

9. SUMMARY AND RECOMMENDATIONS

The intent of the Ecosystem Restoration Program (ERP) was to promote a consistent and efficient approach to ecosystem restoration in accordance with a single blueprint. The following sets of principles were developed to guide the selection and prioritization of ERP actions. Based on the experience gained during Stage 1 implementation, recommendations are offered for how to better use these guiding principles in the future.

Basis for the ERP Implementation Priorities

Annual near-term and long-term ERP implementation priorities and strategies would be developed based on the goals and objectives of the ERP Strategic Plan, Multispecies Conservation Strategy (MSCS), Endangered Species Act recovery plans. In addition, implementation plans would be developed for specific ERP ecological management zones; and regularly informed by a science-based adaptive management plan.

During Stage 1, projects were selected in an open process where project proponents submitted proposals in accordance with the general program objectives. Although this encourages new thinking at a project level, there is no systematic strategy to assure that progress is made toward the overall ERP program goals, the MSCS, and ESA recovery plans.

In Stage 2, the knowledge and results from the Stage 1 projects will be used, in combination with ERP program goals and species recovery plans, to determine areas of ecological focus. Projects for the areas of focus will be selected through a more specific “directed action” selection process. This may result in fewer projects, but they will benefit from closer interaction between the ERP, resources agencies, and the project proponents concerning rationale, and the project’s expected and actual contribution to program progress. The cumulative contribution of all ERP actions toward overall program progress can be evaluated as well. By having this additional project evaluation and better coordination among various projects, ERP can improve the value of individual projects by determining the interrelationships of the projects and encouraging interaction among project proponents.

Role of Science

A science-based adaptive management process would be used to review and advise on ERP strategies and priorities. This process would include adequate monitoring, research, and performance assessments. Having an independent Ecosystem Science

Board would reflect a commitment by CALFED to use the best available science to implement the ERP from a single blueprint.

Monitoring

Under the Comprehensive Monitoring, Assessment and Research Committee (CMARP), a draft aquatic monitoring research plan was developed but was not released pending review. A companion terrestrial monitoring plan was developed and released, but awaits release of the aquatic monitoring plan. The two documents, particularly the shallow water components, can then be integrated. Currently there is no regional monitoring program, which impairs any evaluation of the effects of ERP actions. The wide varying scale of actions will require an extensive and thoughtfully designed monitoring program which may rely in part on existing programs.

Conceptual Models

Conceptual models are a major component of adaptive management. The models (a) serve as the repository for the history of understanding of an issue, and will be updated with new knowledge as various actions are completed, (b) demonstrate the most current understanding of the interrelationships of the components of an issue, (c) help identify certainties and uncertainties, and consequently, (d) become a tool to help select future actions. Without conceptual models, the dynamic art of adaptive management is very difficult to undertake. During Stage 1, the Program's technical knowledge at the ecosystem scale was not well organized which has made it difficult to interpret the cumulative effects of individual projects. Conceptual model development lagged, and is only now becoming available.

Science Board

The Science Program took over design and implementation of the CMARP effort for CALFED. The Science Program must address the science needs, not only of the ERP, but also the overall CALFED program in general, including the ten additional programs. Interaction concerning interrelated CALFED program actions and reactions was intended as part of the Science Program. This interrelationship among CALFED programs should be encouraged in Stage 2.

The nature of the Independent Science Board has changed over Stage 1. Initially, there Boards were identified for both the ERP and the Science Program. The ERP Science Board was eliminated for cost efficiency considerations. In July, 2006, the ERP was moved to the California Department of Fish and Game (DFG). Although science-related activities such as peer review and project review continue, the physical

movement of the ERP program to another agency reduced the interaction of the Science Program and ERP. Both CALFED and the ERP should work to rectify this situation for Stage 2 activities.

Peer Review

The DFG maintains a service contract with UCD for access to peer review services as needed for proposals, final reports, etc. This is similar to the process used when the ERP resided at CALFED.

Annual Workshops

The Science Program, with active participation of the ERP, has organized major annual conferences focused on ecosystem restoration work in the CALFED problem/solution area. The CALFED Science Conference alternates annually with the State of the Estuary Conference, both having plenary, technical, and poster sessions. Although presented work is not limited to ERP funded projects, regularly up to half of the presentations are ERP funded projects.

Adaptive Management

At the beginning of Stage 1, there was significant discussion about adaptive management. At the time the ERP was developed the ecological structure perceived was significantly less complex than is known today. Consequently the scope of adaptive management in Stage 2 will be even broader than in Stage 1. This will require extreme diligence, flexibility, and a lower expectation of certainty in the adaptive management process. The rate of change to the ecosystem may be such that assumptions at the beginning of the project will not be valid by the end of a project, highlighting the utility of the adaptive management process.

Significant issues not considered at the beginning of Stage 1 include global warming, pelagic organism decline, the specific effects of nonnative species, unexplained changes in foodweb relationships, and the potential synergistic effects of various contaminants.

Program Priorities

The CALFED Policy Group or its successor entity were to make final decisions regarding ERP implementation strategies, priorities and funding allocations, based on recommendations developed through a collaborative effort.

ERP operates under the auspices of the Implementing Agencies which include DFG, NMFS, and USFWS. Most ecosystem restoration is accomplished through grants, interagency agreements, and contracts with applicants via the ERP Proposal Solicitation Process. More specific information is required to fill in knowledge gaps, therefore the ERP Project selection process is currently moving toward use of focused solicitations and the directed action process. More specific areas of ecological concern need to be articulated in order to guide this decision process. This can be achieved using data from Stage 1 projects and conceptual models demonstrating our current understanding of ecological relationships.

Funding Priorities

ERP implementation will include strategies to address the immediate needs of species and other ecosystem components at highest risk; and comprehensive measures will be taken to protect and restore habitats, rehabilitate ecological processes and reduce stressor impacts. CALFED's initial funding allocation was intended to be balanced between these strategies so that the total allocation provides for a comprehensive restoration approach. Adequate funding must be provided to fully support the science-based adaptive management process and the administration and management of the ERP.

Lack of funding has seriously hampered the ERP achieving many of its goals. Escalating costs during Stage 1 for structural remedies, such as fish screens, has further diminished the ecosystem benefits attainable with the funds allotted, and has slowed the overall ERP progress.

ERP funds were to be used to implement management measures identified in the ERPP, non-mitigation measures identified in the MSCS, and/or measures developed under the ERP adaptive management process.

During Stage 1 implementation, the desire to expedite actions eased the constraints of mitigation definitions and became more heavily focused on ecosystem remediation. Two areas where this phenomenon occurred are fish screens and fish passage projects, where a significant amount of ERP funding was allocated during Stage 1.

The coordination between FERC requirements, water resource, and ecosystem restoration projects were weak. Consequently, many projects submitted as ecosystem restoration projects were FERC requirements and should have been funded by license recipients. Some of these projects were arguably mitigation projects, as water diverters are required to comply with ESA, CESA, and CEQA permit requirements for reducing diversion impacts to species of concern. Additionally, there has been no pre- or post-project monitoring to assess the ecological benefit of the actions. Based on Stage 1 projects and experiences, ERP is currently facilitating a discussion of the fish screening

issues among affected agencies, in the hope of developing a more cost effective and biologically beneficial approach to the subject, as well as exploring alternative funding options for future screening activities.

Implementing an effective restoration program requires moving beyond simply implementing individual projects. We must be able to visualize the big ecosystem picture while at the same time acknowledging the realities of individual projects in developing that big picture. After all, it is the knowledge provided by the individual projects that make the big picture realistic.