

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

**Draft
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Disclaimer: This is an initial draft of the Ecosystem Restoration Program Multi-Year Program Plan and Year 4 Annual Work Plan. This document is being (or will be) reviewed by the Agency/Stakeholder Ecosystem Team (ASET), the Independent Science Board (ISB), the Ecosystem Restoration Subcommittee, the implementing agency program managers, and the California Bay-Delta Authority management. Changes, additions, deletions, and corrections to the text, tables and figures are anticipated as this draft document completes its full review cycle.

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Introduction

The CALFED Ecosystem Restoration Program (ERP) is designed 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. The ERP also is designed to achieve recovery of at-risk species dependent on the Delta and Suisun Bay, as identified in the CALFED'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. A foundation of the ERP is restoring 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 CALFED Bay-Delta Program elements.

The Implementing Agencies—California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NOAA Fisheries)—will take 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, and the environmental water quality elements of the Water Quality Program Plan (last four documents are parts of the CALFED Bay-Delta Program final programmatic environmental impact statement/environmental impact report dated July 21, 2000). 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.

Subsequent to the ROD, the ERP has developed a number of shorter-term planning documents. In August 2001, ERP released the Draft Stage 1 Implementation Plan. This plan presented the restoration and data gathering priorities 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 meet regional restoration and science needs. These refined priorities have been carried forward to annual work planning documents, including the 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 now this document, the Ecosystem Restoration Program Multi-year Program Plan (Years 4-7) and Year 4 Work Plan.

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 (see the ERP Strategic Plan for Ecosystem Restoration for more on the Single Blueprint). 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 CALFED 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 U.S. Fish and Wildlife Service and 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.

Goals and Objectives of the ERP

The Strategic Plan for Ecosystem Restoration lists six goals for the ERP, and the Draft Stage 1 Implementation Plan also incorporates goals for the CALFED Science Program and some programs from the Central Valley Project Improvement Act (CVPIA). All actions implemented using these plans must strongly link to one or more of these goals.

Ecosystem Restoration Program Strategic Goals

In 1998, a team of scientists developed six strategic goals for the ERP; a team of agency and stakeholder representatives later refined those goals into the current version. The ERP strategic goals are the basis for restoring ecological health to the Bay-Delta system and provide the framework for implementing ecosystem restoration actions. Each of the six strategic goals is interrelated; often accomplishments towards one goal also provide benefits to others. A brief discussion of the six ERP goals is presented below; a complete list of the goals and objectives can be found in the Draft Stage 1 Implementation Plan.

Goal 1: Endangered and Other At-Risk Species and Native Biotic Communities: This goal is aimed at recovering at-risk native species that depend upon the Delta, Suisun Bay and Marsh, San Francisco Bay and the watershed above the estuary as a means of establishing large, self-sustaining populations of those species. The goal also is to lessen the need for future endangered species listings by reversing downward population trends of native species that are not listed. There are four objectives associated with this goal which list the specific species or native biotic communities slated for recovery efforts.

Goal 2: Ecological Processes: This goal is aimed at rehabilitating the natural processes in the Bay-Delta estuary and its watershed to fully support the natural aquatic and associated terrestrial biotic communities and habitats in ways that favor native members of those communities and which require minimal ongoing human intervention. There are eight objectives associated with this goal. In order to restore and maintain native habitats and species, the objectives cover the following topics:

- Establish and maintain hydrologic and hydrodynamic regimes in the Bay and Delta;
- Increase estuarine productivity and rehabilitate estuarine food webs;
- 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;

- Establish hydrologic regimes in streams to maintain channel and sediment conditions;
- Reestablish floodplain inundation and channel-floodplain connectivity of sufficient frequency, timing, duration, and magnitude;
- Restore course sediment supplies to sediment-starved rivers downstream of reservoirs; and
- Increase the extent of freely meandering reaches and other pre-1850 river channel forms.

Goal 3: Harvestable Species: This goal is to maintain or enhance populations of selected species for sustainable commercial and recreational harvest, consistent with the other ERP Strategic Goals. Three of the four objectives in this goal address aquatic species and the fourth objective pertains to waterfowl and upland game hunting.

Goal 4: Habitats: This goal is to protect or restore functional habitat types in the Bay-Delta estuary and its watershed for ecological and public values such as supporting species and biotic communities, ecological processes, recreation, scientific research and aesthetics. Three of the five objectives for this goal are focus on restoring habitat and connectivity among habitats. The fourth objective is to minimize agricultural land conversion to urban and suburban uses and to maintain open space buffers. The fifth objective is to manage the Yolo and Sutter Bypasses as major areas of seasonal shallow water habitat to enhance native fish and wildlife.

Goal 5: Non-native Invasive Species: The aim of this goal is twofold: (1) to prevent additional non-native species from establishing in the Bay-Delta estuary and its watershed and (2) to reduce the negative biological and economic impacts of established non-native species in the Bay-Delta estuary and its watershed. The four of the eight objectives of this goal include eliminating further introductions or halting introductions of non-native species from ship ballast; marine and freshwater baits; unauthorized introduction; and private aquaculture operations, aquarium, and pet trade. Other objectives include halting non-native invasive aquatic and terrestrial plants in to the estuary, watershed, and other central California waters; reducing the impact of non-native mammals on native birds, mammals, and other organisms; limiting the spread or eradicating populations of non-native invasive species through focused management efforts; and preventing a zebra mussel invasion into California.

Goal 6: Sediment and Water Quality: This goal is to improve or maintain water and sediment quality conditions that fully support healthy and diverse aquatic ecosystems in the Bay-Delta watershed and to eliminate toxic impacts to aquatic organisms, wildlife, and people to the extent possible. The three objectives associated with the goal focuses on reducing loadings and concentrations of toxic contaminants; reducing loadings of oxygen-depleting substances from human activities; and reducing fine sediment loadings from human activities.

Look Back

Since its inception nearly seven years ago, the ERP facilitated funding for a variety of projects contributing to ecosystem restoration within the CALFED Solution Area. As part of its ongoing adaptive management effort, the ERP also engaged in a “Look Back” exercise during 2002 and 2003. The “Look Back” exercise involves three phases: (1) develop a methodology for evaluating projects, (2) pilot and perfect that methodology through initial evaluations of a subset of ERP projects, and (3) extend that methodology to the complete suite of ERP projects funded to date. Phase 1 involved interviewing ERP staff, agency staff, stakeholders and others to develop a mix of approaches, including interviews with project proponents, “mining” proposal documents for relevant information and creating various screening categories. Phase 2 focused on two scales of resolution: a program level and a project level. At a program level, existing information was reviewed and compiled for the 320 ERP projects funded from 1995 through 2001. At the project level, 49 projects were reviewed using either interviews or on-line surveys. Phase 2 results identified a number of areas where actions could be taken to improve the overall program, enhance project tracking and facilitate future performance evaluations. Most specifically, there is a need for a well-defined set of performance indicators. The evaluation also identified the need to improve the evaluation and feedback elements of the adaptive management process, both on a project and programmatic level.

Phase 3 of the Look Back exercise will begin in 2003. The recommended concept for Phase 3 has changed from a focused, one-point-in-time review and analysis, to more of a strategy for developing and engaging a structured framework for ongoing, continuous review at multiple levels.

ERP efforts are categorized under five activities. These categories are: (1) Planning, (2) Research, (3) Implementation, (4) Monitoring, and (5) Oversight and Coordination. Approaches to restoration include such efforts such as wildlife friendly agriculture/agricultural friendly wildlife and are included in planning, research, and implementation. These categories are described below.

Planning activities include staff efforts in regional ERP planning, developing a revised 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.

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. This category also includes efforts to resolve critical uncertainties and impediments to restoration as identified in the Strategic Plan for Ecosystem Restoration.

Implementation activities are subdivided into six subcategories: (a) Habitat Restoration, (b) Environmental Water and Sediment Quality, (c) Environmental Education, (d) Environmental Water Management (includes water purchases), (e) Fish Screens and Passage,

and (f) Non-native Invasive Species. These subcategories include direct efforts to implement projects as well as the design and engineering component of projects and the related environmental permits and documents that lead directly to implementation. Research tied to project implementation and project specific monitoring is included as an implementation element. As a result, a portion of the funding associated with implementation activities contributes to research and monitoring efforts supported by the ERP.

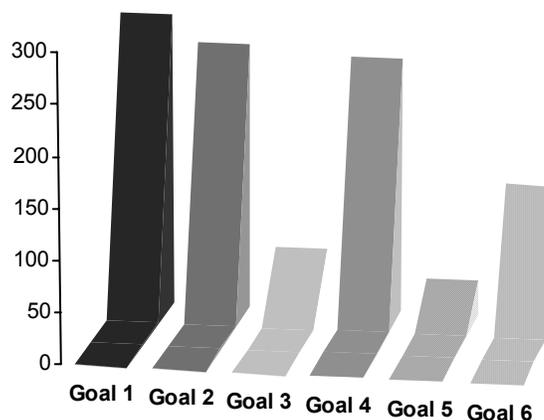
Monitoring activities include specific projects designed to gather project-specific data, efforts to assess restoration progress on a regional scale, and projects to continue the collection of long-term trend information for species, habitats, and hydrologic data.

Oversight and coordination include California Bay-Delta Authority coordination for restoration, including activities of California Bay Delta Authority (CBDA) regional restoration coordinators; review and assistance with regulatory compliance issues; developing annual work plans, including developing the Single Blueprint for Restoration and Recovery; administering proposal, grant solicitation, and peer-review processes; developing cross-cut budgets; and developing and reviewing State budget change proposals.

Progress¹: The ERP funded 382 projects for approximately \$400 million since 1995. This list of projects includes projects funded through the Category III process, which began in 1995 and was transferred to CALFED in 1997, and subsequent CALFED ERP proposal solicitation and directed action processes. Most allocations were for habitat protection and restoration, a trend that is likely to continue in the near future. ERP restoration activities over the last seven years range from planning and local watershed stewardship programs to research and physical habitat restoration.

There are at least three ways that ERP can assess the progress of the program: (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 first approach. Currently, ERP is beginning to address how to measure progress toward targets as part of the ongoing look back exercise. The ERP is also in the process of identifying indicators to track progress toward specific goals and

Figure 1. ERP-Funded Projects by Goal



Note: Many projects address multiple ERP Strategic Goals; these projects are counted under each applicable goal that the project addresses.

¹ Totals in the Progress category include early ERP projects from 1995.

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.

As of June 2002, most ERP projects (76 percent) contribute to Goal 1, which addresses at-risk species. Goal 2 (ecological processes) and Goal 4 (habitats) make up 69 percent and 67 percent, respectively, of total ERP-related effort. Goal 6, dealing with water and sediment quality, accounts for about 35 percent of the ERP-related projects. Finally, about 16 percent of ERP projects address Goal 3 (harvestable species) and about 9 percent of ERP projects address Goal 5 (non-native species). Because many ERP projects address more than one of the Strategic Goals, the preceding percentages total more than 100 percent. Figure 1 depicts the relative number of projects per ERP goal. Much of the ERP investment is in Goal 1 because recovering at-risk species is both a major focus of the Program and is a factor that affects water supply reliability. Although dollar amounts invested provides some level of measuring progress, the level of investment is not always the best indicator of what is a Program priority because some projects in some subcategories are inherently more expensive than others.

Table 1. ERP-Funded Restoration Projects through June 2002

(Does not include projects from 2002 PSP.)

Type of Project	Number of Projects	Percentage of Total	Total \$ (in millions)
Restoration of Multiple Habitats	23	7	60
Shallow Water Tidal and Marsh Habitat	29	9	24
Floodplains and Bypasses	11	3	14
Riparian Habitat	12	4	7
Channel Dynamics and Sediment Transport	22	7	28
Uplands and Wildlife Friendly Agriculture	5	2	39
Fish Screens and Passage	62	19	90
Fishery Assessments	25	8	9
Ecosystem Water and Sediment Quality	30	9	26
Environmental Water Management	3	1	6
Natural Flow Regimes	2	1	3
Non-native Invasive Species	18	6	6
Special Status Species	3	1	4
Local Watershed Stewardship	47	14	15
Environmental Education	28	9	4
Total	320	100	\$335

Delays and Issues: The delay in awarding contracts is significantly impacting the Implementing Agencies and the ERP in meeting their goals and objectives. The State budget and hiring restrictions limit staff available for implementation in all state agencies; lack of federal support limits federal agency participation as well.

Cross Program Integration and Linkages

In the CALFED Programmatic ROD, the ERP committed to integrating its activities with other Program elements, coordinating with other agency activities such as integrating CVPIA actions with ERP actions, and using a scientifically-based adaptive management approach. Below are the status and summary of significant activities showing cross program integration and linkages as well as a summary of anticipated next steps.

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 helps ensure coordination and integration, not only within the CALFED 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 CALFED 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 CALFED Bay-Delta Program elements, the CALFED ERP Implementing Agencies have offered input and tailored recommendations and permit conditions in support of the Single Blueprint.

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.

Another important part of the cross program integration and linkages is the ERP commitment to adaptive management. Adaptive management is one of the principles in the CALFED Bay-Delta Program’s Implementation Memorandum of Understanding (MOU). Under the MOU, CALFED agencies will carry out CALFED actions using a science-based adaptive

management approach. This approach relies on constant monitoring and evaluation of actions in all Program elements.

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. For more information about how the ERP uses the adaptive management process, please see Chapter 2 of the Draft Stage 1 Implementation Plan.

ERP is focusing on completing regional plans for ecosystem restoration. These plans will address linkages with other CALFED Program Elements. In addition to the ERP, the other CALFED Bay-Delta Program elements are: Water Management, Science, Drinking Water Quality, Water Use Efficiency, Levee System Integrity, Watershed Management, Storage, Conveyance, Water Transfer and the Environmental Water Account.

Below is a summary of how some of the ERP activities link with one or more of the CALFED Program elements.

ERP—Water Management Linkages: Many CALFED Program Elements, particularly Conveyance and the Environmental Water Account, have aspects which relate on short time scales to operations of the state and federal water projects. Project operations include yearly and seasonal forecasts of fisheries protection needs, meeting water quality standards, and water delivery needs, which are then translated into real-time reservoir and pumping plant actions. A number of important decision points about operations and operations planning for the future are pending in 2003 and 2004. The Bay Delta Authority and Implementing Agencies are working together to develop a framework for coordinating these operational and water management “Integrated Key Milestones.” Ensuring that the short and long-term water management efforts addressed by this package of Key Milestones protects the ecosystem or is consistent with or complementary of the ERP is a key linkage which will be the responsibility of the CDFG, NOAA Fisheries, and USFWS. These three agencies are ERP and EWA Implementing Agencies as well as regulatory agencies for project operations under the state and federal endangered species acts.

Through their active participation in Water Operations Management Team (WOMT) and Data Assessment Team (DAT) meetings, the Implementing Agency biologists make specific water management recommendations to reduce stressors on Delta fishes associated with entrainment and adverse hydrodynamic conditions. The Implementing Agencies embrace efforts to work with the Science Program and other institutions in the water management and operations arena to develop an integrated and shared set of scientific data to provide a common basis of understanding about how the ecosystem works. These efforts are addressed in public workshops designed to ensure that the science being used is objective, subject to peer review, and linked to key ERP milestones.

ERP—Science Program Linkages: The ERP and Science Program are closely linked. 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 Adaptive Management forums for Clear Creek and the Tuolumne and Merced rivers, and independent review processes within both programs. The Science Program, in turn, 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.

The ERP is coordinating 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. The ERP utilizes several Standing Boards and Technical Panels that were formed by or with input from the Science Program including proposal technical review panels, the Stockton Dissolved Oxygen Review Panel, and the Mercury Peer Review Panel. Dr. Sam Luoma, Lead Scientist, chairs the ERP Proposal Selection Panel. See additional information about ERP science experts under "Science and Performance Evaluation."

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. CDFG, USFWS and NOAA Fisheries are member agencies of the Interagency Ecological Program (IEP) for 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 annual IEP conference.

The ERP Implementing Agencies participate in various scientific conferences and symposia established by the Science Program where periodic reporting of research and management activities being carried out by the agencies (and non-governmental organizations) occurs. The Implementing Agencies regularly make scientific presentations at the CALFED Annual Science Conference, State of the Estuary Conference, IEP Workshop, and EWA Annual Science Review Panel workshop. The ERP Implementing Agencies also will play a major role in the June 2003 Science Symposium on Environmental and Ecological Effects of Proposed Long-term Water Project Operations.

ERP—Drinking Water Quality Program Linkages: The ERP has worked closely with the Drinking Water Quality Program in developing information and selecting projects to address water quality issues that impact both ecosystem and human health. To date, the ERP has invested over \$0 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 improve drinking water quality. In cases where ERP investments may adversely affect drinking water quality, the ERP has invested in research and monitoring to better understand potential effects. For example, some

ERP restoration activities may affect levels of organic carbon locally and regionally, and may therefore affect the quality of drinking water supplied from the Delta. The ERP has invested over \$10 million to improve the understanding of effects of restoration on organic carbon.

There have been joint meetings between the Ecosystem Restoration Subcommittee and the Drinking Water Subcommittee; the ERP has invested over \$10 million dollars in six different research projects that investigate potential impacts to drinking water from wetland restoration and organic carbon as a food resource for the aquatic ecosystem.

ERP—Water Use Efficiency Program Linkages: 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. Biologists from NOAA Fisheries, USFWS, and CDFG participate in the planning and implementation efforts to improve on-farm irrigation and drainage water management as well as wetlands management efficiency. Recommendations and input are designed to contribute to achieving the shared vision for ecosystem restoration at the local level.

ERP—Levee System Integrity Program Linkages: 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," which also meets a part of an ERP ROD commitment. A wildlife friendly levee habitat restoration and management project on McCormack-Williamson Tract will also contribute to improved levee system integrity. The Levee Program and ERP BDPAC subcommittees held a joint meeting this past year to discuss opportunities for improving coordination between the programs. Implementing Agency biologists actively participate in Delta Levees and Habitat Subcommittee meetings and, through co-management of the AB 360 Levee Program, CDFG exercises its regulatory responsibilities to help assure levee improvement and maintenance activities are implemented consistent with the Single Blueprint.

ERP—Watershed Program Linkages: 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. The ERP review process is designed to make sure that ERP-supported restoration actions have local input. The ERP embraces locally developed proposals, often funding efforts generated by local watershed groups. The Watershed Program continues to support local watershed groups funding assessments, monitoring and some restoration actions. Complementary efforts in numerous watersheds have been funded by both programs through close collaboration during project selection processes.

Two of ERP Implementing Agencies—CDFG and USFWS—also are implementing agencies for the Watershed Program. As such, CDFG and USFWS engage with stakeholders through the BDPAC Watershed Subcommittee; CDFG and USFWS staff also provides technical assistance, education and outreach to local communities through regional and watershed organizations. Habitat Restoration Coordinators provide technical assistance to local watershed groups. Updates about ERP activities relating to the Watershed Program take place during IWAT and BDPAC meetings.

The ERP Environmental Water Program (EWP) was established 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 require a lot of coordination and the participation of willing sellers on tributaries in watershed areas within the Watershed Program geographic scope. The EWP ought to provide more cross-program linkage opportunities for ERP and the Watershed Program.

ERP—Storage Program Linkages: 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. Implementing Agency biologists have proposed recommendations and permit conditions intended to be consistent with Single Blueprint. The Implementing Agencies embrace efforts to work with the Science Program and other institutions in the water management and operations arena to develop an integrated and shared set of scientific data to provide a common basis of understanding about how the ecosystem works. These efforts are addressed in public workshops designed to ensure that the science being used is objective, subject to peer review, and linked to key ERP milestones. Below is a brief description of some of the Storage Program activities in which ERP Implementing Agencies are active.

The North of Delta Offstream Storage (NODOS) project management team completed an MOA outlining coordination among agencies and partners to develop offstream storage capabilities north of the Delta. Two subcommittees of university scientists, private consultants, and agency scientists are developing flow regime models to determine when, where, and how much water could be diverted from the Sacramento River during high flows, stored, then used for beneficial and environmental restoration and water quality needs. These studies evaluate the potential affects on channel formation above Colusa and impacts to fisheries that might arise from these actions. Site specific biological resource surveys and reports were completed and an interagency team is developing a Habitat Evaluation Procedure (HEP) model for the program. Implementing Agency biologists actively participate in the planning associated with enlarging Los Vaqueros and completing a feasibility study of the Delta Wetlands Project as an alternative for in-Delta storage. For instance, CDFG biologists are working with Contra Costa Water District to identify and avoid or minimize environmental impacts that could interfere with achieving the shared vision for ecosystem restoration. Opportunities to enhance Delta fisheries are also being explored. CDFG biologists are working DWR planning staff to explore opportunities to integrate restoration with in-Delta storage options.

ERPP—Conveyance Program Linkages: The CALFED goal for Delta conveyance includes complementing ecosystem restoration. Many planned Conveyance Program actions could have ecosystem impacts which 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 in 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 biologists and North Delta Program staff. The ERP strongly supports increased involvement of independent and academic scientists in the North Delta Program including feedback from the ERP Independent Science Board, developing a UC Davis North Delta Advisory Scientist Panel, and the review of the North Delta Program planning process and plans by a soon-to-be established ERP-sponsored wetland and floodplain restoration standing review panel. Implementing Agency biologists also participate in the planning associated with South Delta Improvement Program. For instance, biologists are working with DWR to identify operational conditions that avoid or minimize environmental impacts that could occur from increased diversions. During the course of fulfilling their regulatory, coordination, and support roles for the other CALFED Bay-Delta Program elements, Implementing Agency biologists offer input and tailored recommendations and permit conditions intended to be consistent Single Blueprint.

ERP representatives are attending the CALFED Small Group DCCTDF (Delta Cross Channel/Through Delta Facilities) Integration initiated by the Metropolitan Water District of Southern California (MWDSC). The focus of this effort is to integrate DCCTDF alternatives development and evaluations with other CALFED Program elements. However, the group also recognizes the need for a forum to promote integration of all CALFED Programs efforts being planned for the Delta. Based on what is learned in this DCCTDF exercise CALFED Delta Regional Coordinators will propose a process for addressing integration of all CALFED Delta efforts.

ERP—Water Transfer Program Linkages: The DWR, USBR and State Water Resources Control Board (SWRCB) are implementing agencies for the Water Transfer Program. DWR and USBR also are implementing agencies under the Environmental Water Account Program (EWA). As described in the EWA section, the EWA, ERP, and 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. In an effort to develop cross-program linkages, the EWP developed a process for selecting pilot water acquisitions that includes a related program coordination plan. The cornerstone of the plan is a related program review whereby potential EWP projects will be evaluated by staff from all programs that seek to acquire or transfer water. Reviewers will be looking for opportunities to partner between programs and avoid conflict.

ERP—Environmental Water Account Linkages: The implementing agencies for the EWA are DWR, USBR, USFWS, NOAA Fisheries, and CDFG. USFWS, NOAA Fisheries, and CDFG are also the ERP Implementing Agencies; they are responsible for exercising biological judgment to determine SWP/CVP operational changes to protect and enhance at-risk fish species dependent on the Delta. All of the at-risk fish species that are targeted for enhancement and recovery by the EWA are also targeted for recovery by the ERP; hence there is a direct linkage between the goals of these two programs, i.e., fish recovery.

One of the ROD commitments (see “ERP ROD milestones”) calls for the purchase of up to 100 TAF of water (called “ERP water”) per year by the end of Stage 1 for use in upstream tributaries, as defined by the ERP and Strategic Plan, to improve salmon spawning and rearing habitat. This program commitment is being carried out under the auspices of the Environmental Water Program (EWP). The ROD also established the Environmental Water Account (EWA), a cooperative management program to protect fish of the Bay-Delta estuary through environmentally beneficial changes in CVP/SWP operations at no uncompensated water cost to the CVP/SWP water users. EWA program actions involve the development and management of alternative sources of water supply, called “EWA Assets”, which is used to achieve CALFED’s water supply reliability and ecosystem objectives, in particular, the protection and recovery of delta-dependent at-risk fish species. The EWA Operating Principles describe SWP and EWA sharing of ERP water on a 50-50 basis once this water has served its upstream purpose and arrives in the Delta.

One of the recommendations made in the EWA Science Review Panel 2002 report was that CALFED needs better integration of programs conceived and funded to protect species and habitats. In particular, the ERP was established to accomplish strategic program goals through habitat creation and management and the EWA was created to reach these goals through flow manipulations. The report states that programmatic integration of water acquisition programs is critical and that the “integrated effects of these actions directed toward species management could be different from the sum of the effects of individual actions.” One of the first EWP pilot water acquisitions may be coordinated with a EWA purchase so that synergistic benefits might be realized by both programs. CALFED staff that are responsible for implementing ERP and EWA programs are coordinating their activities closely and sharing information as these programs are being implemented.

Institutional Structure

Three agencies are responsible for implementing the ERP in coordination and along with oversight by the California Bay-Delta Authority; these are: the California Department of Fish and Game (CDFG); the U.S. Fish and Wildlife Service (USFWS), and NOAA Fisheries (formerly called National Marine Fisheries Service). 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." Another environmental scientist supports the IEP Program Manager to ensure closer collaboration between IEP and CALFED. 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 CALFED. One Staff Environmental Scientist provides regional implementation coordination, including coordination with existing CALFED Bay-Delta Authority 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 preparing to transition into a larger role in contract management in support of the ERP PSP process for Year 4, and will continue to expand their capacity to effectively manage and track ecosystem restoration grants.

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 Delta Regional Ecosystem Restoration Implementation Plan (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. Habitat Restoration Coordinators assigned to the AFRP participate in the Restoration Coordinator meetings described below under “Structure.” USFWS scientists are part of the Interagency Ecological Program, and the USFWS also is involved with the PSP working group and the MSCS team.

NOAA Fisheries. NOAA Fisheries is a signatory to the ROD, and is one of the Federal Implementing Agencies for CALFED, including ERP. NOAA Fisheries also has Federal Endangered Species Act (ESA) responsibilities for anadromous fish. NOAA Fisheries participation in the CALFED ERP 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 Team (MIT), ASET, ISB meetings, Performance Measure Workshops, and OCAP, EWA, and Salmon Science workshops, and various other subcommittee 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 CALFED 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 CALFED 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 Habitat Coordinators, 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. The act establishes the roles and

responsibilities of the CBDA and lists the implementing agencies for each CALFED 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 (see the Look Back section of this report for a description of activities associated with oversight and coordination). 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

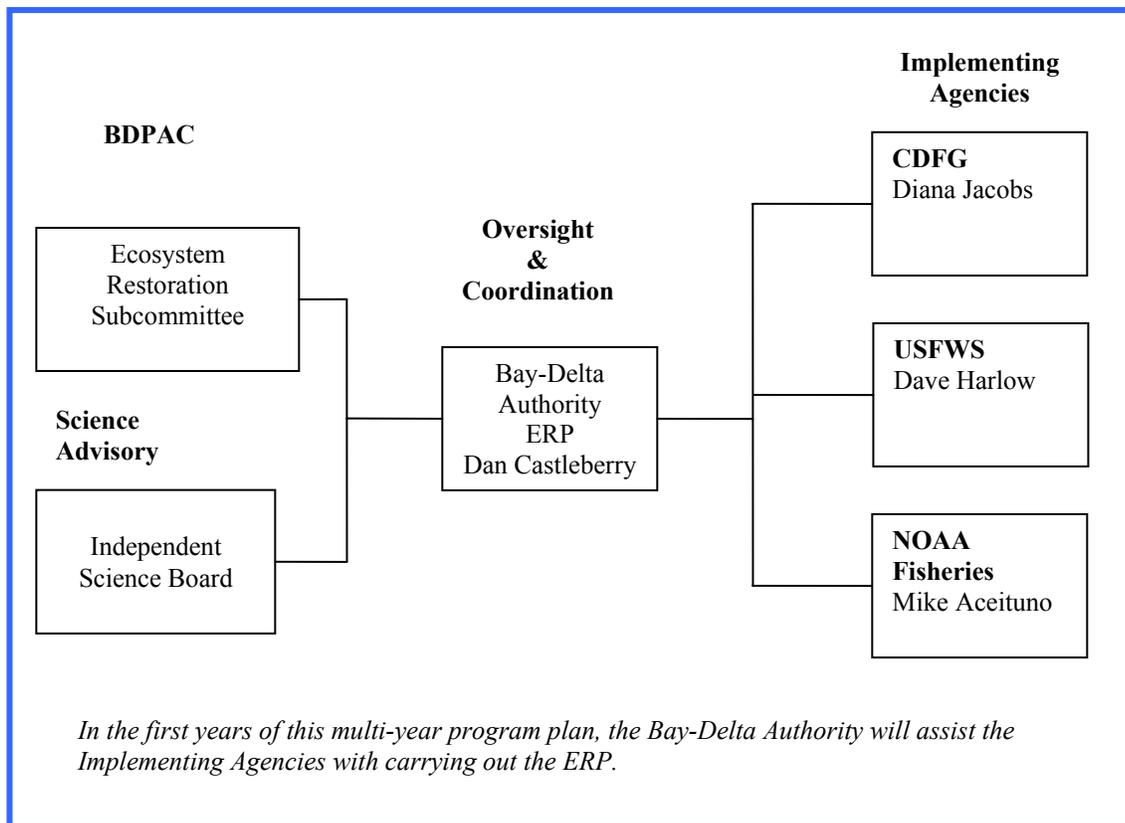
The Implementing Agencies and the CBDA developed an institutional structure for both the programmatic and process or project-specific levels. Figure 2 depicts the oversight and coordination structure for ERP. The programmatic-level structure focuses on coordinating planning and implementing the ERP as 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. Each of these restoration coordinators is 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. 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 Delta Regional Ecosystem Restoration Implementation Plan 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 are the ERP's Independent Science Board, the Agency/Stakeholder Ecosystem Team (ASET), and the Ecosystem Restoration Subcommittee. 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 subcommittees, especially the Working Landscapes and Environmental Justice subcommittees, and numerous local and regional groups. Only the Working Landscapes Subcommittee is discussed below; other California Bay-Delta Public Advisory Committee (BDPAC) subcommittees are discussed elsewhere in this document. Other groups that contribute to the ERP are not individually named here.

Figure 2. Structure for Bay-Delta Authority and ERP Oversight and Coordination



Independent Science Board. The ERP's Independent Science Board (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 Independent Science Board (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 CALFED Science Program also relies on the ISB to assist with scientific review and evaluation of science throughout the CALFED Bay-Delta Program. The ISB serves as a de facto CALFED 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 the BDPAC, a federal public advisory committee chartered by the Department of the Interior to advise the CALFED Bay-Delta Program. The role of this subcommittee is to provide BDPAC with guidance and advice regarding ERP and related CALFED 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 Record of Decision;
- 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. These 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 Delta Regional Ecosystem Restoration Implementation Plan (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 CALFED, 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, CDFG, USFWS, and NOAA Fisheries participate is the Working Landscapes Subcommittee. This subcommittee provides advice and guidance to BDPAC to ensure that the CALFED Bay-Delta Program’s implementation values the role of private land owners and operators in meeting CALFED 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.

Among the Working Landscapes Subcommittee’s anticipated Year 3 products is its “Framework Project Development and Selection Proposal,” which 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 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 CALFED projects are affecting farmland, examine approaches to evaluating these impacts' significance, and further outline measures for minimizing adverse effects. The subcommittee's recommendations help shape the ERP's implementation, especially the program's approach to soliciting and selecting projects that receive ERP funds and the conditions of their approval.

Tasks and ROD Milestones

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 CALFED agencies will also pursue. CALFED 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 Programmatic Record of Decision, Volume 1 (August 2000) for more information.

CALFED Program Commitments

Local Leadership: The CALFED agencies will rely on leadership in local communities across the State to provide advice and support for implementing CALFED 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 CALFED 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 them 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 from 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.

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

Multi-Year Program Plan (Years 4-7): Continue ERP participation and collaboration in the efforts listed above. The ERP will continue to solicit proposals for specific activities related to this ROD commitment.

Delays or Potential Issues:

Local Implementation: Local implementation involves soliciting and incorporating diverse stakeholder perspectives into the CALFED 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 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).

Multi-Year Program Plan (Years 4-7): Continue ERP participation and collaboration in the efforts listed above. The ERP will continue to solicit proposals for specific activities related to this ROD commitment.

Delays or Potential Issues:

Public Involvement: Public involvement is essential to the success for a program the size and magnitude of CALFED 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, 1275 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).

Multi-Year Program Plan (Years 4-7): Continue ERP participation and collaboration in the efforts listed above. The ERP will continue to solicit proposals for specific activities related to this ROD commitment.

Delays or Potential Issues:

Environmental Justice (EJ): 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 CALFED’s programs, 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 disproportionately affected by the contaminants. These populations include people who rely heavily on local fish as a food resource, and 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).

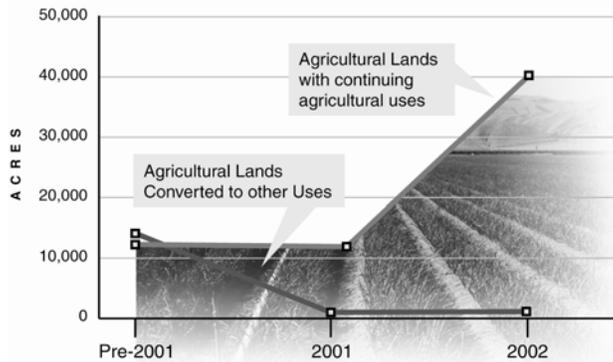
Multi-Year Program Plan (Years 4-7): Continue ERP participation and collaboration in the efforts listed above. The Environmental Justice Coordinator anticipates ERP participation in developing environmental justice performance measures and language for future ERP PSPs, as well as work with ERP and the 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.

Delays or Potential Issues:

Land Acquisition: Successful implementation of the CALFED 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 appropriate or cost-effective for the specific need.

Progress: The CALFED Bay-Delta Program made commitments in the Record of Decision 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. Since the ROD, the ERP has

funded more land acquisitions that conserve agricultural uses than before the ROD and converted fewer acres of agricultural lands to other uses. About 53,000 acres (80 percent) of the 66,000 acres dedicated to agricultural use were conserved since the ROD. The remaining 13,000 acres (20 percent) were funded prior to the ROD. Two thirds of (10,000 acres) the cultivated agricultural land dedicated to agricultural use was secured after the ROD acquired; only a third (5,000 acres) was secured before the ROD. On the other hand 14,000 acres (87 percent) of the 16,000 acres of agricultural lands that ERP-supported projects converted to nonagricultural use was funded before the ROD. Only 2,000 acres (13 percent) of ERP-funded farmland conversion has occurred since the ROD.



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 CALFED 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.

Multi-Year Program Plan (Years 4-7): Continue ERP participation and collaboration in the efforts listed above. The ERP will continue to solicit proposals for specific activities related to this ROD commitment.

Delays or Potential Issues:

Permit clearinghouse: The CALFED agencies will establish a permit clearinghouse for obtaining the necessary permits and approvals for CALFED 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 the Guide to Action Specific Implementation Plans (ASIPs). The ERP continues to provide support for regulatory compliance in ERP-funded projects and, through the Department of Fish and Game, assists project proponents in identifying permit and other regulatory obligations affecting them.

Year 4 Work Plan Tasks: The MSCS Interagency Team (MIT) 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.

Multi-Year Program Plan (Years 4-7): Continue ERP participation and collaboration in the efforts listed above.

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.

ERP Commitments

These ERP commitments are described in detail in Volumes 1 and 2 of the ERPP and the ERP Strategic Plan. The list also appears in the CALFED Programmatic ROD on pages 35-37.

Activities to meet these ERP ROD milestones for Year 4 and the rest of Stage 1 are subject to the adaptive management principle. For the most part, Year 4 Work Plan tasks and Multi-year Program Planning will depend upon the results of a PSP work group of CALFED agency representatives, ISB members, and stakeholder representatives who are drafting the Year 4 solicitation guidelines. Discussion may include identifying specific projects in order to continue to meet these ERP ROD milestones.

- **Implement large-scale restoration projects on selected streams and rivers including Clear Creek, Deer Creek, Cosumnes River, San Joaquin River and Tuolumne River, in cooperation with local participants.**

Progress: Since 1997, ERP has funded more than \$79 million for restoration projects on the listed streams and rivers. Fifteen projects along the Tuolumne River account for almost \$33 million; the Cosumnes River, with eight projects, accounts for about \$14 million. Approximately \$19.5 million was allocated for four projects along the San Joaquin River; more than \$10 million of that was to acquire and restore land on the San Joaquin River National Wildlife Refuge. Along the Merced River ERP has invested nearly \$9.5 million in 10 projects. The five projects along Deer Creek accounts for \$8.6 million and the three projects on Clear Creek come to \$3.8 million.

As part of the adaptive management process, ERP and AFRP initiated a peer review process for large-scale restoration projects on Clear Creek, the Tuolumne River, and Merced River called the Adaptive Management Forum for Large-Scale Channel and Riverine Habitat Restoration Projects (AMF). This review process, completed in Year 3, highlighted critical

information gaps limiting a science-based approach to ecosystem scale project design, monitoring, and management decisions. The AMF strongly recommended creating an “Investigative Team” to optimize the scientific opportunities created by these significant investments. The AMF recommendations have identified similar opportunities for other classes of ERP actions.

Year 4 Work Plan Tasks: ERP is working with the Science Program to institute an Investigative Team beginning in Year 4.

Multi-Year Program Plan (Years 4-7): Continue ERP participation and collaboration in the efforts listed above. The ERP will continue to solicit proposals for specific activities related to ERP ROD milestone.

Delays or Potential Issues: Unanticipated changes to state contracting procedures occurred in spring 2002, resulting in a nine month delay for completing the external contract for contracting services. It is unclear that this mechanism will be available in the future. A critical need for year 4 and beyond is to develop sufficient contract processing and invoicing capacity through ERP and the Implementing Agencies to process ERP grants and payments in a timely manner.

- **Improve fish passage through modifications or removal of the following locally owned dams: small diversion dams on Butte Creek; Pacific Gas & Electric Company diversion dams on Battle Creek; Woodbridge Dam on Mokelumne River; Clough Dam on Mill Creek.**

Progress: Since 1995, ERP has funded 19 fish passage modification or dam removal projects on the above listed streams for about \$66.5 million. The five projects along Battle Creek currently account for about \$45 million. Projects along Butte Creek account for about \$13.9 million. There are two projects on Mill Creek accounting for nearly \$6 million and one project relating to the Woodbridge Dam for approximately \$1.57 million.

Year 4 Work Plan Tasks: The ERP expects to continue projects on lower Butte Creek and Battle Creek, and to review restoration plans for Battle Creek.

Multi-Year Program Plan (Years 4-7): Continue investigating opportunities to improve fish passage in Central Valley streams.

Delays or Potential Issues: The cost of fish passage projects is escalating. The U.S. Bureau of Reclamation’s plans for dam removal at Battle Creek will cost significantly more than initial estimates. Reviews of the Woodbridge Dam fish passage projected cited total costs as an issue influencing the decision not to fund the project now.

- **Support studies 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 and make recommendations regarding other fish passage projects through the Integrated Storage Investigation (ISI) Fish Passage Improvement Program. Local interests will participate in implementing these actions, with funding shared by CALFED Agencies and the local interests, based on individual circumstances.**

Progress: The initial elements of the program (i.e., establishing the stakeholder group and identifying key issues) are complete. Also completed are the scopes of work for implementing the studies and a Technical Review Panel review, convened by CALFED, of those study plans. The study team, with continued involvement by the stakeholder group, has initiated work on the studies and is currently focusing the study effort on collecting information to characterize current conditions.

Year 4 Work Plan Tasks: Several tasks are anticipated for Year 4. These include:

- Complete characterization of current conditions for the habitat, sediment, water quality, flood risk, water supply, and economics study elements;
- Develop analysis scenarios for each of five fish passage options to be examined;
- Prepare interim work products for CALFED, stakeholder, and Technical Review Panel review;
- Initiate analysis of preliminary fish passage options; and
- Prepare final feasibility report for CALFED, stakeholder, and Technical Review Panel review.

Multi-Year Program Plan (Years 4-7): Upon completion of the studies, the stakeholder group, with continued facilitation and technical support from the study team, will make a recommendation to CALFED regarding the technical feasibility of introducing fish into the upper Yuba River. Based on the recommendation and the results of the studies, CALFED will decide whether to proceed with pursuing a specific fish passage project. If CALFED elects to proceed, additional studies and environmental documentation will be required to fully evaluate the project alternatives and to select a preferred project (s).

Delays or Potential Issues: The program is up and running with full participation by the stakeholder group. No technical or logistical issues that present the potential for delay have been identified to date. However, project funding has been allocated only to the initial phases study program (i.e., completion of the interim report). A delay in allocating funds for the remaining elements of the study program could interrupt progress, seriously affect program momentum, and possibly erode stakeholder confidence in the process.

- **Restore habitat in the Delta, San Pablo Bay, Suisun Bay and Suisun Marsh, and Yolo Bypass including tidal wetlands and riparian habitat. In addition, 8,000 to 12,000 acres of wildlife-friendly agricultural lands will be established during Stage 1, in cooperation with local participants.**

Progress: Nearly \$73 million in ERP funds have been allocated to the 34 habitat restoration projects in the four areas listed above. Most of the projects, 28 of them, are in the Delta; the Staten Island Acquisition for wildlife-friendly agriculture project required the most funds at \$35.1 million. Delta habitat restoration projects account for more than \$67.5 million to meet this commitment. Substantial progress has also been made in restoring San Pablo Bay's tidal marsh, where \$XX million has been allocated to YY projects. In the Suisun Bay and Marsh there are seven projects accounting for approximately \$2.86 million and in the Yolo Bypass, two projects tally at \$1.31 million.

Year 4 Work Plan Tasks: Restoration plans and environmental documents will be completed for the Hamilton Air Force Base-Bel Marin Keys, Napa River salt ponds, and Cullinan Ranch. Congressional authorization for the U.S. Corps of Engineers (USACE) implementation of the Hamilton Air Force Base-Bel Marin Keys and Napa River salt ponds restorations will be sought in the Water Resources Development Act. An important planning effort during Year 4 will be continued development of the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP), the first of four regional plans envisioned in the ERP Strategic Plan (please see the Planning section under “Strategies and Tasks” later in this document). The DRERIP will refine the ERP planning foundation specific to Delta region, including refining the set of Delta-specific restoration actions and targets, and will provide Delta-specific implementation guidance, program tracking, and guidance for performance evaluation and adaptive management feedback. DRERIP is the ERP component of the CALFED-wide Delta Regional Implementation plan, which will describe a balanced approach for achieving multiple CALFED program objectives while addressing local Delta concerns for recreation and agricultural preservation. Opportunities for achieving CALFED and ERP goals and objectives through working landscapes approaches will be included in these plans.

Multi-Year Program Plan (Years 4-7): USACE and state co-sponsors will carry out the Hamilton Air Force Base-Bel Marin Keys and Napa River salt ponds restoration plans. DRERIP is targeted for completion in Year 5 to guide future ERP Delta research and restoration activities.

Delays or Potential Issues: Wetland and floodplain restoration activities have the potential to increase organic carbon that may affect drinking water quality and increase methylmercury levels that may affect wildlife and humans eating fish from the region. Restoration activities ought to begin with pilot or small-scale projects, using monitoring and adaptive management to learn about water quality and other impacts. Restoration activities, water quality research, and monitoring ought to be closely linked to facilitate adaptive management.

- **Restore habitat and hydraulic needs on Frank's Tract in the Delta to optimize improvements in ecosystem restoration, levee stability, and Delta water quality. CALFED Agencies will decide the scope and feasibility of the project by 2002, and begin implementation by the end of Stage 1.**

Progress: In 2001, 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 scheduled for completion one year after subcontracts are signed.

Year 4 Work Plan Tasks: After subcontracts are signed, work on the feasibility will begin including such tasks as public outreach and agency coordination; gathering data and defining the baseline; developing and calibrating a model; defining alternative restoration concepts; preparing a monitoring and adaptive management program; and completing the feasibility report.

Multi-Year Program Plan (Years 4-7): After the feasibility report is completed, a preferred pilot project will submitted for next-phase funding.

Delays and Potential Issues: Delays in contracting and subcontracting may impact when this

commitment is attained. In addition to ecosystem benefits, drinking water quality (primarily salinity), levee integrity, and recreational (fishing & boating) issues need to be considered in determining next steps for this project.

- **Improve salmon spawning and juvenile survival in upstream tributaries as defined by the ERP and Strategic Plan, by purchasing up to 100 TAF per year by the end of Stage 1.**

Progress: The USFWS, an ERP implementing agency, is leading the Environmental Water Program efforts to acquire the 100 TAF annually by the end of Stage 1. Initial outreach and coordination has started and the expectation is that negotiations for specific blocks of water may begin by late 2003.

Year 4 Work Plan Tasks: EWP established a process for developing and selecting pilot water acquisitions and has a goal of making one to three water acquisitions during Year 4. These pilot acquisitions will help overcome the institutional and social constraints facing environmental water acquisitions.

Multi-Year Program Plan (Years 4-7): EWP anticipates making annual water acquisitions from 2004 through the end of Stage 1. EWP also anticipates preparing an annual report summarizing program acquisitions and the degree to which science and adaptive management have been incorporated into to program.

Delays or Potential Issues: Delays occurred as a result of lengthy water rights discussions and ISB review and refinement of the EWP 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), including easement or purchase of an additional 15,000 acres, revegetation, and restoration of stream meander function by the end of Stage 1.**

Progress: Since 1997, ERP has allocated approximately \$25 million to 11 projects directed at protecting and restoring the Sacramento River meander corridor. Through these actions, more than 2,000 acres have been purchased and approximately 300 acres have been restored.

Year 4 Work Plan Tasks: Additional funding has been allocated to purchase another 270 acres, and funds have been allocated to restore additional acres. Restoration and monitoring will continue on previous projects.

Multi-Year Program Plan (Years 4-7): Additional funding will be provided for easements, acquisition, restoration, and monitoring.

Delays or Potential Issues: None listed.

- **Implement an invasive species program, including prevention, control, and eradication.**

Progress: Non-native Invasive Species (NIS) Strategic and Implementation Plans were developed. ERP funded many NIS projects for research, technical assistance and implementation/restoration over the past 4 years, including \$1.5 million for projects from the

2002 PSP. Numerous watersheds are addressing NIS in their restoration plans. In 2002 CALFED renewed a 3-year contract with the Stockton U.S. Fish and Wildlife Service office to coordinate the NIS program.

Year 4 Work Plan Tasks: Year 4 tasks for the NIS program include: hiring a Watershed Coordinator, developing a database of watershed group NIS needs and contact information, distributing information about NIS species and pathway of introduction to stakeholders, managing contracts for NIS projects, and working with CALFED to develop the proposal solicitation package to address NIS. NIS Advisory Committee meetings will be held, and a workshop is planned to develop guidelines for incorporating "adaptive management" in NIS projects.

Multi-Year Program Plan (Years 4-7): The NIS program includes coordination with agency and stakeholder teams to implement the NIS program as developed and documented in the NIS Strategic and Implementation Plans, manage contracts for designated NIS projects, provide CALFED staff and other stakeholders with NIS information and materials, provide technical assistance and coordination to regional efforts and watershed groups and develop and maintain a reference collection of aquatic NIS.

Delays and Potential Issues: Environmental compliance delayed at least one invasive plant management project. One program goal is to address environmental compliance issues in future projects by providing information learned from past experience.

- **Assess the potential need for additional fish contamination monitoring and consumption advisories in the Bay-Delta watershed. If gaps are found, fund additional monitoring, testing, analysis, outreach, pollution prevention, and implementation of best management practices, as appropriate, by the end of Stage 1.**

Progress: In 1999, ERP funded a mercury study "Assessment of Ecological and Human Health Impacts of mercury in the Bay-Delta watershed" that included a component to determine concentrations of mercury in sport fish in the Delta and tributaries.

Since 2001, ERP 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. CALFED, the Central Valley Regional Water Quality Control Board, and the Delta tributary Mercury Council are jointly funding Phase 1 of a fish consumption study, including a public outreach and education component.

Year 4 Work Plan Tasks: There are several potential directed action projects that include fish tissue monitoring and public outreach and education from the 2002 PSP that will be revised and combined into one integrated proposal for resubmittal and potential funding in summer 2003. ERP is working with several state and local agencies in developing integrated data management so fish tissue data from various sources can be compiled and analyzed. These efforts are expected to continue over the next year. ERP is funding an integrated database at DWR that includes fish tissue data from various sources. The compiled data will enable the State to analyze the information and issue appropriate consumption advisories. The data integration effort with DWR will also provide existing fish tissue data to the public or other agencies via a web-based interface. These activities will continue into Year 4.

Multi-Year Program Plan (Years 4-7):

Delays and Potential Issues:

- **Assist existing agency programs to reduce turbidity and sedimentation; reduce the impairment caused by low dissolved oxygen conditions; reduce the impacts of pesticides including organochlorine pesticides; reduce the impacts of trace metals; mercury; and selenium; reduce salt sources to protect water supplies; and increase understanding of toxicity of unknown origin.**

Progress: Since 1995, ERP has funded approximately \$39 millions dollars for 52 water quality projects. Studies for dissolved oxygen for the San Joaquin River are not included in this total and are addressed elsewhere in this work plan. While many studies are not completed, results from some of these studies have assisted agencies programs (such as the Total Maximum Daily Load (TMDL) programs) to control sources of these constituents and evaluate and ecological impacts. Examples of constituent study areas that have contributed to progress towards on-going TMDL programs include: pesticides, selenium, and mercury.

Year 4 Work Plan Tasks: Staff will work with ERP and water quality implementing agencies to evaluate the contribution of ERP water quality projects on agency programs and define future data gaps and funding needs. Additional research, source control and monitoring projects will be solicited and funded as appropriate.

Multi-Year Program Plan (Years 4-7): Additional research and monitoring projects will be solicited and funded, as appropriate.

Delays and Potential Issues: Inadequate budget and staffing may cause delays in completion of specific projects.

- **Improve dissolved oxygen conditions in the San Joaquin River near Stockton. The dissolved oxygen in the San Joaquin River near Stockton dips below State environmental criteria, causing a migratory block for salmon and threatening other fish.**

Progress: In 1999 the Central Valley Regional Water Quality Control Board (RWQCB) authorized a process for stakeholders to work with the entities responsible for the problems and produce a plan to reduce loads of oxygen depleting substances. ERP participated in this process and works closely with the RWQCB and stakeholders. The four ROD milestones for dissolved oxygen coincide with completion of the RWQCB Dissolved Oxygen Total Maximum Daily Load (TMDL). Changes to the schedule for the milestones was approved in Year 2 and described in previous ERP work plans. ERP currently oversees the use of Prop 204 and 13 funds to support the studies need for the development of long-term solutions to solve the problem. The ERP funded two large studies in 1999 and 2001 totaling nearly \$4 million. These studies evaluate the sources and causes of low dissolved oxygen in the San Joaquin River and are nearly completed. In 2002, CALFED completed an independent peer review of the results of the completed studies. The reviewers noted good progress but further studies are needed.

Year 4 Work Plan Tasks: In March 2003, stakeholders and the RWQCB identified four multi-phased projects proposed for funding in 2003. These projects include: (1) further study

of sources and causes of oxygen depleting substances in the upper San Joaquin River, (2) a two-phased approach to complete an aeration demonstration project in the DWSC, (3) strategic planning and solicitation for non-aeration projects, and (4) program coordination. ERP made significant progress toward completing these projects. Specific Year 4 tasks include (but are limited to):

- Independent peer review of upstream studies and aeration proposals
- Formation of standing science panel for future PSP
- Completion of the RWQCB Implementation Plan and Implementation Strategy
- Award of aeration feasibility study
- Complete gap analysis for proposal solicitation
- Complete proposal solicitation for dissolved oxygen projects
- Fund project coordination and strategic planning efforts

Multi-Year Program Plan (Years 4-7): Continue to work with the RWQCB and stakeholders to solicit and fund projects that carry out the Dissolved Oxygen Implementation Plan and Implementation Strategy completed in Year 4. Continue to ensure projects are funded in a timeframe to allow completion of the TMDL and CALFED PEIS/EIR milestones. Specific projects would likely include:

- Gap analysis and screening of non-aeration alternatives
- Award of projects to obtain additional technical performance and cost information on possible non-alternative solutions.
- Identify local agency/sponsor for aeration demonstration project
- Award aeration demonstration project to local agency/sponsor
- Solicitation, award, construction and operation of a aeration demonstration project by local agency/sponsor
- Evaluate effectiveness of aeration demonstration project to improve dissolved oxygen conditions
- Completion of a EIR and RWQCB Basin Plan Amendment
- Additional studies and implementation projects will be solicited and funded as appropriate.

Delays or Potential Issues: Inadequate budget and staffing may cause delays in completion of specific projects. Regulatory actions taken by the RWQCB and/or U.S. EPA may require modifications of the ROD milestones and schedule.

- **Develop a Single Blueprint for Restoration and Recovery using the MSCS-ERP Milestones as a guide.**

Progress: A Single Blueprint for the ERP has been produced for years 1 through 3.

Year 4 Work Plan Task: Develop a Year 4 Single Blueprint, which will be appended to this document in Year 4.

Multi-Year Program Plan (Years 4-7): Continue to work with Implementing Agencies to make the Single Blueprint an effective and timely document which can assist decision-makers in their processes.

Delays or Potential Issues: Production of the Single Blueprint is complicated by state and federal budget delays.

- **Implement integrated flood management, ecosystem restoration, and levee restoration under the Sacramento/San Joaquin River Basins Comprehensive Study (Comp Study) being prepared by the USACE and California Reclamation Board. Significant elements of this Comprehensive Study, when implemented, will further the purposes of the ERP. The CALFED Agencies intend that final development and implementation of actions under the Comprehensive Study will be coordinated and consistent with the CALFED Bay-Delta Program. (The Framework for Action (June 2000) identified this action that was not analyzed in the Final Programmatic EIS/EIR and will, therefore, require additional environmental review.)**

Progress: An interim report and technical documentation for the Comp Study are complete. It includes procedures for coordinating future Comp Study projects with CALFED. Various modeling paradigms, including the Ecosystems Function Model, have been developed and are undergoing revisions. CALFED funding was secured for the Hamilton City Flood Damage Reduction and Environmental Restoration Feasibility Study, which is an initial component of the Comp Study.

Year 4 Work Plan Tasks: In Year 4, the USACE anticipates developing local sponsors for the Lower Sacramento River Regional Plan and Project Development aspect of the Comp Study. A public review draft of the Hamilton City feasibility study is scheduled for September 2003.

Multi-Year Program Plan (Years 4-7): Complete the Hamilton City feasibility study, scheduled for August 2004 (Year 5). Other components of the Comp Study that need to be addressed include a Lower San Joaquin River Basin Regional Project Development plan and an Upper San Joaquin River Basin Regional Plan and Project Development document. Other regional projects may be developed on an ongoing basis as necessary. The ERP is considering a directed action to study the feasibility of setting back levees on Deer Creek. If initial studies are promising, USACE sponsorship of a more thorough feasibility study may be sought.

Delays or Potential Issues: Adequate budget and staffing may delay either specific projects or the Comp Study itself.

Potential Mitigation Measures

The following is a list of mitigation measures listed in the CALFED Programmatic ROD to mitigate for impacts to agriculture land and water that may result from implementing the Preferred Program Alternative (A-12). CALFED 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 agricultural crops value' 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 CALFED projects' impact to agricultural lands are assessed and mitigated.

Multi-Year Program Plan (Years 4-7): The ERP will continue to apply these mitigation priorities and measures in its PSPs and to participate in the Working Landscapes Subcommittee.

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 CALFED 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.

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.

Two ERP undertakings contribute to the effective ecosystem-based management efforts. The first is ERP's commitment to adaptive management, the second is ERP's dedication to using sound science to help guide the adaptive management processes.

Adaptive management is a foundation stone of both ERP and CALFED. 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 trial and error, but the project proponents develop a series of adaptations (potential actions) from which to choose a considered thought process 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. Ensuring the scientific credibility of the ERP is an important responsibility of the CBDA and the Implementing Agencies, because good science 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/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. The Science Program and Lead Scientist manage the overall system for incorporating independent expertise (including the Executive Science Board) and specific working groups that address cross-cutting and CALFED-wide issues; with advice from the Science Program, individual

CALFED programs manage working groups that address program-specific issues. The Science Program's approach for incorporating independent science expertise involves four levels of working groups along with independent peer review by individuals: a CALFED-wide Executive Science Board, program-specific Science Boards, Standing Boards, and Technical Panels. Science Boards advise programs on the application of science and effectiveness of science practices within that program. 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. It is expected that many of these individuals will have participated in detailed analyses of narrower issues (e.g., on the Technical Panels). The Standing Boards will bring to bear the nation's best expertise on the Bay-Delta's most complicated and many-faceted issues, and bring continuity to that effort. Technical Panels provide expert input on individual issues, most of which have a finite timeline. Although these groups will sunset, they meet and re-meet over the full term of the issue they are addressing.

The ERP utilizes various science boards and panels. One of the ERP's goals in establishing science panels and boards is overlap (of one or two) in membership across the panels. This allows for better communication across ERP programs and provides panelists with an increased understanding of ERP-wide issues. The ERP's Independent Science Board (ISB), consisting of 13 international and local experts, has met several times per year since 1999 to discuss and advise the program on incorporation of science into ERP activities. 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. These two new panels will perform regular reviews of planned and on going restoration projects. The panels will review restoration planning processes and products (restoration and monitoring plans); review recommendations made by project advisory panels, and help to ensure that restoration activities on these parcels are coordinated with other ecosystem restoration activities in the area. ERP Technical Panels include proposal technical review panels and panels associated with planning processes such as the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP).

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 CALFED 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.

Performance Indicators. The ERP has been involved in developing indicators since 1996, along with major participation from agencies, stakeholders and other interested parties. In order to provide the rationale behind selected indicators, a frame work of desired ecosystem attributes and associated measurable parameters was developed. The framework was further organized by geologic system. Anthropogenic stressors were then overlaid on the framework suggesting areas of ecologic strengths and weakness.

The framework will be reviewed and further developed by scaling the indicator selection process to address ERP objectives and actions. This work is being undertaken by the Implementing Agencies representatives and the ERP staff. Strong interaction among indicator development, regional plans development, and the proposal solicitation process is planned.

Strategy and Tasks

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 earlier 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 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. Some criteria for such opportunities might 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;
- ❑ resolution of institutional impediments appears to be surmountable (local support exists, local forums exist); and
- ❑ momentum exists for the project (a history of prior investment might be an advantage).

Any discussion about ERP strategy and tasks involves “what counts.” CBDA, CDFG, and USFWS 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 process, or through the ERP PSP 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 information below relates to items (1) and (2).

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 Bay-Delta 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 CALFED in 1997, and subsequent ERP PSP and directed action processes.

Below is a summary of the strategies and tasks for carrying out the mission of the ERP. 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.

Planning

Progress: Progress continues to be made on many restoration efforts that either are funded by ERP or are consistent with ERP goals and objectives. Through the 2002 PSP, 12 ecosystem restoration planning projects were selected for funding totaling \$6.3 million. Below is a list, by region, of ERP’s participation in or coordination with major restoration planning efforts.

Multi-Regional:

- ERP Mercury Strategy Plan
- Strategic Plan for Abandoned Mines Remediation using Prop. 13 funds
- Collaboration with the Working Landscape Subcommittee focusing on working landscape, wildlife-friendly agriculture, and agricultural-friendly wildlife issues

Bay Region:

- San Francisco Bay Area Wetlands Restoration Program
- San Francisco Estuary Projects Comprehensive Conservation and Management Plan
- BCDC San Francisco Bay Plan update
- San Francisco Bay Joint Venture
- San Pablo Bay Watershed Restoration Program
- Bay Area Conservancy Program
- Hamilton Air Force Base--Bel Marin Keys Wetland Restoration and Napa River Salt Marsh Restoration Planning
- Cullinan Ranch Tidal Marsh Restoration Planning
- Suisun Marsh Implementation Plan
- Recovery Plan for Tidal Marsh Ecosystems of Central and Northern California

Delta Region:

- Delta Regional Ecosystem Restoration Implementation Plan (DRERIP)
- San Francisco Estuary Projects Comprehensive Conservation and Management Plan
- North Delta Planning
- TMDL for the dissolved oxygen in the San Joaquin River
- Grizzly Island Restoration Planning
- Dutch Slough Restoration Planning

Sacramento Region:

- Battle Creek Watershed Planning
- Yuba-Feather River Studies Program
- Upper Yuba River Studies Program
- Sacramento River Conservation Area Forum
- Lower American River Task Force and River Corridor Planning
- Sacramento and San Joaquin River Basins California Comprehensive Study
- Sacramento River Corridor Forum

San Joaquin Region:

- Strategic Plan for the San Joaquin River Dissolved Oxygen Implementation Program using Prop. 13 funds
- San Joaquin River Management Program
- San Joaquin Habitat Joint Venture
- Vernalis Adaptive Management Program
- Friant/NRDC San Joaquin Planning
- Merced River Stakeholders Group
- Merced River Adaptive Management Forum
- Tuolumne River Technical Advisory Committee
- Tuolumne River Coalition Steering Committee
- Stanislaus River Fish Group
- Sacramento and San Joaquin River Basins California Comprehensive Study

Year 4 Tasks: Year 4 activities include continuing the ERP participation and collaboration in the planning efforts listed above. New planning efforts that may begin during Year 4 include a study of the feasibility of setting back levees along the lower Deer Creek.

Multi-Year Program Plan (Years 4-7): Continue ERP participation and collaboration in the planning efforts listed above. Major planning efforts, such as those for the Suisun Marsh Implementation Plan or the Delta Regional Ecosystem Restoration Implementation Plan, currently are projected for completion by the end of Stage 1.

Delays and Potential Issues: Adequate levels of funding and staffing, and the usual contracting delays, may lead to delays in completing some of the necessary studies essential to completing ecosystem restoration planning efforts.

Research

Progress: ERP funded research activities focus mostly on understanding the Bay-Delta ecosystem and the species that depend upon it. Research topics include physical processes, habitats, and ecosystem stressors; research activities also include efforts to resolve critical uncertainties and restoration impediments as described in the Draft Stage 1 Implementation Plan.

Year 4 Tasks: A PSP work group of CALFED agency representatives, ISB members, and stakeholder representatives are meeting to draft the Year 4 solicitation guidelines. Discussion may include identifying specific research areas based upon previously identified need for information.

Multi-Year Program Plan (Years 4-7): Multi-year program planning for research will be guided by the adaptive management principle for ERP.

Delays and Potential Issues: Adequate levels of funding and staffing may lead to delays in completing some of the necessary studies essential to completing ecosystem restoration research efforts. The length of time it takes to process contracts for research projects is a potential issue.

Implementation

Implementation is divided into six subcategories. These are: (1) habitat restoration; (2) environmental water and sediment quality; (3) environmental education; (4) environmental water management; (5) fish screens and passage; and (6) non-native invasive species.

Progress: Implementation activities range from water purchases to fish screen and fish ladder construction to projects designed to control non-native invasive species. Implementation activities also include the designing and engineering of projects, the related environmental permits and documents that lead to project-specific implementation, and project monitoring.

Year 4 Tasks: A PSP work group of CALFED agency representatives, ISB members, and stakeholder representatives are meeting to draft the Year 4 solicitation guidelines. Discussion may include identifying specific implementation activities based upon previously identified need for information.

Multi-Year Program Plan (Years 4-7): Existing implementation efforts will continue until they are completed. New implementation efforts will be selected using information developed through adaptive management, the draft Stage I Implementation Plan and continued collaboration and consultation with CALFED member agencies, stakeholder groups, and public input.

Delays and Potential Issues: Adequate levels of funding and staffing may lead to delays in completing some of the necessary studies essential to completing ecosystem restoration research efforts. The length of time it takes to process contracts for implementation projects is a potential issue. Other potential issues include obtaining permits, and for wetlands and floodplain restoration projects, there are concerns about mercury methylation and food web exposure along with dissolved organic carbon effects on treated drinking water.

Monitoring

Progress: ERP approved nine monitoring projects which will continue or be completed by the end of Year 3. An additional project may be considered for a directed action as a result of the 2002 PSP. Monitoring is also a feature of several projects categorized as implementation.

Year 4 Tasks: A PSP work group of CALFED agency representatives, ISB members, and stakeholder representatives are meeting to draft the Year 4 solicitation guidelines. Discussion may include identifying specific monitoring activities based upon previously identified need for information. Another Year 4 task includes coordination with a Science Program-funded wetlands restoration monitoring pilot project.

Multi-Year Program Plan (Years 4-7): A strength of the CALFED Program is the monitoring systems already in place in the system. Common questions and subsequent investments are needed to tie together the existing monitoring. New monitoring efforts are needed in some types of environments. Pilot projects testing new monitoring approaches will be an important part of this effort. High priority is necessary for environments where monitoring programs are least well developed, such as riparian zones, floodplains and wetlands. Continue coordination with the Science Program on monitoring efforts.

Delays and Potential Issues:

Oversight and Coordination

Progress: CALFED ERP staff has assisted in oversight and coordination of the program by developing various reports such as program assessments and work plans, the Single Blueprint, performance measure workshops, and by participating in committees and workgroups in collaboration with CALFED agencies, stakeholder groups, and the public.

Year 4 Tasks: ERP staff will continue its oversight and coordination efforts with other CALFED agencies, emphasizing regional implementation with local agencies and stakeholder groups.

Multi-Year Program Plan (Years 4-7): No significant change in ERP oversight and coordination is anticipated at this time.

Delays and Potential Issues: Adequate levels of funding and staffing may lead to delays in completing some of the necessary oversight and coordination efforts. The length of time it takes to process contracts for research projects is a potential issue.

MSCS-ERP Milestones

The CALFED 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 (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 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.

Regional Descriptions

The ERP geographic scope fits within four of the five CALFED 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 CALFED 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.

For more information about Year 4 work plan tasks and Multi-Year Program Plan for the Bay, please see the “Strategies and Tasks” section earlier in this report.

Delta and Eastside Tributaries Region. The Sacramento-San Joaquin River Delta (Delta) is the tidal confluence of the Sacramento and San Joaquin rivers. The CALFED 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., Mokelumne 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.

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

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.

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

San Joaquin Region. The San Joaquin River and its tributaries are the second significant contributor to flows of the Bay-Delta system. Much of the natural flows have 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 priorities 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 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 than 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 action 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.

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

Long-term Expenditure Plan.

The information below is a summary of Stage 1 projected expenditures and cost sharing allocations. During the first three years of Stage 1 implementation most of the funds allocated came from State funds or local user cost sharing; a minimal amount of funding came from the Federal government. However, for cost sharing to remain unchanged over Stage 1, there likely will be a dramatic shift in funding sources in Years 4-7; during the remainder of Stage 1 the majority of funding will need to come from the Federal government in addition to the local user cost sharing.

The ERP Stage 1 Projected Expenditures are as follows:

Program Year (Millions of Dollars)							Cost Sharing			
1	2	3	4	5	6	7	Total	Fed	State	Other*
\$235	\$198	\$163	\$168	\$220	\$218	\$218	\$1,420	\$510	\$510	\$400

*Other = User/Local Funding

Funding Commitments in Years 1 and 2 were predominantly State funds (State: \$329.8 million; Federal: \$17.5 million, User/Local Funding: \$76.9 million). Year 3 State funding commitment for the ERP is projected to be \$140 million, about \$40.2 million less than the originally projected State Stage 1 commitment of \$510 million. The projected Federal contribution of \$1.2 million for Year 3 will bring the cumulative Federal funding commitment to \$18.7 million. The projected user/local funding for Year 3 is \$48.3 million, for a cumulative commitment of \$125.2 million.

Year	State	Federal	Local/User ⁴	Total
1 ¹	190.7	11.0	34.3	236.0
2 ²	139.1	6.5	42.6	188.2
3 ³	140.0	1.2	48.3	189.5 ⁵
Total	469.8	18.7	125.2	613.7

1. Source: CALFED Bay-Delta Program, Annual Report 2001
2. Source: CALFED Bay-Delta Program, Annual Report 2001
3. Source: CALFED budget staff, July 19, 2002.
4. Note: the "Local/User" category includes State SWP funds, Federal CVPIA Restoration Funds, and other local cost share funds.
5. The Year 3 total of \$189.5 million reflects actual funding level and differs from the Year 3 numbers presented in the previous table of ERP Stage 1 Projected Expenditures.

Projected Expenditure by Task for Year 4³:

Program Element (Task)	Percent of Budget (%)	Stage 1 Estimate (\$)	Year 4 Estimate (\$)
Planning	4.3	61,000,000	7,408,900
Research	1.1	15,000,000	1,895,300
Implementation*	88.4	1,255,000,000	152,313,200
Monitoring	2.6	38,000,000	4,479,800
Oversight and Coordination	3.6	51,000,000	6,202,800
Total	100	\$1,420,000,000	

* The Implementation program element includes habitat restoration, environmental water and sediment quality, environmental education, environmental water management, fish screens and passage, and non-native invasive species. It also includes planning and research tied to project implementation and project specific monitoring. As a result, a portion of the funding associated with implementation activities contributes to planning, research and monitoring efforts supported by the ERP.

Cost Share Funding for Year 4: Refer to Attachment 1 for additional detail.

Program Element	State	Federal	Local/User¹	Total
Planning	7,408,900			7,408,900
Research	1,895,300			1,895,300
Implementation ²	109,245,200	1,700,000	41,368,000	152,313,200
Monitoring	4,479,800			4,479,800
Oversight	6,202,800			6,202,800
Total	\$129,232,000	\$1,700,000	\$41,368,000	\$172,300,000

¹ The Local/User amounts include the following: \$7,268,000 in State Water Project (SWP) funds, \$14,100,000 in CVPIA Restoration Funds, and an estimated \$20,000,000 in local cost share for PSP projects. The \$23.5 million figure was the amount of local cost share for projects selected in the 2002 PSP.

² The Implementation program element includes habitat restoration, environmental water and sediment quality, environmental education, environmental water management, fish screens and passage, and non-native invasive species. It also includes planning and research tied to project implementation and project specific monitoring. As a result, a portion of the funding associated with implementation activities contributes to planning, research and monitoring efforts supported by the ERP.

³ Approved cost estimates showed 5.6, 2.6, 83, 4.2, and 4.0 percent in June 21, 2002 tracking report.

State, Federal, Local/Water User Cost Sharing

The table below shows State, Federal, and local user cost share funding projected for the ERP in the Framework for Action. During Years 1 through 3, the State committed more funds than the Federal government and local/users, and has nearly committed all funding projected for Stage 1, including Years 4 through 7. If the State, Federal, and local/water user cost sharing projections are to be followed, then most of the balance for Year 4 through 7 will need to be from Federal and local/water user sources.

Source	Framework Commitment	Committed⁴ through Year 3	Year 4-7 Balance
State	510,000,000	469,800,000	40,200,000
Federal	510,000,000	18,700,000	491,300,000
Local/User	400,000,000	125,200,000	274,800,000
Total	\$1,420,000,000	\$613,700,000	\$806,300,000

Prior Year Funding

The only carry over funding for the ERP is prior year funding provided by the Federal Bay Delta Act which provided funding for the ERP’s Environmental Water Program. As of October 31, 2001, \$7.35 million was available for programs and projects related to acquisition of water through the Environmental Water Program.

⁴ The terms “commit/commitment” signify that CALFED has agreed to reserve and expend funds for specific purposes. These funds may not yet be encumbered through a formal contract nor expended.

Long-term Schedule

Below is a long-term schedule summary for representative ERP tasks.

Activity and Sub-activities	Stage 1 Key Dates
Single Blueprint for Restoration and Recovery <ul style="list-style-type: none"> ▪ Establish Grant Program 	Annually, in February August 2001
Regional Ecosystem Planning and Implementation	
<i>Delta Region</i>	
<ul style="list-style-type: none"> ▪ Delta Regional Ecosystem Restoration Implementation Plan <ul style="list-style-type: none"> Begin Planning and Development Complete Planning and Development Implementation ▪ Cosumnes—Mokelumne Rivers Corridor & Floodplain Conservation Uplands & Wildlife Friendly Ag. At-Risk Species/Multiple Habitats 	June 2001 December 2004 December 2004 April 2001 through August 2007 June 2002 through August 2007 April 2001 through August 2007
<i>Bay Region</i>	
<ul style="list-style-type: none"> ▪ Integration with San Francisco Estuary Project ▪ Napa River Estuary Restoration Watershed Planning ▪ Napa River salt pond WRDA authorization ▪ Petaluma Marsh Restoration <ul style="list-style-type: none"> Hamilton AFB-Bell Marin Keys Wetland Restoration WRDA authorization Bahia Tidal Wetlands implementation ▪ Development of the Suisun Marsh Regional Ecosystem Restoration Implementation Plan 	August 2000 through August 2007 August 2000 through August 2007 April 2001 2004 August 2000 through August 2007 2004 2003 through 2004 2003 through 2007
<i>Sacramento Region</i>	
<ul style="list-style-type: none"> ▪ Battle Creek Restoration Project <ul style="list-style-type: none"> Fishery Assessment Riparian Protection Science Evaluation ▪ Upper Yuba Rivers Studies Program <ul style="list-style-type: none"> Planning Fund Research Investigation ▪ Clear Creek Restoration <ul style="list-style-type: none"> Improve Fish Passage and Restore 	August 2000 through August 2007 August 2000 through August 2007 April 2001 through August 2007 October 2002 August 2000 through August 2007 August 2000 through April 2002 October 2002 August 2000 through August 2007 August 2000 through August 2007

<p>Natural Channel Functions Remove McCormick-Saeltzer Dam Fishery Assessment</p> <ul style="list-style-type: none"> ▪ Butte Creek* Barrier Modification Fishery Assessment 	<p>September 2001 August 2000 through August 2007 August 2000 through August 2007 August 2000 through August 2004 April 2001 through August 2007</p>
<p><i>San Joaquin Region</i></p> <ul style="list-style-type: none"> ▪ San Joaquin River Dissolved Oxygen Program ▪ Tuolumne River Restoration** La Granges Gravel Restore SRP 9 Restore 7/11 Mining Reach Warner Deardorff Reach Fine/Coarse Sediment Studies 	<p>August 2000 through August 2007 August 2000 through August 2007 August 2000 September 2001 September 2003 September 2004 June 2001 through September 2004</p>
<p><i>Multi-Region</i></p> <ul style="list-style-type: none"> ▪ ERP Mercury Science Strategy Strategy Workshop Directed Actions ▪ Environmental Water Program Water Acquisition ▪ Integration with Sacramento & San Joaquin Rivers/Basins Comprehensive Study Coordinate Integrate ▪ Working Landscapes & Wildlife Friendly Agriculture 	<p>August 2000 through August 2007 October 2002 March 2003 August 2000 through August 2007 Annual in August, 2001 through 2007 August 2000 through August 2007 April 2001 through June 2003 December 2002 through August 2007 June 2001 through August 2007</p>
<p>* Increase spring run Chinook salmon production; improve fish passage, screens, and water distribution. ** Improve fish passage and restore natural channel dynamics and riparian habitat.</p>	