

OVERVIEW: PROPOSED FIVE-YEAR PROGRAM ACTIVITIES AND COST ESTIMATE

The CALFED Bay-Delta Program has prepared estimates of activities and costs to begin early implementation of the Program. This paper provides an overview of the proposed five-year program and serves as an introduction to the following cost matrix.

INTRODUCTION

The CALFED Bay-Delta Program is developing a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. This program is critical to the future of California because the Bay-Delta system is the largest estuary on the West Coast, providing habitat for 120 fish and wildlife species, including many listed as threatened or endangered. The Bay-Delta system is also critical to California's economy, providing drinking water for two-thirds of Californians and irrigation water for 200 crops, including 45 percent of the nation's produce.

The CALFED Bay-Delta Program is preparing a Programmatic EIR/EIS and is scheduled to select a final preferred alternative in Fall 1998. This preferred alternative must address Bay-Delta problems in ecosystem quality, water quality, levee system vulnerability, and water supply reliability. The solution to these problems will require an intensive program costing billions of dollars with implementation extending over several decades. It will require funding from State, Federal, and stakeholder sources and close coordination with other ongoing programs.

PROPOSED FIVE-YEAR PROGRAM

The Program is currently evaluating three potential alternatives. Estimated capital costs generally fall in the \$4 billion to \$8 billion range, and implementation of the preferred alternative may take 20 to 30 years. Given this length of time, it is important to begin implementation as soon as practical. Taking action now on ready projects lessens the time frame for implementation and early results will build support and commitment for implementing the full alternative.

Stakeholder funding has totaled almost \$22 million to date, and \$10 million or more in additional funding is expected in 1997. State funding from Proposition 204 (*passed by voters on November 5, 1996*) includes \$60 million for Category III; \$93 million as cost share for the Central Valley Improvement Act; \$390 million available for habitat restoration once the preferred alternative is selected, the EIR/S is certified and a formal State/Federal cost-share agreement has been implemented; and additional funding for watershed management, water quality improvements, and levee improvements. Federal

funding authorized through the California Bay-Delta Environmental Enhancement and Water Security Act (HR4126) is designed to match State funding through Proposition 204 and stakeholder funding.

Each of these alternatives includes an array of specific actions which will provide a comprehensive solution to the Bay-Delta issues of ecosystem quality, water quality, levee system vulnerability, and water supply reliability. The differences between the alternatives lie mainly in the method of transporting water through and around the Delta, and the amount of additional storage which would complete each alternative.

While the details of the preferred alternative will not be finalized until Fall 1998, the proposed five year program concentrates on activities that will be beneficial to the long-term program regardless of which alternative is ultimately chosen. The five year program includes only activities that are included in each of the three alternatives and also provide early implementation benefits. This implementation will also provide valuable information for use in adaptively managing the system in later years of the program.

The following cost matrix includes potential funding levels and potential funding agencies which are based solely on CALFED staff's judgement. The cost matrix includes activities listed specifically to improve ecosystem quality, water quality, levee system vulnerability, and water supply reliability. However, many of the activities will produce multiple benefits across these four areas. The costs were developed for specific actions, but more detailed studies in later phases of the Program may shift money between actions with similar results. For instance, these studies may indicate that the Program's water quality objectives can be met more effectively by adjusting the balance between land conversion for water quality improvement and levels of wetlands treatment.

The following sections summarize the proposed five-year funding for each of the four problem areas.

Ecosystem Quality - One guiding assumption of the Program is that a comprehensive program of ecosystem restoration, which combines physical habitat improvements with enhanced flows, will result in fewer constraints on the operation of water supply systems. All alternatives being considered include an Ecosystem Common Program that will guide the ecosystem restoration efforts. Efforts are currently underway to implement consensus elements of the Ecosystem Common Program to meet a number of pressing needs. These include:

- The need to increase public confidence in the assumption that comprehensive habitat restoration will provide the anticipated benefits to both the ecosystem and to water supply interests through demonstrated success stories,
- The need to make key land acquisitions to protect ecological functions such as connectivity and critical patch sizes for restoration sites in the face of rising land values and increased competition for land,
- The need to address sources of direct mortality to safeguard species that are already listed such as the Sacramento River winter-run salmon or species being considered for listing such as the spring-run salmon and the steelhead trout, and

- The need to begin the process of adaptive management so benefits can be generated and adjusted as needed for the ecosystem and for water supply interests.

The five-year program to fund ecosystem restoration activities in the Sacramento-San Joaquin Delta watershed is based on the Ecosystem Common Program. This program addresses the ecosystem quality goal which is to "improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species."

The five-year program is designed to place emphasis on restoration of habitat functions, reduction in sources of mortality, control impacts due to exotic species and toxics, all accompanied by monitoring programs to support adaptive management.

The major portion of the ecosystem program funding directly addresses restoration of habitat functions through land acquisition and habitat restoration. This effort is the key to the Ecosystem Common Program and is the largest component in the five-year program. In this early implementation phase, land acquisition is especially crucial. As the California economy continues to expand, land prices are beginning to rise and key parcels that are needed to maintain habitat connectivity and to augment existing conservation areas may not be available in the future. Habitat acquisition and development activities include:

- Development of habitat on existing levees along the Sacramento River and in the Delta,
- Land acquisition to restore the Sacramento River meander and recreate natural functions,
- Expansion of existing habitat areas through acquisition, and
- Habitat restoration activities that also benefit other CALFED objectives.

The activities to directly reduce sources of mortality are focussed on preventing direct losses for species most at risk including San Joaquin salmon, spring-run and winter-run salmon, and steelhead trout by preventing entrainment at water diversions and improving passage at key locations. These types of activities are vital to the restoration of anadromous salmonids but do not provide the broad ecosystem benefits that habitat restoration efforts offers.

The remaining funds in the five-year ecosystem program addresses introduced species and provides information needed for adaptive management. The activities to control impacts from exotic species are designed to both reduce introductions and to control impacts due to species already present in the system. These activities include isolation of riverine habitat from old gravel pits in the San Joaquin system to decrease predation by introduced warmwater species and a program to control introduced species in the Delta. The activities to control impacts due to toxics are included under the following water quality section. To gather the information needed to begin adaptive management, the five-year ecosystem program provides funding to monitor the ecosystem to determine how it is changing.

Water Quality - The five-year program to fund water quality activities in the Sacramento-San Joaquin Delta watershed is based on the Water Quality Common Program. This program addresses the water quality goal which is to "provide good water quality for all beneficial uses."

The five-year program is designed to place emphasis on controlling pollutants at their sources so that less pollutants enter the Bay-Delta estuary. These source controls include:

- Pilot programs in watershed management,
- Actions to better control agricultural drainage,
- Pilot program for underground detention of drainage water,
- Other pollutant source controls such as mine drainage control/treatment to reduce toxics discharges, and
- Wetlands wastewater treatment.

These and additional pollutant source control and treatment may ultimately be supplemented by flow related changes in the system. Real-time monitoring of water quality is an important element of water quality management in the five-year program.

Levee System Vulnerability - The five-year program to fund levee system vulnerability activities in the Delta is based on the Levee System Integrity Common Program. This program addresses the system vulnerability goal which is to "reduce the risk to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic breaching of Delta levees." Failure of Delta levees can result either from catastrophic events such as earthquakes and floods, or from gradual deterioration. Subsidence of the Delta island peat soils and settling of levee foundations places additional pressure on levees and increases the risk of failure. A portion of the proposed funding for *ecosystem quality* is also directly related to levee improvements and subsidence control.

Water Supply Reliability - The five-year program to fund water supply reliability activities in the Sacramento-San Joaquin Delta watershed is based on the water supply reliability goal to "reduce the mismatch between Bay-Delta water supplies and current and project."

The five-year program is designed to provide incentives for water users to implement projects and programs. The majority of the water supply reliability funds would go to low interest loans and grants for water use efficiency measures, groundwater recharge, and for water reclamation. Early implementation of these will contribute to long-term water supply reliability.

The three alternatives under investigation in the Programmatic EIR/EIS include a range of potential projects in the water supply reliability area that require much longer lead times than the above projects. Each of the alternatives includes evaluation of storage and conveyance options that may take 10 to 15 years or longer to complete if selected in the preferred alternative. However, planning for these projects must begin much earlier.

**Proposed Five-Year Program
Activities and Cost Estimate (in \$ millions)**

	Estimated Cost (\$Million)					TOTAL
	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	
ECOSYSTEM QUALITY						
Habitat Acquisition and Restoration						
Acuisition of key properties and habitat restoration in partnership with others for fish and wildlife	47	18	12	8	8	93
Refuge and Sacramento and San Joaquin meander belt expansion	8	10	11			29
Develop or purchase wetlands in the Delta	7	12	10	8	8	45
Delta and tributary levee modifications for the improvement of the environment (relating to habitat restoration and protection associated with Project and non-Project levees)	20	30	30	15	15	110
Sacramento River habitat improvement	11	12	10			33
Delta island and levee habitat improvements	8	13	12	10	9	52
Watershed management for habitat enhancement	2	6	4	10	8	30
Reconnaissance, feasibility, design, and environmental documentation for habitat restoration and new projects	3	4	6	5	3	21
Fish Screening and Passage						
Fish ladders and/or removal of barriers to improve fish passage at key locations	6	5	6	2	2	21
Improve fish screening throughout the Bay-Delta system to reduce fish losses of Delta resident and migratory fish species	10	12	23	26	24	95
Reconnaissance, feasibility, design, and environmental documentation for fish passage/screening projects	1	2	2	2	2	9
Program to isolate and/or remove gravel pits and related debris along rivers to improve fish passage	2	4	2	2	2	12
State cost-share of fish and wildlife restoration measures required by Section 3406 of CVPIA	37	9	11	15	21	93

Therefore, the five-year program includes funds for site specific studies, designs, and environmental documentation for projects to increase water supply reliability and opportunities designed to implement the selected alternative.

COORDINATION WITH OTHER ONGOING PROGRAMS

It is important to view the proposed budget estimate in context of existing programs which complement the projects and work supported by the Program's budget. For example, work under the auspices of the *Central Valley Project Improvement Act's (CVPIA) Restoration Fund* and the Energy and Water Development appropriations will be in tandem with the ecosystem restoration funds spent through the Program—addressing some of the same needs (such as fish screen improvements and habitat acquisition) as well as other complementary programs (such as supplemental water acquisitions). These programs will not be in competition with each other; rather, through the work of the Ecosystem Round table, they will be coordinated to support the same overall ecosystem goals and fund complementary projects and programs (consistent with the specific mitigation and restoration objectives and authorities set forth in the CVPIA).

COORDINATION OF STATE, FEDERAL, AND STAKEHOLDER FUNDING

The following matrix includes program implementation activities and cost estimates proposed for the first five years of program implementation. Funding for these early implementation actions will come from several sources. It is anticipated that State, Federal, and stakeholder funding will be required to complete this implementation.

**Proposed Five-Year Program
Activities and Cost Estimate (in \$ millions)**

	Estimated Cost (\$Million)						TOTAL
	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002		
Exotic Species Management							
Improve control of exotic species which threaten the recovery and biodiversity of native species	2	2	2	2	2	2	10
Monitoring of Ecosystem Health							
Comprehensive monitoring of Bay-Delta ecosystem health and the effectiveness of restoration activities (Adaptive Management)	3	3	3	3	3	3	15
WATER QUALITY							
Conduct watershed management pilot program for water quality improvement	10	10	10	12	13	13	55
Real time water quality management	1	1	1	1	1	1	5
Pollutant source control to reduce toxics discharge to the ecosystem from point- and non-point sources	11	25	25	15	14	14	90
Land conversion and/or other methods to help control water quality from agricultural drainage	5	5	5	10	10	10	35
Pilot program for underground detention of agricultural drainage	1	1	1				3
Construct wetlands wastewater treatment for portions of existing discharges to the Estuary	12	13	10	5	5	5	45
LEEVE SYSTEM VULNERABILITY							
Delta levee improvements/habitat restoration and habitat protection	12	13	15	16	17	17	73

**Proposed Five-Year Program
Activities and Cost Estimate (in \$ millions)**

	Estimated Cost (\$Million)					
	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	TOTAL
WATER SUPPLY RELIABILITY						
Technical planning and support to water districts for water use efficiency measures	1	1	1	1	1	5
Financial assistance for water use efficiency measures and groundwater recharge	10	10	16	14	10	60
Low interest loans/grants for water reclamation	7	13	12	12	10	54
Studies, designs, and environmental documentation for projects to increase water supply reliability and opportunities	3	6	10	16	12	47
Total	240	240	250	210	200	1140
Note: The FY 1998 Cost Estimate includes \$143 million from the President's budget.						