

## Section 4: Regional Ecosystem Restoration Implementation Planning and Adaptive Management

This section lists the planning documents that guide the Ecosystem Restoration Program's (ERP) implementation, summarizes the adaptive management process used in ecosystem restoration planning and implementation, how targets may be revised, briefly describes the ERP's regional ecosystem restoration plan vetting process, and describes how this information is used to develop near-term priorities and make funding decisions. In the near term, priority setting and funding decisions regarding progress toward substantially implementing milestones will be influenced by information developed in this milestone assessment. In the long term, the regional planning process will provide additional information expected to guide implementation of the ERP.

### ERP Planning Documents

Existing long-term planning documents that guide ERP implementation include:

- the *CALFED Programmatic Record of Decision (ROD, August 28, 2000)* [ROD attachments include the programmatic biological opinions and NCCP Approval which includes the milestones. The Conservation Agreement Regarding the Multi-Species Conservation Strategy is also an attachment to the ROD and guides implementation],
- the *ERP Strategic Plan for Ecosystem Restoration* (ERP Strategic Plan),
- the *Ecosystem Restoration Program Plan, Volumes I and II*, (ERPP Volumes I and II),
- the *Multi-Species Conservation Strategy* (MSCS),
- the environmental water quality elements of the *Water Quality Program Plan* (the last four documents are parts of the CALFED Bay-Delta Program final programmatic environmental impact statement/environmental impact report dated July 21, 2000); and
- the Service's *Final Restoration Plan for the Anadromous Fish Restoration Program* is another long-term planning document that helped to inform development of the ERP planning documents and implementation of the ERP.

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

Short-term planning documents include:

- *Draft Stage 1 Implementation Plan* (August 2001). This plan presented the restoration and data gathering priorities for the ERP during years 2 through 7 of Stage 1. Elements of this plan will be continuously refined through independent scientific review and regional planning processes. These processes help to establish the actions and data gathering efforts needed to conform to the regulatory commitments contained in the ROD as well as to meet regional restoration and science needs.

- *Year 2 Annual Work Plan and Budget for Implementing the Single Blueprint for Ecosystem Restoration,*
- *The Program Assessment and Work Plan for the Ecosystem Restoration Program – Year 3,*
- *The Year 4 Annotated Budget for Implementing the Single Blueprint for Ecosystem Restoration, and*
- *The Year 5 Multi-Year Program Plan for the Ecosystem Restoration Program and the Year 5 Annotated Budget for Implementing the Single Blueprint for Ecosystem Restoration.*

Collectively, these long and short-term planning documents form and articulate the “single blueprint” concept for restoration and species recovery within the geographic scope of the ERP. The purpose of the single blueprint is to provide a unified and cooperative approach to restoration. The single blueprint helps ensure coordination and integration, not only within the CALFED Program, but among 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 Service and the U.S. Bureau of Reclamation pursuant to the Federal Central Valley Project Improvement Act (CVPIA). It is the intent of the ERP Implementing Agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, and National Marine Fisheries Service) to seek additional opportunities for integration of other programs to facilitate the single blueprint.

## **Adaptive Management**

Adaptive management is a foundation of the ERP and CALFED Program and is one of the principles in the CALFED’s Implementation Memorandum of Understanding (MOU). Under the MOU, the CALFED agencies will carry out CALFED Program actions using a science-based adaptive management approach. This approach relies on continued monitoring and evaluation of actions in all CALFED 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.

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

## Revising Targets, Including Milestones

The ERP has both a short and long-term approach to reviewing and revising targets, actions and milestones. The short-term approach to revising and reviewing targets is part of this assessment of progress toward implementing milestones and the efficacy of the Environmental Water Account (EWA). This assessment is for the reinitiation of consultation for the CALFED Program, as established in the ROD, and is the purpose of this document. A “big picture” synthesis of milestone achievements, including a description of the current trajectory and the intentions to complete unfinished, priority milestones will be part of the assessment (see Section 6).

The long-term approach is part of the ERP’s regional planning effort, such as the *Delta Regional Ecosystem Restoration Implementation Plan* (DRERIP). The DRERIP is the first of four regional plans envisioned in the ERP Strategic Plan, and will refine the ERP planning foundation specific to the Delta Region. The CDFG, in coordination with the other ERP Implementing Agencies and California Bay-Delta Authority staff and with the support and guidance of the ERP Science Board (ERPSB), are leading the effort to write the DRERIP.

The DRERIP will describe and present the scientific foundation for ecosystem restoration in the Delta Region, and will provide Delta-specific implementation guidance, program tracking, and guidance for performance evaluation and adaptive management feedback. The plan will evaluate planned actions to achieve the ERP’s strategic goals and objectives in the Delta Region, including restoring the Delta’s native fish populations, restoring habitat for tidal marsh dependent species, preserving and enhancing managed seasonal wetland, and protecting drinking water quality. Opportunities for achieving CALFED Program and ERP goals and objectives through working landscapes approaches will be included in these plans. Work on DRERIP includes convening panels of experts to help examine the ERP’s actions, targets, and milestones for the Delta; this process includes review by the ERPSB and ERP Implementing Agencies as well as opportunity for public and stakeholder input through public workshops and the DRERIP webpage (<http://www.delta.dfg.ca.gov/erpdeltaplan/>).

The regional planning process will be the primary forums for revising ERP targets, including milestones. The regional planning processes take time; the DRERIP alone will take nearly two years to complete in part due to the ERP’s commitment to scientific integrity and the subsequent rigorous scientific review that proposed actions are undergoing (see *The Vetting Process*, below). This long-term approach is not expected to yield information useful in guiding development of the ERP’s 2005 proposal solicitation, but will provide information for subsequent solicitations and annual plans and for refinement to the Draft Stage 1 Implementation Plan.

## The Vetting Process

The ERP is incorporating the adaptive management approach in its approach to regional planning. As outlined in the ERP Strategic Plan, the ERP is developing four regional ecosystem restoration implementation plans as part of the ongoing effort to refine understanding of and planning for ecosystem restoration of the San Francisco Bay and Sacramento-San Joaquin Delta and watersheds.

The first of these plans is the DRERIP. The DRERIP enhances the planning foundation specifically for the Delta, and will refine existing Delta-specific restoration actions and guide Delta-specific implementation, program tracking, performance evaluation and adaptive management feedback. DRERIP preparation is a collaborative effort involving the ERP Implementing Agencies as well as staff from the ERP and Science programs and members from the ERPSB. It is anticipated that much of the information developed in preparing DRERIP will be usable for the other regional ecosystem implementation plans as well.

Pertinent to the milestones assessment is the process, termed “vetting,” that DRERIP preparers are developing to scientifically-evaluate ERP Delta-related programmatic actions, targets and milestones. All previously identified Delta actions (including those from the ERPP Volumes I and II, ERP Strategic Plan, *Water Quality Program Plan*, *Draft Stage 1 Implementation Plan* and ROD [ERP-MSCS Milestones]) will be evaluated. The evaluation is based on the information assembled in species life history and ecosystem element conceptual models. These models will describe the scientific state of knowledge about key Delta species and key ecosystem elements grouped as habitats and stressors. Ecological processes will be incorporated as well.

During the vetting process, actions may be modified to ensure that the action is based on the latest scientific information and that the intent of the action is clear. Actions will also be placed in the Adaptive Management context as described in the ERP Strategic Plan. Based on expected outcomes (both positive and negative), the certainty of those outcomes, reversibility and opportunity for learning, the actions will be evaluated for suitability for full-scale implementation, pilot project, or targeted research.

The vetting will be conducted by Action Teams comprised of scientists and technical experts with expertise in the appropriate areas. Every step in the process will be fully documented.

## Milestone Assessment and Future ERP Action

The milestone assessment’s results will be used to help identify those elements of the *Draft Stage 1 Implementation Plan* that should be especially high priorities for future action. Most of these priorities will be targeted in the ERP’s next broad proposal solicitation, expected in 2005. This intent was expressed in a letter from the ERP Implementing Agencies to the ERPSB (see [http://calwater.ca.gov/Programs/EcosystemRestoration/ERP\\_Science\\_Board/Response\\_to%20ERP\\_SB\\_memo%20on\\_proposed%20changes\\_to\\_%20the\\_PSP\\_proc\\_1-20-04.pdf](http://calwater.ca.gov/Programs/EcosystemRestoration/ERP_Science_Board/Response_to%20ERP_SB_memo%20on_proposed%20changes_to_%20the_PSP_proc_1-20-04.pdf) for the full text of the letter). This letter was distributed to the Ecosystem Restoration Subcommittee and is available to the public. The Implementing Agencies expect that the priorities for the broad solicitation will emphasize those actions necessary to continue progress toward high priority milestones, but will also be open to opportunities for applicants to propose other good projects that contribute to the ERP’s

goals. The ERP will engage input from members of the ERPSB and from the public in developing the process to identify priorities as well as on the priorities.

Results from the milestones assessment will also inform refinement of the ERP's Year 5 budget priorities. Some priorities could be addressed through directed funding of select activities, such as planning or broad-scale monitoring activities. In addition, results of the milestones assessment will inform the regional planning process identified above.