ecosystem restoration that is sustained through collaboration and cooperation among ERP, the Implementing Agencies, other Bay-Delta Program agencies and stakeholders. Typically, however, the document now referred to as the Annotated Budget for Implementing the Single Blueprint is often called the Single Blueprint. The Annotated Budget for Implementing the Single Blueprint helps ensure coordination and integration, not only within the Bay-Delta Program, but between all resource management, conservation, and regulatory activities affecting the Bay-Delta system. The ERP planning documents and processes form the framework for advancing the single blueprint concept for all Bay-Delta Program elements. Each of these elements is expected to look to the ERP for guidance for all of their ecosystem restoration related activities. The ERP Implementing Agencies are committed to seeking opportunities to facilitate efforts to advance the Single Blueprint. For instance, during the course of fulfilling their regulatory, coordination, and support roles for the other Bay-Delta Program elements, the Bay-Delta Program ERP Implementing Agencies have offered input and tailored recommendations and permit conditions in support of the Single Blueprint.

Adaptive Management

Adaptive management is one of the principles in the CALFED Bay-Delta Program's Implementation Memorandum of Understanding (MOU). Under the MOU, Bay-Delta Program agencies will carry out Bay-Delta Program actions using a science-based adaptive management approach. This approach relies on constant monitoring and evaluation of actions in all Program elements. ERP uses both the adaptive management and scientific approach to evaluating its programs.

The purpose of the Single Blueprint is to provide a unified and cooperative approach to restoration as defined by three primary elements:

1. Integrated, shared science, and a set of ecological conceptual models to provide a common basis of understanding about how the ecosystem works;
2. A shared vision for a restored ecosystem; and
3. A management framework that defines how parties with management and regulatory authorities affecting the Delta will interact and how management and regulatory decisions (including planning, prioritization, and implementation) will be coordinated and integrated over time.

--Strategic Plan for Ecosystem Restoration, July 2000.

Adaptive management provides the flexible management framework for restoring and managing the Bay-Delta ecosystem; this flexibility allows Program Managers to generate, incorporate, and respond to new information and changing Bay-Delta conditions. Under the adaptive management framework, natural systems are managed to ensure their recovery or improvement, while increasing the understanding of how those systems function. In this way, future management actions can be revised or refined using information from previous restoration and management actions.

Adaptive management is a foundation stone of both ERP and Bay-Delta Program. There are three forms of adaptive management. The most basic type of adaptive management is trial-and-error learning. Under trial and error, project proponents adjust practices based upon what is seen and learned in the field as a result of their projects. Passive adaptive management, the second form, is similar to trail and error, but the project proponents develop a series of adaptations (potential actions) from which to choose ideally using conceptual models. Active adaptive management, the final form, is when the project proponent applies conceptual models to develop several options at a time to see which one works best in the situation to advance the learning process.

Under the ERP Strategic Plan there are specific steps needed to effectively use any adaptive management technique. These steps include defining the problem, selecting goals and objectives, preparing conceptual models, initiating restoration actions; monitoring actions; and assessing, evaluating, and adapting the actions. The Look Back review indicated that many of the projects included component steps of an adaptive management approach such as conceptual models, hypothesis testing, and monitoring. However, few projects included all the steps required for a deliberate adaptive management. Most often missing from adaptive management plans were the feedback loops of monitoring and assessing, evaluating, and adapting actions.

The adaptive management approach to ecosystem restoration and management requires up-to-date science and is one way ERP ensures the scientific credibility of its program.

Science and Performance Evaluation

Most restoration and recovery programs are species-based; the ERP is an ecosystem-based management program. Ecosystem-based management is an integrated-systems approach that attempts to protect and recovery multiple species by restoring or mimicking the natural physical processes that create and maintain diverse and healthy habitats.

There are four distinct advantages of this ecosystem-based approach over the more traditional species-based approach to restoration and recovery. These are:

- Restoration of physical processes reproduces subtle elements of ecosystem structure and function in addition to the more obvious elements, thereby possibly enhancing the quality of restored habitat.
- Restoration of physical processes can benefit not only threatened and endangered species, but also unlisted species, therefore reducing the likelihood of future listings.
- Restoration of physical processes reduces the need for ongoing human intervention to sustain remnant or restored habitats.
- Restoration of physical processes may produce a more resilient ecosystem capable of withstanding future disturbances.

For example, the Science Program will be consulted to assist in integrating efforts such as the giant garter snake and wetland dependent species conservation project under a consolidated adaptive management experimental strategy. The conservation strategy will identify specific research objectives including population surveys and experimental analyses of population responses to varying cropping patterns and water management. It will include the identification of priority areas for habitat protection, enhancement and restoration, consistent with the Stage 1 expectations for the species. The strategy will also include "wildlife friendly" agricultural and water management practices to reduce giant garter snake population stressors. From this strategy, proposals will be developed and will conform to all of the standards established by the Bay-Delta Program for the proposal review and selection process.

Implementation of this strategy will begin with the submission of proposals to implement the highest priority actions at the earliest possible opportunity. An outline of the giant garter snake conservation strategy includes aspects of a recovery strategy: habitat protection and restoration; reserve design and use within and including an agricultural setting; distribution, status, and other population parameters; elimination of stressors; science based monitoring of species response to various restoration efforts and treatments based on variable water years, variable cropping patterns, and associated actions.

The ERP coordinates with the Science Program to incorporate review, insights and/or advice from independent science experts to ensure the best possible scientific information guides decision-making within the ERP and within programs linked to the ERP. This approach for incorporating independent science expertise involves four levels of working groups along with independent peer review by individuals: a program-wide Executive Science Board, program-specific Science Boards, Standing Boards, and Technical Panels.

Indicators. The ERP has been developing indicators since 1996, along with major participation from agencies, stakeholders, and other interested parties. A framework of desired ecosystem attributes and associated measurable parameters was developed to provide an organized approach to selecting indicators. The framework was further organized by geographic areas. Anthropogenic stressors were overlaid on the framework suggesting areas of ecological strengths and weaknesses.

Using this framework, a slate of about 150 indicators was selected for the Bay-Delta Authority solution area. Indicator selection was based on the technical expertise of the work group which represented a broad spectrum of knowledge, but ought not to be considered totally inclusive of all scientific disciplines.

The next step in indicators development work is to document the conceptual models applied in the indicators selection process and to further focus the indicators to reflect the ERP's goals and objectives, which were developed subsequent to the indicators framework effort.

Using the MSCS, species life histories models coupled with ecological process models emerge as good components for the conceptual models needed for indicator selection rational. This corresponds with the efforts to develop conceptual models by the DRERIP work group. Several members of the indicators work group also are members of the DRERIP work group and are participating in organizing technical workshops to develop life history and ecological process conceptual models. These models will be used to vet potential program actions in the Delta region. The workshops are scheduled to take place between August 2003 and January 2004.

Through close coordination with the DRERIP work group, the indicators development work group anticipates the:

1. Development of basic life history conceptual models;
2. Development of basic ecological process models;
3. Use of the models to identify key species needs;
4. Development of conceptual models interrelating the key species needs and the appropriate ecological processes.
5. Incorporation of stressors to the life history, ecological process, and interrelated models;
6. Use of the interrelated models to identify biological and ecological process issues, crucial interrelationships, and uncertainties that are within the realm of the ERP goals and objectives.
7. Development of potential actions that contribute to improving identified crucial ecological relationships in keeping with the ERP program.

The technical information developed through this process will be used to document the rationale for indicators that:

1. Represent change in selected key issues reflected in the life history, ecosystems and the interrelated models,

2. Are sensitive to the scale of change that should result from project actions

3. Help evaluate cumulative program progress

4. Demonstrate ecological status and trends

In those regions outside of the Delta, the work group anticipates focusing on selected representative indicators and using existing work to document the rationale. In order to strengthen continuity, where possible, the selected indicators will be a continuum to the indicators selected for the Delta. Examples of this type of potential indicators could be salmon escapement, some form of river flow, water temperature, and miles of riparian habitat. As the Sacramento Valley, San Joaquin Valley and the San Francisco Bay regional plans develop, the indicators work group anticipates providing parallel indicators refinement.

In addition to the rationale, supplemental information such as data availability will be accumulated for use in presenting the indicators in the CBDA format as developed by the Science Program in November 2002.

The indicators work groups anticipates presenting a work plan to the Independent Science Board and Bay-Delta Program stakeholders at the end of July for their review.

Other mechanisms for ensuring scientific credibility of the ERP include:

Peer Review. The CBDA and Implementing Agencies have embraced peer review of project proposals as part of carrying the ERP. Peer review provides the opportunity for technical experts to review project proposals, and to assure that the quality of the science underlying the restoration program is maintained to a high standard. In Year 2, for example, more than 220 independent scientists and other experts participated in the proposal reviews. In the instances of large-scale projects, or for types of projects, standing review committees may be established. Examples include the Adaptive Management Forum, which assessed progress on several large river restorations, and the panels being convened to review Battle Creek fish passage projects and the Hamilton City floodplain restoration project. Peer review also is a way in which scientific experts can contribute their insights to the overall ERP effort.

Workshops. Scientific workshops and meetings are a successful method of distributing information and generating peer review to ERP activities. There have been two Bay-Delta Program workshops that have:

- Described restoration actions carried out in previous years;
- Described restoration actions to be carried out in the future;
- Presented and assessed monitoring data and research findings; and
- Re-evaluated and assessed restoration problems, goals, objectives, and actions.

ROD Commitments

ROD Implementation Commitments[2]

The Record of Decision (ROD) for the CALFED Bay-Delta Program Final Programmatic Environmental Impact Statement and Report (PEIS/EIR) reflects a final selection of a long-term plan that includes specific actions to fix the Bay-Delta, describes a strategy for carrying out that plan, and identifies complementary actions that Bay-Delta Program agencies will also pursue. Bay-Delta Program Commitments are those which all Program elements agree to achieve; ERP ROD Milestones are those ROD commitments which are specific to ERP. Please refer to the ROD, Volume 1 (August 2000) for more information.

Local Leadership: The Bay-Delta Program agencies will rely on leadership in local communities across the State to provide advice and support for implementing Bay-Delta Program projects affecting their communities. ERP relies upon local leadership to help carry out Program efforts on Clear Creek, Battle Creek, Cottonwood Creek, Butte Creek, lower and upper Yuba River, American River, Cosumnes River, Mokelumne River, Stanislaus River, Tuolumne River, Merced River, the Delta, and Suisun Marsh. Local leaders elsewhere in the state also help to design and carry out the Bay-Delta Program.

Progress: Since Year 1 (2000), ERP funded approximately 25 different local projects, primarily with irrigation and resource conservation districts. ERP also funded about 25 different projects by non-government organizations such as watershed stewardship groups, the Nature Conservancy, Community Alliance with Family Farmers, and Ducks Unlimited, Inc. About 47 percent of all ERP funded projects since the signing of the ROD are being carried out by local entities.

Year 4 Work Plan Tasks: Continue relationships with local implementing agencies, and expand these relationships through new partnerships, such as the locally-initiated collaborations recommended by the Working Landscapes Subcommittee's Framework Project Development and Selection Proposal. Nine of the 28 directed actions identified following the 2002 PSP will be carried out by local implementing agencies or non-government organizations such as Reclamation District 108, Turlock Irrigation District, the American River Conservancy and the Cottonwood Creek Watershed Group.

Local Implementation: Local implementation involves soliciting and incorporating diverse stakeholder perspectives into the Bay-Delta Program decision-making process. ERP has collaborated with many local agencies, non-government organizations and joint ventures in ecosystem restoration efforts. In the first three years of Stage 1, approximately 50 local projects selected for ERP funding will be implemented by local agencies or groups such as the Nature Conservancy, Community Alliance with Family Farmers, and Ducks Unlimited, Inc. About 47 percent of all ERP funded projects since the signing of the ROD are being carried out by local entities.

Progress: Public involvement is primarily through regular public committee meetings or workshops affiliated with the Ecosystem Restoration Subcommittee; the Working Landscapes

[2] The terms "commit/commitment" signify that Bay-Delta Program has agreed to reserve and expend funds for specific purposes. These funds may not yet be encumbered through a formal contract nor expended.

Subcommittee; Independent Science Board; Environmental Water Program, Upper Yuba River Studies Program; and San Joaquin River Dissolved Oxygen TMDL Stakeholder Process.

Year 4 Work Plan Tasks: Continue existing meeting schedules. Additional public workshops are anticipated for the various regional ecosystem restoration plans that are currently being written, such as the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP).

Public Involvement: Public involvement is essential to the success for a program the size and magnitude of the Bay-Delta Program. Public involvement allows the Program to form partnerships to combine resources, share knowledge, and resolve problems at the local, regional, and statewide levels.

Progress: Public involvement is primarily through regular public committee meetings or workshops affiliated with the Ecosystem Restoration Subcommittee; the Working Landscapes Subcommittee; Independent Science Board; Environmental Water Program; Upper Yuba River Studies Program; and San Joaquin River Dissolved Oxygen TMDL Stakeholder Process. Public workshops are held during proposal solicitation processes. Local agencies, the public, and other stakeholders are invited to comment on proposal funding recommendations. These comments play an important role in shaping ERP funding recommendations. In Year 2, for example, 1,275 individuals reviewed the ERP selection panel's funding recommendations on-line, and about 400 comments were submitted on the proposals being considered for funding.

Year 4 Work Plan Tasks: Continue existing meeting schedules. Additional public workshops are anticipated for the various regional ecosystem restoration plans that are currently being written, such as the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP).

Environmental Justice: The basic concept behind environmental justice is that all people—regardless of race, color, nation of origin, or income—are able to enjoy equally high levels of environmental protection. The commitment to environmental justice seeks fair treatment of all people so no segment of the population bears a disproportionately high and adverse health, environment, social, or economic impact resulting from Bay-Delta Program's Program elements, policies, or actions. Environmental Justice is an important aspect of ERP, especially where fish consumption is concerned. Recent data indicate that many fish in the Bay-Delta watershed have concentrations of mercury, PCBs, and organochlorine pesticides that may present a health hazard to certain populations that may be disproportionally affected by the contaminants. These populations include people who rely heavily on local fish as a food resource, pregnant women and children, who are particularly sensitive to the effects of fish contamination. In addition, some of these potentially high risk groups may be more difficult to inform due to language and cultural barriers.

Progress: Since 2001, ERP staff has been working collaboratively with members of the Environmental Justice Subcommittee, water quality and public health agencies, and other community groups to develop a strategy to address the fish contamination issue. ERP has funded studies and environmental outreach education efforts to address bioaccumulation and fish consumption. One of the most significant environmental justice examples for the ERP was the publication of the Mercury Strategy, which has been widely circulated within the Environmental Justice community. The Environmental Justice Subcommittee anticipates hosting a forum about the Mercury Strategy and fish consumption with ERP participation.

Year 4 Work Plan Tasks: Begin Phase I of a fish consumption study, including an education and outreach component ($85,000 in CBDA funds). Continue ERP participation and collaboration in the efforts listed above. The Environmental Justice Coordinator anticipates ERP participation in developing environmental justice performance measures and language for future ERP PSPs, as well as work with ERP and the Implementing Agencies, to clarify environmental issues associated with land acquisitions, conservation easements, and agricultural easements. The ERP will continue to solicit proposals for specific activities related to this ROD commitment.

Land Acquisition: Successful implementation of the Bay-Delta Program will affect some agricultural land; acquisition of fee title to land will be from willing sellers only, and will be used when either public land or partnerships are not appropriate or cost-effective for the specific need. Land acquisitions benefit the ecosystem by providing habitat for species identified in the ERP Program Plans. In some cases, land is converted from its current use to more "natural" conditions. In other cases, land can be kept in its current or a similar land use with some limitations to provide necessary habitat. Some land acquisitions are also helpful in restoring natural ecosystem functions such as improving water quality or helping recharge groundwater aquifers. Some land acquisitions provide buffers against other types of land use such as urbanization that can have negative effects to ecosystem uses.

Progress: The Bay-Delta Program made commitments in the ROD to work cooperatively with owners of agricultural lands and other local partners, and to work to minimize the effects of the Program to agricultural resources. Table 1 shows the trends in land acquisition.

TABLE 1
Trends in Acquisition[1] and Use of Agricultural Land[2] and Non-Agricultural Land[3] for ERP
(acquisitions, estimated[4] thousand acres)

Year	Agricultural Lands with Ecosystem and Agricultural Uses	Agricultural Lands Converted to Ecosystem Uses	Non-Agricultural Lands Used for Ecosystem Use	Total Lands Used for Ecosystem Use
Pre-2001	13	14	3	30
2001	13	1	1	15
2002	40	1	4	46
Total	**66**	**16**	**9**	**91**
Pre-ROD[6]	13	14	3	30
Post-ROD	53	2	6	61

[1]Acquisition includes purchase of land or easements.

[2]Agricultural land means land identified as being used for growing agricultural products by the project proposal, including cultivated and grazing lands.

[3]Non-agricultural land means land identified as not being used for growing agricultural products in the project proposal.

[4]Pre-2001 estimates derived from information contained in proposals and/or provided by project managers as of spring 2001; 2001 and 2002 estimates derived from information in ERP proposals granted or selected for funding as of September 2002.

[5]Agricultural lands with Ecosystem and Agricultural Uses means that agricultural activities that are compatible with the ecosystem purpose for the acquisition are allowed.

[6]ROD means CALFED's Record of Decision, dated August 2000.

The ERP is examining how Proposition 50's allocation of $20 million to support projects that assist farmers in integrating agricultural activities with ecosystem restoration can be used to carry out the Working Landscape Subcommittee's recommended Framework Project Development and Selection Proposal. ERP and implementing agency staff also are cooperating with other subcommittee members to begin examining how Bay-Delta Program projects' impact to agricultural lands are assessed and mitigated.

Year 4 Work Plan Tasks: It is anticipated that the ERP's Year 4 PSP will include solicitation of projects that address working landscapes projects. ERP will continue to participate in the Working Landscapes Subcommittee.

Permit clearinghouse: The Bay-Delta Program agencies will establish a permit clearinghouse for obtaining the necessary permits and approvals for Bay-Delta Program implementation. *Progress:* Two of the five outcomes listed in the Permit Clearinghouse Memorandum of Understanding have been accomplished: the Guide to Regulatory Compliance for Implementing CALFED Actions and a permit tracking database. The other two outcomes, developing a unified permit application process and providing permit coordinators to assist implementing agencies with regulatory compliance currently are unscheduled. The remaining outcome is producing the Guide to Action Specific Implementation Plans (ASIPs), which is one of the tasks for Year 4. The ERP continues to provide support for regulatory compliance in ERP-funded projects and, through CDFG, assists project proponents in identifying permit and other regulatory obligations affecting them.

Year 4 Work Plan Tasks: The MSCS Interagency Team (MIT) was established recently to provide oversight, guidance, and to ensure consistency in developing and implementing ASIPs as described in the MSCS. The MIT is currently reviewing a draft guidance document that describes the process for developing ASIPs. Not all ASIPs will require the same level of effort, so the MIT will propose a process to help project proponents decide what level of effort is needed to develop their specific ASIP. The MIT anticipates developing various strategies and tools during Year 4 that could be used in this process. There currently are ASIPs underway for the Environmental Water Account, the North Delta Improvements Program, and the South Delta Improvements Program.

Delays or Potential Issues: The ASIP guidance document was delayed for two reasons. The first reason was the lack of an existing contract with the consultant to complete the initial draft document; the second was a lack of human resources (i.e., agency staff) to oversee this project. The lack of human resources is a factor in whether or not the unified permit application process and establishing permit coordinators will be completed in Stage 1

Potential Mitigation Measures

The following is a list of mitigation measures listed in the ROD to mitigate for impacts to agricultural land and water that may result from implementing the Preferred Program Alternative (A-12). Bay-Delta Program agencies commit to considering and adopting these measures, where appropriate, in developing and carrying out project specific actions. ERP support of these activities and approaches are outlined in the Draft Stage 1 Implementation Plan and in the 2002 PSP.

- Restore existing degraded habitat as a priority before converting agricultural land.
- Focus habitat restoration efforts on developing new habitat on public lands before converting agricultural land.
- Focus restoration efforts on acquiring lands that can meet ecosystem restoration goals from willing sellers where at least part of the reason to sell is an economic hardship (for example, lands that flood frequently or where levees are too expensive to maintain).
- Use farmer-initiated and developed restoration and conservation projects as a means of reaching Program goals.
- Obtain easements on existing agricultural land for minor changes in agricultural practices (such as flooding rice fields after harvest) that would increase the value of agricultural crops to wildlife.
- Develop buffers and other tangible support for remaining agricultural lands. Vegetation planted on these buffers should be compatible with farming and habitat objectives.

Year 4 Work Plan Tasks: The ERP will continue to apply the mitigation priorities and measures outlined in the ROD to projects selected through its proposal solicitations. In addition, the ERP anticipates that the ERP's Year 4 PSP will include solicitation of farmer-initiated projects that would demonstrate working landscapes approaches like changing agricultural practices to increase the value of agricultural crops to wildlife or develop buffers between restored habitats and remaining agricultural lands. ERP staff will continue to participate in the Working Landscapes Subcommittee, including its planned examination of how Bay-Delta Program projects' impact to agricultural lands are assessed and mitigated.

Delays and Potential Issues: Practices for assessing and mitigating projects' impacts to farmlands vary widely among agencies, and continue to be a source of controversy. Ongoing litigation impairs the ability of agencies to resolve these issues through collaborative Bay-Delta Program processes. It is hoped the Working Landscapes Subcommittee's activities can find areas of agreement on this issue among stakeholders and agencies.

Few satisfactory farmer-initiated conservation projects are submitted in response to the ERP's solicitation. ERP is examining the Working Landscapes Subcommittee's recommendations to assess how to reduce barriers to farmer-initiated projects' submittal and funding in future PSPs. Coordinating ERP funding with USDA Farm Bill conservation programs is another challenge which the Working Landscapes Subcommittee intends to address.

Regional Descriptions

The ERP geographic scope fits within four of the five Bay-Delta Program regions; activities within the ERP geographic scope are further divided into ERP ecological management zones (EMZs). The ERP designates projects under five ERP regional groupings: the Bay Region, the Delta and Eastside Tributaries Region (Delta Region), the Sacramento Region, the San Joaquin Region, and Multiple Regions. A list of regional priorities follows a brief description of the ERP region. For more detailed information about ERP regional goals and priorities,

the reader is directed to the ERP Draft Stage 1 Implementation Plan (August 2001), which is also available at the Bay-Delta Program website at http://calfed.ca.gov/Programs/EcosystemRestoration/EcosystemDraftStage1ImplementationPlan.shtml.

Bay Region. The Bay Region, or the Suisun Marsh/North San Francisco Bay Ecological Management Zone, includes the northern San Francisco Bay area, Suisun Bay and Marsh, San Pablo Bay, and the Napa River, Petaluma River and Sonoma Creek watersheds (CALFED ERPP Vol. II, 2000). The Ecological Management Zone does not include the Central and South bays. This region is the westernmost zone of the ERP. The eastern boundary is near Collinsville and the western boundary is the northwestern end of San Pablo Bay. The northern boundary follows the ridge tops of the Coast Ranges and the southern boundary is the San Rafael/Richmond Bridge.

Restoration Priorities for the Bay Region. There are eight restoration priorities for the Bay Region. These are:

1. Restore wetlands in critical areas throughout the Bay, either via new projects or improvements that add to or help sustain existing projects.
2. Restore uplands in key areas of Suisun Marsh and San Pablo Bay.
3. Implement actions to prevent, control and reduce impacts of non-native invasive species.
4. Understand performance of wetlands restoration efforts on a local and regional scale.
5. Restore shallow water, local stream and riparian habitats for the benefit of at-risk species while minimizing potential constraints to successful restoration.
6. Protect at-risk species in the Bay using water management and regulatory approaches.
7. Improve scientific understanding of the linkages between populations of at-risk species and inflows, especially relative to regulatory measures like "X2."
8. Use monitoring, evaluations of existing monitoring data, and new investigations to develop improved strategies for restoring Bay fish populations and at-risk species.

Delta and Eastside Tributaries Region. The Sacramento-San Joaquin River Delta (Delta) is the tidal confluence of the Sacramento and San Joaquin rivers. The Bay-Delta Program Delta Ecological Management Zone is defined by the legal boundary of the Delta that includes the areas that historically were intertidal, along with supratidal portions of the floodplains of the Sacramento and San Joaquin Rivers. Today's legal Delta extends between the upper extent of the tidewater (i.e., near the city of Sacramento on the Sacramento River and Mossdale on the San Joaquin River) and Chipps Island to the west, and encompasses the lower portions of the Sacramento and San Joaquin River floodplain systems as well as those of some lesser tributaries (e.g., Mokelume River and Calaveras River). Once a vast maze of interconnected wetlands, ponds, sloughs, channels, marshes, and extensive riparian strips, the Delta is now islands of reclaimed farmland protected from flooding by hundreds of miles of levees. Remnants of the tule marshes are found on small "channel" islands or shorelines of remaining sloughs and channels.

The Eastside Delta Tributaries include the three major tributaries entering the Sacramento-San Joaquin Delta on its east side; the Cosumnes, Mokelumne, and Calaveras Rivers. Important ecological processes within the Eastside Delta Tributaries include stream-flow, stream meander, gravel recruitment and cleansing, sediment transport, flood and floodplain process, and water temperature. Disturbance from historic mining practices is a consideration. Important habitats include seasonal wetlands, floodplain, and riparian and shaded riverine aquatic (SRA) habitat.

Restoration Priorities for the Delta and Eastside Tributaries Region. There are eight restoration priorities for the Delta and Eastside Tributaries Region. These are:

1. Restore habitat corridors in the North Delta, East Delta and along the San Joaquin River.
2. Restore and rehabilitate floodplain habitat in eastside tributaries and the lower Sacramento and San Joaquin rivers.
3. Restore upland wildlife habitat and support wildlife-friendly agriculture.
4. Restore habitat that would specifically benefit one or more at-risk species; improve knowledge of optimal strategies for these species.
5. Implement actions to prevent, control and reduce impacts of non-native invasive species in the Delta.
6. Restore shallow water habitats in the delta for the benefit of at-risk species while minimizing potential adverse effects of contaminants.
7. Protect at-risk species in the Delta using water management and regulatory approaches.
8. Ensure restoration and water management actions in the Delta can be maintained under future climate conditions.

Sacramento Region. Flowing for more than 300 miles from Lake Shasta to Collinsville in the Delta, where it joins the San Joaquin River, the Sacramento provides about 80 percent of the inflow to the Delta. It is the largest and most important riverine ecosystem in the State of California and is an essential spawning, rearing and migratory pathway for many anadromous fish populations, such as all runs of Chinook salmon and steelhead. The river corridor encompasses more than 250,000 acres of natural, agricultural, and urban lands upstream of Sacramento. Various cropland habitats occur on flat and gently rolling terrain adjacent to most of this area. Irrigated crops are mostly rice, grains, alfalfa, and orchard crops. Most of this cropland is irrigated with water diverted from the Sacramento River or its tributaries. Five National Wildlife Refuges (Sacramento, Delevan, Colusa, Sacramento River and Sutter) are either adjacent to or within five miles of the Sacramento River.

Restoration Priorities for the Sacramento Region. There are seven restoration priorities for the Sacramento Region. These are:

1. Develop and implement habitat management and restoration actions in collaboration with local groups such as the Sacramento River Conservation Area Non-Profit Organization.

2. Restore fish habitat and fish passage, particularly for spring-run Chinook salmon and steelhead trout and conduct passage studies.
3. Conduct adaptive management experiments in regard to natural and modified flow regimes to promote ecosystem functions or otherwise supports restoration actions.
4. Restore geomorphic processes in stream and riparian corridors.
5. Implement actions to prevent, control and reduce impacts of non-native invasive species in the region.
6. Continue major fish screen projects and conduct studies to improve knowledge of the implications of fish screens for fish populations.
7. Develop conceptual models to support restoration of river, stream and riparian habitat.

San Joaquin Region. The San Joaquin River and its tributaries are the second most significant contributors to flow into the Bay-Delta system. Much of the natural flow has been diverted and stream flow is discontinuous along the river, with significant sections being dry or extremely low during much of the year. The mid-portion of the river receives significant inputs from the Sacramento River, acting as a conduit for water that is then diverted to Southern California. It is important to rehabilitate the ecological integrity of the San Joaquin River below Friant Dam to improve the health of the Bay-Delta system. Rehabilitating the current system below the mouth of the Friant Dam is particularly important for improving conditions for the anadromous fish that annually migrate into and out of the Stanislaus, Tuolumne, and Merced Rivers and potentially could utilize the upper main stem.

Restoration Priorities for the San Joaquin Region. There are six restoration priories for the San Joaquin Region. These are:

1. Continue habitat restoration actions including channel-floodplain reconstruction projects and habitat restoration studies in collaboration with local groups.
2. Restore geomorphic processes in stream and riparian corridors.
3. Improve rearing and spawning habitat and downstream fish passage on tributary streams and the main stem San Joaquin River, particularly for Chinook salmon, steelhead trout and splittail.
4. Implement actions to improve understanding of at-risk species in the region.
5. Develop understanding and technologies to reduce the impacts of irrigation drainage on the San Joaquin River and reduce transport of contaminant (selenium) loads carried by the San Joaquin to the Delta and the Bay.
6. Conduct adaptive management experiments in regard to natural and modified flow regimes to promote ecosystem functions or otherwise support restoration actions.

For more information about Year 4 work plan tasks and the Multi-Year Program Plan for the San Joaquin Region, please see the "Strategies and Tasks" section earlier in this report.

Multi-Regional. Many of the projects selected for funding through the ERP in previous years encompassed more that one region. Some projects have applicability to all the regions while others were linked to at least two regions. This "region" covers those broad activities that span the ERP geographic scope. For example, studies and education programs often have results that have multi-region application.

Restoration Priorities for Multi-Regional Areas. There are six restoration priorities for the multi-regional approach. These are:

1. Prevent the establishment of additional non-native species and reduce the negative biological, economic, and social impacts of established nonnative species in the Bay-Delta estuary and its watersheds.
2. Develop programs for Wildlife-Friendly Agriculture and conduct studies to better understand relationships between farming and wildlife habitat.
3. Implement environmental education actions throughout the geographic scope.
4. Ensure restoration and water management actions through all regions can be sustained under future climatic conditions.
5. Ensure that restoration is not threatened by degraded environmental water quality.
6. Ensure recovery of at-risk species by developing conceptual understanding and models of processes that cross multiple regions.

D R A F T

Year 4 Annotated Budget for Implementing the Single Blueprint for Restoration and Recovery

■ CALFED Ecosystem Restoration Program –

Introduction

This is the fourth year of the CALFED Bay-Delta Program's Stage 1 Implementation, and as part of the Ecosystem Restoration Program's (ERP) Strategic Plan, the ERP develops an annual budget that allocates funding to help support the unified and cooperative approach to restoration activities among the Implementing Agencies and other CALFED agencies. This annotated budget is an appendix to the Multi-Year and Annual Work Plan and serves as the budget for carrying out the Single Blueprint for restoration and recovery for Year 4.

The Single Blueprint approach helps ensure coordination and integration, not only within the Bay-Delta Program, but between all resource management, conservation, and regulatory activities affecting the Bay-Delta system. This annotated budget supports the Single Blueprint approach and is part of the management framework for ERP. This document also served as a reference for the Federal and State Endangered Species Acts agencies as they annually assess environmental compliance for the Bay-Delta Program as a whole.

The Implementing Agencies—California Department of Fish and Game, the U.S. Fish and Wildlife Service, and NOAA-Fisheries—have a leadership role in planning and meeting ERP goals and objectives. This document shows the shows the investments for all areas during Year 4 by Implementing Agencies, along with staff from the California Bay-Delta Authority and other Bay-Delta Program agencies (e.g., California Department of Water Resources) and demonstrates the unified and cooperative approach from the budget perspective, and will be updated as the year progresses.

Year 4 Agency Crosscut Budget for Ecosystem Restoration Program

An important element of CALFED ERP implementation is the cross-cut budgets for the CALFED agencies. This effort is an efficient technique to improve overall cost-effectiveness of implementing the ERP because it facilitates discussion and decision-making to avoid duplicating efforts and unnecessary expenditures.

The Year 4 crosscut budgets for ecosystem restoration (Tables 1 and 2) includes the following information[1]:

[1] CALFED Bay-Delta Program, Implementation Plan, Page 5-66, July 2000

- List of programs/projects that are within the geographic scope of the ERP and which contribute to the ERP Strategic Goals and Objectives.
- Identifies the sources of funding for the above programs and projects.
- Identifies the amount that was appropriated or budgeted for the identified programs and projects in FY 2003-2004 (State) and FY2004 (Federal)[2].

TABLE1
Proposed State Ecosystem Restoration Funding for FY 2003-04 (Year 4)

Agency/Category	Account	Funding
California Bay-Delta Authority (CBDA)		
Oversight and Coordination	General Fund	$385,000
Bay-Delta Program	Prop 204—CALFED Bay-Delta Ecosystem Restoration (Chapter 7)	$48,531,000
ERP Regional Restoration and Coordination Support –Contracts	Prop. 50 [Chapter 7, Section 79550 (e)]	$2,000,000
ERP Regional Restoration and Coordination Implementation—Contracts	Prop. 50 [Chapter 7, Section 79550 (e)]	$63,797,000
California Department of Fish and Game (CDFG)		
Federal Reimbursement	Federal Reimbursement	$575,000
Resource Assessment	General Fund	$828,000
Ecosystem Restoration—Implementation	Prop. 50 [Chapter 7, Section 79550 (e)]	$1,000,000
California Department of Water Resources (CDWR)		
State Cost Share for CVPIA	Prop 204-Central Valley Project Improvement Act (Chapter 4, Article 2)	$1,568,000
Delta Fish Agreement (4 Pumps)	DWR- State Water Projects	($7,268,000)[a]
Environmental Water Quality—Directed Action	Prop. 13	$10,016,000
Local Cost Share		
PSP Local Cost Share	Grant Matching	($20,000,000)[b]
	Total	**$129,800,000**[c]

[a] 4 Pumps is a mitigation program and not included in $150 million commitment to sustain regulatory assurances.

[b] Local cost share is accounted for under the Local/User column in the Stage 1 Funding Table in the ERP Multi-Year Program Plan (Years 4-7). Only local cost share funds that were not identified as mitigation funds count toward the $150 million.

[c] Total contribution solely from State funds is $129,225,000; the $575,000 allocated to CDFG are from Federal Reimbursement funds and are included in the $150 million.

Source: Year 4 Funding by Source from tentative Year 4 Cross-Cut Budget (July 17, 2003).

[2] At the time that this document was drafted, State and Federal budgets have not yet been approved.

TABLE 2
Projected Federal Ecosystem Restoration Funding for FY 2004 (Year 4)

Agency/Category	Account	Funding
U.S. Bureau of Reclamation (USBR) [a]		
Clear Creek Restoration [CVPIA, 3406(b)(12)]	Restoration Fund	$500,000
Anadromous Fish Restoration Program [CVPIA, 3406(b)(1)]	Restoration Fund	$3,000,000
Anadromous Fish Screen Program [CVPIA, 3406(b)(21)]	Restoration Fund	$3,000,000
Water Acquisition [CVPIA, 3406(b)(3), CVPIA 3406(d)(2)]	Restoration Fund	$6,860,000
Dedicated Project Yield [CVPIA, 3406(b)(2)[	Restoration Fund	$200,000
Spawning Gravel/Riparian Habitat [CVPIA, 3406(b)(13)]	Restoration Fund	$500,000
Clear Creek Restoration [CVPIA, 3405(b)(12)]	Water and Related Resources	$100,000
Tracy Fish Loss Replacement/Protection Program	Water and Related Resources	$1,000,000
U.S. Army Corps of Engineers (USACE)		
Cosumnes/Mokelumne Rivers Basin Investigation	GI Program	$200,000
NOAA-Fisheries		
Program Oversight and Coordination	Other Federal—Base Funding	$300,000
U.S. Fish and Wildlife Service		
Fish and Wildlife Planning	Other Federal	$1,292,000
		Total $16,952,000

[a] The Restoration Fund is jointly administered by the U.S. Fish and Wildlife Service and USBR and is counted as a local/water user contribution in the Stage 1 Funding Table in the ERP Multi-Year program Plan (Years 4-7).

Source: Fiscal Year 2004 reflects the funding levels found in the 2004 President's Budget submitted to Congress in February 2003.

Year 4 Single Blueprint

The following describes ecosystem restoration activities proposed as part of the Year 4 Single Blueprint. The projects or efforts described below are those that the Implementing Agencies or CBDA are reasonably certain will take place during Year 4 of Stage 1. There are numerous other ongoing ERP efforts that include implementation of restoration elements identified in the Years 1 through 3 Single Blueprints. Some activities may also be a continuation of early implementation work begun before the CALFED Bay-Delta Program Record of Decision (ROD). The ongoing prior year activities and the costs associated with those activities are not reflected in this blueprint. These ongoing activities include efforts to support adaptive management; scientific workshops; the Upper Yuba River Studies Program; mine remediation and lower San Joaquin River dissolved oxygen investigations; and project selection, tracking, and reporting.

2004 Ecosystem Restoration Actions from Proposal Solicitations ($ ~100,000,000)

In 2004, there is approximately $100 million available for projects that have yet to be identified. ERP's Year 4 Proposal Solicitation Package (PSP) will include solicitations for next phase of projects as well as solicitations directed at meeting specified ERP goals or objectives. These directed solicitations are yet to be determined. Other Year 4 activities are identified through State and Federal legislation, State budget change proposals, interagency agreements, and as a result of the directed action process following the 2002 PSP. Additional activities will be identified as Year 4 progresses, primarily through the competitive grant process. Potential sources of funding for these additional activities include CVPIA funds, Proposition 13 funds, Proposition 204 funds, Proposition 50 funds, and Local, State, and Federal cost share for PSP projects.

The ERP intends to continue emphasizing local input, integration with other activities, science (especially independent peer review) and public transparency in decisions about which specific activities to fund in support of priorities identified in ERP planning documents. A Proposal Solicitation Package (PSP) work group of Bay-Delta Program agency representatives, ERP Independent Science Board members, and stakeholder representatives are meeting to draft the Year 4 solicitation guidelines. The work group anticipates multiple solicitations, the first of which the ERP hopes to issue in fall 2003, that will emphasize opportunities to sustain and evaluate restoration activities in signature areas and other previously-funded project areas, explore working-landscape approaches to achieving ERP targets, implement strategies to address ecosystem water quality issues, especially methyl mercury and low dissolved oxygen, control non-native invasive species, and other actions identified in the ERP's Draft Stage 1 Implementation Plan. The activities listed under each task are shown by ERP region.

Ecosystem Restoration Program by Task

The following information reflects the investments that the Implementing Agencies, CBDA, and other Bay-Delta Program agencies anticipate making during Year 4 for ERP activities. All activities are related or contribute to ERP goals and objectives, but not all programs are CALFED Bay-Delta Program activities. Funds listed next to agencies may either be directly

appropriated to the agency or may be funds the agency receives through an interagency agreement with the CBDA; only the direct allocation is reported in Table 1. For example, CDWR has a direct allocation of $1.1 million from Prop. 50 for the Fish Passage Improvement Program but also receives $600,000 from Prop. 204 through an interagency agreement with CBDA. There are five tasks associated with the ERP: planning, research, implementation, monitoring, and oversight and coordination. The following information is presented by task; for those activities that fall under more than one task, the activity is listed under its primary task.

Planning

Planning activities include staff efforts in regional ERP planning, revising the Draft Stage 1 Implementation Plan, tributary or watershed specific management or restoration planning, grant or directed actions that primarily address planning and local watershed stewardship programs. Key planning activities may include developing a consolidated adaptive management experimental strategy for endangered or threatened species to identify specific research objectives such as population responses to varying cropping patterns and water management. Another key activity in Year 4 is developing and implementing a strategy for improving and integrating databases fundamental to planning and tracking the success of the ERP.

Delta Regional Ecosystem Restoration Implementation Plan—CDFG ($ 600,000; Prop. 50)

CDFG, in collaboration with the California Bay-Delta Authority, NOAA Fisheries, and USFWS, and with the support and guidance of the ERP Independent Science Board, is leading the effort to write the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP). The DRERIP is the first of four regional plans envisioned in the ERP Strategic Plan, and will refine the ERP planning foundation specific to the Delta region. The DRERIP will describe and present the scientific foundation for ecosystem restoration in the Delta region, and will provide Delta-specific implementation guidance, program tracking, and guidance for performance evaluation and adaptive management feedback. The plan will evaluate planned actions to achieve the ERP's strategic goals and objectives in the Delta, including restoring the Delta's native fish populations, restoring habitat for tidal marsh dependent species, preserving and enhancing managed seasonal wetland, and protecting drinking water quality. Opportunities for achieving Bay-Delta Program and ERP goals and objectives through working landscapes approaches will be included in these plans.

The DRERIP is the ERP component of the Bay-Delta Program-wide Delta Regional Implementation Plan, which will describe a balanced approach for achieving multiple Bay-Delta Program objectives while addressing local Delta concerns for recreation and agricultural preservation.

In Year 4, the DRERIP Working Group, consisting of CDFG, CBDA, NOAA Fisheries and USFWS staff, will work with consultant support to complete the species life history models and begin implementation of the action review process approved by the Independent Science Board and Science Program. DRERIP is scheduled to be completed in Year 5.

Below are the respective agency roles and associated funding for Year 4. Additional funds of approximately $800,000 will be needed in Year 5 to complete the technical review process and first draft of the DRERIP.

- CDFG ($600,000 Prop. 50): CDFG is leading the plan development, including preparing draft chapters, draft species life history models, and web and GIS components.
- USFWS and NOAA Fisheries ($): The USFWS and NOAA Fisheries will participate in developing the plan as members of the DRERIP Working Group, participate in developing conceptual models, and ensure consistency with recovery plans.
- CBDA ERP ($ Source): ERP staff work closely with CDFG staff in plan development, participate as members of the DRERIP Working Group, and serve as primary liaison with the Independent Science Board.

Suisun Marsh Implementation Plan—Multiple Agencies ($1,010,000; Prop. 50)

A comprehensive and collaborative effort is currently underway to prepare the Suisun Marsh Implementation Plan (SMIP) for the Suisun Marsh Ecological Management Zone. The ERP Implementing Agencies—CDFG, USFWS, and NOAA Fisheries—as well as CDWR, USBR, Suisun Resource Conservation District (SRCD), and the CBDA are participating in preparing this plan. The SMIP includes elements of ecosystem restoration, levee system integrity, water and water quality.

The SMIP will develop actions to restore habitat for tidal marsh dependent sensitive species by preserving and enhancing managed seasonal wetland, carrying out a comprehensive levee program, and protecting ecosystem and drinking water quality. The SMIP will present strategies for resolving permitting issues, for managing the Suisun Marsh, and for developing the scientific foundation for restoration and other actions. The SMIP represents the coordinated vision of the Suisun Marsh Charter that balances the needs and concerns of the Bay-Delta Program, the Suisun Marsh Preservation Agreement, and stakeholders. The SMIP will be updated periodically and refined based on adaptive management principles, new scientific knowledge, project and ecosystem monitoring, and implementation progress.

Participating agency staff are working collaboratively with other agencies to complete conceptual models, write the SMIP, develop appropriate alternatives, and begin analysis to prepare the public draft programmatic environmental impact statement/impact report. Staff will ensure science review is incorporated into the planning process. Below is a brief summary of agency-specific roles and associated funding for Year 4. Additional funds of approximately $1,700,000 will be needed in Year 5 to complete the plan and associated environmental documentation.

Agency-Specific Activities and Funding

- CDFG ($600,000 Prop. 50): CDFG is leading the collaboration to prepare the SMIP and is the State's co-lead for the environmental documentation; CDFG also serves as the main liaison with CBDA's ERP and Science Program staff. CDFG and CDWR are co-lead agencies responsible for California Environmental Quality Act (CEQA) compliance in the environmental documentation. CDFG also acts as contract manager for consultant

support in plan preparation and completing the necessary National Environmental Policy Act (NEPA) and CEQA documentation.

- CDWR ($100,000 Prop. 50): CDWR and CDFG are co-lead agencies responsible for CEQA compliance for the environmental documentation. CDWR is the lead State agency to coordinate SMIP actions with those outlined in the Suisun Marsh Preservation Agreement.
- USBR ($100,000 Prop. 50): The USBR may serve as NEPA lead agency as well as lead federal agency to coordinate SMIP actions with those outlined in the Suisun Marsh Preservation Agreement.
- USFWS and NOAA Fisheries (USFWS-$100,000): The USFWS and NOAA Fisheries role is to ensure consistency with the recovery plans for listed tidal dependent species and for Chinook salmon and steelhead, as well as to complete consultations under Section 7 of the federal Endangered Species. The USFWS or NOAA Fisheries may serve as the NEPA lead agency.
- SRCD ($110,000 Prop. 50): The SRCD plays a significant role in stakeholder outreach, education, and involvement.
- CBDA staff assigned to the ERP, Levee, Drinking Water Quality, and Science program elements (Prop. 50): ERP staff will serve as primary liaison with other Bay-Delta Program elements as well as the ERP's Independent Science Board and provide assistance to the writing group. Levee Program and Drinking Water Quality Program staff will ensure that SMIP elements related to their programs are consistent with their program goals. The Science Program will continue to assist the writing group with developing conceptual models and organizing and conducting a science workshop on the current state of knowledge for the Suisun Marsh.

Fish Passage Improvement Program—CDWR ($1,100,000 Prop. 50; $600,000 Prop. 204)

Established by 2001-02 Budget Change Proposal. The Fish Passage Improvement Program (FPIP) developed DWR Bulletin 250-2002 which was released for public review in 2003. FPIP established and participates in interagency and stakeholder fish passage forums to study and evaluate constructed structures that impede anadromous fish migration within the Central Valley and Bay-Delta drainages. FPIP staff will assist with and conduct engineering and environmental evaluations for migration barrier structure removal or modification, including projects on Bay Area tributaries, Bay-Delta tributaries, Napa River tributaries, Butte Creek, Calaveras, Merced River, Stanislaus River, American River, and Yuba River.

Nonnative Invasive Species and Wildlife Friendly Agriculture—CDFA ($139,000)

Established by 2001-02 Budget Change Proposal. The California Department of Food and Agriculture will provide staffing to support implementation of exotic species control measures, agriculture related water quality improvement measures, and wildlife friendly agriculture projects.

USFWS Fish and Wildlife Planning ($1,292,000)

NMFS – Restoration, Screens, etc ($800,000)

State Water Resources Control Board ($409,000)

Established by 2001-02 Budget Change Proposal. SWRCB will provide technical reviews of specific ERP project proposals and evaluate project merits in relation to other CALFED projects.

Aquatic Restoration Planning and Implementation (ARPI) (formerly called Yolo Basin Studies)—CDWR ($796,000)

ARPI is designed to help carryout the ERP actions and programs in the Yolo Basin with local support. Pilot-scale restoration improvements and baseline studies were identified and will be implemented over the next several years. ARPI is working to incorporate bypass-scale restoration into the Sacramento Area Flood Control Agency's Lower Sacramento River Regional Project. Other ARPI work includes developing program alternatives for habitat restoration projects in cooperation with project biologists, Federal and State agencies, and local groups; collecting site data for habitat restoration projects; and carrying out environmental review and permitting.

Giant Garter Snake (GGS) and Wetland Dependent Species Conservation Strategy—CDFG (ERP Year 4 PSP)

CDFG and USFWS will lead an effort to develop a multi-species, habitat-based conservation strategy approach focusing on GGS and other related-wetland dependent species. The giant garter snake conservation strategy that will build upon the foundation of the USFWS Recovery Plan for the GGS; ERP Plan; the Draft Stage 1 Implementation Plan; and MSCS-ERP milestones for the species. The strategy is expected to identify a need to solicit proposals for specific activities during the first available PSP cycle in Year 4.

Database Strategy Development and Implementation —CDFG ($300,000; Prop. 50)

CDFG, in collaboration with the California Bay-Delta Authority, NOAA Fisheries, USFWS, and Pacific States Marine Fisheries Commission, and guided by input from database users about their needs will begin the development of a comprehensive strategy to integrate the various existing ERP and ERP-related databases. This strategy will build on the successes of the coastal grants program database and California Habitat Restoration Project Database and will be expanded to include fields related to monitoring of both project specific and regional ecosystem restoration performance indicators. Work will include developing a front end to facilitate entering pertinent data by project managers and regional restoration coordinators, and State and federal Habitat Restoration Coordinators. This database strategy will provide information to help provide region-specific implementation guidance, program tracking, and performance evaluations to support adaptive management.

Research

Research activities include investigations to improve understanding of the Bay-Delta ecosystem and the species that depend upon it, including physical processes, habitats, and ecosystem stressors. It also includes efforts to resolve critical uncertainties and impediments to restoration as identified in the Strategic Plan for Ecosystem Restoration.

Salmon and Steelhead Genetics Archive Support—CDFG ($344,175)

CDFG is coordinating this directed action to coordinate field sampling and tissue archive activities for the salmon and steelhead genetics program known as the Anadromous Salmonid Genetic Tissue Collection and Archiving Project. This project coordinates efforts to systematically collect samples throughout the Central Valley for genetic analysis and maintain a centralized archive of samples for future analytical needs. Staff work includes meeting an increasing number of commitments for field collections of genetic tissue, long-term tissue archival, and tissue transmittal within CDFG, to NOAA-Fisheries, and to qualified researchers performing population genetic evaluations of Chinook salmon, Coho salmon, and steelhead trout throughout California. Activities also include setting up and maintaining the archiving system for genetic material sufficiently geographically extensive to support cross-comparisons of the results of differing DNA techniques, to standardize DNA data among laboratories, and to assess differing gene markers (loci) in various regional applications.

Upper Yuba River Studies—CDWR ($2,300,000)

This effort is to carry out field studies and modeling to determine if introduction of wild Chinook salmon and steelhead to the Upper Yuba River watershed is biologically, environmentally, and socio-economically feasible over the long term. Study areas include water and sediment quality, water supply, economics and social impacts, flood risk assessment, and fisheries habitat upstream and downstream of Englebright Dam. Studies will be completed by June 2004 and a recommendation to the ERP is expected in December of 2004.

Implementation

Implementation activities include direct efforts towards habitat restoration, projects to improve environmental water and sediment quality, environmental education, environmental water management including water purchases, fish screen and fish ladder construction, and projects to control non-native invasive species. The design and engineering component of projects and the related environmental permits and documents that lead directly to implementation also are included. Project specific monitoring is included as an implementation element.

Control discharges of mercury from mine sites in priority watersheds—CVRWQCB ($125,000)

The Central Valley Regional Water Quality Control Board is leading this support (1 PY) for regulatory actions on inactive mercury mines in the Cache Creek and Delta watersheds. Regional Board staff will perform site assessments, write permits and enforcement orders as appropriate, and review monitoring and perform inspections. A list of high priority mine sites has been selected that are upstream of existing habitat or planned restoration sites and that also contribute significant loads to the Delta.

Regional Coordination—CDFG ($2,075,281)

CDFG regional coordination staff participate in the ERP management framework to help ensure that CDFG's activities are coordinated and integrated with the activities of the ERP and other ERP Implementing Agencies.

- The regional coordinators and their CDFG mangers participate in: Agency/Stakeholder Ecosystem Team meetings, ERP Implementing Agency Managers meetings, and in Restoration Coordinator meetings in each of the ERP regions.
- The primary responsibility of CDFG regional coordinators is to communicate with State and Federal Habitat Restoration Coordinators, assist other ERP Implementing Agencies and CBDA in developing annual and longer-term regional implementation plans, and develop and carry out ERP actions and projects in cooperation with local agencies, governments, and stakeholders. Among the Stage 1 actions in which CDFG regional coordinators participate:
  - Yolo Bypass
  - Sacramento River meander belt through the Sacramento River Conservation Area
  - USBR's and the Water Forum's Lower River Corridor Management Program on the American River
  - Multi-Species Conservation Strategy consistency review
  - ERP project tracking

CDFG will develop a formal, internal coordination process for CBDA and Bay-Delta Program-related actions. The process will result in a statewide Bay-Delta Program coordinator as well as regional and branch coordinators who will serve as points of contact and coordination within a region or branch.

Tracy Mitigation Program—CDFG ($1,000,000; Water and Related Resources Funds)

The Tracy Fish Collection Facility (TFCF) was constructed and operated to divert and salvage fish entrained in the Delta-Mendota Canal. The initial expected salvage rate was never achieved, so measures to reduce and offset or replace direct losses of Chinook salmon and striped bass in the Delta associated with the Tracy Pumping Plant and TFCF operation were instituted. The "*Agreement Between U.S. Bureau of Reclamation and the California Department of Fish and Game to Reduce and Offset Direct Fish Losses Associated with the Operation of the Tracy Pumping Plant and the Tracy Fish Collection Facility*" (Tracy Agreement) was signed in June 1992. The Agreement's intent was to reduce direct fish losses at the TFCF through (1) facilities improvements or operational changes and (2) mitigate unavoidable losses. The Agreement guides TFCF operations and the mitigation fund administration.

The Agreement also initiated the Tracy Fish Collection Direct Loss Mitigation Program (Tracy Program), a CALFED ROD Category A Program. DFG administers the Tracy Program and develops the habitat restoration expenditures plan in collaboration with other ERP and cooperating agencies. The Tracy Program has spent approximately $3.72 million to-date. Tracy Program plans include funding 18 habitat enhancement projects within the ERP management zones during 2003-04.

San Joaquin Salinity and Selenium Reduction—CDWR ($459,000; Prop. 204)

The San Joaquin Salinity and Selenium Reduction effort is designed to improve water quality in the San Joaquin River by implementing selenium and salinity control measures. These activities address agricultural drainage as a source of nutrients, salts, and selenium to

the San Joaquin River. Activities to meet the salinity water quality objectives for the San Joaquin River include: (1) develop and implement projects to reduce drainage water, salts, selenium, and other constituents affecting ecological functions of the river; (2) develop and implement projects to concentrate, treat, and dispose of salts and trace elements; (3) work with local irrigation and drainage districts to develop agreements, educational programs and projects that result in drainage and selenium reduction, management, and disposal; (4) conduct research and develop projects to improve selenium treatment technologies; and (5) implement cost-effective drainage control measures to reduce toxic constituent load to the river and the Delta.

Support for Land Acquisition-related Phase I Environmental Assessment Review –CDWR ($25,000)

This agreement allows DWR to provide expert environmental site assessment-related services to CBDA for land acquisitions for approved ecosystem restoration projects purchased with CBDA or Resource Agency funds. These site assessments are necessary to limit future liability associated with the purchase of potentially contaminated properties.

Department of General Services Review of Appraisals –CDGS ($106,000)

CBDA maintains an account with the Department of General Services to cover expenses incurred by DGS for review of appraisals required for acquisition projects funded through the CBDA or Resources Agency.

Four Pumps Agreement Mitigation Program—CDFG ($7,268,000; State Water Project Funds)

CDFG, in partnership with DWR and in collaboration with the Delta Pumps Fish Protection Agreement Advisory Committee, approve projects to mitigate unavoidable losses at the SWP export facilities that also contribute to the Single Blueprint for ecosystem restoration.

The Four Pumps Agreement Mitigation Program is a ROD Category A Program and funds activities such as warden overtime to protect spring-run Chinook salmon and the Delta Bay Enhanced Enforcement Program; it also serves as funding partners for fish screen and ladder projects on Butte Creek and habitat restoration on the Merced River.

The Four Pumps Agreement Mitigation Program plans to continue funding for enforcement activities, the next stages of habitat restoration on the Merced River such as the Stones Reach, and a joint Regional Water Quality Control Board study of mercury contamination in gravel tailings.

Dedicated Project Yield—USFWS ($200,000; Restoration Fund)

This program is to continue efforts associated with dedication and management of 800,000 acre-feet of Central Valley Project yield primarily for anadromous fish restoration as directed by the CVPIA. Operations studies will be conducted to support implementation of objectives established by the Department of the Interior. Agreements will be reached with DWR for their cooperation to support these objectives, including potential conveyance of water through state water project facilities. There will be special monitoring of certain actions to provide for adaptive management.

Water Acquisition—USFWS ($6,860,000; Restoration Fund)

This program is to acquire water from willing sellers to help meet the fish doubling goals identified in the Anadromous Fish Restoration Program. Water will be acquired in the 18 tributaries of the Sacramento and San Joaquin rivers, ranked according to their biological priority as follows:

- Priority 1. Mill Creek, Deer Creek, Butte Creek, Yuba River,
- Priority 2. Clear Creek, Antelope Creek, Cow Creek, Big Chico Creek, Calaveras River, Stanislaus River, Tuolumne River,
- Priority 3. No tributaries in this ranking,
- Priority 4. Cottonwood Creek, Cosumnes River.

Since the implementation of CVPIA, fishery water acquisitions have been limited to short term acquisitions in one to two year periods. One permanent water acquisition is underway for a water right in Butte Creek but is awaiting an acceptable water right appraisal process.

Future year acquisitions will focus on a combination of short-term, and long-term purchases in Priority 1 tributaries with acquisitions of long-term permanent water receiving additional focus. To accomplish permanent acquisitions a water right appraisal process will be developed.

Clear Creek Restoration—USFWS ($500,000; Restoration Fund)

Clear Creek restoration continues to implement Chinook salmon and steelhead habitat enhancement projects through partnerships with local landowners, public and private agencies, and universities. Restoration activities focus on channel restoration, adding spawning gravel, and erosion control. Final designs are being prepared for channel restoration and environmental permits are being obtained for Phase 3 of the four-phase project. Phase 3 focuses on reconstructing the degraded stream channel by improving spawning habitat quantity and quality, adult holding pools, and juvenile rearing habitat.

FY2004 restoration activities include: (1) monitoring program documentation and quantifying juvenile production of steelhead and fall, late fall, winter and spring-runs of Chinook salmon; (2) monitoring geomorphic variables and juvenile fish stranding on a one mile section of creek severely degraded by past instream gravel mining; (3) erosion control projects to prevent fine sediment from entering Clear Creek and degrading spawning habitat; (4) restoring a one mile section of creek degraded by historic instream aggregate mining; (5) placing clean spawning-sized gravel at several locations along the creek to increase the spawning habitat quality and quantity; and (6) continuing funding for the Lower Clear Creek Coordinated Resource Management Group, a forum for local landowners and the general public to participate in the restoration efforts. [CVPIA Section 3406(b)(12)]

Anadromous Fish Restoration Program (AFRP)—USFWS ($3,000,000; Restoration Fund)

AFRP will continue to make reasonable efforts to at least double natural production of anadromous fish. To this end, AFRP will work with local watershed groups and other local partners to carry out locally developed and supported watershed restoration plans, giving

priority to actions that restore natural channel and riparian habitat values. AFRP will focus on streams with the potential to sustain natural production of winter-run Chinook salmon and spring-run Chinook salmon and steelhead; the streams that support these species include Sacramento, Yuba, and American rivers, and Battle, Mill, Deer, Big Chico, and Butte creeks. Emphasis will be on improving access for spawning adults to upstream habitat, protecting and restoring riparian and shaded riverine aquatic habitat, improving access for juvenile fish to flood plain habitats, and reducing loss of juveniles along their rearing and migratory corridors. Additional AFRP actions emphasize San Joaquin River Basin fall-run Chinook salmon, focusing on restoring river and tributary channels and channel-forming processes, restoring spawning gravels and riparian cover, and eliminating predator ponds on tributaries. [CVPIA Section 3406 (b)(1)]

Anadromous Fish Screen Program (AFSP)—USFWS ($3,000,000; Restoration Fund)

AFSP plans to screen the largest diversions on the Sacramento River as diverters volunteer and funds become available. AFSP screens contribute to the "at least doubling" Central Valley anadromous fish populations CVPIA goal; these screens are also important to protect listed and candidate species such as the winter-run and spring-run Chinook salmon, Delta smelt, steelhead trout, and splittail. Regulatory agencies, concerned that diversions are not screened rapidly enough, are considering regulatory actions. Fifteen fish screen or fish passage projects have been completed valley wide, and construction will continue on three more: Natomas Mutual Water Company, the city of Sacramento's Fairbairn Water Treatment Plant, and Sutter Mutual Water Company. Additional construction will be started on other high priorities along the Sacramento River. [CVPIA Section 3406(b)(21)]

Restoration of Riparian Habitat and Spawning Gravel—USFWS ($500,000; Restoration Fund)

Funding will be used for gravel restoration projects on the Upper Sacramento, American, and Stanislaus rivers immediately downstream from Kewsick, Nimbus, and Goodwin Dams, respectively. Preliminary planning and engineering are underway in newly identified downstream areas to determine optimal gravel placement. Permits and environmental documents will be obtained and processed, engineering completed, and projects carried out. [CVPIA 3405(b)(13)]

Other Central Valley Project Impacts—USFWS ($1,000,000; Restoration Fund)

This program funds acquiring fee title, conservation easements, restoration and management of habitats as well as surveys and studies for listed, proposed, or candidate species to facilitate better management decisions about acquisition, restoration, and management. The following FY 2004 projects are planned:

- Giant Garter Snake (GGS) Surveys at Colusa National Wildlife Refuge (CNWR) $75,000: Continue with GGS surveys on 400 acre Zumwalt tract at CNWR. Surveys provide management recommendations on agricultural land converted to snake habitat. Part of five year study.
- Giant Garter Snake Surveys at San Luis NWR and within the Grassland Ecological Area $200,000: Continue trapping/surveys for GGS on refuge lands and other properties within the Grassland Ecological Area to help gather data on habitat needs and

management implications for GGS. First year of study but expected to continue for two more years.

- Riparian Brush Rabbit $300,000: Continue ongoing funding of riparian brush rabbit captive breeding and propagation program. Yearly funding has averaged about $300,000 since 2000. Funds will be used for breeding pen construction, maintenance, and species reintroduction monitoring and other aspects of the captive breeding and propagation program.

The restoration activities of the (b)(1) "Other" Program are required as part of the Programmatic Section 7 Consultation for CVPIA and contributed to a conclusion of no jeopardy. Extensive coordination and partnership with other Federal, State, and non-governmental agencies will continue, particularly within CVPIA and CALFED. Between 1992 and 1998 every dollar of CVPIA funds was leveraged with $4.80 million of partner or non-CVPIA funds. [CVPIA Section 3406(b)(1)]

San Joaquin River Riparian Habitat Restoration Program—USFWS ($1,500,000)

In the San Joaquin Division, the Friant Water Users Authority, Natural Resources Defense Council, Pacific Coast Federation of Fishermen's Associations, and San Joaquin River Exchange Contractors Water Authority share a strong interest in the mainstem of the San Joaquin River and agreed to pursue mutually acceptable restoration activities. The San Joaquin River Riparian Habitat Restoration Program, formed in 1997, is the result of their collaboration; the program is to restore riparian habitat along the San Joaquin River corridor from Friant Dam to the confluence with the Merced River. Among the budgeted items for Year 4 are public involvement, refining groundwater and surface water models, compiling and analyzing Geographic Information system data, implementing riparian restoration projects identified in the Firebaugh to Mendota Corridor Evaluation of Opportunities as well as throughout the program area, continuing the removal of exotic vegetation, and carrying out the restoration plan for the Milburn/Hansen Unit. [CVPIA Section 3406(b)(1) Other]

Nonnative Invasive Species (NIS) Coordination

USFWS will continue to work with the NIS Agency and Stakeholder Teams to implement and administer the NIS program, as developed and documented in the NIS Strategic and Implementation Plans. This is new work and part of the Year 2 Single Blueprint. Funding originates from Federal Bay-Delta Act.

Environmental Water Program—USFWS ($7,300,000; Bay-Delta Act Funds)

The Environmental Water Program is working to acquire the 100 TAF annually by the end of Stage 1 on upstream tributaries to the Bay-Delta system to improve spawning and rearing habitat for salmonids and to implement ERP flow-related objectives on these tributaries. The EWP started initial outreach and coordination and has a goal of making one to three water acquisitions during Year 4. EWP anticipates making annual water acquisitions from 2004 through the end of Stage 1. The USFWS is the lead implementing agency working with CDFG and NOAA-Fisheries to carry out this program. Funds for EWP were originally appropriated in 1998 and therefore are not included in Table 2.

Dissolved Oxygen Projects – Central Valley Regional Water Quality Control Board (CVRWQCB) ($5,008,000; Prop. 13)

The CVRWQCB is leading the effort for regulatory actions, developing an implementation plan, and identifying pilot-scale projects to correct the dissolved oxygen problem in the Stockton Deep Water Ship Channel. Major dissolved oxygen (DO) projects for Year 4 include an aeration scoping and feasibility study; developing a DO Implementation Plan and Implementation Strategy; conducting workshops about non-aeration alternatives; and completing a gap analysis to develop a solicitation package. The Bay-Delta Program is likely to sign an interagency agreement with the State Water Resources Control Board to provide technical support to the DO projects; the CBDA may also identify directed actions for upstream monitoring and research. Funding for DO projects is split among ERP planning, research, and implementation tasks.

Monitoring

Monitoring activities include specific projects designed to gather project-specific generated data, efforts to assess restoration progress on a regional scale, and projects to continue the collection of long-term trend information for species, habitats, and hydrologic data.

Programmatic Quality Assurance and Quality Control for CBDA mercury research and monitoring projects—CDFG ($275,000)

CDFG will provide oversight and coordination for quality control and quality assurance of CBDA-funded mercury research and monitoring projects. With multiple projects and labs collecting and analyzing data, it is critical that the quality of the data is accurate and comparable between projects. CDFG oversight will include preparation of QAPP, management of QA program, MDL evaluation, and data set validation. An independent laboratory will perform interlab comparison studies, on-site lab assessments, and analysis of 5 percent field duplicates from the projects.

Real-Time Flow Monitoring—CDWR ($302,297)

CDWR is manages this project that continues the operation and maintenance of flow monitoring stations that are part of an effort to assess, acquire, and manage minimum base instream flows in five eastside Sacramento River tributaries.

Resource Assessment—CDFG ($828,000; General Fund)

Established by 2001-02 Budget Change Proposal. The Department of Fish and Game will provide staff for critical population monitoring and assessment of endangered salmon and steelhead resources within the Sacramento and San Joaquin River systems.

Oversight and Coordination

Oversight and coordination include CALFED agency coordination for restoration, activities of CALFED regional coordinators, review and assistance with regulatory compliance issues, developing annual work plans, developing a Single Blueprint for Restoration and Recovery,

administering proposal or grant solicitation processes, developing cross-cut budgets, and developing and reviewing State budget change proposals.

University of California Merced Web-Based Proposal Submission, Review and Management System.—CBDA ($179,576 in 03/04; $458,794 over 3-year contract)

The University of California – Merced develops and maintains a web-based system for the submission and review of proposals submitted in response to ERP proposal submittal processes.

University of California Davis Technical Support for Proposal Submittal Processes and Project Evaluations—CBDA ($ 920,150 in 03/04; $2,815,659 over 3-year contract)

The University of California – Davis provides technical experts to review proposals, participate in panels evaluating projects submitted in response to ERP proposal submittal processes, and assess and report on projects funded by the ERP.

Independent Science Board (ISB) Support—CBDA ($1,000,000)

The 12-member ISB provides expert advice on the development and implementation of the ERP. ISB members review ERP documents, advise ERP staff about critical scientific uncertainties, participate in adaptive management and other workshops, compile an annual ISB report about the ERP, attend scientific and technical meetings relevant to ERP, conduct limited data analyses or design review, and design adaptive management experiments for potential directed actions.

Environmental RFQ—CBDA ($600,000)

This Environmental RFQ was awarded to Jones and Stokes to support ERP activities in the following areas: (1) regulatory compliance, program documentation, and mitigation monitoring; (2) conducting scientific, technical, and issue-specific workshops and related activities; (3) developing public information and educational materials and conducting outreach events; (4) developing conflict resolution strategies and other dispute resolution activities; (5) assisting in program tracking and performance measure development; and (6) providing program support such as conducting technical studies, supporting annual implementation plan development, as well as specific ecosystem restoration programs and projects.

Communication and Outreach ($)

No additional funding as been directed to ERP Year 4 efforts for communication and outreach.

3 Percent Administrative Cost ($)

Prop 204 specified that 3 percent of the total can be charged to administrative costs. This is used to administer Prop 204 contracts.

5 Percent Restoration Reserve ($)

A restoration reserve fund is maintained to cover unexpected adjustments to existing contracts.

Bond Sale Fee ($)

There is a charge to sell Prop 204 bonds. The State Controller and the bond broker are each allocated a portion. There is no fixed fee for this service but the fee is estimated based on 3 percent.

Ecosystem Restoration Program Management ($385,000; General Fund)

The ERP relies on a variety of groups and mechanisms to ensure that the program is proceeding with a balanced approach, is based on science and is addressing priority actions. CBDA coordinates these processes, including the Agency/Stakeholder Ecosystem Team, the Independent Science Board, the Ecosystem Restoration Subcommittee of the Bay-Delta Public Advisory Committee, and scientific standing review panels. CBDA provides leadership in developing strategic frameworks, such as for non-native invasive species, and coordinates multi-entity implementation of frameworks, such as the recently developed mercury strategy. CBDA maintains a website and tracking information for coordinated communication.