Overview
Proposed Five Year Program
Activities and Cost Estimate

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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 attached cost matrix.

Issue

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 % of the nation's produce.

The CALFED Bay-Delta Program is preparing a Programmatic EIR/EIS and is scheduled to select a preferred alternative in September 1998. This preferred alternative must address Bay-Delta problems in ecosystem quality, water quality, levee system vulnerability, and water supply reliability.

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.

While the details of the preferred alternative will not be finalized for several years, 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 first five years of the program implementation is estimated to cost approximately $1.1 billion. This level of implementation in a five year program will require expedited permitting and other approvals.

The attached cost matrix includes activities[1] listed specifically for ecosystem quality, water

[1] These activities were based on refinements of the actions contained in the Workshop 4 Information Packed from December 1995.

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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 which will be prepared 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 shifting away from land conversion for water quality improvement to increased 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 steel head, 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." About 60% of the total five year program is focused on ecosystem quality improvements.

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

Approximately three quarters of the ecosystem program 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 federal 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 program to directly reduce sources of mortality is focussed on preventing direct losses for species most at risk including San Joaquin salmon, spring-run and winter-run salmon, and steel head by preventing entrainment at water diversions and improving passage at key locations. These types of programs are vital to the restoration of anadromous salmonids but do not provide the broad ecosystem benefits that habitat restoration efforts offers. Therefore, these represent approximately one seventh of the five year ecosystem program.

The remaining one tenth of the five year ecosystem program addresses introduced species and toxics and provides information needed for adaptive management. The program to control impacts due to exotic species is designed to include both a program to reduce introductions and a program 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 program to control impacts due to toxics includes pollutant source control and reduction of the impacts of point discharges through wetlands wastewater treatment. 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."

About 20% of the total five year program is focused on water quality improvements. 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,
- Land conversion to help control water quality from 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 System Vulnerability 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.

About 6% of the total five year program is focused on levee improvements. However, a portion of the proposed funding for *ecosystem quality* is 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 which is to "Reduce the mismatch between Bay-Delta water supplies and current and project."

About 15% of the total five year program is for activities to improve water supply reliability. The five year program is designed to provide incentives to water users to implement projects and programs. About two thirds 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. Therefore, about one third of the water supply reliability funds in the five year program would go to site specific studies, designs, and environmental documentation for projects to increase water supply reliability and opportunities designed to implement the selected alternative.

Coordination of State, Federal, and Stakeholder Funding

The attached matrix includes estimates activities and costs proposed for the first five years of program implementation. It is anticipated that State, Federal, and stakeholder funding will be required to complete this implementation. While the breakdown of funding is yet to be defined, some funding mechanisms have been initiated.

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 to match the stakeholder contributions, $93 million to match existing federal funding for the Central Valley Improvement Act, $390 million available for habitat restoration once the preferred alternative is selected, 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 which would be available through Proposition 204 and stakeholder funding.

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

		Estimated Cost ($Million)					
		FY1998	FY 1999	FY 2000	FY 2001	FY 2002	Total
ECOSYSTEM QUALITY							
	Habitat Aquisition and Restoration						
	Purchase key properties and develop in partnerships for fish and wildlife habitat	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**
	Habitat development on Western Delta islands and aquatic habitat development on bare waterside levee banks	2	2	1			**5**
	Subsidence control analyses and levee seismic evaluations to protect habitat	3	5	5	4	3	**20**
	Restore aquatic habitats with beneficial reuse of dredge materials	3	6	6	6	6	**27**
	Watershed management for habitat enhancement	2	6	4	10	8	**30**
	Reconnaissance, feasibility, predesign, and environmental documentation for habitat restoration and new projects	3	4	6	5	3	**21**
	Fish Screening and Passage						
	Fish ladders 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	10	12	23	26	24	**95**
	Reconnaissance, feasibility, predesign, and environmental documentation for fish passage/screening projects	1	2	2	2	2	**9**
	Program to isolate gravel pits along rivers that affect fish migration and 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**

E-034124

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		Estimated Cost ($Million)					
		FY1998	FY 1999	FY 2000	FY 2001	FY 2002	Total
	Improve control of introduced species	2	2	2	2	2	**10**
	Comprehensive monitoring of ecosystem health (Adaptive Management)	3	3	3	3	3	**15**
WATER QUALITY							
	Conduct pilot program for watershed management for water quality improvement	10	10	10	12	13	**55**
	Land conversion to help control water quality from drainage	5	5	5	10	10	**35**
	Pilot program for underground detention of drainage	1	1	1			**3**
	Real time water quality management	1	1	1	1	1	**5**
	Pollutant source control to reduce toxics discharge to the ecosystem	11	25	25	15	14	**90**
	Construct wetlands wastewater treatment for portions of existing discharges to the Estuary	12	13	10	5	5	**45**
LEVEE SYSTEM VULNERABILITY							
	Delta levee improvements/habitat restoration and habitat protection	12	13	15	16	17	**73**
WATER SUPPLY RELIABILITY							
	Technical planning and support to water districts for water use efficiency measures	1	1	1	1	1	**5**
	Low interest loans 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**

E-034125