

CALFED  
BAY-DELTA  
PROGRAM

# Implementation Plan

Draft Programmatic EIS/EIR Technical Appendix  
June 1999

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# 1.0 IMPLEMENTATION PLAN OVERVIEW

## 1.1 Introduction

Phase II of the CALFED Bay-Delta Program will culminate with the Federal Record of Decision (ROD) and the State Certification of the Final Programmatic EIS/EIR (expected to be completed in mid-2000). At that time, Phase III of the CALFED Bay-Delta Program will begin implementation of the Preferred Program Alternative. Phase III is expected to extend thirty years or more.

CALFED's strategic approach for implementation includes staged implementation and staged decision making. The selection of a Preferred Program Alternative provides the broad resource framework and strategy for implementing a comprehensive Bay-Delta program. The programmatic decision sets in motion the implementation of some actions, as well as additional planning and investigation to refine other actions. Throughout the implementation period, monitoring will provide information about conditions in the Bay-Delta and results of our actions.

CALFED has decided to implement the Program through stages. The Preferred Program Alternative is composed of hundreds of individual actions that will be implemented and refined over time. The challenge in implementing the Program in stages is to allow actions that are ready to be taken immediately to go forward, while assuring that everyone has a stake in the successful completion of each stage. Linkages and assurance mechanisms will facilitate successful implementation.

Potential linkage and assurance mechanisms include contracts, legislation (including bond measures, authorizing and appropriations legislation, and other actions), interagency agreements, agency directives, and stakeholder driven decision processes such as the Ecosystem Roundtable project selection process. The various potential mechanisms will not all be in place at the beginning of Stage III. It is anticipated that they will be negotiated and implemented based on ongoing coordination among CALFED agencies, stakeholders, the State Legislature, and Congress.

Another important part of CALFED's implementation strategy is adaptive management. There is a need to constantly monitor the Bay-Delta system and adapt the actions that are taken to restore ecological health and improve water management. These adaptations will be necessary as conditions change and as more is learned about the system and how it responds. The Program's objectives will remain fixed over time, but the actions may be adjusted to assure that the solution is durable. In essence, adaptive management calls for designing and monitoring actions such that they improve the understanding of the system while at the same time improving the system itself. Adaptive management is an essential part of implementing every CALFED Program element.

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## 1.2 Strategies for Addressing Cross-Cutting Implementation Issues: Addressing Technical, Regulatory, and Policy Concerns

The CALFED program includes several efforts to develop broadly supported strategies for dealing with complex implementation issues which affect many facets of the Program. These include:

1. **Regulatory Compliance Strategy:** Virtually every action contemplated in the Program to improve some aspect of the Bay-Delta system requires regulatory approval of some sort. Depending on the action, the permit approval process can range from perfunctory to extremely difficult. Therefore, addressing permit compliance as an integral part of the implementation process is essential to assuring its success. It includes interagency coordination, strategic planning, and focused research to assure that regulatory compliance is an integral part of program implementation, not an afterthought.
2. **Multi-Species Conservation Strategy (MSCS):** The purpose of the MSCS is two-fold, both biological and regulatory. First, the MSCS builds on the CALFED Ecosystem Restoration Program (ERP) and creates mechanisms designed to ensure that the CALFED Program achieves specific goals for species and habitats. Second, the MSCS provides a framework for compliance with the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), and the Natural Community Conservation Planning Act (NCCPA) at both the programmatic and project-specific levels.
3. **Clean Water Act, Section 404 Compliance:** Although no site-specific Section 404 permits will be available at the time of the ROD, the Corps, EPA, and CALFED are developing a plan to facilitate Section 404 permitting during Program implementation. The preliminary proposal includes an early permitting process for those projects included in the initial CALFED actions during Stage 1 of Program implementation. It also includes developing programmatic assurances regarding a process by which the surface water storage facilities in the Program will be evaluated under Section 404. Establishing and defining this process will allow for a more expedited Section 404 permit evaluation when Program projects need site-specific permits.
4. **Comprehensive Monitoring Assessment, and Research Strategy (CMARP):** CALFED implementation is based on adaptive management because there is incomplete knowledge of how the ecosystem functions and the effects of individual project actions on populations and processes. Monitoring key system functions (or indicators), completing focused research to obtain better understanding, and staging implementation based on information gained are all central to the adaptive management process.

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5. **Water Management Strategy (WMS):** The WMS will serve to coordinate and integrate the activities of several key CALFED program elements in order to help secure sufficient, reliable water supplies to support environmental, urban and agricultural beneficial uses.

### 1.3 Governance

The challenge of retaining Program direction and coherence while implementing actions on many fronts, with multiple agencies and stakeholder groups, will be met in part by appropriately structuring Program governance. As currently envisioned, most Program actions will be implemented by existing entities or by a new entity to implement ecosystem restoration actions, with overall implementation coherence, major Program decisions, and funding priorities directed by a CALFED governance entity. The governance challenges and potential solution options are discussed in greater detail in Section 4, CALFED Governance Plan.

### 1.4 Finance

Assuring adequate, long-term financing for the Program will be one of its greatest challenges. A wide range of funding sources and funding mechanisms will be employed to meet the diverse needs of the Program. These include state and federal appropriations, bond measures, user fees, and private investments. A fundamental principle for allocation of Program costs is that beneficiaries should pay the cost of benefits received. The difficulty in applying this principle lies in quantifying benefits of actions which are often difficult or impossible to measure directly. Therefore, policy judgments and negotiations will be integral features of Program financing. These issues and recommended solutions are described in greater detail in Section 5, CALFED Finance Plan.

### 1.5 Implementation Actions

The eight CALFED program elements include Ecosystem Restoration, Watershed Management, Levee System Integrity, Water Quality, Water Transfers, Water Use Efficiency, Storage, and Conveyance. If fully and successfully implemented, they are intended to achieve the broad, balanced objectives of the Program as developed in Phase I. Within the strategic framework summarized in the previous paragraphs the Program elements would be implemented as a series of discrete, but inter-related actions. The cornerstone of CALFED's implementation strategy is to identify and set priorities for those actions in a fair, open process involving agency and stakeholder participants. Each of the eight Program elements includes broad and intensive outreach and coordination with interested agencies and stakeholders, through technical advisory groups, Bay-Delta Advisory Council (BDAC), public workshops, and other forums. During

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Program implementation this outreach, coordination, and decision making framework will need to be further refined to assure that actions selected for implementation are broadly supported and are likely to be the most cost effective at each stage of the Program.

The draft CALFED Program element reports, taken together, constitute the broad vision for long-term implementation of the Program. Based on extensive coordination efforts to date, additional details have been proposed for Stage 1 of Program implementation, which is expected to comprise the first seven years. The proposed Stage 1 actions are listed in Section 2.

Substantial additional effort has gone into describing those actions which are already underway or need to be initiated immediately after the Record of Decision and Certification are completed. This additional effort is needed to support advance planning, including budgeting and agency staffing to allow these actions to proceed without delay after the ROD and Certification. These actions have been grouped into bundles in order to assure that they provide appropriate geographic and programmatic balance. Based on stakeholder and CALFED agency input, various bundling linkages will be applied as needed to assure that balance is maintained as implementation proceeds. Actions may be bundled for permitting or environmental review purposes as well. The bundled Stage 1a actions are those which may be funded for implementation in the federal fiscal years 2000 and 2001, and are summarized in Table 3.1.

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## 2.0 STAGE 1 ACTIONS

Stage 1 is defined as the seven year period commencing with the final decision on the Programmatic EIS/EIR. Agreement on Stage 1 actions is only one part of the decision for a Preferred Program Alternative, but it is important that these actions achieve balanced benefits and lay a solid foundation for successful implementation of the Program.

The following pages provide more detail on potential actions for Stage 1. To the extent that such actions require additional authorizing legislation, such authorization will be developed and pursued in cooperation with stakeholders.

Adaptive management is an essential part of the implementation strategy for every program element to allow necessary adjustments as conditions change in future stages of implementation and as more is learned about the system and how it responds to restoration efforts. Consistent with the concept of adaptive management, some actions may need to be refined within the time frame of Stage 1 to reflect changing conditions or new information.

The outcome of and certain sites for Stage 1 decisions will not be known until additional information, including need for mitigation, is available and until the options to carry out these Stage 1 proposals have undergone environmental review. Consequently, the outcome could be altered as a result of that second tier environmental review and mitigation measures imposed as a part of those actions. However, where the impacts from the actions in Stage 1 have been included in the Programmatic EIS/EIR, the subsequent environmental documents can tier off the Programmatic document for cumulative and long-range impacts of the programmatic decision.

Each potential action in the following Stage 1 list includes an estimate (in parentheses) of when the action may occur within Stage 1. For example, "(yr 1)" indicates the action is expected to occur in the first year following the final decisions on the Programmatic EIS/EIR.

With extensive input from CALFED agencies and stakeholders, CALFED has begun work on grouping high priority Stage 1 actions into a series of bundles to provide regional and programmatic balance, as described below. CALFED will continue to work with all interested parties between the Revised Draft EIS/EIR and the Final EIS/EIR on refining the early implementation actions (Stage 1a). Linking the actions would help assure that they all move forward together. These may be linked within the same project EIS/EIR, tied by contractual documents, bond language, appropriation legislation, or other means.

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## 2.1 Levees

*The focus of the long-term levee protection element of the Program is to reduce the risk to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic breaching of Delta levees. The Levees program includes the Delta and Suisun Marsh. However, the level of flood protection to be provided by Suisun Marsh levees remains to be resolved. Levee protection is an ongoing effort which builds on the successes of ongoing programs and consists of:*

- *Base-level funding to participating local agencies*
- *Funding of special improvement projects for habitat and levee stabilization to augment the base-level funding*
- *Implementation of subsidence control measures to improve levee integrity*
- *Implementation of an emergency management and response plan to more effectively plan for and deal with potential levee disasters*
- *A risk assessment and risk management strategy*

*The first stage continues the decades-long process to improve reliability of Delta levees.*

1. **Initiate the Levee Program Coordination Group. Develop and implement an outreach, coordination, and partnering program with local landowners including individuals, cities, counties, reclamation districts, resource conservation districts, water authorities, irrigation districts, farm bureaus, other interest groups, and the general public to assure participation in planning design, implementation, and management of levee projects (yr 1).**
2. **Obtain short-term federal and state funding authority as a bridge between the existing Delta Flood Protection Authority (AB 360) and long-term levee funding (yr 1-5).**
3. **Obtain long-term federal and state funding authority (yr 1-7); e.g., the Corps of Engineers' current Delta Special Study could develop into a long-term Delta levee reconstruction program and the state would be the local cost-sharing partner.**
4. **Conduct project level environmental documentation and obtain appropriate permits for each bundle of Stage 1 actions (yr 1-7).**
5. **Implement demonstration projects for levee designs, construction techniques, sources of material, and maintenance techniques that maximize ecosystem benefits while still protecting lands behind levees. Give priority to those levee projects which include both short (i.e., construction) and long-term (i.e., maintenance and design) ecosystem benefits, and which will provide increased information (yr 1-7).**
6. **Adaptively coordinate Delta levee improvements with ecosystem improvements by incorporating successful techniques for restoring, enhancing or protecting ecosystem values developed by levee habitat demonstration projects or ecosystem**

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- restoration projects into levee projects. Continue to develop techniques as major levee projects are implemented (Years 1-7).
7. Fund levee improvements up to PL84-99 in first stage (yr 1-7); e.g., proportionally distribute available funds to entities making application for cost sharing of Delta levee improvements.
  8. Further improve levees which have significant statewide benefits in first stage (yr 1-7); e.g., statewide benefits to water quality, highways, etc.
  9. Coordinate Delta levee improvements with Stage 1 water conveyance, water quality improvements and with potential conveyance improvements in subsequent stages (yr 1-7).
  10. Enhance existing emergency response plans, approximately \$29 million in Stage 1 (yr 1-7); e.g., establish \$10 million revolving fund, refine command and control protocol, stockpile flood fighting supplies, establish standardized contracts for flood fighting and recovery operations, outline environmental considerations during emergencies.
  11. Implement current Best Management Practices (BMPs) to correct subsidence effects on levees. Assist CMARP activities to quantify the effect and extent of inner-island subsidence and its linkages to all CALFED objectives (yr 1-7).
  12. Complete total risk assessment for Delta levees (yr 1-7) and develop and begin implementation of risk management options as appropriate to mitigate potential consequences.
  13. Complete the evaluation of the best method for addressing the Suisun Marsh levee system and begin implementation (yr 1-2).

## 2.2 Water Quality

*The water quality program will consist of a wide variety of actions to provide good water quality for environmental, agricultural, drinking water, industrial, and recreational beneficial uses of water. The majority of current water quality actions rely on comprehensive monitoring, assessment, and research to improve understanding of effective water quality management and on the ultimate control of water quality problems at their sources. The Stage 1 water quality efforts focus on reducing constituents contributing toxicity to the ecosystem and affecting water users; reducing total organic carbon loading, salinity, and pathogens that degrade drinking water quality; and reducing oxygen depleting substances and sediment loads that degrade ecological water and habitat quality. In addition, research and pilot studies are recommended to obtain information prior to implementation of some actions. CALFED is pursuing Stage 1 actions to protect public health through continuous improvements in drinking water quality. The Stage 1 actions also include studies and investigations that will contribute to an assessment and decision on the need for additional conveyance actions and/or other means of providing better quality source water.*

1. Prepare project level environmental documentation and permitting as needed (yr 1-7).
2. Coordinate with other CALFED program elements to ensure that in-Delta modifications maximize potential for Delta water quality improvements (yr 1-7).
3. Continue to clarify use of and fine-tune water quality performance targets and goals (yr 1-7).
4. Conduct the following mercury evaluation and abatement work:
  - Cache Creek*
    - Risk appraisal and advisory for human health impacts of mercury (yr 1-5).
    - Support development and implementation of TMDL for mercury (yr 1-7).
    - Determine bioaccumulation effects in creek and Delta (yr 1-4).
    - Source, transport, inventory, mapping and speciation of mercury (yr 1-7).
    - Information Management/Public Outreach (yr 5-7).
    - Participate in Stage 1 remediation (drainage control) of mercury mines as appropriate (yr 3-5).
    - Investigate sources of high levels of bioavailable mercury (yr 4-7).
  - Sacramento River*
    - Investigate sources of high levels of bioavailable mercury, inventory, map, and refine other models (yr 3-7).
    - Participate in remedial activities (yr 7).
  - Delta*
    - Research methylization (part of bioaccumulation) process in Delta (yr 1-2).
    - Determine sediment mercury concentration in areas that would be dredged during levee maintenance or conveyance work (yr 3-7).
    - Determine potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level organisms (yr 3-5).
5. Conduct the following pesticide work:
  - Develop diazinon and chlorpyrifos hazard assessment criteria with DFG and the Department of Pesticide Regulations (yr 1).
  - Support development and implementation of a TMDL for diazinon (yr 1-7).
  - Develop BMPs for dormant spray and household uses (yr 1-3).
  - Study the ecological significance of pesticide discharges (yr-1-3).
  - Support implementation of BMPs (yr 2-7).
  - Monitor to determine effectiveness (yr 4-7).
6. Conduct the following heavy metals work:
  - Determine spatial and temporal extent of metal pollution (yr 3-7).
  - Determine ecological significance and extent of copper contamination (yr 1-3).
  - Review impacts of other metals such as cadmium, zinc, and chromium (yr 1).

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- Participate in Brake Pad consortium to reduce introduction of copper (yr 1-7).
  - Partner with municipalities on evaluation and implementation of stormwater control facilities (yr 2-5).
  - Participate in remediation of mine sites as part of local watershed restoration and Delta restoration (yr 2-7).
7. Conduct the following salinity reduction work in coordination with the San Joaquin Valley Drainage Program:
- Develop and implement supply water quality management activities to improve supply quality (yr 1-7).
  - Develop and implement a management plan to reduce drainage and reduce total salt load to the San Joaquin Valley (yr 1-7).
  - Encourage source reduction programs including tiered pricing, expansion of drainage recirculation systems, land management and, where other options are infeasible, land retirement (yr 1-3).
  - Complete ongoing pilot projects to evaluate the feasibility of water reuse, through agroforestry, of various concentrations of saline water and implement where feasible (yr 1-6).
  - Study feasibility of desalination methods including reverse osmosis (yr 7).
  - Study cogeneration desalination (yr 7).
  - Implement real time management of salt discharges (yr 3-7).
8. Conduct the following selenium work:
- Conduct selenium research to fill data gaps in order to refine regulatory goals of source control actions; determine bioavailability of selenium under several scenarios (yr 1-5).
  - Research interactions of mercury and selenium (yr 2-3).
  - Evaluate and, if appropriate, implement real-time management of selenium discharges (yr 1-7).
  - Expand and implement source control, treatment, and reuse programs (yr 1-7).
  - Coordinate with other programs (yr 1-7); e.g., recommendations of San Joaquin Valley Drainage Implementation Program, CVPIA for retirement of lands with drainage problems that are not subject to correction in other ways. (CVPIA alone will retire approximately 70,000 acres of land with selenium-caused water quality problems during time period of Stage 1.)
9. Conduct the following sediment reduction work/organochlorine pesticides:
- Participate in implementation of USDA sediment reduction program (yr 1-7).
  - Promote sediment reduction in construction areas and urban stormwater, and other specific sites (yr 1-7).
  - Implement stream restoration and revegetation work (yr 4-7).
  - Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions (yr 4-7).

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- Coordinate with ERP on sediment needs (yr 1-3).
10. Conduct the following work addressing dissolved oxygen (DO) and oxygen depleting substances (including nutrients):
    - Complete studies of causes for DO sag in San Joaquin River (yr 1-2).
    - Define and implement corrective measures for DO sag (yr 1-7).
    - Encourage regulatory activity to reduce nutrients discharged by unpermitted dischargers (yr 1-7).
    - Develop inter-substrate DO testing in conjunction with ERP (yr 2-4).
    - Study nutrient effects on beneficial uses (yr 4-7).
    - Develop, implement, and support measures to reduce pollutant (oxygen depleting substances, nutrients, and ammonia) discharges from concentrated animal feeding operations (yr 1-7).
  11. Conduct the following unknown toxicity work:
    - Participate in identifying unknown toxicity and addressing as appropriate (yr 1-7).
  12. Other actions specific to drinking water improvements:
    - Control TOC contribution through control of algae, aquatic weeds, agricultural runoff, and watershed improvement (yr 1-7).
    - Study brominated and chlorinated disinfection byproduct operational controls at water treatment plants and implement incremental improvements as warranted (yr 1-7)
    - Control of pathogens through control of cattle operations, urban storm water, sewage, boat discharge, and possibly recreational swimming; includes various projects depending on area of impact (yr 3-7).
    - Study recreational swimming impacts, wild animal impacts (yr 4).
    - Evaluate and, if appropriate, relocate Barker slough intake (yr 7+).
    - MTBE reductions in various areas (yr 3-5).
    - Address water quality problems in terminal reservoirs (yr 3-5).
    - Perform public health effects studies, as needed, to more specifically identify the potential health effects of bromide-related disinfection byproducts (yr 1-3).
    - Investigate alternative sources of and means of providing high quality water supply for urban users of Delta water in cooperation with those users and other appropriate parties (yr 1-7).
    - Investigate, as needed, advanced treatment technologies for the removal of salt, bromide, total organic carbon, and pathogens in urban water supplies (yr 1-7).
    - Investigate combinations of new supplies and technologies that can minimize salt content of urban water supplies and provide greater public health protection (yr 1-7).
    - Determine sources and loadings of constituents of concern for drinking water, including pathogens, nutrients, salinity, and TOC within the Delta

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- and in Delta tributaries. Analyze significance for treatment of drinking water (yr 1-3).
  - Convene a Delta Drinking Water Council to consider relevant technical data to inform CALFED in its consideration of solutions to identified public health issues for urban users of Delta water (yr 1-7).
  - Develop a plan to achieve CALFED's public health protection targets for drinking water (by yr 7).
13. Conduct the following turbidity and sediment work:
- Implement protection actions in the upper watershed to reduce sedimentation of fish spawning habitat (yr 1-7).
  - Implement erosion control BMPs in the upper watershed (yr 1-7).
  - Construct sedimentation basins in urban and suburban areas (yr 1-7).
  - Evaluate use of a head control structure on lower Dominici Creek (yr 2-4).
  - Perform quantitative analysis of river sediment loads, budgets, and sources (yr 1-7).

## 2.3 Ecosystem Restoration

*The CALFED ecosystem restoration program (ERP) is designed to maintain, 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 ERP is also designed to achieve recovery of listed species dependent on the Delta and Suisun Bay as identified in the Multi-species Conservation Strategy, and support the recovery of listed species in San Francisco Bay and in the watershed above the estuary. A foundation of this program element is the restoration of ecological processes associated with streamflow, stream channels, watersheds, and floodplains. Implementation of the ERP over the 30 year implementation period will be guided through an ecosystem-based, adaptive management approach. ERP goals and objectives for ecosystem, habitat, and species rehabilitation are designed to produce measurable and progressive improvements to the Bay-Delta ecosystem resulting in a high level of ecosystem health and species recovery that exceeds existing regulatory requirements. The Stage 1 restoration efforts are structured to accomplish significant improvement in Bay-Delta ecological health through a large scale adaptive management approach in which the actions inform management decisions in later stages of implementation. All Stage 1 actions will undergo an appropriate level of environmental documentation, will be subject to various permit requirements, and will be dependent on budget allocations.*

*Success of ERP Stage 1 actions is also critically dependent on other program elements, including water quality improvement actions throughout the Bay-Delta watershed, levee system integrity actions, and integration with a watershed management strategy and a water transfers market. The general priorities for restoration activities will be first on existing public lands as appropriate, second to work with landowners in voluntary efforts to achieve habitat goals*

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*including the acquisition of easements, third a combination of fee and easement acquisition, and fourth on acquisition of fee title as necessary to achieve program objectives. Acquisition will be on a willing seller basis and with emphasis on local coordination and partnerships and include appropriate mitigation for agricultural resource impacts. The intent is to maximize habitat benefits while minimizing land use impacts.*

1. Develop and implement an outreach, coordination, and partnering program with local landowners and individuals, cities, counties, reclamation districts, the Delta Protection Commission, resource conservation districts, water authorities, irrigation districts, farm bureaus, other interest groups, and the general public to assure participation in planning design, implementation, and management of ecosystem restoration projects (yr 1-7).
2. Conduct project level environmental documentation and permitting as needed for each bundle of Stage 1 actions (yr 1-7).
3. Full coordination with other ongoing activities which address ecosystem restoration in the Bay-Delta system (yr 1-7); e.g., CVPIA, Four Pumps Agreement, Non-native Invasive Species Task Force, etc.
4. Implement habitat restoration in the Delta, Suisun Bay and Marsh, and Yolo Bypass to improve ecological function, facilitate recovery of endangered species. Habitat restoration efforts in Stage 1 will: restore 2,000 acres of tidal perennial aquatic habitat, restore 200 acres of deep open water nontidal perennial aquatic habitat, restore 300 acres of shallow open water nontidal perennial aquatic habitat, enhance and restore 50 miles of Delta slough habitat, enhance and restore 50 to 200 acres of midchannel islands, restore 8,000 to 12,000 acres of fresh emergent (tidal) wetlands, restore 4,000 acres of fresh emergent (non-tidal) wetlands, restore 25 miles of riparian and riverine aquatic habitat, restore 1,000 to 2,000 acres of perennial grassland, and establish 8,000 to 12,000 acres of wildlife-friendly agricultural habitat (yr 1-7). This reflects approximately one-fourth of the acreage identified in the ERP to be restored during the 30-year implementation period. These actions are key to the adaptive management process and will help determine the feasibility and desirability of implementing larger scale habitat restoration in future stages.
5. Implement large-scale, restoration projects on select rivers (possibly Clear Creek, Deer Creek, and the Tuolumne River) that would include implementation of all long-term restoration measures in coordination with the watershed management common program and monitoring of subsequent ecosystem responses to learn information necessary for making decisions about implementing similar restorations in later stages (yr 1-7).
6. Implement an Environmental Water Account (EWA) that acquires water for critical ecosystem and species recovery needs, substantially through voluntary purchases in the water transfer market in its first few years and developing additional assets over time(yr 1-7).
7. Pursue full implementation of ERP streamflow targets through voluntary

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- purchases by the end of Stage 1, which will require at least 100,000 acre-feet (at a potential annual cost of \$20 million). Evaluate how the ERP water acquisitions and EWA water acquisitions will be integrated most effectively (yr 1-7).
8. Complete targeted research and scientific evaluations needed to resolve the high priority issues and uncertainties (e.g., instream flow, exotic organisms, and Bay-Delta food web dynamics) to provide direction for implementing the adaptive management process and information necessary for making critical decisions in later stages (yr 1-7).
  9. Establish partnerships with universities for focused research (yr 1-7).
  10. Complete the remaining 60% of the easements and/or acquisition for the Sacramento River meander corridor identified under the SB 1086 Program. Provide assurances for and participation by Sacramento River users and landowners that provides indemnification of affected parties against flooding impacts on neighboring landowners and impacts on water diverters (yr 1-7).
  11. Acquire flood plain easements, consistent with ecosystem and flood control needs along the San Joaquin River in coordination with the Corps of Engineers' Sacramento and San Joaquin River Basins Comprehensive Study (yr 4-7).
  12. Continue high priority actions that reduce direct mortality to fishes (yr 1-7):
    - Aggressively screen existing unscreened or poorly screened diversions in the Delta, on the Sacramento River, San Joaquin River, and tributary streams based on a systematic priority approach.
    - Remove select physical barriers to fish passage.
  13. Continue gravel management; e.g., isolate gravel pits on San Joaquin River tributaries and relocate gravel operations on Sacramento River tributaries. Most gravel work would be implemented in subsequent stages with designs and plans for ecosystem reclamation of gravel mining sites (yr 1-7).
  14. Develop and begin implementing a CALFED comprehensive non-native (exotic) invasive species prevention, control, and eradication plan (yr 1-7) including the following:
    - Implement invasive plant management program in Cache Creek.
    - Develop ballast water management program.
    - Develop early-response invasive organism control programs.
    - Evaluate CALFED implementation actions and how those actions may benefit non-native species to the detriment of native species or the Bay-Delta ecosystem.
  15. Provide incremental improvements in ecosystem values throughout the Bay-Delta system in addition to habitat corridors described above (yr 1-7); e.g., pursue actions that are opportunity-based (willing sellers, funding, permitting, etc.), provide incremental improvements on private land through incentives, develop partnerships with farmers on "environmentally friendly" agricultural practices, etc.
  16. Incorporate ecosystem improvements with levee associated subsidence reversal plans (yr 1-7).
  17. Evaluate the feasibility of harvest management to protect weaker stocks (yr 1-7).

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18. Implement projects on selected streams to provide additional upstream fishery habitat by removing or modifying barriers (yr 1-7).
  19. Working with the CALFED agencies, assist in the preparation of detailed, ecosystem-based restoration and recovery plans for any priority species identified in the ERP Strategic Plan and the Multi-species Conservation Strategy for which up-to-date plans are not available (yr 1-7). Begin implementing appropriate additional restoration actions identified in these plans (yr 2-7).

## 2.4 Water Use Efficiency

*The CALFED water use efficiency element focuses on formulation of policies which support implementation of efficiency measures at the local and regional level. The CALFED Water Use Efficiency Program will: 1) establish quantifiable objectives; 2) offer support and incentives through expanded programs to provide planning, technical, and financial assistance; 3) monitor progress towards objectives; and, 4) if these objectives are not met, re-evaluate objectives and management options. CALFED agencies will also support ongoing urban and agricultural sector processes for certifying local agency implementation of cost-effective efficiency measures. The first stage implements the processes which will continue in subsequent stages.*

1. **Develop Agricultural Reference Conditions** - Establish reference conditions in order to evaluate future progress. There will be an independent review conducted in conjunction with the Agricultural Water Management Council (AWMC) for this purpose (yr 1-3).
2. **Agricultural Financial Incentive Program** - Develop, in consultation with the AWMC, a program of technical and financial incentives for the implementation of water use efficiency measures in agricultural sector. This program will consider several factors, including: (a) potential for reducing irrecoverable water losses; (b) potential for attaining environmental and/or water quality benefits from water use efficiency measures which result in reduced diversions; (c) regional variation in water management options and opportunities; (d) availability and cost of alternative water supplies; and (e) whether the recipient area experiences recurrent water shortages due to regulatory or hydrological restrictions. The financial incentives should generally take the form of loans for actions or activities that have been identified as cost-effective for the district in a water management plan approved by the Agricultural Water Management Council. The financial incentives should generally take the form of incentive grants for water use efficiency measures that are supplemental to measures that are cost-effective at the district level. The program will be coordinated with the action (Expand Existing State and Federal Conservation Programs) described below and administered jointly by appropriate state and federal agencies. Funds will be

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provided by state and federal agencies from appropriations and/or bond measure proceeds pursuant to a cost-share agreement to be developed before the Record of Decision (yr 1-7).

- 3a. **Expand Existing State and Federal Agricultural Water Conservation Programs to Support On Farm and District Efforts** - Expand State and federal programs (DWR, USBR, USFWS, DFG, DHS, NRCS, and SWRCB) to provide technical and planning assistance to local agencies in support of local and regional conservation and recycling programs. Develop and implement an agricultural water use efficiency program in cooperation with the NRCS, USBR, DWR, Resource Conservation Districts, and other appropriate entities. The purpose of the program would be to promote cost-effective agricultural water management practices that yield multiple benefits. The AWMC will be used to assist in soliciting and selecting individual projects to best meet the objectives developed through the Ecosystem Restoration and Water Quality Programs and to improve water supply reliability. Local entities will be encouraged to collaborate on combined or regional proposed projects. Priority will be given to projects that are designed to achieve specific Delta-related benefits (e.g., improving water quality as opposed to general assistance or information dissemination). This action will be coordinated with the above action (Agricultural Financial Incentive Program) and will require increased funding above current levels (yr 1-7).
- 3b. **Expand Existing State and Federal Conservation Programs to Support Urban Water Purveyor Efforts** - Expand State and federal programs (DWR, USBR, USFWS, DFG, DHS, and SWRCB) to provide technical and planning assistance in support of conservation and recycling programs.
3. **Create Public Advisory Committee** - Create public advisory committee to advise State and federal agencies on structure and implementation of assistance programs, and to coordinate federal, State, regional and local efforts for maximum effectiveness of program expenditures (yr 1).
4. **Develop Urban Water Management Plan Certification Process** - Select an agency to act as certifying entity, obtain legislative authority, carry out public process to prepare regulations, implement program beginning with plans submitted in 2005. Access to CALFED benefits will be contingent upon certification of suppliers' Urban Water Management Plan (yr 1-3).
5. **Implement Urban BMP Certification Process** - Implement a process for certification of water suppliers' compliance with terms of Urban MOU with respect to analysis and implementation of Best Management Practices for urban water conservation. Provide funding support for the California Urban Water Conservation Council to carry out this function. Access to CALFED benefits will

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be contingent upon certification of a supplier's compliance with the terms of the Urban MOU (yr 1-7).

6. **Statewide Urban Conservation Incentives** - Develop an incentive-based program to identify and implement urban water conservation measures that are supplemental to Best Management Practices in the Urban MOU process and are cost effective from a statewide perspective (yr 1-3).
7. **AWMC Evaluation of Agricultural Water Management Plans** - Utilize the AB 3616 Agriculture Water Management Council (AWMC) to evaluate and endorse plans to implement cost-effective water management practices by agricultural districts. Identify and secure ongoing funding sources for AWMC and its members seeking to actively participate in the development, review, and implementation of these plans. Candidate activities include: administration, including staff, of the AWMC itself; implementation of approved practices; and participation by individual signatories. Access to CALFED benefits for a given agricultural district will be contingent upon AWMC's endorsement of the adequacy of its water management plan and implementation. Prior to the ROD, the Focus Group recommends further deliberations to resolve several issues, including: 1) nature of review and form of action on such plans; 2) specific activities for which funding will be sought; 3) phasing in of certification over time (yr 1-7).
8. **Resolve Water Recycling Limitations** - Resolve legal, institutional, and funding limitations for agricultural and urban water recycling (yr 1-3). Secure loan and/or grant funding for water recycling capital improvement projects (\$500 million initial Stage 1 estimate).
9. **Refuge Water Management** - Finalize and implement the methodology for refuge water management which was described in the June 1998 "Interagency Coordinated Program for Wetland Water Use Plan, Central Valley, California" (yr 1-7). Consistent with requirements of urban and agricultural water users, access to new CALFED benefits will be contingent on implementation of this methodology.
10. **Research to Improve Water Use Efficiency Actions** - Encourage and support research to expand potential water use efficiency measures (yr 1-7).
11. **Assess the Need for Additional Water Rights Protections** - After consultation with other CALFED agencies, the Legislature, and stakeholders, CALFED will evaluate the need for additional state regulations or legislation providing protection for water rights holders who have implemented water use efficiency measures and subsequently transferred water to other beneficial uses (yr 1-2).

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12. **Water Measurement Program** - Develop, after consultation with CALFED agencies, the Legislature, and stakeholders, state legislation that requires appropriate measurement of water use for all water users in California (yr 1-3).
  13. **Implement Recommendations Regarding Market Mechanisms** - Implement recommendations of strategic plan with regard to using market mechanisms to facilitate efficiency improvements (yr 1-7).

## 2.5 Water Transfer Framework

*The water transfer framework is designed to facilitate, encourage, and streamline the water transfer process while protecting water rights and legal users of water and addressing and avoiding or mitigating third-party socioeconomic impacts and local groundwater or environmental impacts. This would occur through a proposed framework of actions, policies and processes. The first stage implements the recommended changes which will continue in subsequent stages. The prioritization of these and other water transfer actions will be further developed in the Water Transfers Program Plan which will be completed before adopting the Record of Decision.*

### Environmental, Socio-economic, and Water Resource Protection Actions

1. Establish the California Water Transfers Information Clearinghouse to collect and disseminate data and information relating to water transfers and potential transfer impacts, and perform research using historic data to understand water transfer impacts (yr 1).
2. Coordinate with CALFED agencies to formulate policy, under their existing authorities, for disclosure of additional required water transfer analysis (yr 1).
3. CALFED agencies work with the Legislature and stakeholders to determine whether additional legislation to protect water rights, including area of origin priorities, is necessary (yr 1-2).
4. CALFED agencies identify, arrange, fund, and carry out a specific number of targeted water transfers for instream environmental purposes, with a goal of using these transfers to evaluate the effectiveness of California Water Code Section 1707 procedures. CALFED agencies will work with stakeholders to develop and issue appropriate rules, regulations, or procedures to make these environmental water transfers effective (yr 1-3).
5. CALFED agencies will work with stakeholders, the Legislature, and local agencies to identify appropriate assistance to enable local agencies to develop and implement groundwater management programs to protect groundwater basins in water transfer source areas (yr 1-2).

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## Technical, Operational, and Administrative Actions

1. Development by CALFED agencies of a streamlined water transfer approval process including preparation of a Guidebook (yr 1-2).
2. Develop a process for expedited approval of short-term and other appropriate transfers (DWR, USBR, and SWRCB) (yr 1-3).
3. CALFED agencies work with stakeholder representatives to clarify and define what water is deemed transferrable under what conditions (yr 1-3).
4. CALFED agencies continue work with stakeholder representatives to resolve conflicts over carriage water criteria (yr 1).
5. Establish a refill criteria policy for reservoir storage based water transfers (yr 1).

## Wheeling and Access to State/Federal Facilities Actions

1. Begin forecast and disclosure process of potential conveyance capacity in existing export facilities (DWR and USBR). This would be an on-going activity, occurring in conjunction with hydrologic forecasts (yr 1).
2. CALFED agencies will work with stakeholders to develop an agreed upon set of criteria and procedures governing the determination of transport system availability and costs, including the procedures to determine the fair reimbursement to the water conveyance facility operator (yr 1-3).

## 2.6 Watershed Program

*The Watershed Program will be coordinated and integrated with existing and future local watershed programs and provide technical assistance and funding for watershed activities that support the goals and objectives of the CALFED Bay-Delta Program. The actions during Stage 1 are a mix of watershed coordination, restoration, maintenance, and conservation activities, as well as demonstration projects designed to show benefits to the Bay-Delta system while also benefitting existing watershed resources.*

1. Fund and implement community based watershed restoration, maintenance, conservation, and monitoring activities that support the goals and objectives of the CALFED Bay-Delta Program (years 1-7).
2. Assist local watershed groups and government agencies to address common issues, including roles and responsibilities, funding support, technical assistance, information exchange, and to ensure effective communication and implementation among government agencies and stakeholder groups (years 1-7).
3. Develop and implement a funding process and provide watershed stewardship funds to build the capacity of locally controlled watershed groups that ensure participation of local landowner groups (years 1-7).
4. Improve the use and usefulness of existing or future watershed clearinghouse

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- functions to assist watershed groups with obtaining information on funding opportunities, technical assistance, and data storage and retrieval (years 1-7).
  5. Ensure the completion of project level environmental documentation and permitting; assist with documentation and permitting processes as appropriate (years 1-7).
  6. Evaluate the benefits (including economics) that accrue from watershed plans and projects designed to achieve CALFED goals and objectives (yr 1-7).
  7. Establish, fund, and maintain watershed restoration and maintenance assistance to aid local watershed groups and private landowners in project concept, design, and implementation (years 1-7).
  8. Coordinate with other CALFED and non-CALFED programs on watershed related activities (years 1-7).
  9. Work with stakeholders and the Legislature to develop a state-wide umbrella watershed management act (yr 1-3).

## 2.7 Storage

*New groundwater and/or surface storage will be developed and constructed, together with aggressive implementation of water conservation, recycling and a protective water transfer market, as appropriate to meet CALFED Program goals. The CALFED Integrated Storage Investigation (ISI) will provide the comprehensive framework for evaluation of storage implementation and management opportunities through Stage 1 and beyond. The ISI will include evaluations of north of Delta off-stream storage, in-Delta and adjacent to Delta storage, on-stream storage enlargement, groundwater and conjunctive use, power facilities reoperation, and fish migration barrier removal evaluations. The ISI will provide the analyses necessary for CALFED's determination of the proper mix of groundwater and surface storage facilities, and CALFED's Water Management Strategy will rely on these analyses as it identifies an appropriate combination of water management tools for attaining CALFED's water supply reliability goals and objectives. Detailed environmental documentation, feasibility studies, permitting, and construction activities would be initiated as appropriate.*

**Groundwater Banking and Conjunctive Use** - *This first stage includes developing cooperative partnerships with local agencies and landowners in both the north-of-Delta and south-of-Delta areas, and includes construction of several south-of-Delta projects. Additional south-of-Delta and north-of-Delta projects, if feasible, could be constructed in later stages.*

1. Develop and implement a framework for groundwater banking and conjunctive use projects (yr 1).
2. Include provision to protect overlying and other landowners' water rights (yr 1-7).
3. Provide funding assistance to local governments and special districts for groundwater plan development (yr 1-7).

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4. Identify potential projects and local cooperating entities and define CALFED role (yr 1-3).
  5. Conduct baseline monitoring and modeling (yr 1-7).
  6. Initiate field studies (yr 2-7).
  7. Project environmental documentation and permitting (yr 1-3).
  8. Project design (yr 2-4).
  9. In partnership with local entities, construct two to three groundwater banking facilities with a total target volume of 500,000 acre-feet (yr 1-7).
  10. Study additional project sites (yr 2-7).

**Surface Storage** - *New offstream storage and/or expansion of existing onstream reservoirs could add up to several million acre-feet of new surface storage. Based on the outcome of the ISI and Water Management Strategy, Stage 1 will include the environmental evaluations, feasibility studies, and permit compliance procedures for the appropriate mix of promising facilities. These would lead to project design and construction if program linkages and conditions are satisfied.*

1. Identify initial local partners and other cooperating entities for projects and CALFED role (yr 1-3).
2. Develop environmental documentation (yr 1-5).
3. Perform feasibility studies and economic analyses (yr 1-5).
4. Perform field studies (yr 1-5).
5. Site selection (yr 4-5).
6. Evaluate improvements to potential conveyance to storage (yr 1-5).
7. Obtain permits, negotiate operating agreements, and seek site specific authorization and reimbursable state or federal funding for land acquisition, site preparation, and construction if conditions and linkages are satisfied (yr 5-7).
8. Identify beneficiaries and negotiate cost sharing agreements (yr 5-7).
9. Begin construction if conditions and linkages are satisfied (yr 6-7).

**Power Facilities Reoperation Evaluation** - *There is the potential to reoperate some hydroelectric facilities to produce water supply or ecosystem benefits. The following actions will be taken in the context of the ISI.*

1. Identify beneficiaries and negotiate cost sharing agreements (yr 1-7).
2. Work with CALFED agencies, the Public Utilities Commission, the State Water Resources Control Board, the Federal Energy Regulatory Commission, and interested stakeholders to identify reoperation opportunities (yr 1-2)
3. Develop environmental documentation (yr 3-5).
4. Perform feasibility studies and economic analyses (yr 3-5).
5. Obtain permits, negotiate operating agreements, and seek site specific authorization as required. (May require design of facilities modifications to accommodate new operational priorities) (yr 5-7).

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6. Begin construction (if needed) and begin new operations if conditions and linkages are satisfied (yr 6-7).

**Fish Migration Barrier Removal Evaluations** - *As part of the ERP some obstructions to fish passage such as small dams are being considered for modification or removal in order to restore anadromous fish access to critical spawning habitat. The following actions will be taken in the context of the ISI:*

1. Work with CALFED agencies, the State Water Resources Control Board, local water agencies, and interested stakeholders to identify opportunities for modification or removal of obstructions such as small dams (yr 1-2).
2. Develop environmental documentation (yr 3-5).
3. Perform feasibility studies and economic analyses (yr 3-5).
4. Obtain permits, negotiate agreements, and seek site specific authorization as required. (May require design of facilities modifications or removal actions (yr 5-7).
5. Identify beneficiaries and negotiate cost sharing agreements (yr 5-7).
6. Begin construction (if needed) and begin new operations if conditions and linkages are satisfied (yr 6-7).

## 2.8 Conveyance

*CALFED's basic strategy is to develop a through-Delta conveyance alternative based on existing Delta configuration with some modifications. Some construction of improvements in the south and north Delta should occur within the first stage to improve conditions for ecosystem and water management reliability. Part of the first stage consists of studies and evaluations of the major conveyance features. This will allow conveyance projects to be ready for permitting and construction in later stages should the projects be necessary to meet Program objectives.*

**South Delta Improvements** - *South Delta improvements consist of methods to control flow, stage and circulation, improve fish passage, fish screen and salvage facilities, and potentially provide SWP/CVP interties upstream and downstream of the export pumps. South Delta conveyance improvements included in Stage 1 would function with the basic conveyance strategy or potential modifications. The conveyance improvement actions listed below would be implemented concurrently (bundled) with other actions as detailed in Chapter 3, in a subsection titled CALFED's Delta Conveyance Strategy. The other Stage 1 actions are components of the other CALFED Program elements.*

1. Construct a 500 cfs test facility at the Tracy Pumping Plant to develop best available technology for fish screening and salvage for the intakes to the SWP and CVP export facilities (yr 1-3).

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2. Construct a new screened intake for Clifton Court Forebay for the full export capacity of the SWP (yr 1-7+)
  3. Implement Joint Point of Diversion for the SWP and CVP. Evaluate and decide on whether to retain a separate CVP intake facility or to consolidate with the SWP facility. Also evaluate and potentially implement an intertie between the projects downstream of the export pumps (yr 1-6).
  4. Facilitate SWP export flexibility up to 8500 cfs with appropriate constraints (yr 1-7+).
  5. Obtain permits to use full SWP capacity of 10,300 cfs for operational flexibility, consistent with all applicable operational constraints, for water supply and environmental benefits (yr 1-7+).
  6. Expedite construction of three permanent operable barriers at the Head of Old River, Old River at Tracy, and Middle River upstream from Victoria Canal. Phase out all temporary barrier installations as soon as feasible (yr 1-6).
  7. Dredge segments of south Delta channels to limit scour velocities, for water supply for local agricultural intakes, and to improve navigation (yr 1-5).
  8. Extend and screen agricultural intakes as required to assure local water supply availability (yr 1-4).
  9. Form a Barrier Operations Coordination Team, consisting of USFWS, NMFS, DFG, DWR, USBR, and stakeholder representatives to operate the barriers (yr 1-7).
  10. Monitor barrier effects on fish, stages, circulation, and water quality (yr 1-7).
  11. Retain the potential future option of constructing a Grant Line Canal Barrier after the Barrier Operations Coordination Team operates and evaluates the three barriers included in the recommended alternative. Implementation of such an option would only be undertaken if the actions described above, including detailed field studies and analyses, fail to provide an appropriate balance of fisheries, water quality, and water supply availability benefits (yr 6-7+).
  12. In coordination with regional ERP actions improve flood control through levee improvements, levee setbacks, channel dredging, and flood plain restoration (yr 1-7).
  13. Evaluate the feasibility of recirculating water pumped from the Delta by the CVP and SWP. If feasible, and consistent with CALFED ecosystem restoration goals and objectives, implement a pilot program (yr 1-4).

**North Delta Improvements** - *North Delta improvements consist of methods to address flood control, water quality, fisheries, and water supply reliability concerns. Actions include modification of the Delta Cross Channel operational criteria, channel dredging and/or setback levees in the Mokelumne River, and creation of additional floodplain, wildlife, and fisheries habitat. A screened diversion at Hood will be evaluated and may be implemented if necessary.*

1. Develop operational criteria for the Delta Cross Channel that balances flood control, water quality, water supply reliability and fisheries concerns (yr 1-4).
2. Study and evaluate a screened diversion structure on the Sacramento River (or equivalent water quality actions) as a measure to improve drinking water quality in the event that the Water Quality Program measures do not result in adequate improvements toward CALFED's drinking water quality goals. This evaluation would consider how to operate the Delta Cross Channel in conjunction with this new diversion structure to improve drinking water quality, while maintaining fish recovery (yr 1-4).
3. If the Water Quality Program measures are consistently not achieving drinking water quality goals, and the evaluation demonstrates that a screened diversion of up to 4000 cfs would help achieve those goals without adversely affecting fish populations; a pilot screened diversion would be constructed. This pilot would likely include a fish screen, pumps and a channel between the Sacramento and Mokelumne River. The design, size and operating rules for this pilot facility would allow for analyses of impacts to upstream and downstream migrating fish as well as impacts from habitat shifts resulting from increased flows in the eastern Delta on Delta species. Following evaluation of the pilot facility operations, a final decision would be made on whether the diversion channel and structure should continue to be used, and if so, what the operational rules and optimum size of the diversion should be (yr 5-7+).
4. Evaluate opportunities to resolve local flood concerns and create tidal wetlands and riparian habitats by constructing new setback levees, improving existing levees, and dredging channels in the north Delta, especially the channels of the lower Mokelumne River system. Any proposed channel modification would be consistent with CALFED's current direction on Delta conveyance. This evaluation would carefully coordinate ecosystem restoration, regional flood control, levee system integrity, and conveyance issues and concerns to ensure that a balanced solution to all concerns would be proposed. (yr 3-7).
5. Balance the above actions to address water quality, flood control, water supply reliability, and fisheries concerns (yr 1-7).

**Isolated Facility Component** - *The isolated facility component of a dual transfer Delta facility would consist of a new canal or pipeline connecting the Sacramento River in the northern Delta to the SWP and CVP export facilities in the southern Delta. A process for determining the conditions under which any additional conveyance facilities and/or other water management actions would be taken in the future would include:*

1. An evaluation of how water suppliers can best provide a level of public health protection equivalent to Delta source water quality of 50 ppb bromide and 3 ppm TOC (yr 1-7). This will include an equivalent level of investigation and studies on all of the actions which could be used to achieve CALFED's targets.
2. An evaluation based on two independent expert panels' reports—one on

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CALFED's progress toward these measurable water quality goals and the second on CALFED's progress toward ecosystem restoration objectives, with particular emphasis on fisheries recovery (yr 6-7).

## 2.9 Assurances and Institutional Arrangements

*An assurances package is a set of actions and mechanisms to assure that the Program will be implemented and operated as agreed. The assurances package will include items to be adopted immediately as well as a contingency process to address situations where a part of the plan cannot be implemented as agreed. While the principles for the assurances package will be substantially complete by the ROD, many details remain to be finalized early in Phase III.*

1. Implement the interim governance structure at the time of the ROD. The interim structure and functions will continue until the long-term structure is in place (yr 1-3)
2. Initiate actions to implement the long-term governance structure for CALFED (yr 1-3); By the time of the ROD a long-term governance structure will be proposed. New federal or state legislation is expected to be needed to clarify/modify existing agency authorities and/or possibly to establish new entities for program oversight and implementation.
3. Implement the contingency response process (yr 1-7).
4. Tiering from the Multi-Species Conservation Strategy, begin to develop the project specific restoration, avoidance, and mitigation measures necessary to recover endangered species and to prevent additional listings in the Delta as well as the assurances that will be provided in exchange (yr 1-7).
5. Incorporate the final State Board water rights decision for allocation of responsibility to meet flow requirements for Water Quality Control Plan 95-6 (May 1995) in water transfer and operational rules (yr 1- ?).
6. Implement a CALFED environmental documentation, mitigation, and permit coordination process, including appropriate consideration of agricultural resource issues (yr 1-7).

## 2.10 Finance

*The Finance Plan, to be completed by the time of the ROD, will propose a strategy for funding the Preferred Program Alternative (including total costs for implementation/improvements, mitigation, and ongoing annual operating and maintenance costs). It will include cost allocation and cost-sharing procedures and strategies for each program or individual projects. Proposed funding sources would include a combination of federal, state, private and user funds. Financing will be needed over several decades as the various parts of the Preferred Program Alternative*

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*are selected, implemented, operated, and maintained. The Finance Plan includes financial principles incorporating a benefits-based approach, a strategy for cost allocation and cost sharing for each program, and provisions for crediting of other parallel efforts. The Plan will recognize the public and private benefits derived from water quality, environmental protection, flood control, recreation, and a reliable water supply.*

1. Establish reliable short-term and long-term funding for each program element and for each package of Stage 1 actions (1-7):
  - Finalize cost-share agreements (yr 1).
  - Finalize details surrounding repayment or crediting (yr 1).
  - Seek legislation and budget authority for financing, including federal and state appropriations, new authority for state bonds, private financing and new user fees (yr 1-7).
  - Develop and refine cost estimates as program actions are identified (yr 1-7).

## **2.11 Monitoring, Data Assessment, Research and Adaptive Management**

*Establish monitoring, data assessment and research activities for all program elements that provide reliable data and information which is assessed and translated into a useful format for management decisions. All the activities will be approached in a manner conducive to an adaptive management process. Consequently, most of the activities will be undergoing continual refinement through the seven year program.*

1. Periodic review and refinement of the monitoring, data assessment and research plan from a long term perspective. (yr 1-7)
2. Periodic review and refinement of the monitoring, data assessment and research plan from a short term perspective which would include all elements of the Phase II, Stage 1 Program. (yr 1-7)
3. Help management define triggers and time periods which determine the need for a change in program direction. (yr 1-7)
4. Continue to develop and refine conceptual models to be used in evaluating actions undertaken by the programs. In keeping with the adaptive management format, the models will be continually updated with information generated by program actions. (yr 1-7)
5. Through a peer review process, evaluate the effectiveness of the adaptive management in the program decision making process. (yr 1-7)
6. Review the progress toward achieving overall CALFED program goals and objectives and whether individual programs are progressing at similar paces. (yr 1-7)
7. Complete monitoring identified by diversion effects on fisheries team to provide

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feedback on actual diversion effects of south Delta pumps (yr 2-7) (includes long-term, system wide, baseline monitoring with focused research to increase understanding of ecological process and ways to reduce uncertainty; definition of needed studies is currently under development, following are examples)

- Conduct focused research on Delta hydrodynamics and linkage to food web including relation to location of diversion point.
  - Study population trends of fish using the Delta, including fish salvage at south Delta export facilities, with emphasis on San Joaquin River fall run chinook salmon, delta smelt, and Mokelumne River fall run chinook salmon and steelhead trout.
  - Expand real-time monitoring for enhanced fish protections and flexible operations for water suppliers.
8. Provide available data on need to reduce bromides, total dissolved solids, total organic carbon, pesticides and heavy metals (yr 5).
  9. Provide available data on water quality in south Delta and lower San Joaquin River (yr 1-7).
  10. Monitor and assess the impacts of water use efficiency measures on water demands and available supplies, and develop better information for water balances in the Bay-Delta system (yr 1-7).
  11. Prepare annual reports on status and progress, including such information as: performance of habitat restoration actions compared to expected results, summaries of any new information on the relative importance of various stressors, and any need for adjustments in actions or conceptual models (yr 1-7)
  12. Analyze status and need for adjustments of actions for later stages (yr 5-7).
  13. Monitor and report land use changes, such as agricultural land conversion, resulting from CALFED actions (yr 2-7)

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### **3.0 NEAR TERM (STAGE 1A) ACTIONS**

Implementation of actions begins in Phase III. This period will include site-specific environmental review and permitting as necessary. The first stage of Program implementation is critical to its long-term success because it will serve as an indication of the CALFED agencies and stakeholder community capacity to act on a cost-effective, practical, and equitable set of actions which advance the Program objectives.

The preliminary actions have been grouped into 7 bundles either to provide a balanced suite of actions for specific regions within the CALFED problem and solution areas, or to provide programmatic balance between actions which are not necessarily associated with any specific geographic area. The bundles highlight certain critical ongoing programs which will require implementation decisions in the near future, but do not include the many other ongoing monitoring and improvement programs in the Bay-Delta region.

#### **Lower San Joaquin River and South Delta Region Bundle**

This bundle is designed to address water management and fisheries concerns in the south Delta and lower San Joaquin River region, for local water uses as well as State and federal exporters. Specific issues to be addressed include fisheries, water quality, water supply reliability, recreation, flood control, and wildlife habitat. The preliminary actions are designed to advance feasibility and environmental evaluations and to implement corrective actions in the south Delta region as well as in upstream watersheds which affect the quality and quantity of flows in the San Joaquin River.

#### **Lower Sacramento River, North Delta Bundle**

This bundle is designed to develop a balanced solution to concerns surrounding fishery and water quality impacts of diversions from the Sacramento River into the central Delta, to address regional flood concerns, and to substantially enhance riparian and wetlands habitat corridors in the region.

#### **Yolo Bypass, Suisun Marsh, and West Delta Bundle**

This bundle is designed to address water quality, fisheries protection, and habitat enhancement actions for the west Delta region, including Suisun Marsh, the west Delta islands, and the Yolo Bypass. Because of the concern over toxicity effects of mercury originating in the Cache Creek basin, this bundle includes substantial research to identify those sources and potential remediation tools.

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## **Delta-Wide ERP/Levees Bundle**

This bundle is designed to achieve a reasonable balance between implementation of ecosystem improvement actions and levee system improvement actions. In addition this bundle includes actions to improve fisheries, water quality, and habitat throughout the Delta, including protection and enhancement of Delta in-channel islands.

## **Sacramento River, San Joaquin River and Tributaries Bundle**

This bundle includes ecosystem restoration primarily fisheries habitat, hatchery management, and floodplain and meander belt restoration along key river reaches.

## **Integrated Water Management Bundle**

This bundle includes actions which can lead to improvements in water supply reliability and flexibility through improvements in water use efficiency, water transfers, water storage and conveyance facilities (groundwater and surface water), water quality, and water associated habitats. The proposed actions include the Program problem area and solution areas, including state and federal project service areas and upper watersheds. It includes key actions that comprise the Integrated Storage Investigation and implementation of the Environmental Water Account.

## **Governance Bundle**

This bundle addresses certain organizational issues to assure that orderly implementation of Program actions can occur as the level of activity increases substantially. These issues include the potential formation of a CALFED management entity, an ERP implementation entity, comprehensive monitoring, and actions to assure that water quality and water use efficiency measures can be fully implemented. While creation of new entities may be proposed, no agency will transfer any existing regulatory authority to these new entities.

The Stage 1a actions are identified in Table 3.1.



<b>Table 3.1 cont.</b>									
Bundle Action #	Action Description	Detail/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2008 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
4	Plan, Design & Construct CVP last Tracy Fish Facility, 500 cfs screen, plus Sorting, Holding, Transport, and Release	New fish screens for TPP full export capacity to be completed by end of Stage 1	Improve fish survival	S/C	ERP	\$6.5	\$30.0	USBR	
5	Plan, Design, & Construct new SWP Clifton Court Forebay Intake, including fish screens and salvage facilities, average daily capacity 10,300 cfs: New Screened Intake with Gates and LH Pumps		Improve fish survival, water supply flex. and reliability, drinking water quality stages, circulation, and	S/C	ERP	\$2.0	\$4.0	DWR, USBR	
6	Feasibility and Environmental study of SWP/CVP intertie between export facilities and canals	Based on results of this investigation, either construct intertie and add 4600 cfs screened export capacity to CCFB or build new screen and salvage facilities at Tracy Pumping Plant. Also evaluate intertie between Delta Mendota Canal and Cal. Aqueduct between Delta pumping plants and		S/C	ERP	\$1.0	\$2.0		
8.1	Implement Joint Point of Diversion	Allow SWP and CVP to shift allowable exports between pumping plants to minimize environmental impacts and improve operational flexibility and water supply reliability.		external	S/C	-	-	SWRCB	
7	SWP 10,300 cfs Permits, with appropriate regulatory constraints	Interim increase to 8500 cfs export capacity may be sought if benefits justify	Increased operational flexibility for water supply and environmental benefits.			-	-		
8	Plan, Design, and Construct Permanent Operable Barriers at Head of Old River, Middle River, and Old River at Tracy.	Phase out temporary barriers as soon as feasible (permanent barriers, dredging, and ag intakes extensions completed. Retain options for future construction of permanent operable Grant Line Canal barrier if other actions fail to address local water supply availability needs. Costs shown are for design.	Improve fish passage (HOR), and local water supply availability and quality (MR, ORT)			\$0.5	\$2.0		
8.1	Barrier Operations	Establish Barrier Operation Coordination Team, operate for fisheries, water quality, and water supply availability goals.				-	-		
8.2	Barrier Monitoring	Monitor barrier effects on fish, stages, circulation, and water quality to support real time ops and planning process.				\$0.5	\$0.5		
9	Channel Dredging of Selected Channel Segments	Dredge to limit scour velocities, for water supply availability, for navigation, and flood control. Costs shown are for design.				\$0.2	\$1.0		
10	Agricultural Diversions Extension and Screening	Extend ag intakes where necessary, with operable barriers in place, to meet local water supply availability needs. Costs shown are for design and agreements.				\$0.2	\$1.0		
11	Flood Conveyance Improvements in lower San Joaquin River System, including Paradise Cut, San Joaquin River, Old River, and Middle River, per FEET Report, 1997	Channel dredging, limited levee setbacks, and flood plain restoration in conjunction with ERP actions	Improve levee integrity, channel conveyance, flood plain storage, fisheries and wildlife habitat	S/C	ERP	\$1.0	\$1.0	Corps, DWR	
	<b>Subtotal</b>					<b>\$22.6</b>	<b>\$61.2</b>		

Bundle #	Action #	Action Description	Data/Assumptions	Primary Effects	CALFED Secondary CALFED Program	RY 2008 Cost (millions)	RY 2001 Cost (millions)	Implementing Entity	Implementing Authority Request?
	13	Restore Tidal Marsh and Riparian Habitats along Georgiana Slough	The assumption is that improved habitat will decrease the diversion effect on fisheries.	Improve fisheries and wildlife habitat	ERP	\$1.5	\$1.0		
	14	Study North Delta ecosystem and flood control improvements including the Lower Mokelumne River		Flood control and habitat creation w/ levee berms	S/C	\$1.0	\$2.0	DWR	
	15	Acquire and Convert Land for Shallow Water, Wetland, and Riparian Habitat	This action will contribute to establishment of a Mokelumne River Corridor.	Flood control and habitat creation w/ breached levees	ERP: Mokelumne & Corridor	\$3.0	\$3.0	DWR, DFG, and others	
	16	Study Feasibility of Delta Cross Channel Reop. and 2-4000 cfs Hood Diversion		Balance water quality and fisheries benefits, potential for improved drinking water quality	S/C	\$1.0	\$1.0	DWR	
		Subtotal				\$6.5	\$7.0		

Table 3.1 cont

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<b>Table 3.1 cont.</b>									
Bundle Action #	Action Description	Details/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
<b>Yolo Bypass, Suisun Marsh, and West Delta Bundle</b>									
18	Implement Suisun Marsh Diversion Screening Program	It is assumed that fish screens in this area will aid in the recovery of threatened or endangered fish species.	Reduce fisheries entrainment impacts	ERP		\$0.25	\$1.0		
19	Suisun Marsh and Van Sickle Island	Evaluate and restore tidal wetlands.		ERP		\$6.0	\$3.0		
20	Provide Needs and Opportunities Analysis for Improving Ecosystem Restoration and Flood Bypass Habitat for the Yolo Bypass area	This is a portion of a general effort for flood bypass areas, including Colusa Basin, Butte Basin, Sutter Bypass, Yolo Bypass, Chowchilla Bypass, Eastside, Fresno Slough, and James Bypass. See action 42.	Improve diverse habitat, fish passage, and WQ	ERP		\$1.0	\$6.0	CALFED: Multi-Agency	
21	Cache Creek Mercury Source Control Study		Develop ways to reduce Hg transport to waterways	WQ/ERP		\$3.0	\$2.0		
22	Clear Lake upper watershed mercury remediation actions			WQ/ERP		\$1.0	\$1.0		
23	Frank's Tract Habitat Restoration	Further evaluate and restore portions of Frank's Tract to provide for channel islands and tidal wetland habitat using clean dredge materials and natural sediment accretion. Combine the habitat restoration with a program to control or eradicate nuisance aquatic plants.	Create shallow water habitat, riparian	ERP		\$1.5	\$1.5	DWR, Corps	
24	Dredged Materials Reuse	Pilot Studies and Implementation, as materials and appropriate opportunities become available.	Materials for habitat, levees	ERP	Levees	\$0.5	\$0.5	DWR, Corps	
25	Barker Slough Watershed Restoration		Improve WQ, sediment, and habitat (Watershed severely impacts North Bay Aqueduct water quality.	WQ	ERP	\$0.8	\$0.8		
<b>Subtotal</b>						<b>\$14.05</b>	<b>\$15.80</b>		

<b>Table 3.1 cont.</b>									
<b>Bundle Action #</b>	<b>Action Description</b>	<b>Detail/Assumptions</b>	<b>Primary Effects</b>	<b>CALFED Program</b>	<b>Secondary CALFED Program</b>	<b>FY 2000 Cost (millions)</b>	<b>FY 2001 Cost (millions)</b>	<b>Implementing Entity</b>	<b>Implementing Authority Required?</b>
<b>Delta-Wide ERP/Levees Bundle</b>									
27	Levees Subventions		Levee System integrity	Levees		\$10.0	\$11.0	DWR, Corps	Congressional authorization may be required for Corps participation with Non-Project Levees
28	Levees Special Projects		Levee System Integrity	Levees		\$11.0	\$11.0	DWR	
29	Emergency Response Program		Levee System Integrity	Levees		\$11.0	\$3.0	DWR	
30	Identify Risks to Delta Levees and Develop a Risk Management Strategy		Levee System Integrity	Levees	WQ, ERP, Conveyance	\$1.0	\$1.0	CALFED	
31	Evaluate the Need to Screen Small Diversions in the Delta and implement	Consolidate and screen local sq diversions based on an appropriate priority and initiate a screen maintenance program, per Water Quality Control Plan, May 1995	Reduce fisheries entrainment impacts	ERP		\$1.0	\$1.5	DFG, DWR	
32	Nonnative Invasive Species (NIS) (Note: Expand to actions in SF Bay and Suisun Marsh, to reduce further invasions and eradication of <i>Lepidium</i> )	Demonstration projects. This action is part of an ecosystem-wide effort to control non-native invasive species with early emphasis on the Delta and the Bay.		ERP		\$2.0	\$3.0	USFWS	
33	Total Organic Carbon Evaluation	General Evaluation and Pilot Study: Total Organic Carbon Reduction, DWR to do engineering and technical oversight.	Improve in-Delta drinking water source quality:	WQ/ERP		\$4.5	\$2.0		
34	ERP Levee Relocations, Berms, Veg. Management	Cost included with In-Channel Island Restoration	Delta Shallow Water, tidal wetlands, and riparian habitat	ERP		\$1.0	\$1.0	DWR,DFG	
35	In-Channel Islands Restoration		Tidal wetlands, riparian habitat, special status species	ERP		\$1.0	\$1.0	DWR,DFG	
36	Assessment of sources and magnitudes of loadings of constituents of concern for drinking water	Includes TOC, nutrients, salinity, pathogens, and Br on Delta wide basis		WQ		\$0.5	\$1.0		
37	Determine Key Acquisition Areas for Conservation of Special Status Plant Species in the Delta, Suisun Marsh, and S.F. Bay			ERP		\$0.5	\$1.0		
38	Studies to Determine Propagation Techniques and Restoration Protocols of Rare Plants in the Delta, Suisun Marsh, and S.F. Bay			ERP		\$0.5	-		
<b>Subtotal</b>						<b>\$44.0</b>	<b>\$36.5</b>		

<b>Table 3.1 cont.</b>									
Bundle Action #	Action Description	Detail/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
<b><i>Sacramento River, San Joaquin River and Tributaries Bundle</i></b>									
40	Sacramento River Meander Corridor Studies and Implementation	Continue studies and demonstration projects which address potential changes in hydrology and geomorphology, local economic impacts, and other issues associated with ongoing riparian restoration work.		ERP		\$8.0	\$8.0	DWR	
41	American River Corridor Management Plan	Develop a corridor management plan		ERP		\$0.25	-		
42	Develop Tuolumne River and Other High-Priority Sediment Management Plans	Develop a sediment management plan that includes evaluating coarse and fine sediment transport and the need to augment gravel supplies, and is consistent with efforts to restore the Tuolumne River corridor. First year funding for contract to cover study period.		ERP		\$5.0	-		
43	Tuolumne River Restoration Implementation Actions	The Tuolumne River has been identified as a large scale demonstration stream in the ERP		ERP		see 42	-		
44	Fish Management	Develop Biological and Genetic Management Plans to Address Restoration and Recolonization of Streams in the Central Valley by Chinook Salmon and Steelhead		ERP		\$2.0	\$1.0		
45	Hatchery Operations	Develop an integrated hatchery management strategy that reduces the potential conflict with wild fish, maintains a viable harvest strategy, and optimizes progress toward the goal of self-sustaining populations of wild, native fish.		ERP		\$0.50	\$0.5		
45.5	Marking and Tagging Program	Develop and implement a comprehensive Implementation Plan for a statistically designed marking and tagging program for Chinook Salmon produced at Central Valley facilities consistent with existing programs throughout the West		ERP		\$1.25	\$1.25		
46	Upgrade Weir at Battle Creek Coleman Fish Hatchery	Repair and Modify Weir		ERP		\$1.5	-		
47	Butte Creek Restoration			ERP		\$5.0	\$5.0	DWR	
48	Deer Creek Restoration			ERP		\$0.5	\$5.0	DWR	

<b>Table 3.1 cont.</b>									
Bundle Action #	Action Description	Details/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
49	Comprehensive Flood Control Study	Major evaluation of Sacramento River and San Joaquin River systems, coordinated with ERP flood plain restoration opportunities.		External	Coord. Levees, S/C			Corps, DWR	
50	Sacramento River Mercury Source ID and Control/Remediation Study			WQ		\$0.3	\$0.8		
51	Sacramento River Levees Restoration			S/C		\$2.0	\$2.0	Corps, DWR	
52	San Joaquin River & Tribe Study, possible Implementation, and Acquisition	Implementation of components of Comprehensive Flood Control Study		ERP		\$10.0	\$5.0	DWR, Corps	
	<b>Subtotal</b>					<b>\$38.3</b>	<b>\$28.6</b>		

<b>Table 3.1 cont.</b>									
Bundle Action #	Action Description	Detail/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
<b>Integrated Water Management Bundle</b>									
53.1	Initiate Ecosystem Science Program	Program to support the adaptive management element of the ERP. This will include science workshops, targeted research, assessment of relevant data and incorporation into the management process.		ERP		\$15.0	\$15.0		
53.15	Monitoring, Assessment, and Research	Develop a process to design and implement the monitoring programs for the CALFED actions so that the data from the monitoring programs are interlinked.		CMARP		\$6.3	\$10.3		
53.2	Supplement existing monitoring programs	Implement additional system or landscape level monitoring programs to provide for measurement of progress and evaluation of performance of the ERP.		ERP		\$7.0	\$7.0		
54	Environmental Education Programs	Programs designed to develop a broader understanding of natural resource conservation issues at the individual and community level.	Increase public awareness	ERP	WQ	\$2.0	\$2.0		
55	Develop a Long-Term Plan for In-Stream Flows	Develop Ecologically-based Hydrologic Models and Water Management Strategies and apply to formulate in-stream flow augmentation plans.	Improve fisheries and wildlife habitat	ERP		\$0.5	\$1.0		
56	Develop Ecologically-based Hydrologic Models and Water Management Strategies			ERP		see 55	see 55		
57	Provide Needs and Opportunities Analysis for Improving Ecosystem Restoration and Flood Bypass Habitats	Areas include but are not limited to: Colusa Basin, Butte Basin, Sutter Bypass, Yolo Bypass, Chowchilla Bypass, Eastside, Fresno Slough, and James Bypass.	Improve diverse habitat, fish passage, and WQ	ERP		\$1.0	\$1.0	CALFED: Multi-Agency	
58	Diazinon and chlorpyrifos Assessment	Assess the fate and transport of diazinon and chlorpyrifos; begin implementation to reduce water quality impacts, using BMP's.		WQ	ERP	\$0.4	\$0.0		
59	Diazinon and chlorpyrifos Education	Develop an educational program that provides information on ways to reduce water quality impacts. Possible test market areas include Sacramento and Stockton. 1997/1998 Eco funding provided to develop BMP's. 2000-develop BMP's.		WQ		\$1.8	\$0.8		
59.1	Integrated Storage Investigations								
59.2	Overall Storage Strategy		Improve Storage/CU utility	S/C		\$1.0	\$1.0	CALFED	
60	Groundwater/CU Feasibility Studies with local sponsors		Improve Storage/CU utility	S/C		\$2.0	\$5.0	Local Cooperating Entities and CALFED	
61	Groundwater/CU Programs: (Develop and Impl. GW Monitoring and Modeling Programs)		Improve Storage/CU utility	S/C		\$1.0	\$2.0	Local Cooperating Entities and CALFED	
62	On-Stream Storage Enlargement Studies (Friant Dam Enlargement Recon Study)		Improve Flood Control and Storage/CU utility	S/C		\$0.2	\$0.2	Proposed Joint study: USBR, Corps, and Rec Board	
63	North of Delta Off-Stream Storage Investigation (Sites and Alternatives Feasibility Study)		Improve Storage/CU utility	S/C		\$10.0	\$10.0	DWR	
64	On-Stream Storage Enlargement (Shasta 6.5 ft Raise Feasibility Study)		Improve Storage/CU utility	S/C		\$3.0	\$1.5	USBR	

Table 3.1 cont.									
Bundle Action #	Action Description	Details/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
65	In-Delta and Adjacent to Delta Storage: Feasibility Study		Improve Storage/CU utility	S/C		\$1.5	\$2.0	DWR	
66	Power Facilities Reoperations Evaluation		Improve Storage/CU utility	S/C	ERP,WM	\$0.5	\$0.5	DWR, FERC, PUC, SWRCB, w/local water entities and stakeholders	
68	Fish Migration Barrier Removal Evaluations			ERP	S/C	\$0.5	\$0.5		
69	Financial Incentive Program	Local assistance (loans & grants) for cost effective water conservation/recycling actions, Low interest loans	reduce Demand	WUE					
70		Urban		WUE		\$5.0	\$12.0	CALFED, Multi-agency	
71		Ag		WUE		\$24.0	\$50.0	CALFED, Multi-agency	
72		Managed Wetlands		WUE		\$1.5	\$3.0	CALFED, Multi-agency	
73		Recycling		WUE		\$14.0	\$28.0	CALFED, Multi-agency	
74	Technical Assistance	Recoverable loss studies, on-farm conservation studies, funded through member agencies (USBR, DWR)	reduce Demand	WUE					
75		Urban		WUE		\$0.8	\$1.0	CALFED, Multi-agency	
76		Ag		WUE		\$3.0	\$3.5	CALFED, Multi-agency	
77		Refuges or Managed Wetlands		WUE		\$0.2	\$0.5	CALFED, Multi-agency	
78		Recycling		WUE		\$0.8	\$1.0	CALFED, Multi-agency	
79	Directed Studies			WUE					
80		Research ET		WUE		\$0.2	\$0.25	DWR, UC	
81		Pilot Measurement Program		WUE		\$0.5	\$0.65	CALFED, Multi-agency	
82	Establish the California Water Transfer Information Clearinghouse	Features of Clearinghouse in 2000/01; develop website to disseminate transfer information and approval process requirements. No user fees. Possibly house in new division of SWRCB.	Imp. Market efficiency	WT		\$0.5	\$0.5	CALFED	
83.1	Streamline the Water Transfer Approval Process	Working with SWRCB, DWR, USBR to create a more standard application process. Would be available through the Clearinghouse, among other things. Several year effort. Initial effort is to clarify existing process thru SWRCB guidebook.	Assure disclosure of proposed actions	WT		\$0.09	\$0.00	USBR, DWR, SWRCB	
83.2	Require Impact Analysis Disclosure for Water Transfers	Working with SWRCB, DWR, USBR to require transfer applicants to disclose socio-economic, groundwater, and cumulative impact assessments with approval applications. Several year effort. Requires agencies to add/modify existing requirements		WT		\$0.02	\$0.02	USBR, DWR, SWRCB	

Item #	Action Description	Details/Assumptions	Table 3.1 cont.	CALFED Program	Secondary CALFED Program	FY 2008 Cost (millions)	FY 2011 Cost (millions)	Implementing Entity	Implementing Authority Required?
84	Expedite the SWRCB Approval Process for Some Water Transfers	SWRCB preparing guidebook on additional opportunities to expedite.	Imp. Market efficiency	WT		\$0.50		USBR, DWR, SWRCB	
85	Develop Transferable Water Definitions for Various Types of Transfers	Develop definitions of transferable water for types of transfers that are of issue as identified in guidebook. Have to have agencies and stakeholders	Imp. Market efficiency	WT		\$0.04		USBR, DWR, SWRCB	
86	Clarify Carriage Water Requirements for Cross-Delta Water Transfers	Evaluate applicability of carriage water concept to transfers and develop consensus method to calculate it.	Imp. Market efficiency	WT		\$0.04		CALFED, MWR, agency	
87	Rather than Criteria for Reservoir Storage Based Water Transfers	Establish more consistent application of rule criteria. Facilitate discussion between SWRCB, DWR, and USBR.	Imp. Market efficiency	WT		\$0.03		DWR, USBR	
88	Improve Provisions for In-stream Water Transfers	Develop accounting/tracking measures between SWRCB, DWR, and USBR.	Facilitate ERP Impl.	WT		\$0.08		CALFED, MWR, agency	
89	Forecast and Disclose Conveyance Capacity in State and Federal Project Facilities	May be increased work effort at DWR for 1707 transfers	Imp. Market efficiency	WT		\$0.50		DWR, USBR	
90	Evaluate policies for transferring water in existing project facilities.	Work with stakeholders and DWR/USBR to make some capacity available for transfers.	Imp. Market efficiency	WT		\$0.02		DWR, USBR	
91	Evaluate the Need for Additional Water Rights Legislation	CALFED is preparing a recommendation. No additional funding expected		WT		-		CALFED	
92	Local assistance for Groundwater Management Plans	Incentive program for ground water management. Coordinate with conjunctive use program/incentives. Incentive dollars would not be through the Water Transfer Program.	Increase use of groundwater as a water management tool.	WT	S/C	-		CALFED	
93	Establish Pilot Environmental Water Account	Funding for establishment and administration of EWA	Protection and water supply reliability	ERP	S/C	\$1.0		CALFED	
94	Environmental Water Purchases	Includes EWA funding	Enhance fisheries habitat	ERP	S/C	\$56.0		CALFED	
95.11	Fund and implement watershed planning activities within watersheds of the greater Bay Delta ecosystem	Assist local watershed groups and government agencies to develop watershed plans through grants, directed actions training and technical support.	Manage land use, vegetation, and stream	WT	ERP	\$8.0		CALFED	
95.12	Fund and implement watershed conservation, maintenance and restoration activities within watersheds of the greater Bay Delta ecosystem.	Assist local watershed groups and government agencies to develop and implement projects and other community based watershed improvement activities through grants, directed actions training and technical support.	Manage land use, vegetation, and stream	WT	ERP, WQ	\$12.0		CALFED	
95.21	Provide funding to help build the capacity of locally led watershed groups that collaborate with local landowners.	Provide or support capacity building programs to enhance sustainability of locally led watershed programs. Programs could include training in facilitation techniques, consensus building, conflict mgmt., fund raising and other similar skills, in addition to start up support for start costs, administration, and other operating	Significantly increased capacity for local watershed management activities.	WT	VM	\$4.0		CALFED	

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<b>Table 3.1 cont.</b>									
<b>Bundle Action #</b>	<b>Action Description</b>	<b>Details/Assumptions</b>	<b>Primary Effects</b>	<b>CALFED Program</b>	<b>Secondary CALFED Program</b>	<b>FY 2000 Cost (millions)</b>	<b>FY 2001 Cost (millions)</b>	<b>Implementing Entity</b>	<b>Implementing Authority Required?</b>
95.22	Provide funding and assistance to locally led watershed efforts to help build and administer watershed education programs.	Fund the development of local education programs through communities, schools, and universities, non-governmental organizations, local agencies and watershed stewardship	Increased awareness and understanding within communities of the importance of a health functional watershed	WM	ERP	\$1.0	\$1.0	CALFED	
95.3	Establish, fund and maintain assistance to local watershed groups, and landowners for project concept, design, and implementation	Ensure adequate levels of technical assistance and scientific support to locally led watershed management programs.	Sound scientifically based watershed plans, and projects.	WM	ERP,	\$3.0	\$3.0	CALFED	
95.41	Assist CALFED's monitoring program to develop appropriate watershed management performance measures and monitoring protocols	Ensure that adaptive management can be applied at multiple scales (including site, project, and program) and across land ownerships by developing a suite of protocols to help track a wide range of watershed responses to change.	The program will have reliable data and information with to adaptively management the program, and program activities.	WM	ERP	\$0.5	\$0.5	CALFED	
95.42	Begin development of baseline information needed to conduct scientifically sound watershed planning and management within watersheds of the greater Bay Delta ecosystem.	Support watershed assessment efforts in the tributary basins of the greater Bay Delta watershed consistent with CALFED's monitoring program and local watershed program needs.	Expanded information base available for watershed planning, implementation and monitoring activities.	WM	ERP,WQ	\$1.5	\$1.5	CALFED	
95.43	Improve the use and usefulness of existing watershed resource information centers	Support the expansion of an active network of watershed data and information to assist watershed programs to conduct effective watershed management, conservation and restoration activities.	Expanded capability of watershed managers to collect, store, retrieve and exchange data and information.	WM	ERP	\$1.0	\$1.0	CALFED	
95.5	Provide oversight for the program through the CALFED oversight entity	Insure adequate funding to conduct administrative, management, and oversight for the watershed program, within the framework of the overall CALFED oversight entity.		WM		\$0.5	\$0.5	CALFED	
96	Field Surveys for all special status species in and around all potential surface storage and groundwater sites			S/C		\$1.0	\$1.0		
96.5	Feasibility evaluation of water exchanges between San Joaquin River/Tulare lake watersheds and urban water users to improve drinking water quality			WQ	WT				
<b>Subtotal</b>						<b>\$194.9</b>	<b>\$254.9</b>		

<b>Table 3.1 cont.</b>									
Bundle Action #	Action Description	Detail/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
97	<b>Governance Bundle</b>								
98	CALFED Entity			Gov		-	-		Existing Structure or Leg. Required.
99	Determine/Establish governing structure for CALFED Program Elements, including ERP, WQ, Levees, WM, S/C, CMARP, WJE, WT			Gov		-	-		Existing Structure or Leg. Required.
100	Water Quality Actions Immunity: Federal Leg.	Develop appropriate balance of risk to cleanup entities and environmental due process responsibilities	Allow WQ actions to proceed w/o unacceptable liability risk	Gov	WQ	-	-	CALFED	New Federal Legislation
101	Identify Urban Water Certification Entity (UWCP)			Gov	WJE	-	-	CALFED	
102	Implement Ag Water Use Certification			Gov	WJE	-	-	DWR	
106	Maintain and enhance Program administration	The restoration component of the overall CALFED Program has increased substantially requiring the infusion of additional staff and related costs which is greatly above the existing project administration level.		ERP		\$4.5	\$4.5		
	<b>Subtotal</b>					<b>\$4.5</b>	<b>\$4.5</b>		
	<b>Grand Total</b>					<b>\$322.8</b>	<b>\$408.6</b>		

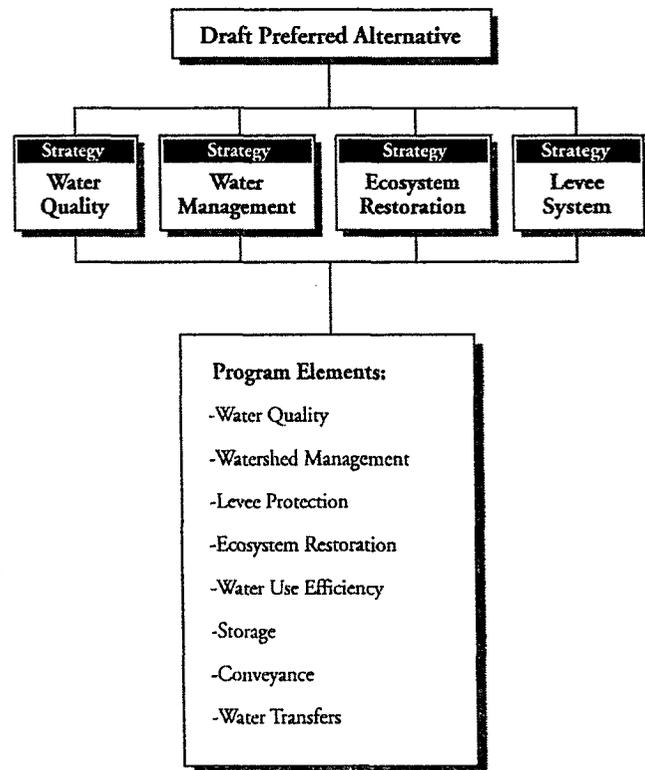
## 4.0 GOVERNANCE PLAN

The governance and decision-making structure for implementation of the CALFED Preferred Alternative is a key feature in assuring successful program implementation. CALFED is in the process of developing a long-term governance plan for the CALFED Bay-Delta Program and a decision on the long-term governance structure will be made by the time of the Final Programmatic EIS/EIR. Once the decision is made it is expected that it will take some time before the long-term governance structure is in place because of the time needed to enact legislation required to make changes to existing laws and authorities. While the long-term structure is being established, an interim governance structure will need to be in place. For the interim, CALFED proposes the continuation of essentially the current structure being used for the planning phase of the program but adapted to support the implementation phase. The interim structure will be in place only as long as it takes to establish a long-term structure. A basic principle of the interim governance proposal is that there would not be any new legislation or changes in existing legal authorities.

The CALFED Program is complex, multi-objective, involves many agencies and programs, and covers a large geographic scope. In developing a long-term governance structure for the CALFED Program, the implementation principles, functions, and structure/form have been evaluated at two levels--the policy oversight level and the program element level. Each of the program elements supports on or more of the four CALFED resource strategies -- ecosystem restoration, water quality, water supply reliability, and levee system integrity. The strategies for the resource areas are described in the Phase II Report.

Included in this chapter is a discussion of the:

- Governance functions for implementation
- Existing governance for CALFED oversight and the program elements
- Interim governance structure for program oversight and the program elements
- Options for long-term governance (in some cases).



## 4.1 Background

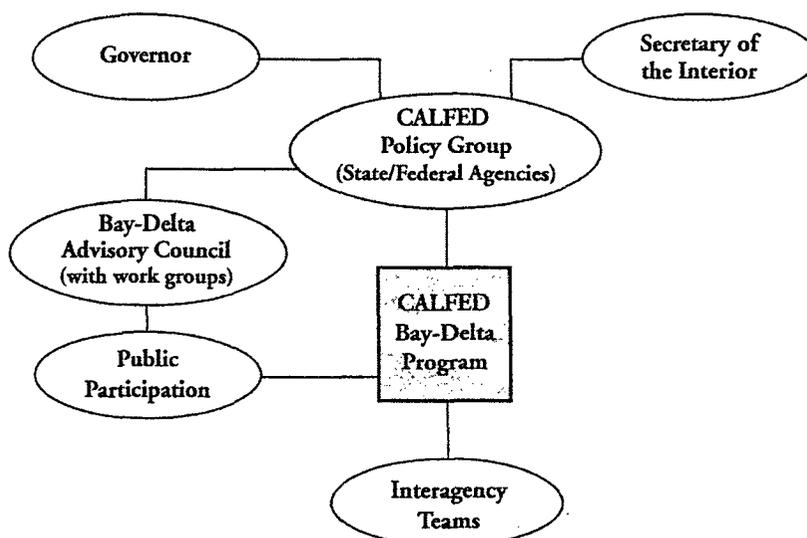
The current organization of the CALFED Bay-Delta Program is shown below. The Bay-Delta Program is a collaborative effort between state and federal agencies to develop a long-term solution to the Bay-Delta problems. The operating principles were agreed to in the 1994 Framework Agreement, an interagency Memorandum of Understanding between the Governor's Water Policy Council and the Federal Ecosystem Directorate. The Bay-Delta Advisory Council (BDAC) a federally chartered citizens' advisory committee with over 30 members provides formal comment and advice to the agencies.

Currently there are 15 CALFED agencies (see list on following page) which have management or regulatory responsibilities for the Bay-Delta or its watershed. In addition, other agencies, such as the California Department of Food and Agriculture, regularly participate in the development of the CALFED policies which affect their agencies.

For the past several years, the CALFED Program has worked with a stakeholder advisory group on the governance issues. Currently called the BDAC

Governance Workgroup, the Workgroup has focused mainly on the development of the governing structure for the ecosystem program. As the other program areas have become more developed, attention has expanded to governance at the policy oversight level and governance for the other resource areas and program elements.

Existing CALFED Program Structure



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**State CALFED Agencies**

CA Resources Agency  
    Department of Fish and Game  
    Department of Water Resources  
CA Environmental Protection Agency  
    Water Resources Control Board

**Federal CALFED Agencies**

U.S. Department of Interior  
    Fish and Wildlife Service  
    Bureau of Reclamation  
    Geological Survey  
    Bureau of Land Management  
U.S. Environmental Protection Agency  
U.S. Department of Commerce  
    National Marine Fisheries Service  
U.S. Department of Agriculture  
    Natural Resources Conservation Service  
    Forest Service  
Western Area Power Administration  
U.S. Army Corps of Engineers

## 4.2 Program Functions for Implementation Phase

In developing a governance structure it is important to first identify the basic functions that need to be performed. The functions serve as the criteria by which to evaluate the different governance structure options. In addition, basic principles that guide development and selection of a governance structure have also been identified for some of the programs. CALFED has organized functions for implementation of the program into three categories to accommodate the complexity of the program. In all cases, the functions described throughout this report do not predetermine the form or governing structure that will be used. The functions helped structure the interim governance proposal and will guide the selection of a long-term governance structure.

**Oversight Functions.** Oversight of the program is critical to its success. Some entity will need to oversee the CALFED program during implementation, as the Policy Group has done during the planning stage. Because the program has four equal objectives, it will be important for the oversight entity to ensure balance and coordination between the objectives and to provide program direction. Oversight functions include:

- Overall program direction
- Oversight of CALFED program implementation
- Assessing CALFED progress
- Assuring balanced implementation
- Reviewing priorities and funding of programs managed by the CALFED Program

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and programs managed by CALFED agencies. Recommending changes and approval to appropriate agencies with program and funding authority.

- Coordination between program elements and dispute resolution among CALFED agencies
- Coordination with related programs
- Stakeholder communication
- Legislative communication

**Program Coordination and Management Functions.** Program management and coordination for each program element and within each resource area will be critical for effective implementation. Program management and coordination functions include:

- Manage/oversee program element implementation
- Identify priorities, propose actions, develop budgets
- Assess and report on program element performance
- Coordinate with implementing agencies and stakeholders, and between program elements

**Direct Implementation Functions.** These functions have been identified separately because some agencies which may be involved in CALFED program element implementation may not have program management responsibility. For example, one entity (CALFED in the interim) may direct the Integrated Storage Investigation, while another entity (DWR or USBR) may be the lead on assessment for individual storage sites. Direct implementation functions include:

- Responsibility for direct implementation of individual programs and actions.
- Report on assessment and monitoring of individual programs or actions
- Prepare environmental documentation and obtain permits
- Stakeholder and local coordination for individual programs and actions

### 4.3 Program Oversight - Governance Structure

#### Existing Oversight Structure

During the planning phase of the program, the CALFED Policy Group has served as the primary governing body for coordination of individual agency decision-making on CALFED issues. Legal authority for program decisions currently rests with the Governor (for state matters) and the Secretary of Interior (for federal matters). Formal stakeholder input into the program has been provided by BDAC, BDAC Workgroups, Subcommittees, and other Technical Groups. As CALFED moves more into program implementation, new responsibilities will arise and new functions will be required.

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**Principles.** Several principles should be considered as conditions for any governance structure proposed as an oversight entity:

- State and federal partnership
- Stakeholder involvement in decision-making
- Involvement by elected officials
- No impairment of existing agency regulatory authority
- Efficient decision-making
- Durability of agreements/decisions
- Accountability for agreements/decisions

### **Oversight Functions**

1. **Oversight of CALFED Program Implementation.** General oversight functions include: providing overall program direction, developing policies and making decisions in order to achieve program goals and objectives, making decisions required for staged decision-making, and providing for balanced implementation and continuous improvement in all resource areas. An oversight entity would also be the forum for assessing overall achievement of program goals and objectives. The assessment would be based on progress reports provided by the entities responsible for program management and implementation. An oversight entity would also be responsible for modification, as needed, of program goals and objectives which would be done in coordination with the management and implementing entities.
2. **Review Budgets and Priorities -- Recommend Approval to Appropriate Agency.** An oversight entity would be responsible for reviewing and recommending approval of program priorities and budgets. Recommendations from the oversight entity would be forwarded to the agency which has the final program/funding authority. Review by an oversight entity would need to be coordinated with state and federal agency budget development, review, and approval processes. Programs would need to be identified within the state and federal agencies that are most related to CALFED objectives to determine what level of coordination and review those programs should have with/by CALFED. For example, the Delta Levee Subventions and Special Projects Programs, which are administered by DWR, have been fully incorporated into the CALFED Levee Program Plan. Therefore, a high level of coordination would be needed between CALFED and DWR to ensure the subventions and special projects programs support CALFED objectives.
3. **Coordination and Conflict/Dispute Resolution.** An oversight entity would provide a forum for conflict/dispute resolution between CALFED agencies.

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4. **Coordination of Related Programs.** An oversight entity would provide for coordination of the CALFED Program with other related programs to maximize available resources, to ensure achievement of CALFED goals and objectives, and to reduce conflicts with other programs.
  5. **Stakeholder Communication.** Although implementing agencies for each program element will continue to work with stakeholders, an oversight entity would provide the central forum for stakeholder input and communication.
  6. **Legislative Communication.** An oversight entity would communicate with Congress and the California Legislature to report on program progress, answer legislative inquiries, review and respond to legislative proposals, and to review and submit legislative proposals. Legislative communication would need to be coordinated through the appropriate state and federal agencies.

### **Interim Oversight Governance**

The interim structure will be in place from the time of the ROD and possibly for several years depending on the time required to adopt recommended legislative changes and reorganize existing authorities and structures. CALFED proposes that the interim structure essentially continue the current CALFED structure being used during the planning stage, but with modifications to ensure it is suitable for performing the implementation functions. The modifications would be made in revised or new agreements or contracts that will be in place by the time of the ROD to begin the implementation phase of the program. Continuing the existing structure with modifications will enable the primary focus for governance to be placed on the long-term governance structure. The current structure will provide for an efficient transition to the implementation phase with minimal program delays or disruption.

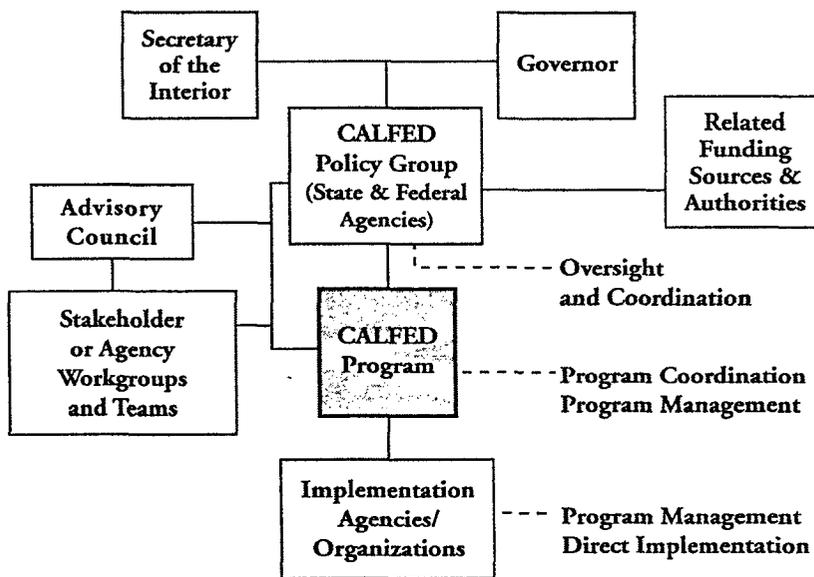
#### **Schedule for Governance Decisions and Implementation**

- Interim Governance
  - Decision in the Revised draft EIS/R, June 1999
  - Revised Agreements in place by the time of the ROD, June 2000
  - Operates until a long-term governance structure adopted
- Long-Term Governance
  - Decision by the time of the ROD, June 2000
  - Legislation expected to be needed

**Policy Group.** In the interim, the oversight functions will continue to be performed by the CALFED Policy Group. A new Framework Agreement is needed and will be in place by the time of the ROD. The Framework Agreement will describe the agency membership and designated representatives, describe the meeting schedule which will be at least quarterly, identify the frequency of Policy Group public meetings, specify that at least one meeting will be with the advisory council each year to perform a CALFED program assessment, specify decision-making procedures, and describe the oversight functions (listed above) of the Policy Group during the implementation phase.

**Bay-Delta Advisory Council (BDAC).** In the interim, stakeholder involvement in the decision-making structure will be through BDAC and when Policy Group holds public meetings. An amended Federal Advisory Council Act (FACA) Charter will be prepared by the time of the ROD which will be focused on the new tasks associated with program implementation. The Charter will identify new membership and alternates, describe the new functions and tasks, identify the necessary advisory Workgroups, describe the frequency of meetings, which should be at least quarterly and specify that an annual meeting with Policy Group will be conducted for the purpose of an annual CALFED program assessment.

### CALFED Interim Governance Structure and Functions



**CALFED Program and CALFED Agencies.** A new administrative Memorandum of Understanding between the state and federal CALFED agencies will be prepared by the time of the ROD. The MOU will specify the CALFED Program's functions and responsibilities, and establish the interim operating budget and necessary positions.

#### Long-Term Oversight

There is no recommendation at this time on long-term oversight. Based on the discussions within the Assurances/Governance Workgroup, CALFED staff and the Workgroup have developed three basic options for long-term governance. Before a final decision is made on a long-term structure, additional options will be identified and evaluated. A final decision on the

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long-term governance structure will be made by the time of the ROD. Options under consideration are:

1. Maintain existing Policy Group structure; extend/modify Framework Agreement (Minor modifications to the interim structure)
2. Formalize existing CALFED agency structure (JPA with Federal MOU)
  - Three agreements needed --A formal arrangement would be established among the state CALFED agencies through a joint powers agreement (JPA), or similar legal instrument, an MOU among the federal agencies; and another MOU between the federal agencies and the state JPA.
  - The California agencies' joint powers agreement would delegate authority from the parent agencies to carry out the necessary oversight functions (e.g., policy direction, funding priorities, inter-agency coordination, conflict resolution, etc.). The state JPA would be governed by a Board of Directors, appointed (presumably) by the Governor or Secretary for Resources. The precise composition of the Board, the number of members, the specific agencies to be represented, and the procedures to be used would be spelled out in the joint powers agreement, presumably as a result of state interagency negotiation, or by direction of the Governor.
  - No federal legislation required; state legislation would be required if the state JPA were to have any authority beyond the authority of the parent agencies or if powers or duties were to be shifted from a parent agency to the JPA.
  - The stakeholder role would be advisory.
3. New Joint Entity for Program Oversight (agency, commission, board)
  - A new joint state/federal entity would be created to oversee and govern the CALFED Bay-Delta Program. State and federal legislation would be required to create such an entity.
  - Appointed members of the board would be representatives of state and federal agencies, and public members.

(A variation on this alternative is to create a new state entity with federal participation through an MOA. The new state entity would have basic authorities to allow for efficient program administration such as receiving direct state appropriations, hiring staff, and issuing contracts)

#### **4.4 Program Element - Governance Structure**

This section describes the governance proposals or options for the program elements. As described in the Phase II Report, each of the program elements supports one or more of the four

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resource strategies -- Levee Protection, Water Quality, Ecosystem Restoration, Water Management. These strategies and program elements are interwoven and each must be viewed in the context of the other strategies and program elements. In this section, governance for each program element is discussed and presented separately although the implementation and governance of the program elements will be integrated through the four resource strategies. For each of the eight program elements, as well as the Environmental Water Account (EWA), and Comprehensive Monitoring Assessment and Research Program (CMARP), this chapter includes the following information:

- A description of existing agency authorities and stakeholder processes,
- Program coordination and management functions and direct implementation functions,
- The proposed interim governance structure and decision-making process, including interagency and stakeholder processes, and
- Long-term governance options (for some programs).

#### **Interim Governance for Program Element Implementation**

In the interim, for each of the program elements, the CALFED Program will perform the program coordination functions. This is because the CALFED Program has knowledge of the CALFED program objectives and the experience in coordination with the agencies and stakeholders, making the transition to implementation easier and avoiding new interim structures from being established. This also avoids fragmentation of the coordination function within the CALFED agencies.

In the interim, program management functions for each of the program elements, will be distributed among the state and federal agencies which currently have the program authority and funding. For example, water quality program management will remain with either SWRCB, DHS, USEPA and other agencies for existing programs. If new programs and funding are directed to CALFED, the CALFED program may assume program management functions. In coordination with state and federal agencies, CALFED will continue performing program management functions for the CALFED ecosystem restoration program, specifically for the funding available through the Federal Bay-Delta Ecosystem Enhancement and Water Security Act and Proposition 204. With program management distributed among many agencies in the interim, it is important that agencies closely coordinate to achieve the CALFED objectives. In the interim, direct implementation would continue to be done by existing agencies because in most cases CALFED does not have either the authority or staff to implement projects/programs called for in Stage I.

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## 4.4.1 Levee System Integrity Program

### Existing Programs and Authorities

Currently, several state and federal agencies have authority and program responsibility related to Delta levees. Beginning in the 1970s the state legislature passed several laws which gave DWR, the Reclamation Board, and the California Water Commission (CWC) legal responsibilities related to protection of the Delta levees. Specifically DWR and the Reclamation Board have responsibility for the Delta Levee Maintenance Subvention Program, a subventions program for local reclamation districts to share in the cost of levee maintenance and repair. DWR and the CWC have responsibility under the Delta Flood Protection Act for the Special Projects Program which targets state funding to areas/levees requiring additional flood protection based on statewide benefits. The Resources Agency, under the authority of Water Code Section 12318, has established a Delta Levees and Habitat Advisory Committee to resolve Delta levee and habitat issues and problems. For levees under federal jurisdiction, the Corps of Engineers provides emergency repair funding and may provide funding to repair or rehabilitate levees to federal standards. Emergency funding for flood damage repairs is also provided by the Federal Emergency Management Agency (FEMA). Local districts carry out the levee maintenance, repair and rehabilitation with state or federal financial assistance.

### Description of CALFED Levee Program

The objective of CALFED's Levee Program is to "Reduce the risk to land use and associated economic activities, water supply, infrastructure, and ecosystem, from catastrophic breaching of Delta levees." In developing the Long-Term Levee Protection Plan, a Levee Technical Group was established to advise the Program on problems and solutions during all phases of the CALFED Program. The Levee Technical Group is made up of representatives from agencies and stakeholder groups with an interest in Delta levees. CALFED proposes to continue existing levee protection programs but with greater and more reliable long-term funding, and to higher standards. CALFED proposes to, as needed, expand the scope of the existing levee programs to include greater integration with other CALFED programs such as ecosystem restoration, water quality, through-Delta conveyance, and water supply reliability. Integration of these program elements will require significant coordination among CALFED program elements, with agency and stakeholder input.

The major elements of the CALFED Levee Program are:

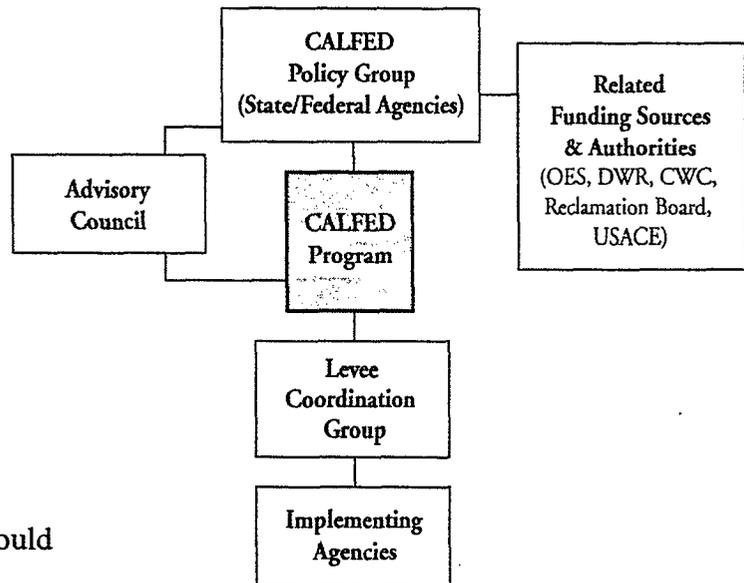
- Base Level Protection Plan -- Continue the existing levee subventions program to improve Delta levees to a uniform levee standard referred to as PL 84-99
- Special Projects -- Continue the existing special projects program to provide flood protection based on statewide benefits

- Subsidence Control Plan -- Reduce or eliminate the risk to levee integrity from subsidence
- Emergency Management and Response Plan -- Enhance existing emergency management response capabilities in order to protect critical Delta resources
- Delta Levee Risk Assessment -- Quantify the risks to Delta Levees, evaluate the consequences, and implement an effective risk management strategy

**Interim Levee Program Governance**

The interim governing structure and description of how the program management, program coordination and direct implementation functions will be implemented in the interim are described below. Program coordination would be the responsibility of the CALFED Program, and program management would primarily reside with state and federal agencies with existing authority for Delta levees. The CALFED Program would work with agencies (DWR, FEMA, OES, the Corps and local agencies) and stakeholders to ensure levee programs are consistent with CALFED objectives. Final decision-making authority would continue to rest with existing agencies. However, Program priorities and funding should be coordinated and reviewed by the CALFED Policy Group.

**CALFED Levee Program**  
Interim Governing Structure



**CALFED Program.** Program staff would provide interagency and stakeholder coordination. Coordination is also needed between the levee program and other CALFED program elements such as ecosystem, water quality, and monitoring and assessment, in order to maintain linkages and to provide input to the adaptive management process. CALFED may assume program management responsibilities if additional funding and program responsibility is specifically directed to CALFED.

**Levee Coordination Group.** (See Table 4.1) CALFED proposes the formation of a Levee Coordination Group to provide technical coordination between agencies and stakeholders and to advise CALFED and the implementation agencies (OES, DWR, USACE) on program

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management and implementation. The Group would provide for technical input to the implementation agencies from regulatory agencies, stakeholders, and CALFED Program Managers, and provide recommendations on broad program policy issues and specific program actions and projects.

The Levee Coordination Group would review levee program projects and priorities, and provide advice to DWR and/or CALFED regarding levee program implementation; to review monitoring and assessment results; and to make recommendations regarding adaptive management changes to the program. The Group would consist of technical experts from CALFED staff, agencies and stakeholders. The Levee Coordination Group could combine the two existing levee advisory groups (CALFED Levee and Channels Technical Team and Resources Agency Levees and Habitat Advisory Committee) for improved coordination and efficiency.

**Delta Levee Implementation Agencies.** DWR would function as lead management agency for the levee program. To the extent federal funding is provided to bring levees up to federal standards, DWR would work with the Reclamation Board to coordinate with USACE, to ensure the funds are applied in the most efficient manner. Levee work would continue to be subject to review and approval by DFG pursuant to Water Code section 12314, and subject to consultation with USFWS and/or NMFS where required under the federal ESA. Legal authority over state levee funding would remain as it is now, with subventions funding vested in the Reclamation Board and special projects funding priorities vested in the Department of Water Resources and Water Commission. The following is a list of the agencies/entities with funding approval over levee programs.

- OES provides final decisions on Emergency Response Program (Water Code §128, 12994 and the California Emergency Services Act, Ch. 7);
- Reclamation Board provides final decisions on the levee subventions program (Water Code § 12984, 12985,12986,12987);
- DWR and CWC provides final decisions on the Levees Special Projects (Water Code §12313);
- USACE has continuing jurisdiction over project levees subject to coordination with Reclamation Board and provides funding appropriated through the federal Water Resources Development Act.

### **Long-Term Levee Governance**

The long-term implementation structure would probably be much the same as the interim.

<b>Table 4.1</b>	
<b>Levee Coordination Group</b>	
<b>CALFED Staff</b>	<b>Functions/Responsibilities</b>
Levee Program	Chair Meetings, Coordinate: Funding, Permits, Policy, Project Priorities, Conflict Resolution, Project Performance, Report to Policy Group, etc.
Environmental Restoration Program	Coordinate ERP Actions with Levee and Conveyance Actions
Conveyance Program	Coordinate Conveyance Actions with Levee and ERP Actions
CMARP	Coordinate CMARP Levee Actions with other CALFED CMARP Actions
<b>Agencies</b>	
Department of Fish and Game	Coordinate DFG Permits and Levee Maintenance Agreements
US Fish and Wildlife Service	Coordinate USFWS Permits and Levee Maintenance Agreements
National Marine Fisheries Service	Coordinate NMFS Permits
Central Valley Regional Water Quality Control Board	Coordinate Water Quality Certification for Dredging and Waterside Work
Department of Water Resources	Represent the Reclamation Board, Coordinate Levee Program, Coordinate Comprehensive Study, Represent DWR, Coordinate Emergency Response Actions
U.S. Army Corps of Engineers	Represent the Corps on implementation Issues, coordinate the Comprehensive Study
Delta Protection Commission	Coordinate Levee Actions with DPC Delta Resources Management Plan
<b>Stakeholders</b>	
Environmental	Coordinate Levee Actions with Environmental Interests Concerns
SWP and CVP	Coordinate Levee Actions with SWP and CVP Contractors and Concerns
Delta Interests - NDWA, CDWA, SDWA	Coordinate Levee Actions with In-Delta Water User Concerns

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## 4.4.2 Water Quality Program

### Existing Programs and Authorities

Currently, there are several federal and state agencies with authority over surface water quality, drinking water standards, water quality monitoring, enforcement, and planning including:

- **U.S. Environmental Protection Agency** has broad regulatory authority over surface water quality and pollution control under the federal Clean Water Act, and over drinking water pursuant to the Safe Drinking Water Act.
- **State Water Resources Control Board and Regional Water Quality Control Boards** have state law jurisdiction over surface water and groundwater, including waste discharges to waters of the state, under the Porter-Cologne Act.
- **California Department of Health Services.** Drinking water quality is under the jurisdiction of EPA, pursuant to the Safe Drinking Water Act, but primacy has been delegated to DHS, which also has this responsibility under state law.
- **Department of Water Resources.** Pursuant to Water Code section 14903 et seq (the San Joaquin Valley Drainage Relief Act) DWR may acquire land for the purpose of addressing drainage problems in the San Joaquin Valley.
- **Department of Food and Agriculture.** DFA also has water quality responsibilities associated with fertilizer and pesticide management.
- **Department of Pesticide Regulation.** The Food and Agricultural Code authorizes DPR to regulate the sale, storage, handling, and use of pesticides, and to protect the environment from harmful pesticides.
- **Department of Fish and Game.** Fish and Game is responsible for enhancing and protecting fish populations and their habitat with some authority in the Fish and Game Code to control surface water quality.
- **U.S. Geological Survey.** USGS conducts extensive water quality and ecological monitoring within the Bay-Delta System.

### Description of CALFED Water Quality Program

The CALFED Water Quality Program has been responsible for developing a Water Quality Program Plan for the Bay-Delta Estuary and watersheds as part of the long-term Bay-Delta Program. In preparing the Plan, CALFED established a Water Quality Technical Group to advise the Program on problems and solutions during all phases of the CALFED Program. The Water Quality Technical Group is made up of representatives from agencies and stakeholder groups with an interest in water quality.

The CALFED Program proposes to expand efforts to improve the water quality of the Bay-Delta Estuary for all beneficial uses (domestic, industrial, agricultural, recreation, and aquatic habitat). Water Quality implementation actions proposed for the first two years (Stage 1a) benefit both drinking water and the ecosystem. These actions focus on pesticide management, mercury source

control, on-farm selenium control practices, investigations and control of low dissolved oxygen, and other actions and studies designed to improve Delta water quality.

**Interim Water Quality Governance**

The interim governing structure and description of how the program management, program coordination and direct implementation functions will be implemented in the interim are described below. The CALFED Water Quality Program will require significant efforts to coordinate actions among agencies and to maintain linkages with the ecosystem restoration, storage, conveyance and water use efficiency programs.

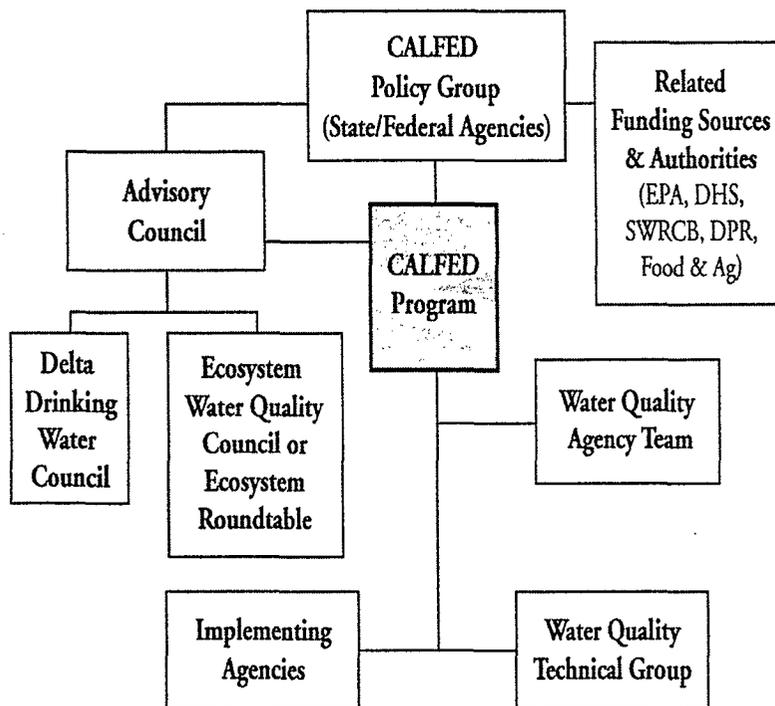
**CALFED Program.** CALFED staff would perform the program coordination functions in the interim. This would include staff support to the Water Quality Technical Group and the Ecosystem Roundtable or the Water Quality Council, if established. Program coordination would also be necessary between the water quality agencies and the other CALFED program managers. The Program would also coordinate with the Comprehensive Monitoring, Assessment and Research Program (CMARP) staff within CALFED to support the CALFED adaptive management process. CMARP functions and interim organization is described in Section 4.4.10 of this Appendix.

If additional state or federal funding for CALFED Water Quality Program actions becomes available (possibly in FY 2000), the CALFED Program may assume some of the responsibility for management of those funds, including priority setting and project selection. Funding would be passed onto water quality agencies for implementation based on project selection. Recommendations for project funding would be reviewed by the appropriate stakeholder process (Drinking Water Council or Ecosystem Roundtable), the Water Quality Agency Team and the CALFED Policy Group. Final approval would rest with the agency with authority for the funds.

**Water Quality Agency Team.** Water quality agencies would continue to coordinate through an inter-agency team. The team would be responsible for coordination of water quality programs

**CALFED Water Quality Program**

Interim Governing Structure



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and actions of each agency on the team. The team would provide recommendation on program priorities and funding for CALFED and for each water quality agency.

**Water Quality Technical Group.** The Technical Group would include technical representatives from agency and stakeholder groups. The function of the group is to advise CALFED on priority actions, targets, monitoring and assessment.

**Delta Drinking Water Council.** A Delta Drinking Water Council is proposed as the forum for stakeholder advice and input into the decision-making process for drinking water issues. The Council would be a workgroup of BDAC. It would consist of representatives of various stakeholder interests and representatives from designated agencies with jurisdiction over drinking water issues (EPA and DHS.)

**Ecosystem Roundtable or Ecosystem Water Quality Council.** A modified version of the Ecosystem Roundtable or a new group - Ecosystem Water Quality Council - is proposed to serve as the forum for incorporating stakeholder review and input into the decision-making process for actions or programs related to ecosystem water quality. This group would also be a workgroup of BDAC and consist of stakeholders and agencies interested and with jurisdiction over ecosystem water quality issues.

**Water Quality Implementation Agencies.** State and federal agencies with existing program responsibilities as described above, as well as local agencies, would continue to be responsible for direct implementation of water quality actions. Where appropriate, some of the existing programs or funding (under the Clean Water Act and the Safe Drinking Water Act and others) would be coordinated through the CALFED process in order to ensure consistency with the CALFED objectives.

#### **Long-Term Water Quality Governance**

The long-term governance structure has not been developed. One of the options would be to continue the interim governance. Other options may involve a shifting or consolidation of authorities. A long-term governance structure would be proposed by the time of the ROD.

### **4.4.3 Ecosystem Restoration Program**

#### **Existing Programs and Authorities**

Ecosystem restoration is currently planned and implemented by many of the CALFED agencies either through their existing regulatory or natural resource stewardship authorities. In addition, the CALFED program has the responsibility for developing the CALFED Ecosystem Restoration Program Plan (ERP) and managing the early implementation program for CALFED ecosystem restoration (described below). Some of the existing agencies with ecosystem restoration

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responsibilities include the DFG, SWRCB, USFWS, NMFS, USEPA, USACE, USFS, USBR, and NRCS. With the many agencies involved, the current administrative and governing structure for Bay-Delta ecosystem restoration is complex and overlapping.

**CALFED Ecosystem Restoration Planning.** In developing the ERP, CALFED has received stakeholder and public input through the Ecosystem Restoration Workgroup, numerous workshops and meetings and agency input/review. The Workgroup is comprised of several members of BDAC.

**CALFED Early Implementation.** Pursuant to the 1994 Bay-Delta Accord, an early implementation program was established for non-flow related projects for ecosystem restoration (Category III). Early implementation is currently managed by the CALFED Restoration Coordination Program (RCP). This program, with technical and stakeholder input, sets short-term restoration priorities, solicits projects, issues contracts and grants for restoration projects and actions, and oversees implementation of those restoration projects and actions. It conducts these activities within the context of development of the Ecosystem Restoration Program (ERP). The RCP also coordinates with other restoration programs such as the Central Valley Project Improvement Act and the Four Pumps Agreement.

Currently the CALFED RCP coordinates and assists the Resources Agency in program management under Proposition 204, passed by the voters in 1996. CALFED also coordinates and assists the USBR with program management of the federal funding under the Bay-Delta Enhancement and Water Security Act of 1997. Stakeholder input during early ecosystem implementation is provided by the Ecosystem Roundtable, a BDAC subcommittee. The role of the Roundtable and BDAC is to advise the CALFED agencies on the annual ecosystem restoration funding package.

Scientific and technical advice on project selection is provided by technical review panels and an Integration Panel, whose membership includes scientists representing different technical disciplines, public agencies, and stakeholder groups. The Roundtable and Policy Group receive scientifically based funding recommendations from the Integration Panel prior to a recommended decision to the Secretaries.

### **Description of CALFED Ecosystem Restoration Program**

The CALFED Bay-Delta Ecosystem Restoration Program Plan is a complex and comprehensive proposal designed to restore ecosystem health to the Bay-Delta. The actions proposed are interlinked with each other and with actions in other CALFED programs. When approved and documented through a Record of Decision, the plan would move forward into implementation as the ERP.

The goal of the ERP is to restore and mimic ecological processes and to increase and improve aquatic and terrestrial habitats to support stable, self-sustaining populations of diverse and

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valuable species. Principles, functions and responsibilities that would guide the implementation of the program and help to shape the governance structure include:

### **ERP Principles**

- Implement the Program using an adaptive management framework
- The Program is science based — management would be based on scientific and biological principles and processes, which incorporates independent science review
- The Program would be pro-active in restoring the ecosystem
- Implement the ERP as efficiently as possible; act quickly and responsibly
- Integrate stakeholders in the decision-making process
- The Program will assume no regulatory functions
- The Program will retain a focus on ERP implementation
- Management of the Program will be a state/federal partnership

### **ERP Functions**

Described below are the primary functions that need to be undertaken to implement the CALFED Ecosystem Restoration Program. This list does not predetermine the form or governing structure that will implement these functions. CALFED has a proposal below for interim governance structure but has not recommended a long-term structure for ERP implementation.

#### **1. Program Coordination and Management Functions**

- Management of the implementation of the ERP; preparation of contracts and grants, management of contracts and grants, conduct public solicitation of project proposals, provide oversight of projects and directed programs
- Information gathering, assessment and adaptive change for the ERP in partnership with CMARP; ERP internal audit, incorporate the results of monitoring, the assessment of indicators and progress in meeting objectives into an adaptive management framework for decision-making
- Public involvement and education, conduct effective public outreach and education program, prepare periodic progress reports
- Coordination within and outside of CALFED; provide for coordination with related programs outside of CALFED, provide for ERP coordination with the rest of the CALFED Program
- Priority setting; continuing program planning and refinement on a project specific basis
- Internal and independent science review; support and conduct science related to the program
- Funding/Budgets; administration and coordination of program funds derived from state, federal and private sources, preparation of program budgets

- Dispute resolution; resolve disputes with other CALFED program actions and policies, stakeholders and project implementers; resolve conflicts between scientific and policy recommendations

2. Direct Implementation Functions

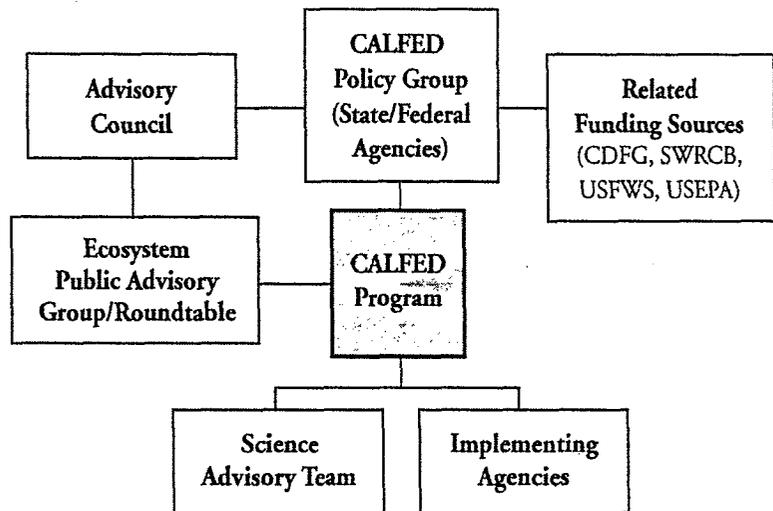
- Implementation of selected projects and actions
- Permit acquisition and environmental compliance
- Acquisition of rights, easements and title to real property, including water
- Coordinate with the Environmental Water Account (EWA)
- Coordinate with CMARP

**Interim Ecosystem Restoration Governance**

The interim governing structure and description of how the program management, program coordination and direct implementation functions will be implemented in the interim are described below.

**CALFED Ecosystem Restoration Program.** The CALFED Program would perform both program coordination and program management functions. Program coordination and management functions would be performed in coordination with the agencies with the primary program and funding authority. Responsibilities would include: coordination with related ecosystem programs, preparation of annual and longer-term work plans, the identification of budget and staffing needs, public outreach and education, the preparation and management of contracts and grants, preparation of periodic progress reports, assist implementing agencies in acquiring property and rights to property, management or delegation of management of property, and on behalf of lead agencies preparation of environmental documents and obtaining necessary permits. The ERP would be responsible for public solicitation of project proposals and for conducting the evaluation of those proposals in coordination with the lead funding agency. The ERP would participate in the coordination of the Environmental Water Account (EWA). ERP would also coordinate with the CALFED Chief Scientist and CMARP technical support staff in developing monitoring plans

**CALFED Ecosystem Restoration Program**  
Interim Governing Structure



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and assessing program/project results. CMARP would conduct initial assessment of monitoring data and coordinate closely with the ERP staff when incorporating assessed data into an adaptive management framework for project selection, program priorities and overall program decision-making.

**Public Advisory Group.** In the interim, the functions of the Ecosystem Restoration Work Group and the Ecosystem Roundtable would be consolidated into one group. This consolidation would strengthen the stakeholder's and the public's role in the ERP. The public advisory group would be an evolution of the existing Ecosystem Roundtable, likely with changes to its membership. The Roundtable's role would expand to providing advice on the planning portion of the ERP, as well as the implementation portion. Agency representatives would also take a more active role in the new group. The group would continue to serve as a subcommittee or work group of BDAC, which in turn, would be advisory to the CALFED Policy Group on matters of program priorities, coordination, public involvement, adaptive management, project selection and funding support. Their meetings would provide a regular forum for public input. The group would meet six to eight times per year.

**ERP Science Advisory Team.** The ERP Science Advisory Team would include five members of proven scientific expertise, and they would be appointed by the CALFED Policy Group following nominations suggested by the Public Advisory Group and Council. The duties of the ERP Science Advisory Team would include: ERP science review and the conduct of scientific peer review, the review or development of project level scientific inquiry, the review of scientific output from the program such as monitoring results and indicators of ecosystem health and the development of the scientific basis for adaptive management decisions. They would also review and provide recommendations to the Policy Group on matters of program science and priorities. The chair of the Team would rotate annually. Initially, the group would meet about once a year; as data accumulate, it would likely meet more often.

The ERP Science Advisory Team would coordinate with the CALFED Science Review Board and Chief Scientist, described in Section 4.4.10. The ERP Science Advisory Team would focus on reviewing and advising on individual projects and actions. The CALFED Science Review Board would consider the larger science issues for CALFED including interrelationships, conceptual models and indicators.

**Existing Implementing Agencies.** In the interim, agencies with existing programs, funding and authorities would continue those programs but would coordinate with CALFED on certain activities most related to CALFED objectives. Final program and funding decisions during the interim would continue to rest with the lead agency but would be coordinated and reviewed by CALFED Policy Group. Some of the programs that would be coordinated with CALFED include the Anadromous Fish Restoration Program under the CVPIA, DWR's Four Pumps Mitigation Program and Sacramento San Joaquin River Flood Management Study.

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## Long-Term Governance

Over the course of the past two years, discussions between CALFED staff and the Assurances/Governance Workgroup have led to the identification of six possible options for a long-term ERP governance structure. The options, along with their advantages and disadvantages are described on the following pages. Although discussion is still needed before a preferred option is selected, the Governance Workgroup currently prefers Option 4 because of the advantages described for that option. CALFED will work with stakeholders to select an option for the long-term governance of the ERP by the time of the ROD.

1. Existing Agencies--No new entities
2. Federal Public Corporation
3. Private Non-profit
4. Joint Federal State Agency
5. State Entity with Federal participation
6. Federal Entity with State participation

To assist CALFED in the evaluation and development of a long-term governance structure for the ERP, an expert panel is being convened in June 1999 by the California Environmental Trust. The purpose of the panel is to provide information on ecosystem governance of other programs across the nation.

### 1. Option 1 -- Existing Agencies (DFG/USFWS/NMFS) - No New Entities

**Description** -- This option would rely on the three fish and wildlife agencies as the agencies responsible for ERP implementation. No new legal entities would be created.

**Decision-Making Process** -- An ERP Implementation Management Office would be managed by an executive director (selected by the three agencies or rotating between the three agencies.) DFG, NMFS, and USFWS would each designate a high level staff person to participate in the management of the ERP with the executive director. The executive director would direct the program on a day-to-day basis and would supervise staff assigned from these three agencies (and probably other agencies as well.) Some implementation functions would be assigned to other federal, state or local agencies, depending on the specific project, available agency expertise, and the type of funding available, but all ERP projects and programs would be supervised and coordinated through the ERP Implementation Management Office, and program responsibility and accountability would rest with the Executive Director and the three agencies.

**Agency Coordination** -- There would be an operating agreement (an MOU or MOA) between the agencies defining which agency would be responsible for which aspects of the ERP; for describing a consistent methodology for incorporating CMARP and other scientific input; for making adaptive management decisions and for measuring

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achievement of performance objectives. There would be a multi-agency coordination committee to ensure that ERP programs and projects are implemented in a manner compatible and consistent with other CALFED programs (e.g., levees, water quality) and with related non-CALFED programs (e.g., AFRP).

**Stakeholder Involvement** -- There would be a stakeholder advisory committee to provide advice on overall ERP implementation.

**Funding** -- State funding under Proposition 204, and other state sources, would be allocated to the Resources Agency and/or directly to the DFG budget for ERP implementation. Federal funds would be appropriated to USFWS and/or NMFS for ERP implementation.

**Legislation** -- No new legal entity would be created to govern the implementation of the ERP. However, legislation might be necessary to modify or enhance one or more agencies' legal authorities, powers and/or purposes, budget authorization or funding mechanisms.

**Advantages**

- Faster and easier to implement than other options; does not require legislation; can be in place before ROD.
- DFG, NMFS and USFWS have been involved in development of ERP; maintains continuity.
- DFG, NMFS, and USFWS already work in coordination on many projects; established relationship exists.
- As federal and state agencies there is a direct advocate for funding before the legislatures.

**Disadvantages**

- Accountability for program implementation and meeting performance objectives is not focused on one agency; no single agency with ERP as primary mission;
- Would require existing agencies to incorporate a very large complex program in addition to all other existing duties and responsibilities; could reduce the attention and focus needed to effectively implement the program.
- Potential for conflicts between existing regulatory responsibilities and ERP responsibilities. Examples of possible conflicts: ESA obligations vs. striped bass management; Suisun Marsh management issues of ecosystem vs single habitat type; refuge water vs. instream flows; possible budget and funding conflicts between regulatory duties and resource management duties.
- Stakeholder integration in the decision-making process would not improve over the existing situation.
- Stakeholder concern that this option does not provide sufficient assurances for effective ecosystem program implementation

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## 2. Option 2 -- Federal Public Corporation

**Description** -- Federal law would establish a publicly chartered corporation within the Department of the Interior. The corporation would be a quasi-governmental entity and would be similar to the National Fish and Wildlife Foundation. It would be governed by a board of directors and would hire staff to implement the program.

**Decision-Making Process** -- The staff would be responsible for the day-to-day implementation of the program and would rely on the board of directors for broader policy direction and priorities. The governing board would be made up of representatives of the Resources Agency, Department of the Interior, Department of Commerce (NMFS), local government (at least one from within the Delta), and representatives of the environmental community, agriculture and urban water users who have knowledge and expertise in ecosystem restoration.

**Agency Coordination** -- The corporation would prepare its budget request as part of the Department of the Interior. Congress would appropriate money to Interior for the purposes of the corporation. The corporation would coordinate with agencies also conducting ecosystem restoration in the Delta to assure efficient use of funds and maximum benefit from the funds available.

**Stakeholder Involvement** -- Stakeholders would be represented on the board of directors.

**Funding** -- Federal funding would be dedicated to the organization by the Department of the Interior, or other appropriate federal agency. Expenditure of the state bond funds would be directed by the Resources Agency, the agency assigned responsibility for spending \$390 million Proposition 204 funds following certification of the environmental impact statement and report. The organization could also seek private funding for the ecosystem restoration efforts.

**New Legislation** -- Federal legislation establishing the corporation and defining the duties to implement the ecosystem restoration program, the necessary authorities, its staff and governing board structure and its funding. State legislation may also be useful in defining the relationship between the Resources Agency and the Federal Corporation.

### **Advantages**

- Single-purpose corporation with the ability to focus on implementing the ecosystem restoration program and coordinating with others engaged in similar activities.
- May be able to streamline contracting procedures and requirements.
- Can have broad cross-section of stakeholders represented on the governing board.

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- Can be responsible for reporting on expenditures and progress toward reaching ecosystem restoration goals.
  - Can engage in fund-raising activities with private individuals.

**Disadvantages**

- Cannot direct expenditures of state money.
- Multiple state and federal agencies remain responsible for the implementation of the program and expenditure of the funds. Does not improve efficiency of implementing the program.
- Does not have governmental authority or the ability to direct other governmental entities.
- May be difficult to delegate agency authority to new corporation (CVPIA mitigation obligations, for example).

**3. Option 3 -- Private Non-Profit**

**Description** -- A private non-profit entity would be established under California law that also meets the requirements of federal tax laws in order to maintain tax-exempt status. The non-profit would be a non-governmental entity established for a specific purpose. The entity could be a non-profit established under 501(c)(3) of the IRS code, or 501(c)(4) (trust), or a supporting organization. The precise vehicle requires additional research. The non-profit would be governed by a board of directors and would hire staff to implement the program.

**Decision-Making Process** -- The staff would be responsible for the day-to-day implementation of the program and would rely on the board of directors for broader policy direction and priorities. The governing board would be made up of representatives of the Resources Agency, local government (at least one from within the Delta), and representatives of the environmental community, agriculture and urban water users who have knowledge and expertise in ecosystem restoration. Federal legislation may be necessary in order to allow federal agencies to be a member of the board.

**Agency Coordination** -- The non-profit would work with the state and federal entities responsible for public financing. In addition, the non-profit would seek to coordinate similar ecosystem restoration efforts within the same areas as the ERP.

**Stakeholder Involvement** -- Stakeholders would be represented on the board of directors.

**Funding** -- Federal funding would be dedicated to the organization by the Department of the Interior, or other appropriate federal agency. State funding would also be dedicated to the organization by the Resources Agency, although expenditure of the state bond funds would be directed by the Resources Agency, the agency assigned responsibility for

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spending future Proposition 204 funds. The corporation could also seek private funding for the ecosystem restoration efforts.

**New Legislation** -- No new legislation is required to establish this option except that it would be necessary to formalize federal agency participation on the board of directors or recognizing the organization as the appropriate entity to implement the ecosystem restoration plan.

**Advantages**

- Single-purpose organization with the ability to focus on implementing the ecosystem restoration program and coordinating with others engaged in similar activities.
- May be able to streamline contracting procedures and requirements.
- Can have broad cross-section of stakeholders represented on the governing board.
- Can be responsible for reporting on expenditures and progress toward reaching ecosystem restoration goals.
- Can engage in fund-raising activities with private individuals.
- Can adopt by-laws to govern the operations of the organization.

**Disadvantages**

- Cannot direct expenditures of state or federal money.
- Multiple state and federal agencies remain responsible for implementing the ERP and spending any public money because although funding can be directed to the organization, the final funding and program authority would have to remain with the existing state and federal agencies.
- Does not have governmental authority or the ability to direct other governmental entities.
- Very difficult, if not impossible, to delegate agency authority to new corporation (CVPIA mitigation obligations, for example).
- Tax-exempt status limits the types of activities in which the organization can participate.
- By-laws can probably be changed with notice and following specified procedures.

**4. Option 4 -- Joint Federal/State Agency**

**Description** -- A new joint federal/state agency would be established to manage and implement the ERP. The new entity would reside within the Department of Interior on the federal side and the Resources Agency on the state side. There are no known working models of such an agency, but this agency would have some of the attributes of an agency like the Tahoe Regional Planning Agency (which is based on an interstate compact between Nevada and California and federal authorization).

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**Decision-Making Process** -- The new agency would be empowered to carry out all the functions necessary to implement the ERP, including the powers to own and manage land and water. This agency would be independent of any other state or federal agency, but for budget and/or administrative reasons, it could be deemed to be within both the Resources Agency and the Department of Interior. It would be governed by a 7-9 member board of designated federal (2) and state (2) agency representatives, as well as local government (2) and stakeholder representatives (1-3). The governing body would hire an executive director, who would manage and direct day to day operations of ERP implementation.

**Agency Coordination** -- A board with both state and federal representatives would increase coordination between those agencies. Receiving direct federal and state funding would allow for more efficient coordination. The new agency would also be responsible for coordinating with non-CALFED related Programs (e.g., AFRP) and with the other CALFED programs (e.g., levees, water quality etc.)

**Stakeholder Involvement** -- Stakeholder representatives would be members of the governing body of the new entity. Public input would also be through the public board meetings.

**Funding** -- Federal and state money would be appropriated to the new agency through the DOI and Resources Agency budgets to carry out the ERP and for necessary administration. The entity could also receive state bond money.

**New Legislation** -- A joint federal/state agency would require both federal and state legislation. The legislation would provide parallel authorizations for federal and state agency participation and enumerate the powers and purposes of the new agency. The legislation would have to specify whether federal or state law would apply in a number of areas, such as access to records, public information and meetings; conflicts of interest; status of agency employees; contracting and procurement rules.

**Advantages**

- Authorizing legislation can be specifically drafted to include all desired functions and principles, powers and purposes.
- ERP would be primary focus of new entity. High degree of accountability since responsibility for ERP is clearly assigned.
- Can have state, federal and stakeholder representatives on a governing board. Can draw from state and federal laws for authorities. Can assume state or federal authorities as appropriate.
- Can receive direct appropriations from state and federal sources.
- As a governmental entity, more ability to influence actions of the other state and federal agencies. To the extent Congress and federal agencies support transfer of other programs to the new joint entity, consolidation of programs can occur.

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**Disadvantages**

- There is no good model for a joint state/federal entity with similar functions and responsibilities.
- Complexity of legislation may result in longer period of time necessary to become established (possibly 2-4 years).

**5. Option 5 -- State Entity with Federal Participation**

**Description** -- A Conservancy within state government, with federal participation, would be established to implement the Ecosystem Restoration Program. The Conservancy would be a semi-autonomous department-level entity under the Resources Agency. The Conservancy Board would hire an Executive Director, who in turn would hire staff to carry out the ERP. Models include the Coastal Conservancy.

The Conservancy would need to coordinate with the CALFED Oversight Entity on project timing, overall funding, permitting and environmental review, monitoring, accounting and evaluation/reports. Its relationship to the Oversight Entity would be the same as other participating state agencies.

**Decision-Making Process** -- Decisions would be made by a Conservancy board. It would be governed by a 7-9 member board of federal (2) and state (2) agency representatives, as well as local government (2) and stakeholder representatives (1-3). Day-to-day management and administrative decisions would be handled by the Executive Officer and staff. While appointments would be made by the state and federal executive branches, the appointments would come from lists provided by state officials and stakeholder organizations.

**Agency Coordination** -- The Conservancy would act as the lead to coordinate with the other CALFED programs, with the oversight entity, and with other related non-CALFED programs. Direct project implementation would most often be done by existing agencies and organizations through contracts or other agreements.

The Conservancy would have a high degree of independence. Most functions would be carried out independently, including policy-setting, priority-setting, project work and stakeholder relations. Resources Agency would have review and approval on overall funding and state budget policy. Staff would be state employees, and state laws would apply to meeting rules, court venues, etc.

**Stakeholder Involvement** -- Stakeholders would have one to three seats on the Conservancy board, allowing direct participation in decision-making. As with other state entities, participation would occur through public hearings and workshops.

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**Funding** -- State bond funds and annual state appropriations could be received and expended directly by the Conservancy. Depending upon bond and appropriation language, the Conservancy could have a wide authority to decide how best to spend these funds. The Conservancy would be under the same funding and expenditure rules and restrictions that apply to other state agencies, unless modified in the authorizing legislation. Federal funds would be appropriated to a cooperating federal agency and passed through to the Conservancy. The degree of federal agency control of the funds would depend on the type of appropriation to the federal agency, and the associated budget language. Control could range from simple accounting and audit requirements all the way up to substantial policy direction of funds. Federal budget language could also direct the federal funding agency, and other federal agencies, to cooperate with the Conservancy and its purposes.

**New Legislation** -- State legislation to create and fund the Conservancy would be required. Also, Congressional legislation allowing federal representatives to be members of the Conservancy board would be required.

#### **Advantages**

- As a state agency, the Conservancy would have a stronger link to other state agencies. As a government agency, it would have more influence over other state and federal agencies than would a non-governmental option.
- The conservancy structure has been used before in state government, and is familiar to the Legislature, the Legislative Analyst and Dept. of Finance. This familiarity increases political viability.
- A Conservancy with a specific ERP mission would provide a clear structure for accountability, and would have the ERP as its focus.
- Federal participation would be included through voting seats on the Conservancy. Legislation could be written to allow future integration of federal agencies in a joint agency.
- Because the Conservancy would have appointed board members it would have substantial autonomy. Also, enabling legislation could include intent for a high degree of autonomy.

#### **Disadvantages**

- Federal funding is not integrated into the structure.
- State civil service, accounting, expenditure and contracting requirements could slow program implementation, although authorizing legislation could provide some streamlining.
- Because federal funding would need to be provided through a federal agency, that federal agency could have considerable latitude regarding expenditure of funds by the Conservancy, limiting its autonomy and ability to consolidate decision-making.

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- A separate ERP entity may be subject to more focused reductions in budget appropriations.

## 6. Option 6 -- Federal Agency With State/Stakeholder Participation

**Description** -- This option would require federal legislation to create a new federal agency with a governing board that includes federal, state and stakeholder representatives. The agency would reside within the Department of Interior, reporting directly to the Secretary. The CALFED oversight entity would advise the Secretary regarding the ecosystem entity's budget and progress in relationship to other CALFED entities.

**Decision-Making Process** -- This agency would be led by a 7-9 member board of directors, but managed day-to-day by an executive director and staff. The Board would include two representatives each from federal, state and local (in-Delta and tributary) agencies, and 1-3 public/stakeholder members. While the President would appoint the Board members, his appointments would come from lists provided by state officials and stakeholder organizations.

**Agency Coordination** -- This agency would coordinate with other state and federal agencies through both its board membership and the CALFED oversight entity.

**Stakeholder Involvement** -- Stakeholders would participate in the decision-making directly as Board members and indirectly through the oversight entity's advisory council.

**Funding** -- As part of the Department of the Interior, it would submit a budget request to Congress through Interior, and to the state legislature through the Resources Agency. State funding would be appropriated to the Resources Agency and coordinated with the new federal entity but not appropriated directly to the federal entity.

**New Legislation** -- Federal legislation would be required to create this entity. State legislation would not be required, but would be helpful to authorize state participation and appropriations.

### Advantages

- Clear authority and mandate from the federal level, but with participation from the state.
- Relationship to Interior provides federal advocate.
- Participation from stakeholders in decision-making process.
- Direct federal appropriations available.

### Disadvantages

- Subject to Interior's budget cap and other general federal requirements.

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- Similar organizations have legislative sunset provisions. May lead to delay in creation in order to get Congressional approval.

#### **4.4.4 Watershed Program**

##### **Existing Programs and Authorities**

Programs and activities which are organized on a watershed basis are dispersed among several state and federal agencies. Federal agencies which conduct land management, technical assistance, and/or regulatory activities on a watershed basis are the U.S. Fish and Wildlife Service (USFWS), Environmental Protection Agency (EPA), U.S. Forest Service (USFS), Natural Resource Conservation Service (NRCS), and the Bureau of Land Management (BLM). USFS conducts its activities as part of its overall management of the National Forest System. NRCS receives its authority from the Soil Conservation Act of 1935 and delivers its services to more than 100 local Resource Conservation Districts (RCDs) and BLM.

State agencies' responsibilities are primarily regulatory or assistance oriented, and are less focused on land management. State agencies include the State Water Resources Control Board (see Water Quality Section) and regional water quality control boards, Resources Agency, Department of Water Resources, Department of Fish and Game and the Department of Forestry and Fire Protection (CDF). Under the Forest Practices Act of 1973 CDF regulates private and state forest activities.

Other non-CALFED agency participants in watershed activities derive their authorities from a range of federal, state and local laws, as well as non-government related by-laws of non-government organizations. By their nature, watershed conservation, maintenance, restoration and enhancement authorities are widely distributed and complex. One of the purposes of the CALFED Watershed Program is to facilitate coordination and collaboration among these agencies.

**CALFED Watershed Program Planning.** As with the other CALFED programs, the CALFED Policy Group is the decision-making body for the Watershed Program. The Policy Group acts primarily on the advice received from three areas of constituent input, including the Interagency Watershed Advisory Team (IWAT), the Bay-Delta Advisory Council (BDAC), and the BDAC Watershed Workgroup (Workgroup).

Interagency coordination begins with IWAT, whose membership includes representation from the CALFED agencies mentioned above. Coordination with non-CALFED entities occurs generally through BDAC and its Watershed Workgroup.

Ideas generated from within the Workgroup, IWAT, CALFED staff, or by other constituents are discussed in open Workgroup sessions. From these discussions, a facilitated consensus is

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reached, which is then articulated by CALFED staff and circulated among the constituency for review. From time to time, special sub-committees are formed on an ad hoc basis to refine particular elements brought to the groups for discussion before final recommendations to the Policy Group are made.

### **Description CALFED Watershed Program**

The CALFED Watershed Program is a program that takes its lead from its constituent partners in the tributary watersheds of the Bay-Delta system. The purpose of the Program is to help coordinate and integrate existing and future local watershed programs, and to provide technical assistance and funding for watershed activities that protect and enhance natural resources to further the goals and objectives of the CALFED Bay-Delta Program.

The Watershed Program uses a developed set of principles of participation in the design and execution of Program implementation. CALFED supports watershed activities that:

- Are community based,
- Collaborate with CALFED and are consistent with its mission, goals and objectives,
- Address multiple watershed issues,
- Are coordinated with and supported at multiple levels of government,
- Provide for ongoing implementation,
- Include monitoring protocols,
- Increase learning and awareness.

The program coordination, program management, and direct implementation functions listed below for the Watershed program would foster and support effective, sustainable, and locally appropriate stewardship of the Bay-Delta watershed system.

- Coordination and Assistance -- facilitate and improve coordination and assistance among government agencies, other organizations, and watershed groups.
- Adaptive Management and Monitoring -- In coordination with CMARP, develop watershed monitoring and assessment protocols.
- Education and Outreach -- support interactive education and outreach.
- Integration with other CALFED programs -- integrate and collaborate with other CALFED Programs.
- Watershed Processes and Relationships -- illustrate the relationship of watershed processes and CALFED goals and objectives.

## Interim Governance Proposal

The interim governing structure and description of how the program management, program coordination and direct implementation functions will be implemented in the interim are described below.

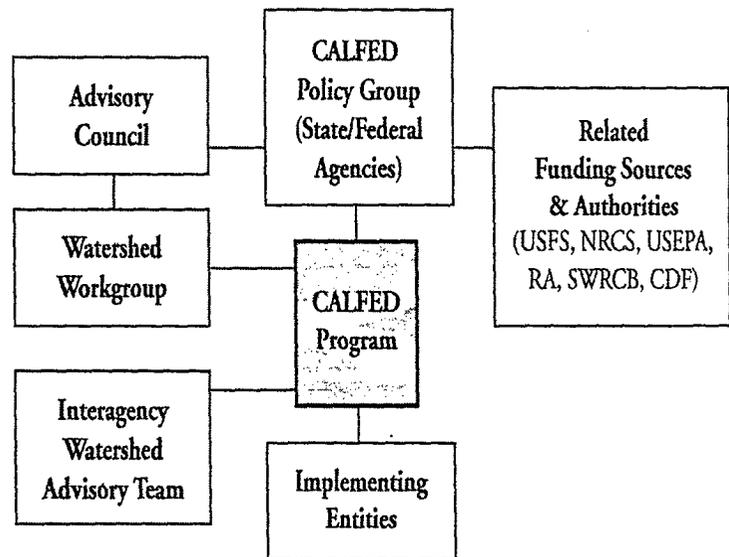
**CALFED Program.** The primary function of the CALFED Watershed Program would be to facilitate and coordinate communication among the various watershed groups/agencies to increase consistency with CALFED objectives as much as possible. In addition to the formal processes, communication would be facilitated by establishing an interactive web page, in addition to maintaining normal day-to-day interactions. The Program would track progress toward meeting the goals of the Watershed Program, ensure the groups, that are part of Program implementation, are functioning in an appropriate manner, and report to those groups. The Program would be the lead in assessing and reporting on the programs' progress in meeting objectives. To the extent additional funding is allocated and directed toward watershed management, CALFED staff would serve the program management functions related to that funding. Priorities and project selection would be coordinated with IWAT and the Workgroup--additional processes may need to be developed.

### Interagency Watershed Agency Team.

IWAT would provide advice to the CALFED Program on program priorities, funding, and implementation. IWAT would be the forum for coordination between the agencies which have lead program management and funding authorities. IWAT and the ERP, water quality and other related program agency teams may be combined or integrated to increase the integration of program elements.

**Watershed Workgroup.** The Watershed Workgroup would continue to be the main forum for formal communication among CALFED agencies, CALFED program and other stakeholders. The workgroup would have the primary responsibility for ensuring there is appropriate local participation in the Watershed program development and implementation and that capacity at the local level for restoration and management is strengthened without creating dependency on

## CALFED Watershed Program Interim Governing Structure



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public funding. It would take the lead in supporting public education and outreach on watershed issues. The Watershed Workgroup and the ERP, water quality and other related program workgroups may be combined or integrated to increase the integration of program elements.

**Implementing Entities.** In the interim, agencies with existing programs, funding and authorities would continue those programs but would coordinate with CALFED on activities most related to CALFED objectives. Final program and funding decisions during the interim would continue to rest with the lead agency but would be coordinated and reviewed by CALFED Policy Group.

### **Long-Term Governance**

Long-term governing options to be considered involve changes in communication and interaction among the various watershed constituencies: formally establishing a connection between the functions and roles of IWAT and the Watershed Workgroup so that one body formally advises the overall CALFED entity; expanding membership of the IWAT and the Watershed Workgroup to include representation from other CALFED programs; appointing watershed representatives to other CALFED advisory groups to serve as liaison between them; consolidating the Watershed advisory group with advisory groups from other CALFED programs; consolidating the state and federal watershed application process for prospective recipient and grant funds. Additional changes would likely include a more consistent interface with existing Bay-Delta watershed tributary groups and other ongoing entities and programs such as the California Biodiversity Council.

## **4.4.5 Water Use Efficiency Program**

### **Existing Programs and Authorities**

Most water use efficiency actions and programs are currently implemented and managed at the local agency or farm level. Technical and financial assistance programs have been provided by DWR and USBR; and the SWRCB and NRCS have provided grants and low-interest loans for water recycling and conservation programs of local agencies respectively. CDFA has funded programs to support the Agricultural Water Management Council. USFWS and DFG are currently responsible for developing and implementing efficient water use programs for wetlands and refuges. Water recycling programs have generally been developed and implemented at the local agency level.

### **Description of Water Use Efficiency Program**

The CALFED Program proposes to expand existing agency efforts to provide financial and technical support for water use efficiency programs generally carried out by local agricultural and urban water supply or water management agencies, a water recycling program, and the development of management practices for managed wetlands and refuges.

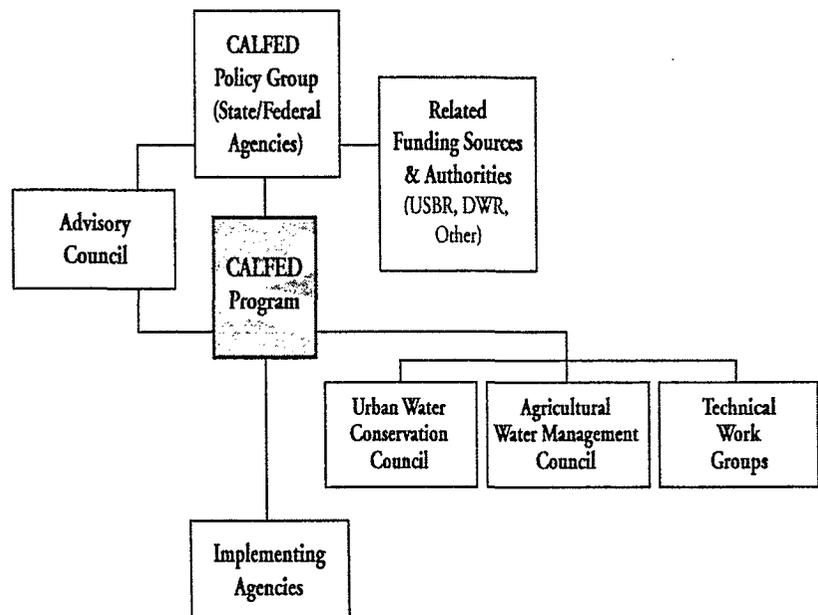
The Water Use Efficiency Program would augment or enhance existing water conservation and water management programs, including technical and financial programs. The agricultural technical and financial assistance programs would be directed toward achieving quantifiable water management objectives. Success of these projects would be determined by monitoring performance indicators. Assistance would be provided based on the ability of local entities to achieve these objectives. The urban assistance programs would be directed toward implementing Best Management Practices (BMPs) listed in the California Urban Water Conservation Council (CUWCC) certification process. Water recycling incentives would be awarded based on the ability of local agencies to achieve recycling in the most cost-effective manner.

### Interim Water Use Efficiency Governance

The interim governing structure and description of how the program management, program coordination and direct implementation functions will be implemented in the interim are described below.

**CALFED Program.** CALFED program staff would coordinate state and federal agencies which have program management responsibility for WUE programs and funding. CALFED would also coordinate with the CUWCC, AWMC, other stakeholder groups and program management/funding agencies (USBR, DWR, others). The CALFED program would work with program management/funding agencies on developing and implementing the

**CALFED Water Use Efficiency Program**  
Interim Governing Structure



necessary monitoring in order for CALFED Policy Group to be able make the finding whether measurable objectives are achieved. This is especially important where achievement of the agreed upon performance objective is linked to, or is a condition of, implementing other parts of the program.

**California Urban Water Conservation Council.** The CUWCC is a non-profit corporation consisting of urban water suppliers and environmental representatives. It was formed to provide a self-regulated and standardized approach to urban water conservation. The Council would be responsible for administering the urban MOU for Best Management Practices. It would also

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provide a means of stakeholder review and input to the program management/funding agencies and CALFED on issues related to the implementation of the WUE element.

The CUWCC would also include an elected certification subcommittee to implement CALFED's proposed urban certification process. (See the Water Use Efficiency Program Plan for more details.) The certification process would require either minimum implementation of BMPs, documentation of equivalent practices, or suitable documentation of exemption.

**Agricultural Water Management Council.** The AWMC is a non-profit corporation that was formed pursuant to AB 3616 to facilitate adoption of locally cost effective Efficient Water Management Practices (EWMPs) by agricultural water suppliers. The AWMC is governed by agricultural water suppliers and three environmental organizations. The council would be responsible for administering the agricultural MOU on implementation of EWMPs. The council would also provide a means of stakeholder review and input to the program management and funding agencies and CALFED on issues related to the implementation of the WUE program, and would provide critical information to CALFED on which conservation practices are cost effective at the local level.

**Technical Work Groups.** CALFED staff would convene technical work groups to conduct and review directed studies, to address technical issues, and to respond to problems associated with public acceptance of water use efficiency actions.

**Implementing Agencies.** In the interim, agencies with existing programs, funding and authorities would continue those programs but would coordinate with CALFED on certain activities most related to CALFED objectives. For example, coordination on program priorities and implementation would be needed with: USBR, DWR, and NRCS regarding the technical and financial assistance aspects of the agricultural and urban elements of Water Use Efficiency Program; USFWS and DFG regarding the BMPs (or the functional equivalent) for managed wetlands and refuges; and DWR on its recycling program. Final program and funding decisions during the interim would continue to rest with the lead agency but would be coordinated and reviewed by CALFED Policy Group.

#### **Long-Term Water Use Efficiency Governance**

A long-term governance structure is not being proposed at this time.

### **4.4.6 Water Transfer Program**

#### **Existing Programs and Authorities**

Most transfers are carried out by agreement among two or more local agencies, without regulatory action by the state. Transfers which involve changes in place or purpose of use of

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permitted or licensed water rights require the approval of the SWRCB. Transfers which require the use of state or federal facilities or which may affect project operations require the concurrence or approval of DWR and/or USBR. Additionally, DWR has operated a water bank in drought years and more recently USBR and USFWS have carried out an interim water acquisition program under CVPIA to obtain supplemental fish and water quality flows.

### **Description of Water Transfer Program**

The CALFED Bay-Delta Program plan is to develop a water transfer policy framework which would facilitate a more efficient water transfer market, while protecting significant third party interests, such as local economies, groundwater resources, and environmental conditions. The CALFED plan does not significantly change the current market structure, but would create a water transfer information clearinghouse, located within and administered by the SWRCB. The CALFED Program plan also proposes that the agencies with water transfer jurisdiction (SWRCB, DWR and USBR) work together to make the rules and guidelines for water transfers consistent and uniform, where possible, and to provide a streamlined transfer review and approval process. Also, the program calls for continued discussion processes between the agencies and stakeholders to resolve various water transfer technical and policy issues.

The CALFED Water Transfer Program Plan does not propose that implementing agencies be required to perform any functions (except establishment of a clearinghouse) beyond those which they currently perform, nor would their duties and responsibilities with respect to water transfers significantly change.

Most of the Water Transfer Program recommendations can be characterized as changes or refinements in agency policy or procedure, which once accomplished, become part of an agency's operations. For example, streamlining the approval process would require the agencies to clarify their existing procedures and resolve some outstanding technical issues. They would also have the ongoing responsibility to achieve the transfer objectives of the CALFED Program. Most, if not all, of the water transfer program recommendations should be implemented in the first few years following the ROD, prior to the end of Stage 1.

### **Interim Water Transfer Program Governance**

The interim governing structure and description of how the program management, program coordination and direct implementation functions will be implemented in the interim are described below.

**CALFED Program.** CALFED Program staff would provide program coordination among CALFED program elements and among agencies with jurisdiction over water transfers and use of project facilities. CALFED would also, for the short term, continue to coordinate various processes for resolving water transfer issues among the agencies and stakeholder groups. The

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CALFED Policy Group in its oversight capacity would be responsible for ensuring that the water transfer program plan is implemented in a manner that is consistent with other program elements, for conflict resolution and for assuring that linkages to other program elements are maintained.

**Existing Agencies.** Existing agencies with jurisdiction over water transfers would directly implement any changes in their own policies or procedures. As CALFED member agencies, these agencies would coordinate with CALFED to implement program recommendations. The Bureau of Reclamation and the Department of Water Resources would continue to have jurisdiction over the use of and access to their respective project facilities. These agencies would work in close coordination with the SWRCB to provide a consistent set of rules and guidelines for water transfers and a streamlined transfer review and approval process.

### **Long-Term Governance**

CALFED proposes that the Water Transfer Information Clearinghouse be located within the State Water Resources Control Board, as a division separate from the Division of Water Rights. SWRCB regulatory jurisdiction over changes in place of use and purpose of use would be unchanged.

At the program oversight level, the long-term functions associated with the water transfer program plan would be primarily to ensure that linkages are maintained and performance objectives are being met. This may entail monitoring the implementation of certain recommendations to make sure that they would not jeopardize other important program actions. For example, if establishment of a functional clearinghouse is a prerequisite for building new storage, but the clearinghouse is never funded by the Legislature, new storage could be jeopardized. The oversight entity would be responsible for responding to this type of contingency. CALFED staff could continue to provide interagency coordination and act as conduit to the Policy Group (or the oversight entity) for oversight matters.

## **4.4.7 Integrated Storage Investigation**

### **Existing Programs and Authorities**

Central Valley Project reservoirs are owned by the United States and operated by the Bureau of Reclamation. State Water Project storage facilities are owned by the State of California and operated by the Department of Water Resources. San Luis Reservoir is a joint federal/state facility. Many other reservoirs are owned by local agencies and investor owned utilities. Groundwater storage projects are owned and operated by local agencies.

## Description of ISI

New groundwater and/or surface storage will developed and constructed, together with aggressive implementation of water conservation, recycling, and a protective water transfer market, as appropriate, to meet CALFED Program goals. The CALFED Program decision and actions related to storage and reoperation would be based on the results of the Integrated Storage Investigation (ISI) which is a component of CALFED's Water Management Strategy. The ISI will provide the comprehensive framework for evaluation of storage implementation and management opportunities through Stage 1 and beyond. This broad mix would determine the appropriate mix of surface and groundwater storage, and identify acceptable projects. It would include evaluations of north of Delta off-stream storage, in-Delta and adjacent to Delta storage, on-stream storage enlargement, groundwater and conjunctive use power facilities reoperation, and fish migration barrier removal evaluations. Detailed environmental documentation, feasibility studies, permitting, and construction activities would be initiated as appropriate based on the outcome of the integrated storage investigation.

## Interim ISI Governance

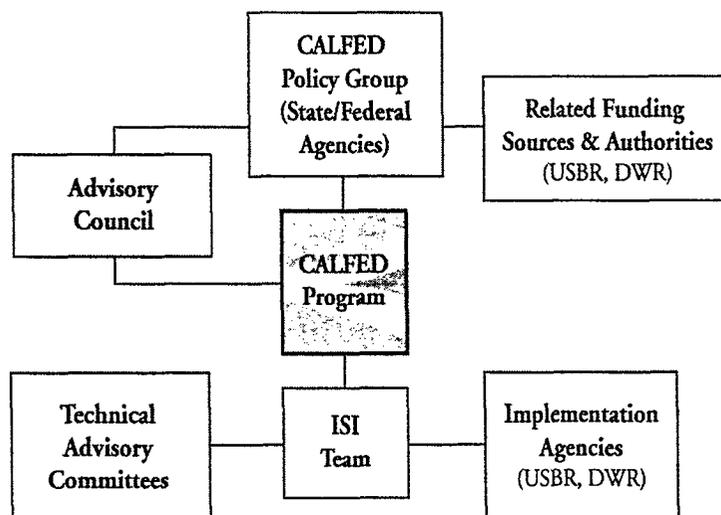
The interim governing structure and description of how the program management, program coordination and direct implementation functions will be implemented in the interim are described below.

**CALFED Program.** The ISI would be coordinated and managed by the CALFED program in the interim with oversight by the CALFED Policy Group. CALFED would convene an inter-agency team to develop reports and recommendations and advise the CALFED program on program implementation.

**Advisory Groups.** A stakeholder advisory group would also be established to provide public review and comment on ISI studies and reports. Technical advisory committees may be set up to work with ISI staff on specific project studies (such as the existing TAC on Sites Reservoir).

**Existing Agencies.** The implementing agencies for the different storage studies include the Friant Dam study conducted by USBR and the Corps of Engineers; the Shasta Dam study by

### CALFED Integrated Storage Investigation Interim Governing Structure



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USBR; the Sites study by DWR; and in-Delta and adjacent-to-the-Delta storage by DWR and USBR. The power facilities reoperations study would be a multi-agency effort coordinated by CALFED staff. Groundwater project studies would be carried out by local agency project proponents with funding assistance provided by state and/or federal funds, administered by DWR and/or USBR, subject to review and recommendation of the CALFED conjunctive use advisory committee and the CALFED Policy Group. Groundwater conjunctive use projects proposed by local interests would be reviewed by the CALFED conjunctive use advisory committee which would make recommendations to the CALFED Policy Group.

### **Long-Term Governance**

A long-term governance proposal would be developed for each specific project, if any are identified for construction through the ISI. It is expected, but not determined at this time, that surface storage projects would be owned and operated by the federal and/or state government, or possibly by a partnership of federal, state and local agencies. Groundwater conjunctive use projects would be owned and operated by local agencies.

## **4.4.8 Conveyance**

### **Existing Programs and Authorities**

The two major water conveyance systems (canals and pumping plants) that export water from the Delta are part of the CVP and the SWP systems. Projects operations are coordinated through the CALFED Operations Group. Where issues cannot be resolved by the Operations Group, they are referred to the CALFED Policy Group.

### **Description of Conveyance Program**

The conveyance element of the CALFED program describes the changes to Delta channels and project operations which are intended to improve movement of water through the Delta and to the CVP and SWP export facilities. The CALFED strategy is to develop a through Delta conveyance alternative based on the existing Delta configuration with some modifications, to evaluate the effectiveness of the modifications, and to add additional conveyance or other water management actions as necessary to meet CALFED goals and objectives. The major features of the conveyance element for Stage 1 are expected to include the South Delta actions (increase pumping limit at Banks, new screened intake at CCF, Joint Point of Diversion for CVP and SWP, barrier at head of Old River, at Middle River, and at Old River at Tracy); North Delta improvements (modified operational criteria for the Delta Cross Channel, study of a screened diversion structure on the Sacramento River, setback levees and channel improvements on the lower Mokelumne). (See Revised Phase II Report for additional detail of conveyance program proposal.)

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## **Interim Governance**

The interim governing structure and description of how the program management, program coordination and direct implementation functions will be implemented in the interim are described below.

**CALFED Program.** CALFED would coordinate and manage the implementation of Stage 1 conveyance actions. Conveyance actions are closely linked with levee, water quality and ecosystem restoration actions and CALFED's role would be to maintain and ensure linkages between these program objectives and to evaluate the impact of conveyance actions on the achievement of water quality and ecosystem objectives.

**Existing Agencies.** Implementation of specific conveyance improvements would be carried out primarily by USBR or DWR, in coordination with other agencies as appropriate.

**CALFED Policy Group and Operations Group.** Operational and resource management issues would continue to be discussed and resolved when possible by the Operations Group, with major issues referred to the CALFED Policy Group. Also, the CALFED Policy Group would be the primary deliberative body for decisions related to the contingent strategy for new conveyance facilities, based on the reports of the Delta Drinking Water Council and the ERP Science Review Panel.

## **Long-Term Governance**

There is no proposal for long-term governance related to conveyance at this time.

## **4.4.9 Environmental Water Account (EWA)**

### **Existing Programs and Authorities**

Currently, environmental water purchases for instream flows and refuges are made by the USBR and/or USFWS under the Department of Interior's Interim Water Acquisition Program, using CVPIA Restoration Funds and Federal Bay-Delta Act Funds. Environmental water for instream flows and refuges has also been acquired at times by the Department of Fish and Game.

### **Description of the EWA**

The EWA is a mechanism for acquisition and management of water supplies to provide benefits to fish and the environment, above the regulatory baseline and to provide additional operational flexibility for project operations. It is intended to provide assurances that listed species be recovered under the CALFED Program while achieving other program objectives for water supply and water quality.

EWA assets may be obtained through a share of water supply from new or existing facilities; variation in regulatory standards that would otherwise limit exports; by purchase of water, or by borrowing storage in new or existing project facilities. EWA assets may be in the form of water stored in surface reservoirs or groundwater storage projects, export reduction credits, or options to purchase water in the future.

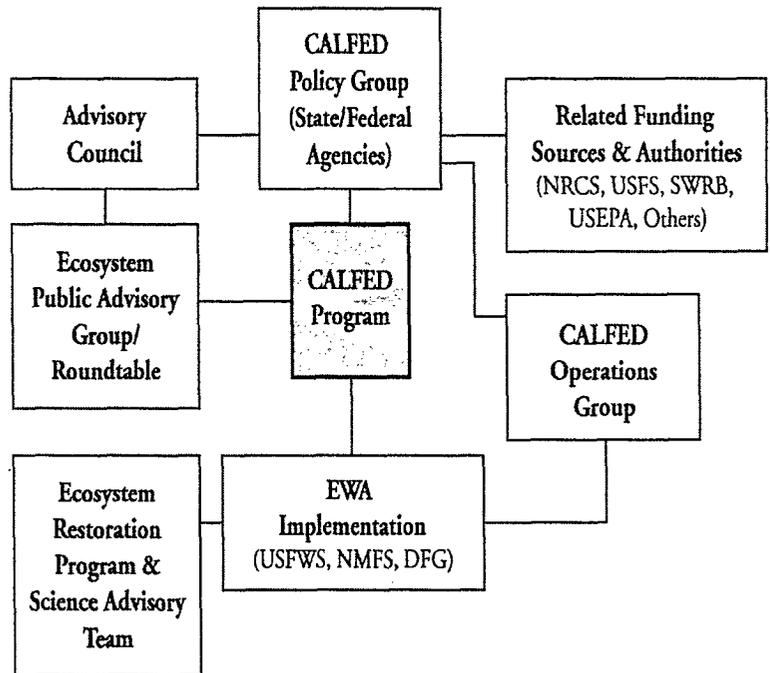
### Interim Governance Proposal

The interim governing structure and description of how the program management, program coordination and direct implementation functions will be implemented in the interim are described below.

**CALFED Program.** For the interim, the CALFED Program would coordinate with the Fish and Wildlife agencies (DFG, USFWS, NMFS) responsible for implementing the EWA to ensure CALFED program objectives are being met and are balanced between ecosystem and water management objectives. Policy and funding decisions regarding the EWA would need to be reviewed by the CALFED Policy Group and the CALFED Operations Group. Coordination and consultation efforts among the CALFED Operations Group, including project operators and ESA management agencies, the CALFED ERP program manager, and stakeholder groups are intended to ensure that the environmental water acquisitions are consistent with CALFED program goals and objectives, and that conflicts with ESA requirements and project operations are minimized or avoided.

### CALFED Environmental Water Account

#### Interim Governing Structure



**CALFED Operations Group.** Inter-agency coordination, including coordination with ESA agencies, will also occur within the CALFED Operations Group, which includes project operations agencies, resource management and regulatory agencies. (Most CALFED member agencies are represented on the Ops Group.)

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**EWA Implementation.** The EWA would be implemented and managed by the USFWS, NMFS, and DFG in coordination with the ERP. Although policy and funding review and approval for the EWA would be provided by the CALFED Policy Group, day to day management decisions would be made by the three implementation agencies. EWA assets would be held by any one of the implementing agencies. EWA actions would be reviewed over time by the ERP Science Advisory Team as the actions relate to the overall Ecosystem Restoration Strategy.

### **Long-Term Governance**

There is no long-term governance proposal for the EWA at this time.

## **4.4.10 Comprehensive Monitoring, Assessment, and Research Program (CMARP)**

### **Existing Programs and Authorities**

Currently, the two major monitoring, assessment and research entities with ongoing programs in the San Francisco Bay-Delta Estuary are the Interagency Ecological Program (IEP) and the San Francisco Estuary Institute (SFEI). The two projects coordinate and communicate quite extensively and address complementary aspects of monitoring and research.

**IEP.** IEP is an interagency cooperative program. The IEP mission is to provide information on the factors that affect ecological resources in the Sacramento-San Joaquin Bay-Delta Estuary to allow for more efficient management of the estuary. The IEP consists of ten member agencies: three state (Department of Water Resources, Department of Fish and Game, State Water Resources Control Board), six federal (Fish and Wildlife Service, Bureau of Reclamation, Geological Survey, Army Corps of Engineers, National Marine Fisheries Service, and Environmental Protection Agency) and one non-governmental organization (The San Francisco Estuary Institute). The ten program partners work together to develop a better understanding of the estuary's ecology and the effects of the SWP and CVP operations on the physical, chemical and biological conditions of the Sacramento-San Joaquin Bay-Delta estuary.

**SFEI.** The mission of the SFEI, a 501c3 nonprofit organization, is to foster development of the scientific understanding needed to protect and enhance the estuary through research, monitoring and communication. SFEI is governed by a Board of Directors whose members are selected to assure a balance of environmental, business and user groups, regulatory and management and scientific interests. There is also a panel of Scientific Advisors that serves the Board of Directors.

These two programs provide much of the support for the Bay-Delta monitoring programs. However, program objectives developed for IEP and SFEI differ sufficiently from the CALFED

objectives. Modifications and additions to these existing programs would need to be made if the monitoring, assessment and research needs of CALFED were also to be met.

**CMARP Planning.** In April 1998, the CALFED Policy Group approved a joint IEP, SFEI and U.S. Geological Survey proposal to develop a Comprehensive Monitoring, Assessment and Research Program (CMARP). The three entities formed an 18 member steering committee made up of CALFED agency and non-agency scientists to help define the program. The steering committee, with the help of 30 technical teams developed a set of recommendations for implementing and refining CMARP. Those recommendations are included in the May 15, 1999 report which is included in the Draft EIS/R as a Technical Appendix. The report includes a chapter on an institutional structure to implement CMARP. The information in the report was used and revised to develop the current governance recommendations in this chapter.

### CMARP Program Description

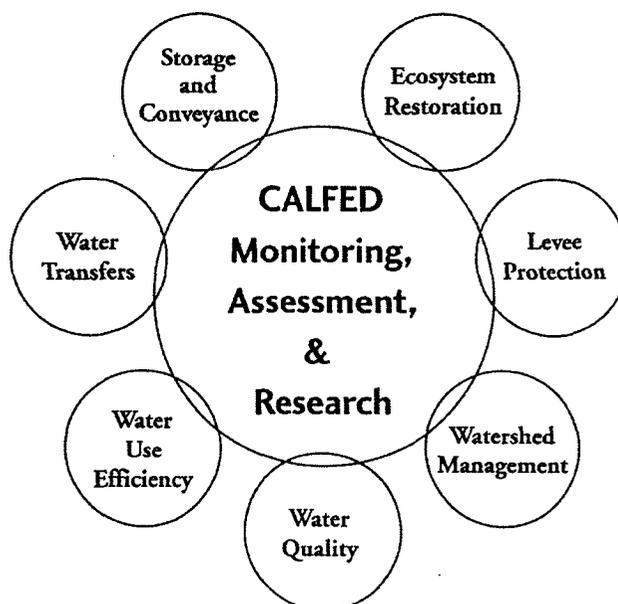
The primary purpose of CMARP is to provide new facts and scientific interpretations necessary for CALFED to fully implement the preferred alternative and related programs using an adaptive management approach, and to enable CALFED to evaluate the success of its actions. Therefore it is important that CMARP be an integral component of the CALFED Program and maintain scientific objectivity. CMARP will provide the monitoring, assessment and research framework for all CALFED Programs, and will oversee the adaptive management program for the CALFED Program in coordination with each of the CALFED program elements. Additional detail on CMARP is provided below.

### Principles of a CMARP Governing Structure

Certain principles apply to consideration of a governing structure for CMARP.

1. **Responsiveness to Management Needs** -- The ability of the program to provide the kind of information needed by managers as they move forward through the decision process is paramount. The types of management needs to which the CMARP must respond include:

- documenting compliance with regulatory standards,
- detecting and reporting trends in environmental condition,
- measuring CALFED program performance,



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- providing timely information for decisions, and
  - collaborating with management to execute active adaptive management.
2. **Scientific Quality** -- The importance and cost of the decisions to be made in the CALFED process and the demands of adaptive management require that the program utilize the best scientific information that can be made available. Quality would be enhanced by:
- Scientific competence and credibility achieved through publication of results in peer-reviewed scientific journals.
  - Scientific breadth and depth resulting from a broad mixture of disciplines and expertise.
  - Independence such that scientists have the ability to determine how best to do their work and be free of attempts to influence their findings, achieved at least in part by extensive use of external scientific review.
  - Commitment to long-term monitoring, assessment and research to reduce uncertainty.
3. **Accountability** -- Accountability encompasses responsiveness and quality, but also includes the concepts of cost-effectiveness, transparency of process, and participation. Accountability requires:
- Easy access to all of the data and information upon which decisions are based.
  - Collaboration among scientists, stakeholders and resource managers.
  - An open, consistently applied and transparent process for setting program priorities and making funding decisions.
  - Cost-effectiveness achieved by building upon existing programs and by employing competitive solicitation processes.

The greatest challenge in the implementation of CMARP would be to achieve the appropriate balance among these sometimes competing principles.

### **CMARP Functions**

The principal function of a CMARP structure is to manage the direction of the monitoring, assessment and research program and assist in the design of the adaptive management program. In addition to analyzing trends, CMARP must be prepared to initiate scientific research, including monitoring, modeling, and data analysis, to determine whether things are changing and what effect the CALFED actions have had. Although this would not always be possible, it should be the idea behind the performance assessment. The CMARP functions include:

- Coordinating monitoring, assessment and research with the other CALFED programs.
- Designing and directing the CALFED Comprehensive Monitoring Assessment and Research Program,

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- Collecting, managing and distributing the data,
  - Analyzing and interpreting data, and reporting the findings,
  - Orchestrating external scientific review of projects and programs, and
  - Collaborating with managers on adaptive management.

### **CMARP Responsibilities**

Described below are general CMARP responsibilities needed to fulfill the CMARP functions.

1. **Fund Management** -- CMARP would serve the program management function of identifying priorities, selection actions and distributing funds allocated for research and monitoring and accounting for the funds and the work done.
2. **External Scientific Review** -- Such review is required at three points in the development and implementation of the program: review of the overall direction and quality of CMARP; selection of research proposals and monitoring program elements, and review of CMARP products.
3. **Encouraging Partnerships between Internal and External Scientists.** These partnerships are based upon collaborative working relationships between and among the Chief Scientist, the Science Coordination Team and the agencies and organizations conducting CALFED funded and non-CALFED funded environmental monitoring, assessment and research. A big challenge of implementing CMARP would be knitting together disparate programs and determining where the most value added would result from an expenditure of CALFED funding.
4. **Coordinating a Science-Management Partnership to Carry Out Adaptive Management.** Active adaptive management, if employed by CALFED, would require a partnership among decision makers, stakeholders, managers of the natural resources, and scientists.
5. **Resolving Technical Conflicts.** Technical conflicts threaten to prevent or hamper progress in reaching consensus on priority actions. Using outside experts is one option for focusing debate clearly on policy issues.
6. **Data Collection, Data Management, and Information Handling.** Many agencies, organizations, and individual research scientists would be collecting data and providing these data and their interpretation to CMARP. CMARP would set quality assurance guidelines, metadata standards, reporting requirements, and guidelines for making data available to interested parties.

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7. **Annual Science Conference.** All individuals and organizations that received funding through the CALFED process would be expected to participate in the conference and present their work. In addition, the Chief Scientist and others could discuss general direction of the science program, management implications of the findings coming out of the work and what is being learned about the condition of the system and the way it functions. This conference could be an annual opportunity to publicly present and explain how indicators are being used to assess "Bay-Delta Health" and what the indicators are telling us about trends in environmental condition. Such a conference might incorporate components of two existing successful and popular events--the IEP Annual Meeting and the SFEI State of the Estuary Conference.

### **Interim CMARP Governance**

The interim governing structure is described below. Given the functions described above, certain elements of an interim (and long-term) governance structure are needed:

- **Science Review Board:** advisory to the Policy Group and CALFED Program
- **Chief Scientist:** reporting to the CALFED Executive Director. The Chief Scientist would have a qualified team of scientists to manage implementation of CMARP and to coordinate with all the CALFED programs
- **Science Coordination Team:** agency and stakeholder representatives to advise on major elements of the monitoring, assessment and research program.

**Science Review Board.** The Science Review Board would play an important role in guiding the Policy Group with regard to its use of science in adaptive management and decision-making. Because science inherently produces uncertain results, often complicated by contentious debate among conflicting interpretations, the Policy Group may need assistance in understanding the quality and usefulness of the information upon which they are asked to make decisions. The Science Review Board would help the Policy Group make these judgments. The Science Review Board would also assist in using scientific information to evaluate whether the CALFED program is reaching its dual goals of improving water supply and restoring the Bay-Delta ecosystem. This level of review addresses not the quality of the scientific program per se, but the use of science in the management program.

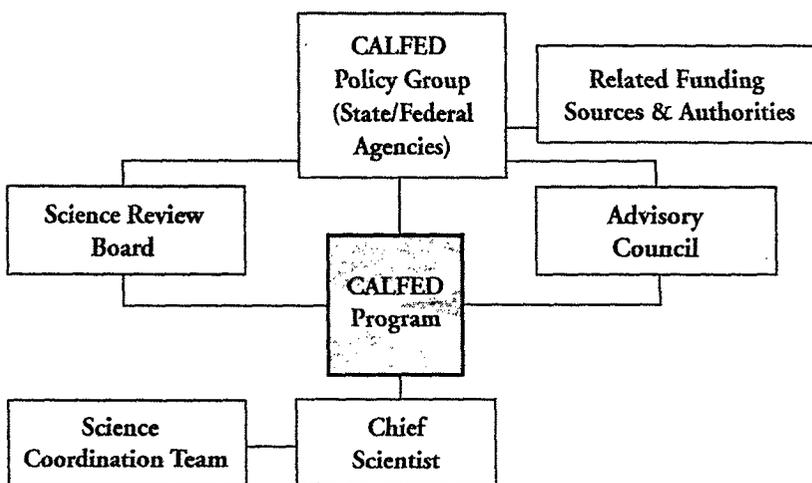
The Science Review Board needs both to be allowed the highest degree of independence, yet be able to work closely and hold the trust and respect of the CALFED Policy Group. The Board would have staggered terms of 3-5 years to provide for some stability and for turnover and fresh ideas and viewpoints. The Board should include a combination of prominent scientists who have expertise in CALFED-type programs and issues (but do not work in the area) and prominent scientists with local experience and expertise who are independent of CALFED agencies and stakeholders.

The original Board would be selected by National Academy of Sciences or another well respected and neutral group of eminent scientists. Professional societies such as the American Fisheries Society, the Estuarine Research Federation, the National Science Foundation, or the Wetlands Society would nominate the initial members. In the future, the Board would select new members, based also on nominations from professional societies. The Policy Group would have veto authority over proposed nominations but would not have the final decision over selected members.

Since the primary source of information for the Science Review Board would be CMARP, judgments on the quality, breadth, and applicability of the work done by CMARP would, to some extent, be a necessary by-product of the Science Review Board's principal role. The Policy Group may also look to the Science Review Board for assistance in evaluating the quality and effectiveness of CMARP. Since this exercise would, to a degree, involve evaluation of the talents and judgment of the Chief Scientist and the Science Coordination Team that reports to the Chief Scientist, an arm's length relationship between the Board and the Chief Scientist should be maintained.

## CALFED Monitoring, Assessment and Research Program

### Interim Governing Structure



**Chief Scientist.** Scientific leadership is key to the success of CMARP, and is more important than any other aspect of the organizational structure set up to operate or govern the program. An endeavor of the magnitude and importance of CMARP must have strong leadership. Providing a position of Chief Scientist would help ensure high levels of credibility and accountability.

The Chief Scientist would report to the CALFED Executive Director. Duties of the Chief Scientist would include the following:

- be responsible for the overall direction and quality of the monitoring, assessment and research program;
- assemble and direct a Core Technical Staff that can provide analysis and interpretation of monitoring information;
- work with all of the CALFED programs on monitoring, research, and assessment
- chair the Science Coordination Team designed to keep all of the agencies and

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- organizations that implement elements of the program working collaboratively; identify (through the Policy Group, Science Review Board, Stakeholder Advisory Committee, etc.) the management issues that need to be addressed through CMARP;
  - identify and help resolve technical controversies, through consensus building, where possible;
  - produce an annual work plan of monitoring, assessment and research;
  - ensure that the external review functions are carried out, supported, and heeded;
  - convene an Annual Science Conference;
  - interact with the regulatory agencies.

**Science Coordination Team.** The agencies and organizations (including stakeholder organizations) that currently conduct major monitoring, assessment and research programs would play an important role managing and implementing the comprehensive program proposed by CALFED. These are the programs upon which CMARP would be built. The comprehensive program would result from the combination of these programs and the new efforts initiated in directed response to CALFED needs. In some cases, especially where expansion or redirection of existing efforts is required to make the CMARP program work, these same agencies and organizations would need to be involved in helping to craft the changes and would need to be conducting additional work. This team would be the mechanism by which the Chief Scientist keeps all of these efforts moving in a coordinated fashion, and ensures cooperative working relationships among all of the partner organizations. The team would be responsible for advising CALFED on the annual work program for CMARP.

### **Long-Term CMARP Governance**

The proposed functions, principles, and interim structure is expected to be much the same in the long-term governance structure. The primary changes would be in response to changes in the final oversight governing structure.

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## 5.0 FINANCING PLAN

### Executive Summary

With the signing of the Record of Decision, scheduled for June 2000, CALFED will need to have a financing plan in place to begin implementation. In fact, early implementation of portions of the Program will begin in 1999 with existing funding sources. To be prepared for program implementation, a finance plan is needed to guide state and federal administration and legislative discussions regarding new bonds, new fees, and proposed budget appropriations.

This draft lays the initial framework for developing a CALFED Finance Plan. The Plan provides background, definitions, description of Program benefits, description of possible funding sources, financing options, and issues to resolve to finalize a Finance Plan. CALFED will work to complete the Finance Plan in 1999, but no later than the time of the ROD.

The Finance Plan for implementing the CALFED Bay-Delta Program is a critical component of the Program because of the assurance needed by member agencies and stakeholders that a serious and concerted effort will be made to secure funding for all components over the life of the Program. In developing financial strategies and cost-sharing for the many aspects of the CALFED Program, CALFED is following several basic steps:

- Identifying the priority actions for implementation
- Developing cost estimates for priority actions
- Identifying the funding and cost-sharing formulas in existing laws and agreements
- Identifying program/project benefits and beneficiaries
- Identifying finance issues that affect the successful implementation of the Program
- By the time of the ROD, CALFED will recommend cost allocation procedures and cost-sharing strategies for each program element and in some cases for individual projects.

A fundamental philosophy of the CALFED Program is that costs should, to the extent possible, be paid by the beneficiaries of the Program actions. There are reasons, other than equity and fairness, that the beneficiaries pay principle be applied to CALFED and other water resources programs. Having beneficiaries pay for public programs encourages them to more carefully review their water and power needs and the costs of proposed programs (including mitigation costs) in relation to the benefits they receive. Such a policy also encourages examination of a

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fuller range of alternatives, including locally funded measures, in order to assure that public funds are spent in the most cost-effective way to meet Program goals.

**Definitions.** There are several terms that require definition to provide clarity in the chapter: (a) initial funding shares (which may or may not correspond to final funding shares); (b) cost allocation - the distribution of costs to project purposes and beneficiaries; (c) cost shares (formulas typically used for sharing the costs allocated to each project purpose); (d) proposed cost shares - the shares that would be recommended for use by the CALFED Program; and (e) effective cost shares (the percentage that each beneficiary group ultimately pays). The effective cost shares differ from the proposed cost shares if repayment terms are at below-market rates.

**Historical Financing.** CALFED's finance strategy must be considered within the current and historical context of state and federal water resources financing. Historically, federal water projects have been financed with appropriations and, in some cases, repayment was provided by beneficiaries at below market rates of interest (or no interest). This resulted in historically low levels of effective cost-sharing. Since the 1980's, federal water resources agencies have been requiring higher levels of non-federal cost-sharing, through higher levels of up-front cost-sharing and other means. In the CVP, the Central Valley Project Improvement Act of 1992 enacted tiered water rates, Mitigation and Restoration payments, and other fees to be deposited into a Restoration Fund to be used for environmental purposes. Financing for the State Water Project relies principally on general obligation bonds and revenue bonds repaid by water and power users, which provides high levels of effective cost-sharing. In general, there has been a shift in federal and state water financing toward higher levels of repayment and higher effective cost shares by local entities.

**Program Benefits/Beneficiaries.** At this time, because many of the actions have not yet been specified, (e.g., water use efficiency actions, storage sites), the specific benefits cannot be identified or measured, and Program costs cannot be allocated. In other cases, such as ecosystem restoration, benefits can be identified but not easily measured. However, to initiate the finance discussions, and lay the framework for a CALFED finance strategy, this chapter identifies expected benefits and beneficiaries at the program level. For actions where benefits can be measured, the program or project costs will be allocated among the benefit categories. In the Final Finance Plan a specific cost allocation procedure will be identified. For those program elements where benefits cannot be easily measured (ecosystem, water quality, watershed programs) CALFED will need to identify a procedure for estimating and allocating costs. After the benefits analysis and cost allocation, CALFED may propose cost shares that differ from existing state and federal cost-sharing formulas or may use the cost-sharing formulas in existing programs. Final decisions on cost-sharing will be made by the state and federal legislatures.

The benefits from each program element (both near-term and expected future benefits), as well as cost-sharing issues and potential cost-sharing options are described in this chapter. In general, these options differ financially (the extent to which they require higher levels of repayment from beneficiaries), or institutionally (in terms of what mechanism they rely on to secure repayment,

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ranging from existing programs, up-front cost-sharing, recovery through water rates, or recovery through other user charges). Some of these options address user fees targeted at the beneficiaries of a particular program (e.g., directly linked to a group of benefitting water districts, such as Delta diverters).

**Financing Mechanisms.** This chapter compares several different financing mechanisms, all of which have been used to date and are expected to be used in the future, including state and federal appropriations, state general obligation bonds, state water and power revenue bonds (tied to SWP water and power rates), private financing, and a broad-based user fee (e.g., the Mitigation and Restoration payments imposed by the CVPIA). The advantages and disadvantages of these various funding sources and financing mechanisms are described.

CALFED and CALFED stakeholders have discussed the use of a broad-based Bay-Delta system diversion fee, particularly to finance some of the programs or actions with broad-based public benefits, such as the Ecosystem Restoration Program (such a fee is discussed, for example, in the 1996 report *Maintaining Momentum on California Water Issues: Business Leaders' Findings - Financing Options for Water-Related Infrastructure in California* produced by the California Business Roundtable, the California Chamber of Commerce, the California Farm Bureau Federation, and the California Manufacturers Association). The basic concept is a fee that would apply to all diverters, or all major diverters of water from tributaries that flow into the Delta as well as exporters of Delta water. This chapter explores how such a broad-based diversion fee could be structured and what revenues could be expected for fees similar to those established in the CVPIA. The crediting of contributions to date would be an integral part of implementing any broad-based diversion fee.

## 5.1 Definitions

Cost-sharing and cost allocation are sometimes used interchangeably but to mean quite different things. For clarity, this report will distinguish different uses of these terms.

**Initial Funding Shares.** Typically, funds for constructing state and federal water resources storage projects are provided by the respective governments. For some programs local up-front cost-sharing may be provided concurrently. But these initial funding shares may or may not represent the ultimate cost shares. For example, repayment of the water delivery costs by water contractors in the Reclamation and state programs means that these users ultimately share in the costs of the project (see the definitions of “cost-sharing” and “effective local cost shares” below.) If no additional payments are required and if no other adjustments are made, the initial funding shares become the same as the “effective cost shares.”

**Cost Allocation.** Cost allocation is used to mean the allocation of costs among program purposes or benefit categories. Traditionally, benefits of water resource programs have been categorized by project purposes. For example, the federal *Economic and Environmental*

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*Principles and Guidelines for Water and Related Land Resources Implementation Studies (Principles and Guidelines)* (U.S. Water Resources Council, 1983), which govern benefit-cost procedures for federal projects, recognize the following benefit categories: municipal and industrial water supply, agriculture (including avoidance of flood damage), urban flood damage, hydropower, navigation, recreation, and commercial fishing. Many, but not all, of the benefits of the CALFED Program elements can be placed in the same categories.

**Historical Cost-Sharing.** Historically, both the federal and state governments have applied cost-sharing formulas or percentages to allocated costs, either as a matter of law or policy. In some cases, the non-federal cost shares may be met by a combination of cash contributions and local "in-kind" contributions (for example, land, easements, rights-of-way, relocations, and dredged material disposal - LERRDs). While these cost-sharing formulas may reflect the historical federal or state willingness to fund the type of project or program (and while these cost share formulas may rely on costs allocated based on an assessment of the benefits of individual projects or programs), they may not fully reflect the beneficiaries pay principle because they have not required full repayment of allocated costs. For example, for construction costs allocated to flood control, the Water Resources Development Act of 1996 establishes 65% as the maximum cost share paid by the federal government, with 35% coming from non-federal sources (operation and maintenance costs for flood control usually require 100% non-federal payment).

As part of the CALFED discussion of cost-sharing, this chapter reviews some of the major existing state and federal programs, laws, and policies which specify cost-sharing. The cost-sharing in these existing programs will be evaluated and may or may not be proposed for CALFED proposed cost-sharing. The initial funding shares that have occurred to date in CALFED will be one consideration in developing proposed cost-sharing, but may not be the final proposed cost shares.

**Proposed Cost Shares.** The term "proposed cost shares" is used to reflect the proposed CALFED distribution of costs to the beneficiaries. The CALFED Program could either use the cost shares contained in existing law, programs, or policies or the CALFED Program could propose different cost shares and seek authorizing legislation for them.

**Effective Cost Shares.** If repayment over time of some project costs is required and if below-market rates of interest are used to compute repayment, then the effective cost share of that beneficiary would be less than the proposed cost share expressed in nominal terms. For example, several of the loan programs authorized under Proposition 204 require repayment over 20 years at 50% of current interest rates on general obligation bonds. If the current interest rate were 5%, then repayment at 2.5% would result in an effective local cost share of about 82%, with the remainder of the costs being paid by the state. If no repayment over time is required, then the effective cost shares would be the same as the initial funding shares (for example, the 35% up-front cost share for flood control required by WRDA 1996).

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**Public Benefits** are generally those that are shared by a wide cross-section of the community and from which individuals cannot realistically be excluded. Inability to exclude individuals means that imposing charges for access to the benefit is difficult. If “free riders” can access the benefits without paying, there is no economic incentive for them to spend their money for these benefits. This means that if these benefits are to be created, public funding (obtained from the community benefitting) must usually be used.

**Private Benefits** are generally those that accrue to an identifiable subset of the community and from which individuals can be excluded. The ability to restrict benefits to those that pay enables these benefits to be funded with user money. In addition there are good reasons why beneficiaries should pay for private benefits: bearing the cost provides incentives for wise use of the resources and it is fair that only those enjoying the benefit should pay. In some cases, such as metered water use, individuals or districts can be charged on the volume of use. In other cases, such as access to recreational facilities, charges are based on simple access to the benefit. Note that as used here, private beneficiaries would include “public” water districts, which supply agricultural or municipal and industrial water to an identifiable group of water users.

## 5.2 Historical Context for State and Federal Cost-sharing

CALFED is developing the Finance Plan for the Bay-Delta Program relying primarily on a benefits-based approach. This approach is consistent with historical procedures, as well as with recent changes and trends in water financing at the state and federal level. Following is a historical description of state and federal water project financing to provide additional context for the CALFED approach. (See Tables 5.1 and 5.2)

**Federal Cost-Sharing.** When federal water resource programs were initiated, they had quite different goals from what they have today. The evolution of these programs and changing program goals, as well as altered federal financial priorities, have been the principal motivations for altering cost-sharing and effective cost shares on federal projects.

For example, when the Reclamation program was established in 1902, its principal goal was to assist in settling the West by providing irrigation water to family farms. Repayment was made into a revolving fund, with interest-free repayment occurring over 10 years, which resulted in an effective cost share by water users of about 85%. But irrigators had difficulty meeting these repayment terms, and some projects did not result in as much irrigation as originally envisioned. As a result, a series of measures were passed between 1914 and 1939, which lengthened the interest-free repayment period to 20, 40, and then 50 years, thereby reducing the effective cost-sharing to levels of 50%. As interest rates rose starting in the 1960s, the effective level of non-federal repayment fell to around 15% for irrigation. Over this same period, the cost-sharing for operation and maintenance costs for irrigation remained 100% local.

**TABLE 5.1**  
**Summary of Water Project Cost Sharing**  
**For Federal and State Construction**

Costs allocated to:	Initial financing share	Nominal local cost share	Effective local cost share	Notes
<b>Construction - federal</b>				
M&I and Hydropower - USBR	100% federal	100%	60% - 70%	below market rates of interest
Irrigation water - USBR	100% federal	100%	15%	zero interest, more than 15% if required up-front
M&I and Hydropower - USACE	100% non-federal	100%	100%	WRDA 1986
Irrigation - USACE	35% non-federal	35% +	35% +	WRDA 1986
Flood control - USACE	35% non-federal, up-front	35%	35%	WRDA 1996, up from 25% in WRDA 1986
Navigation recreational - USACE	50% non-federal	50%	50%	WRDA 1986
Environmental Restoration (general USACE, not CALFED)	25% to 35% non-federal, up-front, depending upon program	25% - 35%	25% - 35%	WRDA 1996
<b>Construction - SWP</b>				
Hydropower, M&I water, and irrigation water	100% state (bonds)	100%	close to 100%	bonds used to finance require repayment
Notes: USBR = U.S. Bureau of Reclamation USACE = U.S. Army Corps of Engineers WRDA = Water Resources Development Act SWP = State Water Project Conveyance costs are treated the same as storage, environmental mitigation costs are included in construction costs, the costs of feasibility studies and design are included in construction costs.				

**TABLE 5.2**  
**Summary of Water Project Cost Sharing**  
**For Federal and State Planning, Operations and Maintenance**

<b>Costs allocated to:</b>	<b>Initial financing share</b>	<b>Nominal local cost share</b>	<b>Effective local cost share</b>	<b>Notes</b>
<b>Planning</b>				
Federal appraisal or reconnaissance studies	100% federal	0%	0%	
Federal Feasibility studies	50% federal	50+ %	50+ %	Planning costs become part of construction costs if project is built
SWP planning	100% SWP water users	100%	100%	Planning costs paid by SWP funds
State comprehensive storage investigations	100% state	Varies	Varies	If a project proceeds to construction then all planning costs will be reimbursed by project sponsors
<b>Operation and Maintenance</b>				
Federal and State	NA--an ongoing expense	100%	100%	100% except for some cases of deferment
Note: Conveyance costs are treated the same as storage.				

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During the first half of the century, additional project purposes were added to federal projects, including municipal and industrial water supply, hydropower, and eventually recreation and fish and wildlife. Unlike irrigation water, municipal and industrial water and hydropower user payments were computed with interest, although sometimes the rates were below current government borrowing rates. The effective cost shares for these uses generally ranged from 60% to 70%, with higher levels on some projects [U.S. Water Resources Council, 1975]. Also, since hydropower was profitable, Congress also adopted provisions under which hydropower revenues could be used on some projects to pay that portion of the construction costs allocated to irrigation - namely that portion which was estimated, through economic analysis, to be above the irrigators payment capacity. This cross-subsidy between these two user groups has become known as taking into account the irrigators' "ability-to-pay."

Starting in about the 1960s, there was increasing recognition that federal subsidization of irrigation water supply in the western states had several negative consequences and was not serving contemporary needs. For one, the small effective cost shares from local water districts encouraged both large capital expenditures on new projects and inefficient water use on existing projects. Too, environmental concerns about the impact of large scale projects were on the rise. Federal policy began to shift toward analyzing and mitigating environmental impacts on projects and to questioning whether the funding of additional large water storage projects was in the national interest now that the western states were settled, especially in the face of low water prices and growing competition for water resources.

Federal policy changed in several ways: funding for large-scale projects received much greater scrutiny; benefit-cost procedures were revised to be more rigorous; more emphasis was placed on the efficient use of water from existing projects, including water transfers; greater levels of non-federal cost-sharing were sought; and methods to increase water fees were examined and, in some cases, mandated by Congress. These policies received additional emphasis in the 1980s as concerns rose over balancing the federal budget and limiting federal spending.

In 1984, federal water resources agencies worked together on several of these items. One result was the adoption of federal policies requiring greater levels of "up-front" cost-sharing on new construction, non-federal contributions made during project construction. For projects constructed by the U.S. Army Corps of Engineers (USACE), these policies eventually became embodied in the Water Resources Development Act of 1986, which comprehensively addressed cost-sharing for Corps of Engineers projects (See Table 5.1). This act raised the required local cost share for flood control projects to 25%, of which a maximum of 20% could be provided by LERRDs (lands, easements, rights of way, relocations, and dredged material disposal). For general navigation, the act required that non-federal sponsors pay from 10% to 50% of the costs during construction, depending on depth. For inland waterways subject to fuel taxes, 50% of the construction cost must be contributed from such user taxes. The Water Resources Development Act of 1996 increased the non-federal cost-sharing requirement for future flood control projects to 35%. The WRDA of 1986 requires that 100% of the costs allocated to M&I water supply and

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35% of the costs allocated to irrigation water be provided by non-federal sponsors. Although not embodied in legislation, the same 1984 set of initiatives indicated that greater levels of up-front cost-sharing for irrigation on new federal projects (targeted at a 35% non-federal contribution during construction) were to be examined on a case-by-case basis.

On a separate track, the Office of Management and Budget raised the criteria for qualifying for water resources loan programs by requiring a higher level of effective cost-sharing. Where interest rates were set at below market rates, this was achieved by requiring a shorter repayment period or requiring a mix of loans that contained a greater percentage of loans with higher interest rates.

In 1982, Congress passed the Reclamation Reform Act (RRA), which required users of irrigation water to pay "full cost," which included interest charges, for water delivered to acreage in a farming operation that was over the 960-acre limit set in the act for receiving water at the historical rates computed on the basis of interest-free repayment. In 1992, the Central Valley Project Improvement Act required contractors for USBR-supplied project irrigation water to pay \$6 per acre foot in addition to normal contract or "cost-of-service" rates. Contractors for municipal and industrial water are required to pay \$12 per acre foot above the usual rates. The act also established a set of tiered water rates, with higher rates to be charged for water delivered above 90% of historical levels. The CVPIA also contains a formula used to establish additional payments from hydropower users. All of these various collections are paid into a Restoration Fund and is used for authorized environmental purposes.

As regards environmental purposes generally, environmental mitigation has been required for federal projects, with the costs distributed to the project purposes. The WRDA of 1986, 1990, and 1996, which covers Corps of Engineer projects, explicitly recognized environmental restoration and authorized funds for this project purpose, as well as setting out requirements for non-federal cost-sharing.

In general, this history shows a federal policy shift toward higher levels of repayment and higher effective cost shares by non-federal entities, implemented through a combination of increased local up-front financing, financial terms with higher effective levels of repayment, higher user fees, and the adoption of special programs and fees dedicated to environmental restoration.

**Cost-Sharing on the State Water Project.** The State Water Project began operations much later than the federal Reclamation program and had different goals and a different financing basis. In 1960, California voters approved the Burns-Porter Act which authorized the sale of \$1.75 billion in general obligation bonds to build the project. Funds from the sale of general obligation bonds and revenue bonds have provided the major sources of financing (approximately 75 percent) for the construction of the State Water Project. All of these sources of funding are repaid with interest by SWP contractors. Another 10 percent of the cost of project construction has been funded by interest free loans from the tideland oil and gas revenues and

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repaid by SWP contractors (revenues have been deposited in the California Water Fund). The remaining 15 percent of the construction costs have been funded by a variety of revenue sources (federal flood control payments, legislative appropriations for recreation). Although no precise estimates are available, the effective level of cost-sharing by project beneficiaries (irrigation districts, municipal districts, and hydropower) is probably close to 100% for new construction.

### 5.3 Cost Allocation

Over the years, federal and state agencies have developed very specific, agreed-upon procedures for defining project benefits, estimating such benefits, and for allocating project costs to those benefit categories. The interagency *Principles and Guidelines* govern benefit cost analysis on federal projects. The California Department of Water Resources generally follows the same procedures. Benefit and cost definitions and measures are important on multi-purpose projects not only for planning, but also because they are the basis for one of the most frequently used methods for allocating costs, the Separable-Cost Remaining Benefits (SCRB) method.

Although the SCRB procedure is the one preferred in federal cost allocation procedures, other methods are recognized for applications where SCRB cannot be applied. For example, the use of facilities method, which allocates joint costs on the basis of a physical measure, such as storage capacity, may be appropriate in some circumstances where use of facilities can be determined on a comparable basis and where benefit measures and separable costs are not available or too expensive to obtain. Other cost allocation methods and their strengths and weaknesses are discussed in the March 1998 *CALFED Implementation Strategy*, part of the *Technical Appendix of the Programmatic EIS/EIR*, and that discussion is not repeated here.

#### CALFED Approach to Cost Allocation

Many of the benefits of the CALFED program elements can be categorized in the same way as for multi-purpose projects. The CALFED program elements are organized along functional lines, such as water quality, ecosystem restoration, water use efficiency, storage, and conveyance. Any one of these program elements may have benefits that fall into one or several of the traditional categories (municipal and industrial water supply, agriculture, flood damage, hydropower, navigation, recreation, and commercial fishing). For example, this is true of water storage and conveyance facilities. In this report the benefits and beneficiaries of the CALFED program elements are identified and placed in similar categories. For example, water quality improvements to diverters benefit both agriculture and urban water supply. One additional category is used to reflect non-market benefits to the general public, such as broad ecosystem benefits. For example, water quality can also have broad ecosystem benefits, as well as directly benefitting water diverters.

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The federal benefit-cost and cost allocation procedures have evolved around the planning and design of well defined, multi-purpose projects to be constructed over a relatively short period of time. These are not characteristics of the CALFED Program taken as a whole. Therefore, the SCRIB procedure and other established cost allocation methods are ill-suited to allocate the overall costs of the CALFED Program. For one, the various CALFED program elements will continue for over 30 years. Since many of the specific actions and projects have yet to be determined, neither costs nor benefits can be determined at this time. Too, under the principle of adaptive management, program elements and projects are subject to revision as the CALFED Program proceeds. As a result, if the SCRIB method or other established procedures were used, they would, in principle, have to be used not once, but applied many times to recalculate benefits as the Program evolved. These considerations make the costs of the CALFED Program, taken as a whole, ill-suited to allocation through established cost-allocation methods. Established cost allocation methods, such as SCRIB or proportionate use of facilities would be suitable, however, for analyzing some program elements or actions in the CALFED Program.

**Applying Cost Allocation.** The program elements to which established procedures would be the most applicable would be storage, conveyance, and water quality improvement projects. Under these procedures, environmental mitigation costs of new facilities are allocated to the project purposes. In many cases, it will not be possible to determine beneficiaries or to estimate benefits until a CALFED Program action reaches the planning and design phase. For example, a storage facility may or may not involve water deliveries for environmental purposes. Similarly, a water use efficiency measure could be designed with the explicit goal of augmenting an instream flow or it could be designed to increase the long-term stability of water supplies to beneficiaries within an agricultural or urban district/region. Therefore, it will be necessary to examine each program element and, in some cases, each action, in order to assign costs based on the beneficiaries of that program element or action. In other cases, it may be possible to group together several actions with the same program benefits in estimating and allocating costs. It is at this step in the analysis that CALFED would apply an appropriate cost allocation method.

**Assessment of Non-Market Benefits.** The difficulties in applying established procedures Program-wide would also be compounded in the case of CALFED for other reasons. The CALFED Program has a large proportion of program elements with non-market benefits, such as ecosystem restoration and watershed management. Although federal benefit-cost procedures recognize and include methods, such as contingent valuation, for evaluating the non-market benefits of programs (such as recreation), these methods are expensive to implement well. (In the case of environmental quality, including enhancement, on Corps of Engineers projects, it is simply assumed that the benefits are equal to the costs -- a requirement stemming from the WRDA of 1986, Section 907 [33 U.S.C. 2284], although a cost-effective analysis is performed). Therefore, CALFED does not intend to measure benefits for those portions of the Program with a large percentage of public, non-market benefits, such as ecosystem restoration. For example, strict application of a SCRIB cost-allocation procedure in these cases, which depends on the measurement of benefits, would be time-consuming and expensive to use.

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The first step in the process of distributing costs is to examine what benefits and groups of beneficiaries (private user groups or the public) are linked to each of the CALFED program elements. For some of the program elements, there is a relatively small list of beneficiary categories. For others, the number is larger. As noted above, for some programs or actions, the beneficiaries cannot be determined until the site-specific and functional details of a program are known.

## 5.4 Program Benefits/Beneficiaries and Finance Options

This section discusses the benefits and beneficiaries for each of the eight CALFED program elements and for the Comprehensive Monitoring Assessment and Research Program. As a point of reference, these sections also contain brief discussions of the existing cost-sharing provisions under current federal and state law or policy. Finally, each section proposes finance options and discusses issues related to cost-sharing under CALFED.

**Definition of Benefits.** Before examining benefits and beneficiaries on a program-by-program basis, it is useful to review how benefits are defined. Economic benefits are a measure of the willingness of beneficiaries to pay for the flow of services from a program or project - either to obtain additional benefits (additional or more reliable water supplies) or to avoid damages (flood damages, higher treatment costs, or less reliable water supplies). Benefits are not measured simply by looking at the ongoing stream of benefits from existing activities - for example, the economic activity associated with Delta agriculture and recreation. Rather, benefits are measured as the difference between the benefits that would occur with the program compared to the benefits that would occur without the program.

Many of the CALFED program elements involve modifications to existing water flows, water uses, or water quality. The benefits of increased water deliveries would be the willingness to pay for such deliveries, which, in the case of agricultural water, could be measured by increased farm income (less expenses). Water supply benefits would need to be considered in relation to the costs of alternative sources, including water transfers. Sometimes benefits can be measured by the damages avoided. For example, the benefits of improved water quality could be measured as the treatment costs avoided or the avoided health impacts. Flood damages avoided (e.g., by enhanced storage or by levee reconstruction) would be a Program benefit.

The differences in Program benefits with and without a program would need to be considered over time. For example, if a negative impact, such as recreational, agricultural, or environmental losses due to flooding were relatively brief and recovery were possible over the period of a few years, then the benefit of avoidance would be smaller than if the damages were to last for several decades.

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## 5.4.1 Storage

### Program Description

CALFED's water management strategy includes groundwater and/or surface water storage which can be used to improve water supply reliability, provide water for the environment at times when it is needed most, provide flows timed to maintain water quality, and protect levees through coordinated operation with existing flood control reservoirs. Decisions to construct groundwater and/or surface water storage will be predicated on complying with all Program linkages including:

- Completion of the Integrated Storage Investigation, which includes an assessment of groundwater storage, surface storage, re-operation of power facilities, and fish barriers.
- Demonstrated progress in meeting the Program's water use efficiency, water reclamation, and water transfer program targets.
- Implementation of groundwater monitoring and modeling programs.
- Compliance with all environmental review and permitting requirements.

New groundwater and/or surface water storage would be developed and constructed, together with aggressive implementation of water conservation, recycling, and a protective water transfer market, as appropriate to meet Program goals. During Stage 1, CALFED will evaluate and determine the appropriate mix of surface water and groundwater storage, identify acceptable projects, and initiate permitting and construction if Program linkages and conditions are satisfied.

The total volume of surface water and groundwater storage being assessed for the Preferred Program Alternative range up to 6.25 MAF. Facility locations being considered are located in the Sacramento and San Joaquin Valleys and in the Delta.

### Program Benefits/Beneficiaries

Identification of benefits and cost-sharing for new storage projects needs to be on a project specific basis. As stated above, selection and construction of additional water storage facilities will follow other steps and may not occur for several years. This section, therefore identifies the benefits generally associated with water storage facilities. Potential benefits include:

- **Water Supply Reliability** -- storage facilities can capture excess runoff to be released at times when demands are higher or to accommodate the growth in demand over time.

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- **Water quality** -- appropriately designed storage facilities can provide flows for improved water quality.
  - **Ecosystem** -- appropriately designed storage facilities can also provide flows for environmental purposes, such as releases timed to match fish migrations, refuge water supplies, or ecosystem water quality, etc.
  - **Flood control** -- some projects provide for increased protection from large flood events.
  - **Hydropower** -- some projects provide for the generation of electric power.
  - **Recreation opportunities** -- some projects or project facilities can provide enhanced recreational opportunities.

The beneficiaries of new storage facilities would also depend upon the design and operation of each facility and the allocation of the water supply, but could include the following:

- **Agricultural water users.**
- **Municipal and industrial water users.**
- **The public** -- to the extent that water is allocated to environmental restoration or enhancement and increased flood protection is provided for the Delta ecosystem.
- **Floodplain residents/landowners.**
- **Recreational users** of the storage facility directly or those benefitting from ecosystem restoration (e.g., fisheries).

**Estimating benefits and cost allocation.** As described in the introduction to this chapter, government agencies have adopted procedures for estimating the benefits of several of the purposes of multi-purpose storage facilities (agricultural water use, municipal and industrial use, reduction in flood damages, and recreational uses), as well as standardized approaches to cost allocation among such benefits/purposes. CALFED agencies propose to apply these or other procedures to individual storage projects as they are planned and designed. These standardized procedures don't address environmental restoration per se, but costs could be allocated based on the water used directly for such purposes and not benefitting private users. The allocation to public uses will be addressed by CALFED for each storage facility.

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## Existing Programs and Funding

**Cost-Sharing for Construction.** Both federal and state water programs, the Central Valley Project and the State Water Project, were, from their inception, devoted to constructing major storage and delivery systems within California's Central Valley. As described in the introduction to this chapter, there has been an evolution in the goals and financing of federal water projects. The concern over low effective cost shares (in the range of 10% to 15%) for irrigation has placed more emphasis on increasing the repayment from water users or general policies requiring higher levels of up-front cost-sharing (see Table 5.1--cost-sharing table). As Table 5.1 indicates, in some cases this emphasis on increased cost-sharing has resulted in new legislation. Federal law and policy requires that the cost of environmental mitigation on new facilities is allocated to the project purposes which caused the need for the mitigation. Accordingly, the cost-sharing rules or effective cost shares for those project purposes would apply to mitigation costs.

**Cost-sharing for Planning and Feasibility Studies.** Federal policy for water resources programs does not generally require local cost-sharing for "reconnaissance" level or "appraisal" level review. However, more detailed feasibility or planning studies usually require an up-front non-federal cost share that is generally administered on a "pay-as-you-go" basis in smaller portions. Although federal cost-sharing policy for planning and feasibility studies can vary by authorizing legislation, Bureau of Reclamation projects typically require a 50% local cost share for planning (see Table 5.2). Recent cost-sharing policy for USACE projects, which provide storage mainly for flood control purposes, requires a 50% local up-front cost share for feasibility studies, with an option for the local sponsor to contribute an additional cost share to add a storage function to a project. For project purposes which require repayment, such as irrigation water and municipal and industrial water supply and power, the other 50% of planning costs become part of the construction cost of the project.

In the State Water Project, planning studies have typically been undertaken using SWP funds generated from bonds repaid over time from water and power charges. In the case where planning is for a new facility that benefits only certain SWP contractors, the costs are borne by the benefitting contractors (i.e., costs are included only in the rates to those contractors). In summary, SWP planning costs have an effective local cost share of 100% (or near 100%). Recently, state public funding has been provided for planning and evaluation costs associate with storage investigations (Proposition 204 and state budget General Fund appropriations). See Table 5.2.

**Cost-sharing for Maintenance.** Maintenance on both state and federal projects is generally funded 100% by the beneficiaries or local interests (see Table 5.2). All SWP O&M costs are repaid by the SWP contractors, for example. Bureau of Reclamation projects require 100% non-federal funding for O&M. The USACE does not fund any O&M on its flood control projects, with a few rare exceptions for pre-1986 facilities.

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## Proposed Finance Options

Given the magnitude of potential storage expenditures in the CALFED Program, the selection of financing options for new storage will be an important component of the Program. The beneficiaries pay principle indicates that the payment for such storage facilities should be closely linked to the beneficiaries, particularly where such groups can be easily identified, as in the case of water supply.

### Options for Cost-Sharing for Construction

**Option 1** -- Construct additional storage as part of the federal system and require up-front cost-sharing from water and hydropower users following existing federal cost-sharing laws and policies.

**Option 2** -- Construct additional storage projects as components of the State Water Project, which has high levels of local effective-cost-sharing. This option would assure application of the beneficiaries pay principle, while avoiding the need to seek changes in those provisions of federal law that provide low effective cost shares for irrigation water supply. Cost-sharing for the flood control and recreation segments could be handled under existing legislation.

**Option 3** -- Construct additional storage projects under a mix of state and federal authorities, relying on the effective levels of local cost-sharing in existing law.

**Option 4** -- Construct additional storage projects under a mix of state and federal authorities, but seek new legislation to specify levels of cost-sharing for specific facilities.

**Option 5** -- Variation of above -- For certain groundwater storage projects, public funding may be appropriate to ensure implementation and local support.

### Cost-Sharing for Planning

In the Revised Phase II Report, December 1998, CALFED stated a policy of seeking public financing for the planning and evaluation of storage projects to ensure a comprehensive and fair comparison of storage options. However, should a storage project proceed to construction, then the public funds used for planning and evaluation will be reimbursed by the project beneficiaries. This financing policy does not foreclose the option of also receiving up-front cost-sharing by potential project beneficiaries.

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## Cost-Sharing for Operation and Maintenance

Consistent with existing federal and state policy and law and the principle of beneficiaries pay, CALFED would recommend that for irrigation, M&I, and hydropower, users pay 100% of O&M costs.

### Issues/Questions

- *Because CALFED cost-sharing policies for new storage facilities will be a highly visible component of the Program, should the Program establish a clear policy that the costs of new water supplies destined for water districts (irrigation and M&I) be based on the beneficiaries pay principle and be funded 100% by water users?*
- *What is the best vehicle for assuring compliance with the beneficiaries pay principle for new irrigation and M&I water supplies - up-front financial participation, construction as part of the SWP, or some other means? If not, what assurances can be provided to other CALFED Program participants that the beneficiaries pay principle will be followed?*
- *If planning costs are to be payable only if a storage project moves forward, should measures be put in place to assure that potential beneficiaries share the risk (and the financial responsibility) that a storage project may not ultimately get built?*
- *If ecosystem benefits are part of a project (e.g., flows used to enhance Delta water quality), is it appropriate to consider broad-based user charges to cover a portion of the costs?*
- *Who will ultimately own and operate a new facility? (the answer could influence cost allocation and cost-sharing).*
- *How should the Program address the concerns raised by agricultural water users who have indicated an unwillingness or inability to pay the high costs of new water supplies? Should a cross-subsidy between beneficiaries be considered to cover such costs (e.g., under federal Reclamation law, hydropower subsidizes costs above irrigators' estimated ability to pay)? If so, from what groups - hydropower? M&I users? Other users?*

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## 5.4.2 Conveyance

### Program Description

CALFED's strategy for Delta conveyance improvements is to use the existing Delta system with some modifications, evaluate its effectiveness, and add additional conveyance and/or other water management actions if necessary to achieve CALFED goals and objectives. These actions will be continually monitored, analyzed and improved as necessary to meet CALFED goals.

Potential Stage 1 improvements to the existing south Delta region include new screens for the SWP and CVP export facilities, changes in operations, channel enlargements, and other improvements to increase water supply reliability while decreasing impacts on fish and Delta water users. In the north Delta region, proposals include channel enlargement for flood control, changes in Delta Cross-Channel operations, and consideration of a new screened diversion from the Sacramento River to the interior Delta to help balance water quality and fisheries concerns.

The Preferred Program Alternative includes a process for determining the conditions under which any future additional conveyance facilities or water management actions would be taken. The process would include:

- An evaluation of whether water supplies can provide a level of public health protection equivalent to 50 parts per billion (ppb) bromide and 3 parts per million (ppm) TOC.
- An evaluation based on reports from an independent panel of experts--one report on CALFED's progress toward these measurable water quality goals; and the second report on CALFED's progress toward ecosystem restoration objectives, with particular emphasis on fisheries recovery.

### Program Benefits/Beneficiaries

Identification of benefits and cost-sharing for conveyance improvements will need to be on a project specific basis. This section, however, identifies the benefits generally associated with water conveyance facilities. Potential benefits include:

- **Water supply reliability** due to conveyance improvements such as channel enlargements, new facilities, and operational changes.
- **Ecosystem** benefits from fish screens and operational changes (i.e., Environmental Water Account).
- **Water quality** benefits from structural and operational changes.

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- **Flood control** benefits from channel enlargements and other conveyance improvements.

Beneficiaries of the water conveyance actions/improvements potentially include:

- **Agricultural and M&I water users** would benefit from conveyance improvements.
- **The public** would benefit from conveyance improvements that enhance environmental conditions in the Delta and provide increased flood protection for Delta ecosystem.
- **Regional landowners** would benefit from flood control for lands, and infrastructure susceptible to flooding.

**Estimating Benefits and Cost Allocation.** Traditionally, the costs of conveyance improvements associated with the delivery of water for agricultural or municipal use are allocated to those project functions. Similarly, if particular conveyance facilities are designed primarily for delivering water to wildlife refuges, the costs would be allocated to ecosystem restoration. Delta conveyance improvements may also benefit water exporters through benefits in water quality, as well as those susceptible to flooding and the ecosystem. The extent of such benefits will continue to be analyzed in the Program, both through biological studies and through modeling efforts. Consistent with the benefits definition in the introduction to this chapter, some of the key questions that would need to be addressed would be the following:

- What would be the difference in the willingness to pay for the level of agricultural water supply with and without the proposed Delta improvements?
- The same question would apply to the levels of municipal water with and without the conveyance improvements. Note that the answers to the above questions would also be linked to the quality of the water supplies (see discussion under Water Quality Program). The answers to these questions would have to be re-examined if an isolated conveyance facility is considered.
- What is the magnitude of the flood control damages avoided solely by the conveyance improvements? This question is perhaps best answered in conjunction with analyzing the benefits of levee protection.

Ultimately, a recommendation will have to be made by CALFED as to how the costs of conveyance facilities should be allocated and approval sought from legislative bodies as to who will share the costs of conveyance facilities.

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## Existing Programs and Funding

Since conveyance costs are traditionally allocated to the recipients of water supply, the cost-sharing of conveyance facilities has tracked that of water storage (see section on storage, above). Therefore, the associated federal and state programs and the effective levels of local cost-sharing have been the same as for storage. For example, planning and construction of the SWP California Aqueduct has had high levels of effective cost-sharing as its planning and construction costs are nearly all being repaid by the SWP contractors through the SWP Delta Water Charge.

Planning and construction of SWP conveyance facilities that benefit only certain contractors, such as the Coastal Branch, are borne by the benefitting SWP contractors.

Funding for fish screens (fish screens are a component of the through-Delta conveyance proposal) comes from a variety of funding sources under differing cost-sharing arrangements. The CVPIA, Section 3406(b)(21) provides for up to 50 percent federal cost-sharing for construction of screens on unscreened diversions or actions to improve existing screens. Sections 3406(b)(4) and (5) of the CVPIA provide cost-sharing for screening the Tracy Pumping Plant and Contra Costa Canal Pumping Plant at 37.5% federal expenditure to be reimbursed by project water and power users, 37.5% non-reimbursable federal expenditure, and 25% to be paid by the state.

Although some channel enlargement has been paid for and carried out by the Army Corps of Engineers under its responsibilities regarding navigable waterways, these improvements have generally not been the same improvements that would be required for improving conveyance through the Delta. Therefore, commercial shipping is not considered to be a beneficiary of conveyance improvements.

## Proposed Finance Options

The options for cost-sharing for conveyance improvements are similar to those for storage, given that the costs of conveyance are traditionally allocated in the same manner as storage facilities (the allocation is based on end use of the water). Where an allocation is made to public purposes, then the costs would be paid for by the state or federal government, contingent upon appropriation by the state and federal Legislatures.

## Issues/Questions

A primary issue in the Conveyance Program is what amount of conveyance costs could be deemed to have an ecosystem (public) benefit, as opposed to a water supply and supply reliability benefit (private). The issue is complicated by the fact that some conveyance improvements benefitting export water quality may actually not be beneficial to fish populations.

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Too, the array of ecosystem impacts are quite different for the through Delta conveyance option now being considered compared to those from an isolated facility. As a result, the Program will continue to address the following issues:

- *What would be the best analytical methods (e.g., water resources modeling combined with biological studies) for defining what portion of the costs of conveyance improvements should be allocated to ecosystem benefits?*
- *Should a portion of the costs of conveyance improvements allocated to general ecosystem improvements be covered by a broad-based user charge?*
- *Should a portion of the costs of conveyance improvements allocated to general ecosystem improvements be covered by a user charge assessed only on the Delta exporters that benefit from the conveyance improvements?*
- *Should improvements to existing conveyance facilities be considered part of the cost associated with operations and maintenance and therefore covered by the water users currently paying for O&M?*

### **5.4.3 CALFED Levee Program**

#### **Program Description**

The Levee Program objective is to reduce the risk to land use, infrastructure, and associated economic activities; water supply; and the Delta ecosystem from catastrophic breaching of Delta levees. To achieve the Levee Program objective and the other CALFED objectives, in addition to meeting CALFED's Solution Principles, the Delta levee system must remain generally in its current configuration. In addition to improving the integrity of the Delta levee system, the Program aims to integrate ecosystem restoration and Delta conveyance actions with levee improvement activities. Improvements in the reliability of water quality would be a natural by-product of the Levee Program.

The specific elements of the Levee Program, as outlined in the Long-Term Levee Protection Plan (LTLPP), include the Delta Levee Base Level Protection Plan, Delta Levee Special Improvement Projects, Delta Levee Subsidence Control Plan, Delta Levee Emergency Management and Response Plan, and the Delta Levee Risk Assessment. The Base Level Protection element would incorporate the levees currently covered under the existing Delta Levee Subventions Program and aims to improve all levees to a uniform base level standard. The Special Improvements Project element would adopt the goals of the existing Special Projects Program and provide additional flood protection separate from the Base Level Protection element for Delta islands that protect public benefits such as the ecosystem, as well as water quality, life and personal property, agricultural production, cultural resources, recreation, and local and statewide infrastructure. The

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Subsidence Control Plan element would reduce or eliminate the risk to levee integrity from subsidence. The Emergency Management and Response Plan element would enhance existing emergency management response capabilities in order to protect critical Delta resources in the event of a disaster. The Risk Assessment element would identify the risks to Delta resources from Delta levee failure, quantify the consequences and develop recommendations to manage the risk.

### **Program Benefits/Beneficiaries**

Benefits of the Levee Program vary somewhat between each of the 5 elements of the program described above. The benefits of the program as a whole are:

- **Land use protection** of Delta agricultural resources, municipalities, infrastructure, and ecosystem habitat in the interior of the Delta islands.
- **Water quality improvements** due to reducing the likelihood of levee failure which can cause saltwater intrusion impacts that could potentially degrade both agricultural and municipal water supplies from Delta exports for several months.
- **Rapid Response to Levee Distress and Failure.** The Emergency response component of the Levee Program would provide for suitable funding, equipment and material availability, and coordination to augment the ability for rapid response to levee distress and failure.

The beneficiaries of the Levee Program include:

- **Delta landowners including farmers, business owners, and residents** who benefit from increased flood protection.
- **Delta water users and exporters** who benefit from increased protection of water quality and thus greater water supply reliability for both agricultural and M&I water supply.
- **The public --** due to improved ecosystem water quality from reduced salinity intrusion in the Delta.
- **Railroads, state highways, utilities, and water distribution facilities** which benefit from increased flood protection.
- **Recreational boaters and tour operators** who benefit from navigation benefits.

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**Estimating Benefits.** Benefits would be measured in the Levee Program based on the difference in benefits with and without the levee improvements. For each benefit category or group of beneficiaries, the key questions would be the magnitude, duration, and frequency of damages that would be incurred both for short-term flooding events (and the cost of emergency response) and for catastrophic failure with the program compared to without the program. For Delta agriculture, what would be the reduction in loss of net agricultural income? What would be the reduction in loss of Delta infrastructure due to flood damages? For Delta exporters, how would the severity of the impacts be reduced on Delta water quality connected with a catastrophic failure? Both with and without the program, how long would supplies be disrupted, what alternatives would exist for obtaining or using substitute supplies, and what would be the cost of the disruptions? Would there be impacts on recreational boating in the Delta? Over what area and for how long?

### **Existing Programs and Funding**

The Delta Levee Subventions Program was established in 1973 (SB 541) to provide state financial assistance to local districts for improving non-project Delta levees. (A "project" levee is defined as a flood control levee that is a project facility under the State Water Resources Law of 1945.) It was revised with enactment of the Delta Flood Protection Act of 1988 (SB 34) and further amended in 1991(SB 1065) and 1996 (AB 360). The Delta Levee Subventions Program requires that levee work be funded up front by the local agencies and reimbursed up to 75% by the state through DWR. California Water Code Section 12300 authorizes \$6 million a year to be appropriated to the Delta Flood Protection Fund from the California Water Fund for the Subventions Program until July 1, 2006. Historically, annual appropriations have been less than what has been authorized. No funds are currently appropriated for the program past June 30, 1999. There is very little federal participation in non-project levee work in the Delta. Federal participation in non-project levee maintenance is authorized through Public Law 84-99. Islands must meet the PL84-99 levee standard to be qualified for post-flood levee rehabilitation funding. Currently only two islands are qualified and funding is subject to appropriation.

The Special Flood Control Projects program, created by the Delta Flood Protection Act of 1988 (SB 34) and amended in 1991(SB 1065) and 1996 (AB 360), provides additional flood protection separate from the Delta Levee Subventions Program for Delta islands based on (1) the importance or degree of public benefit needing protection, and (2) the need for flood protection work (Water Code section 12313). Cost-sharing percentages under the existing Special Projects Program vary from 75% to 100% state funds, depending on the ability of the state to find a local cost-sharing partner. Although no federal cost-sharing agreements exist for the Special Projects Program, the California Water Code encourages DWR to seek cost-sharing with, or financial assistance from, federal agencies with programs applicable to or an having an interest in flood protection projects. Although the state is required to seek a local cost-sharing partner under the Special Flood Control Projects Program, historically the state has provided higher cost-sharing (up to 100%) for these projects than for the Subventions program primarily because of the program's focus on broad public benefits.

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No existing program currently provides funding specifically for subsidence work; however, subsidence research currently is funded under the existing Special Projects Program. Local levee districts provide funding for initial emergency response through benefit assessments. The provides assistance and funding when local resources are exhausted. If the governor declares an emergency and requests emergency assistance where life or substantial property is at risk, federally funded emergency assistance is provided.

DWR currently funds a Seismic Stability Evaluation for Delta levees through SWP contractor fees.

### **Proposed Finance Options**

The cost estimate for the Long Term Levee Protection Plan over a 20-30 year period is estimated at \$1.5 billion. There are several options for financing the Levee Program:

**Option 1** -- Continue current cost-sharing. Levee maintenance and repair work would continue to be funded up front by the local agencies and reimbursed up to 75% by the state through DWR. State cost-sharing percentages for the existing Special Projects Program would vary from 75% to 100%, depending on ability-to-pay analysis completed for each participating local agency. Local agencies would provide the remaining funds. Federal funding for non-project levee work in the Delta would continue to be limited.

Funding for initial response to flood emergencies is currently provided by local resources. Once local resources have been exhausted, the state provides assistance and funding. If the governor declares an emergency and requests emergency assistance, federally funded emergency assistance is provided.

**Option 2** -- Modify current cost-sharing to allow for Federal Cost Share. The levee program would obtain long-term federal and state funding authority and develop cost-sharing scenarios between state, federal, and other interests building upon the existing programs. The primary difference would be a shift in cost-sharing to the federal government and reduction by the local and state agencies. In addition, the Levee Program would seek to resolve problems in current funding strategies and identify mechanisms that best secure long-term funding.

- Proposed cost-sharing for the levee maintenance program (Base Level Component) would be 65% federal, 25% state, and 10% local for construction to PL 84-99. Local agencies can contribute land, easements, rights of way, relocations and disposal costs (LERRDs), which would be credited toward their 10% share. Planning costs would be cost shared at 50% federal, 25% state, and 25% local. Funding for maintenance would be provided 100% by the local

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agencies up to \$1,000 per mile of levee improvement. Costs above \$1,000 per mile of levee improvement would be cost shared 65% federal, 25% state, and 10% local, and would be considered re-construction.

- Funding for the Special Improvements Projects element of the Levee Program would be cost shared at 65% federal and 35% state. The state would seek a local cost-sharing partner. As in the Base Level Protection element, local agencies would contribute LERRDS. Planning costs would be cost shared at 50% federal and 50% state. Funding for maintenance would be provided 100% by the local agencies up to \$1,000 per mile of improved levee.
- Funding for the Subsidence Control element of the Levee Program would be cost shared at 65% federal, 25% state, and 10% local.
- Funds for the Emergency Management and Response element would be provided 100% by local interests for initial response. After local resources have been exhausted, secondary response funds would be cost shared at 50% federal and 50% state. After the established state funds are exhausted, funding would be 100% federal. First-year start-up costs to establish a \$10 million Emergency Response Fund would be cost shared at 50% federal and 50% state. After the Emergency Response Fund is exhausted, the Federal Government would provide funds through the Corps. Local agencies would contribute any necessary LERRDS.
- Funds for the Risk Assessment element would be covered under Special Improvement Projects funding.

**Option 3 -- Benefits based approach.** This option could include a possible increase in the local agency cost share, and a cost share from water users that are not currently contributing under the existing model. For example, water users and exporters who benefit from the increased water supply reliability provided by the levees could pay a user fee toward levee maintenance. In this case, levees could be viewed as part of the "conveyance structure" and payment for their maintenance provided similarly to the application of the minimum operations, maintenance, power, and replacement costs (OMP&R) Component of the Transportation charge to the State Water Contractors for maintenance of California Aqueduct reaches.

The percentage public contribution toward the Special Improvement Projects element should remain proportionally higher than that for the Base Level Protection element because of the Special Improvement Projects' focus on public benefits. However, the Special Projects element could be modified to include a water user cost share for the same reasons described above.

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## Issues/Questions

- *Should a local district's ability-to-pay be considered when deciding their portion of the cost share for levee work?* Many local agencies cannot afford their share of costs under the current cost-sharing arrangements for levee work, nor presumably the additional financial burden of proposed levee upgrades to the PL84-99 standard. Consideration of ability-to pay in this context does not refer to existing Federal law and rules for flood control projects.
- *Should water exporters contribute toward Delta levee protection?*
- *Should the levee maintenance program continue to be locally implemented regardless of the funding paying for the activity?* Concern has been raised that if USACE funds are secured for the levee maintenance program, the USACE would require that the levee maintenance work be performed by the USACE as is the current USACE policy.
- *How and/or should the "polluter pays" philosophy be worked into Levee Program funding?* An example would be requiring boater fees or instituting a "speeding permit" because boat wakes increase levee erosion.
- *Should public funding for levee subventions be provided through reimbursements to local agencies or as an up-front cost share?* Under the existing state levee programs, local agencies have financed projects in anticipation of reimbursements. The reimbursement process can be time-consuming and involve uncertainty because of the state appropriations process. The uncertainty and time lag from work performance to reimbursement can pose financial difficulties for local agencies.

### 5.4.4 CALFED Water Use Efficiency Program

#### Program Description

The purpose of the Water Use Efficiency (WUE) Program is to provide assurances to agencies, stakeholders, and the general public that water is used efficiently within the CALFED solution area. The Program is based on the recognition that implementation of efficiency measures occurs mostly at the local and regional level. The role of CALFED agencies in water use efficiency would be to offer support and incentives through expanded programs to provide planning, technical, and financial assistance. CALFED agencies would also support institutional arrangements that give local water suppliers an opportunity to demonstrate that cost-effective efficiency measures are being implemented.

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## Program Benefits/Beneficiaries

Some potential water use efficiency benefits may not be cost-effective locally, but may be so regionally or from a statewide perspective. For one thing, water may be more valuable to an entity outside the immediate local area and that entity may be willing to fund the efficiency improvement in exchange for transferring the conserved water. Second, water efficiency improvements that also increase water quality could have benefits to a larger group of water users in the region. Finally, where the water saved through water use efficiency measures results in increased water being dedicated to in-stream or Delta uses on a permanent basis, there may be a public benefit. In these latter situations, CALFED planning and cost share support may be particularly effective.

Benefits of the WUE Program would include:

- **Increased Water Supply Reliability** -- Reducing irrecoverable losses by reducing losses currently unavailable for reuse (because they flow to a salt sink or an inaccessible or degraded aquifer, or are lost to the atmosphere)
- **Improved Water Quality** -- Increases in irrigation efficiency can reduce the amount of tailwater that drains from a farm field. Efficiency actions also may change tailwater quality. This may improve in-stream water quality by reducing the return flow of salts, sediments, organic carbon, selenium, or other substances.
- **Contribution to Ecosystem Restoration** -- Increased emphasis on efficiency measures would improve water quality from reduced discharge of unwanted constituents, timing, and in-stream flows, provided the improved in-stream flows are administratively and legally protected, e.g., by Section 1707 of the California Water Code, supplemented by other protections.

The beneficiaries of the WUE Program would include:

- **Agricultural water users** would benefit from more efficient use of water through conservation practices. These may be reflected by reduced costs of production, increased crop yields, or both, leading to increased net farm income.
- **Municipal and industrial water users** would benefit from increased water supply reliability (through reduced irrecoverable losses) and improved water quality (from reduced discharge of unwanted constituents in agricultural and municipal return flows.)
- **Users of Delta exports** would benefit from increased water supply reliability (through reduced irrecoverable losses) and improved water quality (from reduced discharge of unwanted constituents in agricultural and municipal return flows.)

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- **The public** would benefit from ecosystem restoration in those cases where the increase in water use efficiency results in reduced discharge of unwanted constituents or increased flows to improve water quality in the Delta. The public also benefits from increased in-stream flows, where the dedication of such increased flows is administratively and legally protected.

**Estimating Benefits and Cost Allocation.** Provided that the end users of water are designated in any water use efficiency proposal, the costs could be allocated based on end-use (e.g., M&I, agricultural, or ecosystem use). This would make it unnecessary to estimate the benefits of use as a step toward cost allocation. If necessary, the benefits could be estimated in the same manner as they are for storage and conveyance.

### **Existing Water Use Efficiency Programs**

Current state and federal programs and laws have provided funding, primarily in the form of loans and grants, to assist local agencies with implementation of water conservation or water recycling projects.

### **State Programs and Funding**

The Office of Water Recycling in the State Water Resources Control Board (SWRCB) provides grants and loans for water recycling projects. The SWRCB, through the State Revolving Fund (SRF), also provides loans of up to \$50 million per agency per year with a 20-year payback period and an interest rate of one-half of the interest rate currently used for state general obligation bonds, which result in an effective local agency cost share of about 80%. These loans are for construction of wastewater treatment, wastewater recycling, and non-point source pollution prevention projects. The SWRCB also provides Wastewater Recycling Loans and Small Community Grants.

The Department of Water Resources' (DWR) Water Conservation, Groundwater Recharge, New Local Water Supply and Local Projects Program provides financial assistance to local agencies constructing water management infrastructure projects. DWR administers four bond laws under which some funding is available for water conservation and recycling: the Clean Water Bond Law of 1984 (Proposition 25); the Water Conservation and Water Quality Bond Law of 1986 (Proposition 44); the Water Conservation Bond Law of 1988 (Proposition 82); and the Safe, Clean, Reliable Water Supply Act (Proposition 204). Collectively, these acts provide funding for loan and grant programs to assist local agencies with construction of voluntary, cost-effective, capital outlay water conservation and groundwater recharge facilities projects, and in the development of new local water supply projects. The bond laws provide for:

- Capital Outlay Loans of up to \$5 million per eligible project to public agencies for cost-effective, capital outlay projects. The maximum repayment period for loans is 20 years (Propositions 44, 82, and 204) and 25 years (Proposition 25).

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- Feasibility study loans up to \$100,000 per project for water conservation and groundwater recharge and up to \$500,000 for new local water supply are also available.
  - Local project feasibility study grants of up to \$500,000 each to public agencies in selected counties, as well as land acquisition loans of up to \$1,000,000.

### **Federal Programs and Funding**

The Bureau of Reclamation is authorized under the Reclamation Wastewater and Groundwater Studies and Facilities Act (Title XVI of Public Law 102-575) to provide grants for specified water recycling projects. In 1992, Title XVI authorized the Bureau of Reclamation to participate in the design and construction of water reuse projects in five specific geographic areas, four of which are in California (San Diego, San Gabriel, Los Angeles, and San Jose) and one in Arizona. As of December 1996, all four of the California projects had received federal grant funding, and no construction money had been provided for the Arizona project. Federal contributions can be up to 25% of the total costs. In 1995, the Bureau of Reclamation adopted a self-imposed \$35 million annual cap for funding the projects authorized under Title XVI. In 1996, Title XVI was amended by the Reclamation Recycling and Water Conservation Act of 1996 (P.L. 104-266), which authorized another 16 recycling projects and 2 desalinization projects. PL 104-266 also established a maximum \$20 million cap per project for federal contributions, maintained the 25% maximum federal cost share, and requires a cost share agreement before federal funds can be appropriated for a project.

**Other Programs/Actions.** Although not a program of federal funding directly to water districts, federal and state actions to facilitate and administer voluntary market transfers of water have been another source of improvements in water use efficiency. For example, starting in 1988, the Metropolitan Water District of Southern California agreed to fund a number of water efficiency improvements in the Imperial Irrigation District in exchange for the conserved water.

**Private Programs and Funding.** The California Water Reuse Finance Authority, a Joint Powers Agency (JPA), provides low interest loans to its members through its California Water Reuse Variable Rate Borrowing Program, for water and wastewater capital projects ranging from \$1 million to \$100 million. Applications for loans are reviewed by the Program Administrator, who together with the Program bond counsel prepare loan documentation. Once the loan is approved by the bond insurer and the JPA, the applicant adopts an ordinance prepared by the bond counsel and joins the JPA. Following the enactment of the ordinance, funds can be made available for the project. Approximately \$200 million was made available for loans in 1998. Interest rates on variable rate bonds are reset every seven days and have averaged 3.582% since 1990.

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## Proposed Finance Options

Applying a benefits based approach to water use-efficiency (WUE) financing, the costs of a WUE program would be allocated to the beneficiaries who benefit from the cost savings or the use of the conserved water. This would need to be determined for each loan or grant provided under the program.

Where the benefits accrue to agricultural and municipal water suppliers, the options below provide either financial incentives in the form of loans or grants. The effective local cost share would depend upon the financial terms of the loans or grants (see options, below).

All of the options described below incorporate the concept that if a WUE measure provides public ecosystem benefits and is not locally or regionally cost effective, it would qualify for public funds. If a portion of the conserved water is dedicated to in-stream or Delta uses over the long term and is administratively and legally protected for those uses, then the costs of that portion can be allocated to the public because of the ecosystem benefits. For the WUE measures that provide ecosystem benefits, CALFED proposes to provide grants to finance that portion of water use efficiency measures that are not cost effective at the local or regional level, if certain criteria are met.

### Cost Share Options

In all cases, CALFED proposes to fund the technical assistance program with public funds because of the limited cost of the program and the demonstration value and broad societal benefits of such a program. Providing technical assistance creates an incentive to develop innovative techniques for water use efficiency that may be too costly at the local level, but can be made cost-effective with the help of public funding. The primary difference between the following options for financial assistance programs is the level of local cost-sharing required.

**Option 1 -- Market Rate Loans & Grants.** State and federal funding -- provide loans at market rates for locally cost effective projects and provide grants for projects (or portions of projects) that meet the criteria for public benefits.

**Option 2 -- Low Interest Loans & Grants.** Continue programs with levels of effective local cost-sharing similar to current state and federal programs. With state and federal funding, provide low interest loans for water conservation projects. Provide grants for projects (or portions of projects) that meet the criteria for public benefits.

**Option 3 --** Same as Option 2, but emphasize the ranking of proposals based on their percentage of effective local cost shares and the percentage of water dedicated to public purposes.

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**Option 4 -- Public Funding.** Fund the CALFED actions mostly with public funds, offering primarily grants and obtaining cost-sharing when feasible.

### Issues/Questions

- *Should grants or low interest loans be offered for local projects that are locally cost effective?* Current federal and state programs provide grants and low-interest loans for water conservation projects, such as the SWRCB's State Revolving Fund and DWR's various loan and grant programs, discussed earlier. If a measure is cost effective for a local agency, 100 percent of the program benefits in many cases can be attributed to the local agency and therefore there is an argument that the local agency should pay 100 percent of the program cost. However, there may be reasons (new technology, demonstration benefits) that support the use of public funding through grants or low interest loans for some locally cost effective WUE measures.
- *If grants instead of loans are provided for WUE projects that are not locally cost effective but have broad public benefits -- how would the determination of public benefits be made and by whom?* The agricultural element of CALFED's WUE Program has proposed that the Agricultural Water Management Council (AWMC) make the initial determination for what is or is not cost effective at the local level. Technical review and oversight would be provided by CALFED staff to ensure that public funding is appropriately awarded. A stakeholder review process would be developed to provide further review and refinement. A Request for Proposal (RFP) process would be used to select programs for funding and would help provide a framework for analysis and review.
- *What program benefits justify a grant and how can assurances be provided that the benefits would occur? For example, should grants for WUE measures be awarded only if the measures increase in-stream flows?* For example, when the water is for environmental purposes, grants should be dependent on the appropriate administrative and legal protection of the flows to ensure the water is left for its intended environmental use and not diverted downstream. Are current protections in California water law (e.g., Section 1707) adequate for this purpose? Are there additional changes that have been recommended by water users or others that CALFED should be endorsing? For example, improving provisions for in-stream flows is one of the actions in the Water Transfer Program. The Program would be developing methodology for monitoring in-stream transfers and associated tracking measures and also evaluating whether additional statutory or regulatory protection of water transfers for in-stream purposes is necessary. At this time, in some locations, the methods and equipment are not in place for tracking whether or not water conserved water for in-stream use is kept in the stream for environmental uses.

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- *Under what circumstances would public funding be awarded for actions that are locally cost effective?* Public funding may be provided to support locally cost effective actions if the actions are considered critical to achieving efficient water use as part of Stage 1 Assurances or for catalyzing other vital local programs. For example, if an efficiency action (e.g. drip irrigation) met the following criteria:
    - locally cost effective
    - considered vital to Stage 1 assurance and 404 compliance
    - was not being sufficiently adopted

Then public funding may be employed to catalyze adoption. In most cases, this type of support for locally cost effective actions would be limited to loans or technical assistance, but could include grant funding in rare cases.

## 5.4.5 CALFED Water Transfer Program

### Program Description

The CALFED Water Transfer Program proposes a framework of actions, policies, and processes that, collectively, would facilitate water transfers and the further development of a properly regulated state-wide water transfer market. Because water transfers can affect third parties (those not directly involved in the transaction) and local groundwater, environmental, or other resource conditions, the framework also includes mechanisms to provide protection from such impacts.

### Program Benefits/Beneficiaries

Water transfers are institutional mechanisms to move water from one use to another. Therefore, they can benefit various water uses - agricultural, municipal and industrial, and environmental. While transfers may or may not include efficiency improvements, they can provide incentives for more efficient use of water and potentially could produce revenue to be used for investing in such improvements.

Benefits of water transfers include:

- **Increased Water Supply Reliability** -- By helping to relieve the mismatch between water supply and demand by moving water available in one area to satisfy a need in another area. Water supply reliability is also increased by providing a short-term method to move existing supplies from one location to another while other facilities are being constructed (new conveyance, surface storage, or conjunctive use), during temporary reductions in water supply due to outages of conveyance facilities, or until other technologies or land use policies offer other alternatives (such as desalination).

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- **Improved Water Quality** -- Water quality benefits can result from actions taken to make water available for transfer (reducing agricultural return flows and reducing urban wastewater flows--although, in some cases, degradation of water quality can also occur).
  - **Improvements to the Ecosystem** -- By providing water for in-stream flow augmentation and by providing a mechanism to move water assets into and out of a proposed Environmental Water Account (EWA).

Beneficiaries of water transfers:

The primary purpose of the Water Transfer Program is to facilitate the development of a water transfer market which benefits buyers and sellers and protects environmental values and the public interest. More specifically, beneficiaries of the Water Transfer Program can be described as follows:

- **Agricultural, M&I, or environmental users who purchase water** would benefit from increased water supplies and increased water supply reliability;
- **Water users who willingly sell water** and who invest the proceeds in local water conservation or water management would benefit from lower costs and/or increased productivity (most water will be purchased from existing agricultural users, but some may also be from M&I users);
- **All agricultural and M&I water suppliers and users** would benefit from environmental water transfers because, as environmental conditions improve, regulatory conditions on water diversions should relax;
- **The public** would benefit from water transfers between consumptive uses that, to some extent, offset or defer the need for new facilities or other potentially environmentally degrading water supply sources, or sources that would be built at public expense. Benefit would also be derived from legally protected environmental transfers (i.e., under Water Code Section 1707) intended to augment instream flows above regulatory baseline conditions resulting in improved environmental conditions.

**Estimating Benefits and Cost Allocation.** The Water Transfer Program is primarily focused on improving institutional mechanisms, which is not amenable to traditional benefits analysis. It is clear, however, that existing water districts (as buyers and sellers), would benefit when appropriate transfers can be approved more easily. Other transfers would be for public purposes, such as those from the Ecosystem Restoration Program. Costs of the Water Transfer Program could be allocated between public and private uses based on the expected quantities of water

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devoted to public transfers, as opposed to private transfers. Since this may not be known in advance, one option might be to simply include a portion of the administrative cost of this program in an application fee for water transfers.

### **Existing Water Transfer Programs**

The Water Transfer Program proposes a framework to facilitate the further development of the water transfer water market in California, while protecting water rights and area of origin priorities and providing safeguards against source area environmental and economic impacts. Generally, the water transfer element relies on the existing legal and regulatory framework of water rights and jurisdictional authorities and does not recommend any major changes to California water law or the water rights system. Currently, agencies which have jurisdictional authorities to administer transfers (USBR, DWR, SWRCB) use a combination of application fees and public funds included in their budgets to administer and facilitate transfers.

### **Program Funding Options**

Water transfers are water management tools that help provide numerous water resource benefits to many beneficiaries -- from agricultural users and urban communities to the environment in the form of in-stream flows. Streamlining processes for approving water transfers, as well as overcoming other institutional issues, would benefit these same groups.

Since most of the actions in the Water Transfer Program involve policy and procedural changes, the costs would likely be absorbed into existing agencies' budgets (USBR, DWR, and SWRCB)

within the first few years. The newly established Clearinghouse, however, may be an exception. Several funding options for long-term funding, such as the Clearinghouse, are possible.

**Option 1** -- Buyers or Sellers pay. Impose a surcharge on future transfers to cover the long term costs of the Water Transfer Program, such as the expense of Clearinghouse operations and administration. This fee should be applicable to transfers for in-stream purposes as well. The advantage to this approach is that the beneficiaries of transfers pay for them. The disadvantage to this approach is the possibility that if the Clearinghouse funding is dependent on transfers, it might create an incentive for the Clearinghouse to promote all transfers just to keep revenue coming in to cover costs.

**Option 2** -- Combination of Public funds and Transfer Surcharge. Impose a fee on future transfers to cover at least some of the long term costs of this program. Existing federal and state transfers have a fee to cover a portion of administrative costs, so the CALFED Program costs could be incorporated into such a fee. On the basis that some transfers (those to legally and administratively protected in-stream uses) would benefit the general

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public, some percentage of the costs of the program could be publicly provided. This is the same approach that existing agencies with jurisdictional authorities to administer transfers currently use.

**Option 3** -- Use all public funding. On the basis that streamlining the water transfer process is of general benefit to the public, that at least some transfers would be for ecosystem purposes, and that the costs of the program are relatively small with respect to other CALFED program elements, the costs of the program could be born 100% by the federal and state government. An advantage to this approach is that it is simple, and the costs of the program mostly fall within existing agency budgets. New costs for the CALFED Water Transfer Program that are not included in other budgets occur in the first few years, when it may be difficult to create and assess a new surcharge in time to cover costs. One concern is that buyers in a market could be publicly subsidized even in cases where transfers do not have broad public benefits.

Note that regardless of which option is chosen, the principal costs of specific water transfers (water, application process, legal, and engineering costs) would be paid for by buyers and sellers in the transaction. The Water Transfer Program goal is to encourage the water transfer market, but financing specific transfers falls outside the scope of the program.

## **5.4.6 CALFED Water Quality Program**

### **Program Description**

The purpose of the CALFED Water Quality Program is to improve the quality of the waters of the Sacramento-San Joaquin Delta estuary for all beneficial uses (including municipal and industrial water use, agricultural water use, recreation, and aquatic habitat). Because species dependent on the Delta and its tributaries are affected by upstream water quality conditions in some areas, the scope of the Water Quality Program also includes watershed actions to reduce water quality impacts on these species, as well as impacts on municipal, industrial, and agricultural uses.

Section 303(d) of the federal Clean Water Act (CWA) requires states to identify water bodies with impaired quality with respect to supporting beneficial uses. This process has resulted in a number of water bodies in the Bay-Delta estuary and its tributaries being listed as impaired. Therefore, an important component of correcting the overall problems of the Delta estuary is undertaking actions to effectively reduce the toxicity of aquatic habitats and reduce constituents, such as salinity, that affect the usability of Delta water supplies.

Early implementation actions for the Water Quality Program have been identified. Most of the work in these first two years (Stage 1a-- Fiscal Years 2000 and 2001) focuses on pesticides such as diazinon and chlorpyrifos, mercury source control, drinking water improvements (Total

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Organic Carbon (TOC) and Bromide), on-farm selenium control management practices, and investigations and control of low Dissolved Oxygen. In the long-term, the Water Quality Program would address water quality concerns related to low dissolved oxygen concentrations, source drinking water quality, mercury, pesticides, organochlorine pesticides, salinity, selenium, trace metals, and turbidity and sedimentation.

### **Program Benefits/Beneficiaries**

The benefits of the Water Quality Program include:

- **Increased Water Supply Reliability** -- Reduction of salinity and other contaminants increases reuse opportunities which lessens the demand on fresh water.
- **Improvements to the Ecosystem** -- Reduced toxicity to phytoplankton, zooplankton, benthic invertebrate organisms, and fish communities that inhabit the Delta.
- **Public Health** -- Increased safety of drinking water supplies, such as reduced pathogens in drinking water exported from the Delta, reductions in disinfection byproduct concentrations related to Bromide and TOC, and reduced levels of mercury contamination of fish.
- **Enhanced Recreational Use** -- Reduction of disease-causing organisms and increased aesthetic values by reduction in nuisance algae blooms.

The beneficiaries of the Water Quality Program include:

- **The Public** -- The public would benefit from ecosystem improvements and increased aesthetic values, such as a reduction in nuisance algae blooms.
- **Municipal and Industrial Water Users** -- M&I users would benefit from increased water supply reliability through increased reuse opportunities, reduced cost of pretreatment and accretion of mineral deposits in piping, cooling, heating, and other industrial equipment, and the public health benefits of better water quality.
- **Agricultural Water Users** -- Agricultural users would benefit from reduced salinity which would lessen toxicity in plants, as well as the possibility for promoting more efficient water use by enabling multiple stages of tailwater recycling.

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**Estimating Benefits and Cost Allocation.** At this time, CALFED has not quantified or measured benefits received by the beneficiaries. However this information can be obtained to some degree of detail and used to further develop a more detailed benefits based finance option. For example:

1. For M&I use, the benefits would be the cost savings in treatment costs, as well as health costs. The first step in assessing the relative magnitude of these benefits would be to use existing studies indicative of these cost savings.
2. For agricultural use, the benefits would be increased productivity and greater potential for re-use. The first step in assessing the relative magnitude of these benefits would be to review existing studies indicative of these benefits.
3. The relative magnitude of the public benefits of water quality (over and above meeting required standards) would be much more difficult to measure. Some of the benefits could be increased recreational benefits.

### **Existing Water Quality Programs and Funding**

The State Water Resources Control Board (SWRCB) offers low interest loans and grants to solve water quality problems associated with discharges from non-point source dischargers and for estuary enhancement. California's State Revolving Fund (SRF) loans, the Non-point Source Implementation Grants (CWA 319(h) grants), the Water Quality Planning Grants (CWA 205(j) grants), and the Wetlands Program Development Grants (CWA 104(b)(3)) are all loan and grant programs offered through the SWRCB that help fund water quality actions.

CWA Section 319(h) grants are available to states, Territories, and Indian Tribes. These grants support a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific non-point source implementation projects. A 40% project cost share (in the form of dollars or in-kind services not supported by federal programs) is required to qualify for a 319(h) grant, and no more than 10% of funding may be used for administrative expenses. The federal grant per project ranges from \$25,000 to \$350,000. Since the local funds (or in-kind services) are required concurrently with federal funds, the effective local cost share is 40%.

CWA Section 205(j) grants fund water quality planning projects that reduce, eliminate, or prevent water pollution and enhance water quality. In order to qualify, projects should address one or more significant water quality problems, and priority is given to projects which target specific watersheds identified by the Regional Water Quality Control Boards. The federal grant may fund up to 75% of project costs, and the remaining 25% must come from a non-federal match (dollars or in-kind services not supported by federal programs). The federal grant per

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project ranges from \$25,000 to \$125,000. Some \$134,650 was available for Delta Tributary Watersheds in 1998 through the Central Valley Regional Water Quality Control Board (CVRWQCB).

CWA Section 104 (b)(3) wetlands grants provide financial assistance to states, federally recognized Indian Tribes, and local governments to support wetlands development or augmentation and enhancement of existing programs. The federal grant per project generally ranges from \$25,000 to \$500,000. Approximately \$750,000 is expected to be available to California in federal fiscal year 2000. A minimum 25% non-federal match of the total cost of the project is required.

The State Revolving Fund (SRF) offers low interest loans to address water quality problems associated with discharges from non-point source (NPS) dischargers and for estuary enhancement. Over \$300 million is available from the SRF for California in Fiscal Year 1999-2000. The interest rate on an SRF loan is 50% of the interest rate on the most recently sold general obligation bond. The maximum amortization period is 20 years. Loans may cover up to 100% of the cost of planning, design, and construction of NPS pollution control structures and 100% of NPS pollution control programs.

Proposition 204 made available \$80 million to the SRF and \$30 million to the Small Communities Grant Program, both administered through the SWRCB. Section 78613 of Proposition 204 states that the board may make grants to small communities for construction of eligible treatment works so that any combined federal and state grant does not exceed 97½ percent of the eligible cost of necessary studies, planning, design, and construction of the eligible project. The total amount of grants for any single project may not exceed \$3.5 million.

The Municipal Water Quality Investigations Program (MWQI) is managed in DWR's Water Quality Assessment Branch of the Division of Local Assistance. The MWQI budget is approximately \$1.8 million, which comes mainly from State Water Project funds. The MWQI Program studies current and potential contaminants in Delta water supplies, assists water supply agencies in planning, protecting, and improving drinking water sources and water supply facilities, and documents water quality under a variety of hydrologic conditions for studying water transfer alternatives, water quality standards, and predictive modeling capabilities.

### **Proposed Finance Options**

The CALFED water quality actions provide drinking water, agricultural, and ecosystem benefits. The types of actions proposed by the program generally can be categorized in two areas -- (a) research, studies, and monitoring, and (b) site specific implementation of water quality actions aimed at direct improvements to water quality. Possible financing options for these two categories of actions are described below.

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## Options for Research, Studies and Monitoring

**Option 1** -- Costs shared between public and a broad-based water user fee. All actions receive the same cost-sharing between the two funds--benefits and costs are not evaluated for each action, but it is assumed that overall the distribution between the funding reflects the overall benefits from the actions.

**Option 2** -- Funding is still from public and broad based water user fees, but individual actions are evaluated for their benefits and funding is assigned based on the benefits assessment.

## Options for Water Quality Improvement Actions

Some water quality programs that would measurably improve the quality of water diversions could benefit a small group of beneficiaries. Others could benefit a large group of Delta exporters. Other programs may be targeted to solve particular environmental problems related to species restoration. Therefore, it is important to broadly categorize water quality programs by groups of beneficiaries. Then, the relative magnitude of ecosystem vs. water diverter benefits would be assessed as the basis for recommending an allocation of costs.

**Polluter Pay Issue.** For some actions there might be one primary polluter or primary cause of the problem. In order to make appropriate resource use decisions in the future leading to a sustainable Delta system, polluters must consider the external costs of their actions, including their ongoing effect on the ecosystem. A beneficiaries pay principle should not preclude polluters from paying for actions that they would be required to perform by law in the absence of CALFED. Furthermore, a water quality action may reduce a pollutant that is harmful to the environment to a level below what is allowable by the EPA. Although the benefit of this action is the ecosystem and the beneficiary is mostly the public, this does not mean that the public should foot the bill. This would leave no incentive *not* to pollute, and be detrimental to the goals and objectives of the Water Quality Program. In summary, a polluter should pay at least for the portion of costs that would help them meet EPA standards and possibly more. Polluters also benefit from actively participating in the process of solving Delta problems. Furthermore, participation in cost-sharing provides an incentive for them to support solutions that are less costly to them.

For example, CALFED is proposing a partnership with the business community in the development of best management practices (BMPs) for diazinon and chlorpyrifos. The Urban Pesticide Committee (UPC) is already developing BMPs, and there is an opportunity here for funding from a private foundation, where the manufacturers of the chemicals might be interested in contributing funds to a solution that would educate users of their product and help solve the problem, while still allowing their products to stay on the market.

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The following basic options could be employed for Water Quality Improvement Actions:

**Option 1** -- Costs shared between public and direct beneficiary or polluter. The benefits/beneficiaries for each action would be identified and, as appropriate, cost share requested. Example actions include the urban pesticide education program with cost-sharing from pesticide manufacturers, and water quality improvements in Barker slough with cost-sharing from the North Bay water diverters. Cost-sharing could be in the form of a loan or with direct up-front financial contributions.

**Option 2** -- Same as 1, but costs shared between the public and appropriate groups of benefitting water users by using increments to SWP or CVP water rates.

### **Options for Cost-sharing for Planning**

**Option 1** -- Utilize existing federal or state cost-sharing policies for planning.

**Option 2** -- Fund with a combination of public funds and broad based water user fees.

**Option 3** -- Provide planning at public expense, up to the point of design.

### **Issues/Questions**

- *Should the CALFED Program use a broad-based Bay-Delta system diversion fee to cover water quality programs? Or would that spread the costs much more broadly than the benefits of many water quality programs? Would a fee based on discharges be more appropriate for the Water Quality Program?*
- *Should the CALFED Program expand the use of a broad-based fee based on water deliveries or diversions to cover just that portion of the costs of water quality programs judged to be appropriately allocated to ecosystem restoration?*
- *Would it be effective to include the cost of an appropriate share of the water quality programs (based on water user benefits) in SWP and CVP water rates, with the rate increments charged to appropriate groups of beneficiaries?*
- *Would the Water Quality Program be an appropriate opportunity to implement a user fee on pesticide application within the Central Valley? Or alternatively to place emphasis on public/private partnerships?*

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## 5.4.7 CALFED Watershed Program

### Program Description

The two main components of the Watershed Program are to provide assistance - both financial and technical - to local watershed programs and to aid in the coordination and integration of local watershed programs with the rest of the CALFED Program. The Watershed Program supports and encourages locally-led watershed activities that benefit the Bay-Delta system, recognizing that local watershed approaches may vary and that community involvement and support are essential. The Watershed Program strives to strengthen the partnerships and relationships between the public, local watershed organizations, and governments at all levels. Like the rest of the CALFED Bay-Delta Program, watershed activities included in the Watershed Program should ensure that adaptive management processes can be applied at multiple scales and across ownerships.

In summary, the draft Watershed Program includes the following elements:

- Support Local Watershed Activities -- Implement watershed restoration, maintenance, and conservation activities that support the goals and objectives of CALFED.
- Coordination and Assistance -- Facilitate and improve coordination and assistance between government agencies, other organizations, and local watershed groups.
- Watershed Monitoring and Assessment -- Facilitate monitoring efforts that are consistent with CMARP's protocols and support watershed activities to ensure that adaptive management processes can be applied.
- Education and Outreach -- Support resource conservation education at the local watershed level and provide baseline support to watershed programs.
- Watershed Processes and Relationships -- Identify the watershed functions and processes that are relevant to the CALFED goals and objectives, and provide examples of watershed activities that could improve these functions and processes.
- Integration with other program elements, especially the efforts of the Watershed Program with the actions implemented under the Ecosystem Restoration and Water Quality Programs.

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## Program Benefits/Beneficiaries

Benefits of the Watershed Program include:

- **Ecosystem Quality** -- Watershed activities that improve terrestrial and riparian habitat, increase or improve fisheries habitat and passage, restore wetlands, or restore the natural stream morphology affecting downstream flows or species may benefit ecosystem quality. Some examples include stream flow enhancements, sediment balance, geomorphic stabilization, fire management, and improved spawning habitat through water quality improvements.
- **Water Quality** -- Watershed activities may benefit water quality in the Bay-Delta system by helping to identify and manage non-point sources of pollution and identify and implement methods to control or treat contaminants. Actions within the watershed which reduce the pollutant loads in streams, lakes, or reservoirs could measurably improve downstream water quality.
- **Water Supply Reliability** -- As land use activities within a watershed intensify, the ability of that watershed to slow runoff and allow water to infiltrate into the ground and percolate into aquifers tends to decrease. A result of this modified condition can be increased surface runoff and higher peak flows during storms and lower base flows during the dry season. This condition can make flood management more difficult, reduce opportunities to capture runoff in downstream reservoirs, and decrease groundwater recharge. Activities designed to restore or enhance the ability of watersheds to naturally absorb, store, and release water can reduce peak flows during storms, extend stream base flows through the dry season, and increase the potential for groundwater recharge.
- **Levee and Channel Integrity** -- In some cases attenuation of flood flows coming from the upper watershed may provide benefits far downstream in the system. Delta levees are most vulnerable during high winter flows; watershed activities which reduce these flows can help maintain the integrity of the levees.

Beneficiaries of the Watershed Program include:

- **The Public** would benefit from ecosystem restoration (habitat, water quality, natural hydrograph), and from proposed monitoring within the watersheds of the greater Bay-Delta system.
- **Delta Farmers** may benefit from reduced flood risk and increased water supply reliability.

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- **Users of Delta exports** (water diverters) may benefit from increased water supply reliability and improved water quality.
  - **Local Communities** -- The Watershed Program is based at the local level. Local communities include land owners, governments, municipal and industrial water users, businesses and others interested in the health and productivity of their watershed.

-- **Local land owners and local governments** may benefit from reduced fire risk, drinking water improvements, increased water supply reliability, and expanded recreational opportunities.

-- **Local municipal and industrial water users** (local water districts) may benefit from improved water quality and increased water supply reliability.

-- **Local business** -- One way businesses may benefit from the Watershed Program is through fire and fuel load management actions. As fuel loads through various vegetation management practices are reduced, businesses may profit from increased timber production opportunities made possible by fuel load management programs.

**Estimating Benefits and Cost Allocation.** The Watershed Program contains many features designed to strengthen communication, cooperation, and collaboration between all who have a stake in watershed management. Such activities, by themselves, are not amenable to economic benefit analysis and formal cost allocation. Where activities generate specific benefits to local business or benefit water quality, the costs can be allocated to the benefitting parties. Alternatively, where the benefits of the Watershed Program parallel those of other CALFED program elements (such as water use efficiency and water quality), the benefits could be estimated and the costs allocated in the same way as for those program elements (see discussion of options below).

### **Existing Watershed Programs and Funding**

There are many existing programs at the national, state, and local level which use a watershed approach. There are several federal programs with watershed protection goals, several of which are spending money within the CALFED area. Most of the federal programs provide federal funds on a cost-sharing basis. Many of these programs provide a cost share in the range of 75%. Some of these federal programs have dollar limits either on individual projects or the amounts provided to or the amounts provided to a project sponsor, grantee or landowner.

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## Federal Programs and Funding

The Federal Agriculture Improvement & Reform Act of 1996 (the Farm Bill) created and expanded federal watershed programs to address high priority environmental protection goals. The Farm Bill authorized more than \$2.2 billion in additional funding for conservation programs, extended the Wetland Reserve Program, and created new initiatives to improve natural resources on America's private lands, such as creation of the Environmental Quality Incentives Program (EQIP).

The EQIP was established through the Farm Bill, and offers financial, educational, and technical help for farmers and ranchers who face serious threats to soil, water, and related natural resources. The Natural Resources Conservation Service (NRCS) is the lead agency for EQIP, and works with the Farm Service Agency (FSA) to set the program's policies, priorities, and guidelines. EQIP was funded nationally at \$130 million in fiscal year 1996 and \$200 million annually thereafter. Livestock-related conservation practices receive half of program funding, with the remainder going to other significant conservation priorities. In fiscal year 1998, approximately \$2.75 million was funded within the geographic scope of the CALFED Bay-Delta Program. Higher priority is given to areas where state or local governments offer financial or technical assistance, or where agricultural improvements help meet water quality objectives. Cost-sharing provisions pay up to 75% of the costs of conservation practices for technical assistance, and limits total cost-share and incentive payments to any person to \$10,000 annually and to \$50,000 for the life of the contract.

The Wetland Reserve Program (through NRCS) helps landowners work toward a goal of no net loss of wetlands. Acres of wetlands on private lands are enrolled in the program through easements. The WRP has an enrollment cap of 975,000 acres. The WRP requires that one-third of total program acres be enrolled in permanent easements, one-third in 30-year easements, and one-third in restoration only cost-share agreements. Individuals may choose the category for their eligible land. The WRP provides landowners with 75% to 100% cost-sharing for permanent easements, 50% to 75% for 30-year easements, and 50% to 75% for restoration cost-share agreements. Cost-sharing would help pay for restoration. Approximately \$12.5 million from this program was spent within the geographic scope of the CALFED Program in fiscal year 1998.

Other federal programs include: CWA Section 205(j) and CWA 319(h) [discussed in more detail in the Water Quality section of this chapter], CWA Section 320 - National Estuary Program (EPA), Clean Water Action Plan (EPA/NRCS/Forest Service/BLM), CVPIA and Partners for Wildlife (US Fish & Wildlife Service), State and Private Forestry Program (USFS), Forest Service and BLM Watershed Management Programs, and the Resource Conservation and Development Program (NRCS).

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## State Programs

California Department of Parks and Recreation (DPR) offers grants to cities, counties, and districts through the Habitat Conservation Fund Program (HCF). Grants are awarded for acquisition, restoration, and enhancement of wildlife habitat and significant natural areas, such as wetlands. Annually \$2 million is available, with no more than \$500,000 awarded per project. Grants require a 50% non-state share of costs. Grants for development may be matched by monetary or in-kind services.

California Department of Forestry and Fire Protection's (CDF) California Forest Improvement Plan (CFIP) offers technical and financial assistance to local governments and private owners for practices that will improve the long-term quality of forested lands in terms of timber productivity, retention of soil cover, and value for wildlife. The program was established by the California Forest Improvement Act of 1978 and is available statewide. Under CFIP, a landowner works with a registered professional forester to develop a forest land management plan. The CDF typically reimburses the landowner up to 75% for the cost of preparing the management plan and for management practices, though it may go as high as 90% under certain circumstances. The landowner's contribution to the project cost can be in the form of labor, materials, or direct outlay. The annual maximum reimbursement amount is \$30,000.

Some of the other state and local programs available for watershed activities include: Prop 204 funds, Fire Safe Program, Vegetation Management Program, and Timber Harvest Effects Monitoring Program (CDF), DWR's Urban Stream Restoration Program and Local Assistance Program, Clean Water Act State Revolving Fund (EPA/SWRCB), and the Safe Drinking Water State Revolving Fund (EPA/SWRCB) (SRF loans are described in the Water Quality Program section of this report).

## Proposed Finance Options

The actions and primary benefits proposed by the Watershed Program support the following CALFED resource areas--water quality, ecosystem restoration, water supply reliability, and possibly levee improvements. Financing for these actions should therefore be consistent with the financing ultimately proposed for the other program elements addressing these resources areas.

The majority of watershed actions provide water quality and ecosystem benefits, therefore the finance strategy for the Watershed Program should be consistent with the strategy for the ERP and the Water Quality Program. For example, if the finance strategy for ERP is a combination of funding from the public and from a broad-based user charge, then that would also be the appropriate approach for those watershed actions that have ecosystem benefits. Similarly if in the Water Quality Program, actions where specific beneficiaries or polluters can be identified would require cost-sharing from them, this also should be the approach adopted by the Watershed Program.

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One financing concern in the Watershed Program is how to help support local community participation and organization initially, but encourage self-sufficiency for program management and administration. One possibility would be to use mostly public funds for community development actions in the first 18 months to 2 years of implementation and gradually transition to requiring greater levels of local funding, combined with funds from outside beneficiaries where applicable. During this initial period, efforts would be made to train local community-based watershed groups to administer project funds, write grants, etc. By the end of Stage 1, the objective would be to have many successful self-administered, self-sufficient local watershed programs.

As discussed above, financing for CALFED's Watershed Program should be consistent with the financing ultimately proposed for the CALFED program elements addressing the same resource areas. Some general options can be proposed based on the program's proposed actions and existing sources of funds.

**Option 1** -- Use a combination of public funds and local cost-sharing based on current established cost shares in existing program elements. This option could be used if most of the funding for CALFED's Watershed Program is administered through existing federal and state watershed program elements.

**Option 2** -- Fund the Watershed Program consistent with other CALFED Program financing proposals for cases in which funding is administered by CALFED. Use Option 1 when the Watershed Program is dependent on existing agencies/program elements to implement actions.

**Option 3** -- Fund the Watershed Program consistent with other CALFED related program elements (i.e., Water Quality, ERP, Water Supply, etc.). If necessary, seek legislation to change cost-sharing, where applicable, to be consistent with other related CALFED program elements.

### Issues/Questions

- *Should a portion of the Watershed Program be supported by user fees, based on benefits received?* As discussed in the Ecosystem Program and Water Quality Program, a broad-based diversion fee may be appropriate and, if so, that fee could be extended to the Watershed Program to support actions providing ecosystem and water quality benefits. In addition, targeted fees may be appropriate for certain beneficiaries of the program.
- *Should local communities be asked to contribute an increasing share of community organization and planning costs as these activities as these program elements continue over the life of the CALFED Program?*

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## 5.4.8 CALFED Ecosystem Restoration Program

### Program Description

The Ecosystem Restoration Program (ERP) is the principal mechanism that CALFED will use to restore the health of the Bay-Delta System. The ERP emphasizes the restoration of ecological processes in order to create and maintain the diverse and vital habitats of the multiple plant and animal species in the Bay-Delta system. To do so, the ERP identifies over 700 programmatic restoration actions, including restoring, protecting and managing diverse habitat types representative of the system; restoring critical flows; improving Delta outflow during key springtime periods; developing prevention and control program elements for invasive species; and modifying or eliminating fish passage barriers.

### Program Benefits/Beneficiaries

Benefits of the Ecosystem Program include:

- **Improved Ecosystem Health.** The objective of the ERP is to improve the ecosystem health of the Bay-Delta system. The ERP focuses on improving terrestrial and aquatic habitats and ecological functions to support sustainable populations of plant and animal species in the Bay-Delta System. Actions under the ERP will also reduce the negative biological and economical impacts of established non-native species.
- **Improved Water Supply Reliability.** A primary conflict in the Bay-Delta system has been between fisheries and water diversions. As the ecosystem health improves and fish populations recover or are stabilized, the conflicts will diminish and water supplies will be more reliable.
- **Improved Water and Sediment Quality.** Actions under the ERP to improve water and sediment quality will prevent toxic impacts to organisms in the system.
- **Flood Control Benefits.** Some ecosystem restoration actions (e.g., setback levees) will provide non-structural flood control benefits.

Beneficiaries of the Ecosystem Program include:

- **The Public.** There are broad public benefits for maintaining and restoring ecosystem health, habitats, and plant and animal populations.
- **Water Diverters.** As fish populations recover, in-delta diverters and upstream diverters could benefit by diversion restrictions being lessened. Diverters also could benefit from improved fish screens and ladders which reduce fish mortality

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and allow for more reliable diversions, and from the lessening of non-native species impacts which can also affect diversions.

- **Commercial Fisherman.** As fish population increases, the restrictions on harvest limits could be reduced allowing for increased fishing and increased profits.
- **Recreationists.** Recreationists (such as hunters, sport fishing, bird watching) will benefit from improved ecosystem conditions.
- **Regional landowners** would benefit from non-structural flood control for lands, infrastructure, and ecosystem habitat susceptible to flooding.

**Estimating Benefits and Cost Allocation.** Much of the Ecosystem Restoration Program would result in broad public benefits. Benefits to water users could be measured by the reduced frequency of disruptions or reductions in supply owing to the ERP actions. The benefits to commercial fishing and recreation would need to be estimated based on water quality and other modeling.

#### **Existing Program elements and Funding**

For the most part, ecosystem restoration program elements and actions have been publically funded by state and federal funds. Numerous state bond acts and annual state and federal budget appropriations have provided funding for habitat acquisition and restoration, for ecosystem monitoring and research, and for managing ecosystem projects and program elements. Under the CVPIA, water users fees also contribute significant funding annually to ecosystem restoration in the Central Valley. Private and nonprofit foundations and organizations have also provided environmental funding, but to a lesser degree than public and water user funding. The following section provides a summary of the more recent ecosystem funding related to the CALFED Program.

The Restoration Fund under the CVPIA provides approximately \$45 million a year, at least \$30 million of which is going toward actions that are consistent with achieving CALFED goals and objectives. For example, many actions under the CVPIA's Anadromous Fish Restoration Program are consistent with ERP actions. Several ecosystem recovery measures authorized under the CVPIA (Section 3406(b)) have specific cost-sharing provisions--such as the Shasta Temperature Control Device and mitigation of the fishery impacts of the Tracy Pumping Plant, have cost shares of 37.5% federal, 37.5% CVP water users, and 25% state. Other measures split the costs evenly between the state and federal governments or between water users and the federal government.

The 1994 Bay-Delta Accord, "*Principles for Agreement on Bay-Delta Standards*" contained a funding commitment (Category III) for non-flow related ecosystem restoration measures. Water users provided approximately \$32 million in contributions between 1996 and 1998 in support of

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activities consistent with CALFED objectives and priorities. Additional state and federal funding is being provided through Proposition 204 (state funds) and the Bay-Delta Environmental Enhancement and Water Security Act (federal funds) described below.

In 1996, with the passage of Proposition 204 (The Safe, Clean, Reliable Water Supply Act), \$60 million became available immediately in support of Category III ecosystem actions related to CALFED objectives. An additional \$390 million will become available at the time of a final decision on a Preferred Program Alternative. These funds may only be expended once the EIR/EIS is certified by the state lead agency, filed by the federal lead agency, and the state and federal governments have entered into a cost-sharing agreement for eligible projects.

In November 1996, the President signed the California Bay-Delta Environmental Enhancement and Water Security Act, which authorized \$430 million in federal funding for Bay-Delta ecosystem restoration activities. A total of \$160 million has been appropriated in the last two years (1998 and 1999) in Bay-Delta Act funds to address high priority actions that can be undertaken, consistent with CEQA regulations, prior to completion of the Programmatic EIS/EIR. High priority actions include fish screening and passage, habitat acquisition and restoration, exotic species management, and monitoring of ecosystem health. In FY 2000, \$95 million is proposed for ecosystem restoration and other CALFED program elements.

Other federal sources of funds include the recent Water Resources Development Acts (WRDA) and the Omnibus Parks and Public Land Management Act. The National Wildlife Refuge System Improvement Act has provided funds to Agencies such as FWS to enhance and protect the nation's wildlife refuges. The 1996 Farm Bill, described more fully in the section on Watershed financing, provides several program elements for private land enhancement. Starting with the WRDA of 1986 (Section 1135), project modifications for "improvement to the environment" were recognized. The WRDA of 1990 (section 304) made this program ongoing, set an annual appropriations limit of \$15 million (with no more \$5 million to be spent on any one project). Projects do not have to be linked to an existing Corp project to qualify. Non-federal interests are required to provide between 25% and 35% of the construction costs (including lands, easements, rights of way, and relocations) and 100% of operation and maintenance costs, but at least 5% financing is required.

### **Proposed Finance Options**

As described in the previous section, there are public funds currently available or expected to become available at the time of the ROD. Following the ROD, \$390 million of Prop. 204 funds becomes available. Also, an additional \$270 million under the Federal Bay-Delta Act may still be appropriated and a portion of the \$30 million from the CVP Restoration Fund may support CALFED actions while also meeting the CVPIA objectives. These funds could cover much of the ecosystem costs expected in Stage 1.

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**Option 1** -- Combine a broad-based diversion fee and public funding. Adopting a fee, in connection with using other funding sources, would allow program flexibility with multiple funding sources.

**Option 2** -- Rely on existing funding sources and consider a broad-based user fee in the future only as needed. Sufficient funding from existing sources (public and the CVPIA Restoration fund) is available for several years and possibly through Stage 1 for the ERP. However, existing funding sources are limited in their uses. For example, bond funds cannot be used for ongoing land management costs (See Table 5.3). However, relying solely on existing sources with user fees collected only from CVP water and power users raises additional concerns about the fairness and consistency of user fee funding.

**Option 3** -- Variation of Option 1 and 2. Impose additional cost-sharing requirements on those diverters receiving funding for fish screens and ladders to reflect the water user benefits received from increased water supply reliability.

#### **Policy Issues/Questions**

- *Should the ERP be supported in part from a broad-based Bay-Delta diversion fee?*
- *If so, should a diversion fee be adopted in the early years of Stage 1 to balance the contributions from state and federal water users and provide for program flexibility by having a variety of funds to draw from - or should existing public funding be expended/used before a diversion fee is initiated?*

Also see the issues listed in Section 5.6 regarding a broad-based diversion fee.

### **5.4.9 Comprehensive Monitoring, Assessment, and Research Program**

#### **Program Description**

The purpose of a comprehensive monitoring, assessment, and research program is to provide those new facts and scientific interpretations necessary to implement and evaluate the success of the CALFED Program. Monitoring involves measuring and sampling physical, chemical and biological attributes of the resources and can include social and economic attributes of associated human activities. Assessment involves developing correlations among monitored data. Research involves analysis or experiments to establish mechanisms that explain observed correlations, such as documenting fish distributions and mortalities for different flows. The information generated from monitoring, assessment, and research provides managers with the understanding needed to design actions and to detect responses to their actions. The principal monitoring

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objectives include documenting conditions; recognizing trends; assessing causes of observed changes; partnering with agency/ecosystem management for adaptive management; and reducing scientific uncertainties.

### **Program Benefits/Beneficiaries**

The CALFED Comprehensive Monitoring, Assessment, and Research Program (CMARP) would serve all aspects of the CALFED Program and therefore would provide benefits for ecosystem, water quality, levee protection, water use efficiency, and water supply reliability. The CMARP would describe the baseline conditions against which the Program can measure its progress, would provide monitoring data and information needed to evaluate the implementation of the Program, and would assess the success of meeting the Program objectives -- all of which is critical to the decisions that will need to be made by the CALFED managers through the adaptive management process.

For certain monitoring, research and assessment actions, benefits can be narrowed and therefore beneficiaries could be more specifically identified; for example, monitoring related to mortality impacts related to diversion in Delta and drinking water quality monitoring in the Delta. Generally, the beneficiaries of the CMARP would fall into one or more of the following categories.

- **The Public** -- There are broad public benefits from a Bay-Delta system-wide monitoring, assessment, and research program. For those CALFED program elements in which the beneficiaries are the general public (such as Ecosystem Restoration, and portions of the Watershed, Water Use Efficiency and Water Quality Program), monitoring assessment and research for those program elements would have the same beneficiaries.
- **Agricultural Water Users** -- Agricultural water users that benefit from water use efficiency, water supply reliability, and ecosystem improvement would also be beneficiaries of the CMARP.
- **Municipal and Industrial Water Users** -- M&I water users that benefit from increased water supply reliability and improved drinking water quality would be beneficiaries of the CMARP.

**Estimating Benefits and Cost Allocation.** Monitoring, assessment, and research are essential to the CALFED mission and also serve to integrate the Program. However, it is often very difficult to assess the benefits of information, taken by itself. At least some of the costs of CMARP can be regarded as essential to running a successful water delivery system and allocated to water users, as is done currently. Other costs related to ecosystem monitoring could be regarded either as a component of the cost of water deliveries or as a public cost.

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## Existing Programs and Funding

**Central Valley Project Improvement Act (CVPIA).** The Anadromous Fish Restoration Program (AFRP) of the CVPIA includes a Comprehensive Assessment and Monitoring Program (CAMP). Although CAMP is much smaller in scope and more focused in its goals, it is of a similar nature to the CALFED Program in terms of monitoring and assessment needs. Unlike CALFED, there is no research component to the CAMP. The cost-sharing provisions for CAMP are 37.5% CVP users (through the CVPIA Restoration Fund), 37.5% federal and 25% state. Approximately \$2.5 million is provided each year.

**Interagency Ecological Program (IEP).** The IEP is a cooperative effort among ten member agencies (3 state agencies, 6 federal agencies, and SFEI). The members work together to develop a better understanding of the estuary's ecology and the effects of the SWP and CVP operations on the physical, chemical and biological conditions of the estuary. The IEP is funded through each of the ten member agencies' budgets. In 1998-99 the total funding committed to IEP purposes was approximately \$14 million. Approximately 40 percent of the annual funding over the last ten years has been provided by DWR and USBR.

**The San Francisco Estuary Institute (SFEI).** The mission of the SFEI is to foster development of the scientific understanding needed to protect and enhance the San Francisco estuary through research, monitoring and communication. SFEI is governed by a Board of Directors whose members are selected so as to assure a balance of environmental, business and user groups, regulatory and management and scientific interests. Entities currently represented on the Board are the Santa Clara Valley Water District; Western States Petroleum Association; University of California, Berkeley; BayKeeper; Port of Oakland; U.S. Geological Survey; CALFED; and Marin County Audubon Society. There is also a panel of Scientific Advisors that serves the Board of Directors. A large portion of SFEI funding (for the Regional Monitoring Program) is provided by dischargers to the San Francisco Bay, as required by the San Francisco Regional Water Quality Control Board (SFRWCB). Funds are also available from grants.

**Other Monitoring Program elements.** Individual agencies provide monitoring and assessment related to specific objectives and program elements. For example, the Municipal Water Quality Investigations Program (MWQI) managed by DWR, provides monitoring to evaluate the quality of Delta water related to drinking water. The MWQI is funded by municipal SWP contractors.

## Proposed Finance Options

Monitoring, research, and assessment will be costly for a very large and complex system like the Bay-Delta and Central Valley in which there is a lot of uncertainty. Possible funding options include:

**Option 1 --** Continue and extend current approach -- Use a combination of funding from water users, public funding, and discharger fees. To the extent feasible, beneficiaries of

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the monitoring and assessment actions would be identified and funding from those beneficiaries used for those actions--such as urban water users and dischargers for drinking water quality, public funding and water user funds for ecological program elements waters, water user funding for hydrological and water management actions.

**Option 2** -- Variation of Option 1-- Use a preset percent cost share between water user funding and public funding for CMARP. The program has benefits for all aspects of the CALFED Program and allocating costs to separate beneficiaries could limit the funding for the program as a whole.

#### Issues/Questions

- *How should the costs of CALFED monitoring, assessment, and research be shared between public and water user funding?*
- *Is it appropriate to use a broad-based Bay-Delta system diversion fee to help fund CMARP, based on the broad benefits that water diverters receive from the program? If so, should water user contributions continue to be provided through existing sources--SWP Funds and CVPIA Restoration Fund?*
- *Should dischargers in the Bay-Delta System (in addition to dischargers in the SFRWQCB region) be required to fund portions of CMARP?*

## 5.5 Funding Sources and Finance Mechanisms

One of the concerns for the Program is obtaining sufficient revenues for the CALFED program elements, while remaining committed to the principles of ongoing monitoring and oversight and adaptive management. Stakeholder involvement and commitment to the program depends upon assurances that each CALFED program element would be funded at the appropriate time and level and that water quality and ecosystem standards can be met in such a way as to achieve the long-term stability of water deliveries.

Water resources program elements in California have utilized a variety of different financing mechanisms, many of which CALFED has relied on to date and expects to utilize in the future. These include federal and state appropriations, state general obligation bonds, state water and power revenue bonds (tied to water repayments in the State Water Project), private financing, and broad-based Bay-Delta system diversion fees (such as the Mitigation and Restoration payments imposed by the CVPIA). In the Financing Plan section of the December 1998 Revised Phase II Report, CALFED indicated that it would evaluate the need for user fees within the context of other funding sources. Accordingly, this section of the chapter compares various funding sources and their advantages and disadvantages. These are summarized in Table 5.3.

**TABLE 5.3  
Potential CALFED Funding Sources  
Advantages and Disadvantages**

Option	Advantages	Disadvantages
General obligation bonds	<ul style="list-style-type: none"> <li>--Can achieve substantial up-front funding, but distribute the financial burden over time.</li> <li>--Focuses stakeholders and the public on next Program phase.</li> </ul>	<ul style="list-style-type: none"> <li>--Can be limited to physical infrastructure and facilities</li> <li>--Requires legislative and voter approval.</li> <li>--Would require repeated approval over 30-year period.</li> <li>--Cannot be used for ongoing costs such as land management costs, monitoring and assessment.</li> </ul>
Water and power revenue bonds	<ul style="list-style-type: none"> <li>--Can provide immediate sources of funding if linked to revenue-generating facilities.</li> <li>--Less burden on state budgets than general obligation bonds. Does not require voter or legislative approval.</li> <li>--Linking beneficiaries to program elements in SWP rates is consistent with beneficiary pay.</li> </ul>	<ul style="list-style-type: none"> <li>--Can be limited to physical infrastructure and facilities.</li> <li>--Works well for private benefits (water deliveries and power), but hasn't been used to cover program elements with broad public benefits.</li> </ul>
State appropriations	<ul style="list-style-type: none"> <li>--Provides immediate sources of funding.</li> <li>--Focuses stakeholders and the public on next Program phase.</li> <li>--Allows annual legislative review.</li> </ul>	<ul style="list-style-type: none"> <li>--A more direct financial burden than bonds.</li> <li>--Competition with other state program elements.</li> <li>--Requires annual approval which reduces assurances of long term funding.</li> <li>--Would require repeated approval over 30-year period.</li> </ul>
Federal appropriations	<ul style="list-style-type: none"> <li>--Provides immediate sources of funding.</li> <li>--Focuses high-level state and federal attention on the Program.</li> <li>--Allows annual Congressional review.</li> </ul>	<ul style="list-style-type: none"> <li>--Competition with other federal priorities.</li> <li>--Requires annual approval which reduces assurances of long term funding..</li> <li>--Would require repeated approval over 30-year period.</li> </ul>
Private financing	<ul style="list-style-type: none"> <li>--Can be more immediate than funding from public sources.</li> <li>--Some contributions have been made to solve regional problems, as well as local problems.</li> </ul>	<ul style="list-style-type: none"> <li>--Is generally focused on local needs.</li> </ul>
Broad-based diversion fee	<ul style="list-style-type: none"> <li>--Dependable and ongoing source of revenues (may fit with program elements for ongoing funding needs).</li> <li>--Tied to diversion impacts on the Delta.</li> <li>--A broader-based fee would provide consistency and fairness with CVP users, who currently pay such fees.</li> <li>--Supported by stakeholder groups - Business Roundtable, etc.</li> </ul>	<ul style="list-style-type: none"> <li>--Since revenues come in annually, the funding available initially is less than with bonding or appropriations.</li> </ul>

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**General Obligation Bonds.** Although federal water resources program elements do not operate with bonding authority, bonds have been heavily relied upon by the State of California. State bonding authority requires approval by the California Legislature and the voters and is typically used only for funding capital infrastructure. As of 1993, state general obligation bonds have been used to finance some 28% of the capital costs of the SWP [O'Connor, 1994]. (Operation and maintenance of the project is funded principally by water contractor payments.) Proposition 204 will provide substantial funding to CALFED through general obligation bonds following completion of the Record of Decision. In some cases, the bonding authority provided by Proposition 204 for CALFED is directed to grant program elements, which do not require any specified effective local cost share from program beneficiaries. In other cases, the Proposition 204 monies are directed to low-interest loans, which impose less of a financial burden on the state (some level of effective local cost share is required). Over its 30-year Program, CALFED expects to seek additional financing from similar bond issues on a periodic, as-needed basis, and general obligation bonds would continue to be an important component in the overall mix of funding.

Bonding authority, such as that contained in Proposition 204, has several advantages. It can provide considerable funding amounts, especially in the initial years after the bonds are issued. Structuring a bonding package has positive side effects: it forces stakeholders to reach agreement on the next phase of the Program, and voter approval maintains visibility for the Program and public commitment to it. On the other hand, passage by voters is not guaranteed, and additional bond issues would require periodic, concerted efforts by all stakeholders to garner public support. General obligation bonds must compete with other state financial needs, and, where the funds are dedicated to program elements that do not require reimbursement or local cost-sharing, general obligation bonds can burden overall state budgets and financing. In addition, bonds generally cannot be used for ongoing annual expenses such as for long term management associated with habitat acquisition and restoration.

**Revenue Bonds and SWP Financing.** Future facilities contemplated by the CALFED Program could be constructed as components of the State Water Project. Currently, the principal sources for financing SWP water supply and conveyance facilities are water system revenue bonds and power revenue bonds [O'Connor, 1994]. The state legislature provided general authority for the issuance of revenue bonds in 1933. As a result, revenue bonds have the advantage that additional issues do not require authorization from the legislature. However, there must be assurances in the financial markets that future water and power revenues would be sufficient to cover payments to bondholders. Therefore, this financing mechanism is most useful for those program elements that have traditionally involved repayment by water and power users. Since they are backed by contractual repayments, bonds do not compete for general state revenues. Revenue bonds also have the advantages that they are consistent with the beneficiary pay principle and are an accepted source of financing for major SWP facilities. Furthermore, because the State Water Project has a rate structure in which districts pay only for those facilities benefitting them, this financing mechanism has the advantage of linking financial responsibility to specific groups of beneficiaries.

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State-issued revenue bonds would be an important source of funding for some segments of the CALFED program elements, particularly for program elements that are similar to those for which such bonds are currently used (major storage and conveyance facilities). Revenue bonds are not a component of federally funded water resource program elements.

**State Appropriations.** Another potential funding mechanism for CALFED is direct state appropriations from General Funds to finance particular CALFED actions. The advantages and disadvantages of this funding mechanism would be similar to funding through general obligation bonds. Although no direct voter approval would be required, state legislators would look for general public support. Structuring the required legislation would bring stakeholders together for the required support. Depending on the funding source, most annual financial burden on the appropriations are flexible as to their use--capital outlays, program support, and ongoing expense such as land management. Revenues would be available immediately for the next stage of the program elements financed in this way. The disadvantages of this funding mechanism are that it would compete directly with other state budget priorities and would place a direct burden on state financing. Unlike bonding, where repayments to bondholders are made gradually over time, the state treasury would be immediate. In addition, depending on annual appropriations is difficult for program elements dependent on multi-year funding, such as monitoring and research.

**Federal Appropriations.** Funding through appropriations at the federal level has similar advantages and disadvantages to appropriations at the state level. However, federal authorizations may face a higher level of competition. Confronted with financial demands from all sectors of the federal budget and with competing nationwide demands, there would be no guarantees that funding would be continued on an ongoing basis. Even where federal moneys have been authorized over a number of years, there is no guarantee that the authorized levels would be appropriated. This problem is compounded for the CALFED Program: since the program would last for some 30 years, funding needs would bridge several Administrations and many sessions of Congress. The federal government does not have a capital budget that can assure outlays over several years. Rather each year, Congress appropriates funds principally for the budget for that year. Nevertheless, because of the visibility and importance of the CALFED Program, CALFED expects that federal legislative support would be forthcoming over the life of the Program and anticipates it to be an important component in the mix of CALFED financing options.

Given federal budget limitations, it is generally easier to convince the Office of Management and Budget and Congress to appropriate federal funds in those cases where repayment in full, or at some other level of effective cost-sharing, would be made. However, even in cases where federal expenditures are expected to have a 100% effective cost share by non-federal entities (i.e., 100% repayment), funding is not guaranteed.

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**Private Financing.** Private financing would continue to be a part of solving water resources problems affecting the Bay-Delta area (here the term "private" is used to encompass funding by water agencies and districts). In addition, water districts would continue to make investments in local storage, conveyance, groundwater storage and pumping, water recycling, and other water efficiency improvements. In addition to these traditional activities of districts, some districts have made contributions to program elements with broad public benefits. More than \$30 million in contributions have been made to early ecosystem restoration actions related to CALFED.

**User fees, including a broad-based Bay-Delta system diversion fee.** The concept that beneficiaries should pay for the costs of program elements that benefit them is a principle of the CALFED Program. User payments are not new -- they have been a feature of both federal and state water resources program elements (e.g., the contractual repayments made for irrigation and municipal and industrial water, as well as charges for hydropower).

In a similar vein, the proposed finance options for several of the CALFED program elements (see Section IV for a discussion of each program element) include user fees that would be targeted to particular groups of beneficiaries. For example, charges designed to recover the costs of specific water quality improvements that would benefit only subsets of water users (such as all Delta exporters or exporters using the south Delta pumps) could be included with the SWP or CVP rates of only the benefitting water users.

CALFED and its stakeholders have discussed the use of a broad-based Bay-Delta system diversion fee, particularly to finance some of the program elements or program elements with broad-based public benefits, such as the Ecosystem Restoration Program. The basic concept is a fee that would apply to all diverters, or all major diverters, of water from tributaries that flow into the Delta, as well as exporters of Delta water.

Currently, only one group of water users - the CVP contractors - are subject to diversion fees for contemporary environmental restoration purposes, namely the fees imposed by the Central Valley Project Improvement Act of 1992. If such a fee were extended to other users, it would have the advantage of providing an ongoing and dependable source of revenues. Reciprocally, such a fee is less suited than bonds to finance large capital projects requiring up-front expenditures. Since such fees are imposed on CVP users, extending them to others would be perceived as consistent and fair. In developing such a fee, particular issues would be raised regarding how to structure the fee in such a way as to be accepted by water users and finding the means to implement it.

A broad-based "Bay-Delta user fee" to finance infrastructure needs that confer broad-based common-property or public-good benefits was proposed by the California Business Roundtable, the California Chamber of Commerce, the California Farm Bureau Federation, and the California Manufacturers Association in the report *Maintaining Momentum on California Water Issues: Business Leaders' Findings - Financing Options for Water-Related Infrastructure in California*.

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Their report displayed various options for such fees. The final section of this chapter explores how such a broad-based diversion fee could be structured and what revenues could be expected for fees similar to those established in the CVPIA.

In conclusion, the CALFED Program would need to rely on a variety of funding sources to provide for all the types of actions and program elements within CALFED.

## **5.6 Broad-based Bay-Delta System Diversion Fee**

One item of discussion in the CALFED Program has been the use of a broad-based Bay-Delta system diversion fee (diversion fee) to finance at least a portion of those program elements, or program elements, with broad public benefits, such as the Ecosystem Restoration Program and portions of the Watershed Management and Water Quality Program elements. Such a broad-based diversion fee can be distinguished from other user fees, targeted to particular groups of beneficiaries, and discussed under some of the options for funding individual program elements, above.

One rationale for such a fee is that impacts on the Delta are related to water use, whether the use be upstream of the Delta or by Delta exports. More generally, it is in the interest of all diverters of water from the Delta and its main tributaries to achieve security in the level of long-term water deliveries. Such security can be achieved only if environmental goals of the CALFED Program are met. Broad-based diversion fees are one way in which water users can contribute to the long-term stability and security of their water supplies.

### **CVPIA User Charges**

As of 1994, most users of Central Valley Project water and power began paying new user charges to assist in funding current environmental restoration purposes. Because these charges were imposed by federal legislation (the Central Valley Project Improvement Act of 1992 [CVPIA]), no similar fees were imposed concurrently on SWP contractors or on other major users that could be considered to impact the Delta. However, the imposition of similar fees was considered at the state level by the State Water Resources Control Board in its Draft Decision 1630. A discussion of the CVPIA user charges and the D1630 proposal follows.

One example of broad-based diversion charges designed to fund contemporary ecosystem needs are those imposed by the Central Valley Project Improvement Act of 1992. These charges, described more fully further on in this chapter, are levied on users of federally supplied CVP water and power (except the Exchange contractors and the water rights portion of the settlement contracts). The charges are collected in a Restoration Fund established by the Act and are used for environmental restoration purposes.

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Table 5.4 summarizes the amounts in the Restoration Fund collected from the various sources. Because this funding source is based on water delivered, the amounts collected vary from year to year, but there is a guarantee that moneys will be added to the Restoration Fund each year. Furthermore, there are two provisions in the Act that function to even-out the funds over the longer term: (a) payments from water users are supplemented by payments from hydropower to achieve a target level of \$30 million per year (indexed to \$35 million at current price levels), and (b) the target is set as a 3-year rolling average so that shortfalls in one year can be compensated by higher collections in the two years that follow (environmental restoration measures have also been supplemented by additional federal appropriations). Table 5.4 suggests that user charges levied on a broader base of water diverters from the Sacramento and San Joaquin River basins (such as State Water Project contractors and other water users) could lead to substantial revenues.

Under the CVPIA, contractors purchasing USBR-supplied irrigation water are required to pay up to \$6 per acre foot, over and above prior contract rates or the normal "cost-of-service rates" computed by the Bureau of Reclamation. Contractors purchasing municipal and industrial water are required to pay up to an additional \$12 per acre foot. A fee of \$25 per acre-foot is assessed on water sold or transferred to non-CVP contractors for municipal and industrial use. For ease of administration, these fees are imposed by the Act on contract deliveries (rather than consumptive use). All of these rates are based on 1992 price levels and subject to annual adjustment. For example, the agricultural and M&I surcharges will be \$6.98 and \$13.96, respectively, for 1999. These three fees (\$6, \$12, \$25), together with user fees assessed to hydropower users, are termed "mitigation and restoration payments" and, under the Act, cannot exceed \$30 million annually (indexed from 1992 price levels), set as a three-year rolling average [Section 3407(d)(2)]. In practice, the agricultural and M&I charges have been set each year at the maximum per-acre foot levels, and the payment assessed against hydropower users has been set to cover the residual amount.

An additional diversion fee established under the Act is assessed on CVPIA contractors in the Friant Division of the CVP (in the San Joaquin drainage), because they are not required to dedicate additional water to instream uses, as are other project contractors. The Friant charges, which are assessed in addition to the \$6 and \$12 fees described above, were set at \$4 per acre foot starting in 1993, with the rates increasing to \$7 per acre-foot after 1999 [Section 3406(c)(1)] but not subject to annual indexing. The Friant charges would be discontinued if a plan is implemented that requires water releases for environmental purposes from these contractors.

The total collections into the Restoration Fund, including the mitigation and restoration fees on water and power users, the fee on the Friant Division, the tiered rates described in the introduction, and certain other fees, cannot exceed \$50 million per year (indexed from 1992 price levels) [Section 3407(c)(2)]. To date, the collections from the sources other than the mitigation and restoration fees, have consisted primarily of Friant-Division surcharges (see Table 5.4).

**TABLE 5.4  
CVPIA Restoration Fund Revenues<sup>1</sup>**

	Restoration Payments				Friant Div. Surcharge	M&I Surcharge	Contri- butions	Total <sup>2</sup>
	Irrigation	M&I	Hydropower	Total				
1993	-	-	-	-	\$8,051,964	-	-	\$8,051,964
1994	\$10,352,625	\$2,867,240	\$5,472,398	\$18,692,263	\$2,288,281	-	-	\$20,980,544
1995	\$14,940,635	\$3,321,476	\$10,582,809	\$28,844,920	\$4,717,142	-	-	\$33,562,062
1996	\$25,472,420	\$4,372,886	\$8,328,838	\$38,174,144	\$8,117,936	\$1,073	\$531,875	\$46,825,028
1997	\$22,716,942	\$5,931,731	\$1,945,430	\$30,594,103	\$6,040,929	\$544	\$36,386	\$36,671,962
<b>Total</b>	<b>\$73,482,622</b>	<b>\$16,493,333</b>	<b>\$26,329,475</b>	<b>\$116,305,430</b>	<b>\$29,216,252</b>	<b>\$1,617</b>	<b>\$568,261</b>	<b>\$146,091,560</b>
<b>Percent</b>	50%	11%	18%	80%	20%	0%	0%	100%

Notes:

<sup>1</sup> Based on Annual Financial Reports for the Central Valley Project Improvement Act for the years 1993 through 1997, U.S. Bureau of Reclamation (Sacramento, CA). The information reported is from Schedules 1, 2, and 3.

<sup>2</sup> Total includes minor amounts from other CVPIA fee sources.

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Although the CVPIA was passed some two years before adoption of the Bay-Delta Accord and even though the basic purpose of the Act and the Restoration Fund is somewhat different than for CALFED (re-establishment of fisheries in the Sacramento and San Joaquin Rivers), many of the purposes and program elements support CALFED objectives. For FY 2000, the portion of the Restoration Fund budget estimated to support CALFED is \$30.7 million.

### **Proposed D1630 Fees**

In 1992, no charges similar to those in the CVPIA and designed to cover environmental restoration purposes were imposed on users of water from the State Water Project or other major users of water impacting the Delta, but such fees were proposed in Draft Decision 1630 (D1630) of the State Water Resources Control Board. However, there were some differences in the D1630 proposed fees. The D1630 fees first proposed were not differentiated by irrigation and M&I end-use, but rather by those using water within the basin of origin and those exporting water outside the basin of origin.

The D1630 fees, termed "mitigation fees," were to be assessed on all major surface water rights holders that were not subject to the federal CVPIA Restoration Fund fees. The proposed fees were to apply not only to SWP contractors, but also to other major diverters of water (defined as those with storage rights over 100,000 acre/feet or flow rights of greater than 100 cubic feet per second). D1630 contained a list of these entities, which included some 60 water rights holders in addition to the rights held by the major public storage projects (the SWP and the CVP). The D1630 fees were also to apply to those CVP water deliveries that were not assessed charges under the CVPIA, for example to the Sacramento water rights settlement contractors and those receiving water under the Delta-Mendota Exchange contract.

The upper limit of the fee was set at \$5 per acre-foot for water rights used in the basin of origin, \$5 per acre-foot for CVPIA water rights holders not subject to the CVPIA fees, and \$10 per acre-foot for water rights exported outside the basin of origin. Similar to the CVPIA, an annual target was set for the fees (\$60 million), with 5% to come from hydropower users. The monies collected were to be deposited in a Bay/Delta Estuary Project Mitigation Fund "to pay for activities and projects that would help mitigate the effects of water diversion and storage projects on survival of fisheries that live in or pass through the Bay/Delta Estuary."

Draft Decision 1630 proposed additional user fees to cover the costs of monitoring. These were to be based on the costs of monitoring and apportioned 75% to Delta exporters, 22.5% to in-basin users, and 2.5% to hydropower. Among the groups of water rights holders, the fees were to be shared proportionally.

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## Discussion of Options for Fees

Several different types of user fees have been discussed by CALFED agencies and stakeholders.

Major fees:

- a. **Fees on acre/feet delivered**, similar to current CVPIA fees.
- b. **Fees on water deliveries and hydropower**, similar to current CVPIA fees. To be more completely parallel to the CVPIA and the D1630 proposal, fees would be charged on hydropower users as well. The rationale would be that although hydropower use consumes little or no water, hydropower use can alter flow patterns and release times and can make water less available for environmental purposes when it is needed. In the case of the CVPIA, the total contributions by hydropower are intended to reflect the overall cost allocation to power.
- c. **Variations on the above**, for example setting different dollar amounts for the fees. Any of the fees discussed could be varied in the dollar amounts per acre-foot or in the overall target level (with the residual amount possibly being the responsibility of hydropower uses).
- d. **Variations that more closely parallel D1630**, which has higher fees for Delta exporters. Among the variations in fees would be variations that more closely track those of draft D1630, where a major differentiation is between in-basin and out-of-basin use.
- e. **\$1 per acre-foot or \$1 per person per year (for M&I uses), whichever is larger**. The rationale for this fee structure is that it would be closely tied to population and ability to pay, rather the direct impact of diversions.

Other specialized fees:

- f. **Broad-based Bay-Delta pollutant discharge fees**. Similar to a diversion fee, the concept would be to place fees on those that contribute to pollutant loading on the Delta. Such a fee, or system of fees, would be targeted to those pollutants that are most widely recognized as contributing to water quality concerns and ecosystem problems in the Delta.
- g. **Boating fees in the Delta**. The rationale for these fees would be that they are justified by impact that boat wakes have on levees. One variation of the concept would be to establish boating permit fees for high-speed boating and cruises that make a circuit through the Delta.

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## Options for Diversion Fees and Potential Revenues

In this draft, only (a), fees on acre-feet delivered, is discussed.

**Fees on Acre-feet Delivered, Similar to Current CVPIA Fees.** Table 5.5 contains very general estimates of the revenues that could be expected for similar fees assessed on different categories of water users at the current (1999) indexed levels of the CVPIA fees (\$7 for agriculture and \$14 for M&I use)

Water delivery and potential revenue amounts in Table 5.5 are intended to be somewhat conservative and to show a range of values. For example, the SWP deliveries do not include surplus and unscheduled deliveries. Also the period from 1986 through 1996, used in the table, contained a prolonged period of reduced deliveries (from 1986 to 1992). In concept, a broad-based diversion fee could be applied to all users having an impact on the Bay-Delta system, including at least some in-Delta agriculture and major historical diversions out of the basin, such as the City and County of San Francisco and the East Bay Municipal Utility District. This is the approach taken in the Business Roundtable Report and reflected in Table 5.5. The draft D1630 fees were to apply to approximately 60 of the largest water rights, but this included only a portion of the "major districts" included in Table 5.5. To show a reasonable range of values, Table 5.5 contains an estimate of average annual water use for "all other diverters" based on information from Bulletin 160-98. This estimate is intended to encompass all other water users whose diversions may impact the Delta and tributaries, including not only smaller districts but individual diverters. However, it may not be practical to levy a fee on all diverters in the system because of the high administrative costs of collecting a fee on small diverters, possibly making the fee not cost effective to collect. In summary, the estimated deliveries and potential revenues depends upon which water users are included in the fee assessment.

Of course, there are additional factors that could cause future average deliveries and revenues to differ from the historical values over the 12 year period from 1985 through 1996. In the case of SWP contractors, contractor entitlements have increased over that period. On the one hand, environmental restrictions may reduce future deliveries to some water users. On the other hand, new storage facilities or other measures may increase the level of future deliveries. Regardless of whether new storage is added, there is substantial uncertainty over the level of future water deliveries (due to differences in regulatory and modeling assumptions). Finally, the revenue estimates in the table do not take into account that the fees themselves could reduce the amount of water used, at least to some extent.

For these various reasons the values in the table should be considered estimates only: there could be higher deliveries and revenues for SWP, settlement contracts, and major districts in some years and lower values in other years.

**TABLE 5.5**  
**Broad-Based Bay-Delta System Diversion Fee**  
**Estimated Diversions and Potential Revenues**  
(excluding CVPIA Restoration Fund Revenues)

	Average annual deliveries 1985 - 1996 (million af/yr)			Potential annual revenues <sup>1</sup> (\$ millions)		
	Ag	M&I	Total	Ag @\$7/af	M&I @\$14/af	Total
State Water Project	0.9	1.1	2.1	\$6.5	\$15.9	\$22.4
SWP settlement contracts <sup>2,3</sup>	0.9	0.0	0.9	\$6.1	\$0.0	\$6.1
CVP exchange contract <sup>4</sup>	0.6	0.0	0.6	\$4.5	\$0.0	\$4.5
CVP settlement contracts <sup>2,5</sup>	1.4	0.0	1.4	\$9.5	\$0.5	\$9.9
All other diverters <sup>6</sup>	n/a	n/a	9.0	\$59.4	\$7.7	\$67.2
Major districts only <sup>7</sup>	2.8	0.6	3.3	\$19.3	\$7.7	\$27.0
<b>TOTALS</b>						
SWP & CVP (see above) and other major districts	6.5	1.7	8.3	\$45.8	\$24.1	\$69.9
SWP & CVP (see above) and all other diverters	12.3	1.7	14.0	\$85.9	\$24.1	\$110.0

Notes:

"n/a" denotes not available.

<sup>1</sup> Based on 1985 - 1996 deliveries.

<sup>2</sup> Settlement contracts provide project water to pre-project water rights holders at no cost.

<sup>3</sup> Diverters in the Feather River area.

<sup>4</sup> Includes those districts that exchanged portions of San Joaquin River water used for the Friant- Kern Division for a CVP water contract from the Delta-Mendota Canal.

<sup>5</sup> Includes Sacramento River, Delta-Mendota Canal, and San Joaquin River areas. Sacramento River deliveries tabulated include only the larger contracts. Includes all Delta-Mendota Canal and San Joaquin River deliveries.

<sup>6</sup> Information separating agricultural and M&I water uses in this category was not tabulated except for major districts. To estimate revenues, the remaining diversions were assumed to be agricultural and the \$7/AF rate applied. Values are based on DWR Bulletin 160-98 estimates for 1995-level applied water.

<sup>7</sup> Major districts include such districts as San Francisco, East Bay MUD, Turlock ID, Oakdale and South San Joaquin ID's, Merced ID, Modesto ID, Yuba County WA, and Nevada ID.

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Based on the annual revenues estimated in Table 5.5, Table 5.6 contains potential revenues from diversion fees over 7 years and over 30 years. These estimates are based on current price levels; i.e., there is no cost escalation built into the table since no cost escalation is assumed in the Stage 1 or Stage 1a cost estimates discussed in Section 5.7 of this appendix.

### **Discussion**

The next step in considering a broad-based Bay-Delta system diversion fee in the CALFED Program is to consider a range of such fees and fee levels in relation to the costs of selected CALFED purposes. This would allow CALFED and stakeholders to assess which program elements are most appropriate to finance through a broad-based diversion fee, as well as to consider which program elements (or portions of program elements) and their associated costs could be expected to be covered by different magnitudes and types of fees. Accordingly, Table 5.6 arrays potential revenues from one type of diversion fee (per acre-foot fees similar to those in the CVPIA) along with the costs of selected CALFED program elements. Only the costs of those program elements with greater percentages of broad public benefits are included. For each program element, the total costs are shown: no attempt has been made at this stage to separate out only the costs for those aspects of the Program with broader public benefits. Both the costs for the first two years and the average costs over the first seven years are shown.

**Principal Criteria.** There are three principal criteria that could be used to consider possible matches between these program elements and potential fees.

**(1) Broad-based diversion fees are appropriately targeted to funding those program elements with broader public benefits.** Although several program elements have some public benefits, the program with the greatest percentage of public benefits is the Ecosystem Restoration Program. Other program elements with elements that provide broad public benefits are (a) those water use-efficiency measures that result in additional protected instream flows, (b) those water quality improvements that have specific ecosystem benefits, and (c) several aspects of watershed management program elements.

For example, CALFED would require ongoing funding, regardless of the success of other elements of the Program, for the maintenance of a reserve for funding short-term leases of water to dedicate to in-stream flows or other environmental protection matters. For several reasons this would be an example of an action that would appear to match particularly well with funding based on a broad-based diversion fee. For one, the needs would be recurring and need a dependable source of revenues. Second, such a program needs to have a reserve account to be spent in times of emergency. Finally, the success of this program element would be particularly beneficial to water diverters, as it might prevent curtailment of diversions due to environmental restrictions.

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No consideration is being given to using new broad-based diversion fees for the construction of major new surface storage projects benefitting water and power contractors or to many other program elements where private cost-sharing has been the norm. For example, as discussed elsewhere in this chapter, construction for surface storage facilities has traditionally been funded through other means and is linked to contracts for water user payments. Those mechanisms can provide for a much more direct link between the benefits and costs of those program elements that could be provided by the kind of broad-based user charge being discussed here. Similarly, as regards the operation and maintenance of new storage facilities, institutions are already in place either to give program beneficiaries direct responsibility for operation and maintenance or for O&M expenditures to be covered by water rates. Therefore, broad-based diversion fees are not being considered to fund operation and maintenance where repayment by direct beneficiaries is the norm.

**(2) The magnitude of potential revenues must be considered in relation to program costs.** Depending on which fee levels are chosen and what group of water diverters a broad-based fee is levied on, some program elements (or combinations of program elements) could have costs that substantially exceed the potential diversion fees in Table 5.6. Further work would be required to see whether this would be true if only those costs associated with program elements with public benefits were displayed in the table. Of course, higher diversion fees could be proposed to cover a wider range of program elements and higher levels of program costs. But unless higher fee levels were also sought by amending the CVPIA, fee levels on SWP and non-project users higher than those applying to CVPIA contractors would again raise the issues of fairness and consistency - the very principles which the fees are designed in part to address. Also, the higher the fees, the greater the burden would be to analyze and consider the impacts on potential water use, as well as other economic impacts.

**(3) The matching of potential fees to program elements** would also need to take into account the time profile of funding needs in relation to that provided by different funding sources. For example, some program elements, such as improvements in Delta conveyance require a large-up front investment. Other program elements require sustained funding over time.

In conclusion, broad-based user fees as described in Table 5.6 (which includes a portion of CVPIA Restoration Fund revenue) would total up to somewhere near \$100 to \$140 million. Depending on what portions of the CALFED Program the fees would be needed for, the revenue shown from Table 5.6 may not cover both 100% of the future ERP and portions of other program elements. At a minimum, this focuses more attention on identifying which elements of program elements have the broadest public benefits and merit potential funding by a broad-based diversion fee.

**Crediting and Incentives for Payment of Diversion Fees.** The CALFED Program has established the principle that financial contributions would be credited toward the ultimate obligations for the CALFED program. An example of payments that may be credited toward CALFED obligations is the portion of CVPIA Restoration Fund payments that are related to

**TABLE 5.6**  
**Broad-Based Bay-Delta System Diversion Fee**  
**Potential Revenues in Relation to Selected Program Costs**  
(Including CVPIA Restoration Fund Revenues)  
(\$ in millions)

<b>A. Potential Revenues</b>	<b>Annual Revenues</b>	<b>Total over 7 years<sup>1</sup></b>	<b>Total over 30 years<sup>1</sup></b>	
Existing Restoration Fund revenues supporting CALFED objectives <sup>2</sup>	\$30.7	\$215	\$921	
<b>Additional Broad-Based Bay-Delta Diversion Fee<sup>3</sup></b>				
SWP, CVP, and other major diverters	\$69.9	\$489	\$2,096	
SWP, CVP, and all other diverters	\$110.0	\$770	\$3,300	
<b>Total<sup>2,3</sup></b>				
<b>Restoration Fund, SWP, CVP, and other major diverters</b>	<b>\$100.6</b>	<b>\$704</b>	<b>\$3,018</b>	
<b>Restoration Fund, SWP, CVP, and all other diverters</b>	<b>\$140.7</b>	<b>\$985</b>	<b>\$4,221</b>	
<b>B. Costs of Selected CALFED Program elements<sup>4</sup></b>	<b>FY 2000 costs</b>	<b>FY 2001 costs</b>	<b>Average Annual Stage 1 Costs</b>	<b>Total Stage 1 Costs (1* 7 years)</b>
Ecosystem Restoration Program	\$134	\$134	\$130	\$910
Watershed Program	\$30	\$30	\$30	\$210
Water Quality Program	\$17	\$21	\$36	\$250
<b>Notes:</b>				
<sup>1</sup> The total revenues over 7 years and 30 years are computed as 7 times and 30 times the annual revenues. They do not take into account cost escalation and are not discounted to present worth.				
<sup>2</sup> Includes the portion of CVPIA Restoration Funds estimated for FY 2000 that supports the CALFED Ecosystem Restoration Program objectives.				
<sup>3</sup> Information regarding the additional broad-based diversion fee is contained in Table 5.5. Includes SWP, SWP settlement contracts, and CVP exchange and settlement contracts.				
<sup>4</sup> The costs of selected CALFED program elements do not include operation and maintenance costs.				

CALFED objectives and made after the December 1994 signing of the Bay-Delta Accord. Crediting has already been approved for financial contributions made by the Metropolitan Water District of Southern California, Santa Clara Water District, East Bay Municipal Utility District, San Francisco PUC, Alameda County Water District, and Contra Costa Water District for early ecosystem actions. It has also been established that financial contributions would accrue interest. Although the precise rules governing these credits has not been established, the basic rule that interest credits would be given provides an incentive for early contributions.

Table 5.7 illustrates the value of hypothetical interest credits to date, using annual compounding and 100% of the CVPIA payments. [This table is for illustrative purposes only-- neither the actual historical amounts to be credited nor the interest rates for determining such credits have yet been determined]. As the totals in the table indicate, the total value with the interest credits would be about 13% greater than the total value without interest credits. Put in other terms, a similar per-acre-foot fee imposed on non CVP users would have to be 13% greater than the CVPIA charges to garner the same revenues per acre foot on an annual basis.

			<b>Hypothetical Interest Credits</b>	
	<b>Annual Revenues<sup>2</sup></b>	<b>Cumulative Revenues</b>	<b>Interest rate (6-month)<sup>3</sup></b>	<b>Cumulative Revenues With interest credits</b>
1995	\$33.6	\$33.6	5.59	\$35.4
1996	\$46.8	\$80.4	5.09	\$86.5
1997	\$36.7	\$117.1	5.18	\$129.5
1998 <sup>4</sup>	\$40.0	\$157.1	5.00	\$178.0
<b>Cumulative total Percent</b>		\$157.1 100%		\$178.0 113%

Notes:  
<sup>1</sup> Credits are computed after the December 1994 signing of the Bay-Delta Accord.  
<sup>2</sup> Detail for Restoration Fund annual revenues are shown in Table 5.4.  
<sup>3</sup> A value of \$40 million is assumed for 1998 in order to assess compound interest through the end of 1998.  
<sup>4</sup> Interest rates for 1995 through 1997 are from the Economic Report of the President, Table B-73. The rates used are 6-month borrowing rates.

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When the cumulative revenues from past and future charges are taken into account, the impacts of interest credits would be more substantial. For example, a new diversion fee assessed on irrigation water not covered by the CVPIA user fees and with the new fee starting in the year 2000 and extending to the year 2030 would have to be set more than \$2 per acre-foot higher than the parallel CVPIA fees to have the same financial value (on a present-worth basis). The increment required to achieve parity with CVPIA collections would increase for starting dates later than the year 2000. These examples illustrate that if the burden of environmental restoration is to be shared equally on a per acre-foot basis, then the sooner that broad-based user charges are imposed, the lower such charges would be.

### Issues and Options

Some of the issues relating to diversion fees and crediting are the following:

- *Should the Program employ a broad-based diversion fee applicable to users other than CVP water and power users?*
- *What groundwork should be laid for imposition of such a fee (e.g., working with the SWP, state legislature). SWP rates could be a means of setting such fees for SWP contractors. State legislation would be one means of setting fees for other water rights holders.*
- *Should the fee be structured in a similar nature to the existing CVPIA charges? If not, how would parity in payments be obtained and would the charges on non-CVPIA users be perceived as fair?*
- *What program elements should such a fee cover?*
- *If the likely revenues from such a fee would not cover the entire ERP or other program elements, should higher options for higher fee levels be examined and their impacts assessed?*
- *Facing the revenue limitations of a broad-based diversion fee, should more consideration be given to the various targeted fees discussed under the program options?*
- *What CALFED Program benefits are needed in order for water users to support a new fee on water diversion?*
- *What portion of past CVPIA charges should be credited to CALFED obligations?*

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## 5.7 Program Element Cost Estimates

CALFED has developed preliminary cost estimates for the Program for Stage 1 (first 7 years of Implementation). These costs are shown below in Table 5.8. Stage 1 costs are in current year dollars, and exclude interest, inflation, O&M, and individual state and federal agency costs. Also, the program management costs of CALFED (or other oversight coordination entity) are not included.

For the first two years of the Program, (Years 2000 and 2001, referred to as Stage 1a) CALFED has identified high priority actions and developed cost estimates. These cost estimates are based on a better understanding of proposed early implementation actions for the various CALFED program elements. Stage 1a cost estimates, organized by program element, are summarized in Table 5.9. A detailed list of the actions in Stage 1a, organized by bundle, is provided in Table 3.1 of this Appendix.

CALFED has adopted an adaptive management approach, which will allow the Program to be flexible. CALFED will be able to identify if proposed solutions are working, and choose future projects based on scientific information and monitoring. This makes developing cost estimates in future years difficult, however, so cost estimates for future years will change to some degree as CALFED adaptively manages the Program. Refining cost estimates will be an ongoing process, and better estimates will be developed for future years as information becomes available regarding specific actions and projects.

**TABLE 5.8**  
**Estimated CALFED Stage 1 Costs <sup>1</sup>**  
(\$ in millions)

Program Area	Total Cost
Ecosystem Restoration <sup>2</sup>	\$910
Water Use Efficiency/Recycling	\$2,000
Water Transfers <sup>3</sup>	\$6
Watershed Management	\$210
Water Quality	\$250
Levees	\$264
Storage <sup>4</sup>	\$370
Conveyance <sup>5</sup>	\$913
Monitoring <sup>6</sup>	\$246
<b>TOTAL</b>	<b>\$5,169</b>

Notes:

<sup>1</sup> Preliminary; current year dollars based on staff estimates. Total costs assume contributions from State, Federal, and User/Private funding.

<sup>2</sup> Total cost could be paid for by Prop. 204 (State), Federal Bay-Delta appropriation and CVPIA water and energy funds (Federal), and CVPIA Restoration Fund (User).

<sup>3</sup> No major capital investments are necessary for this program.

<sup>4</sup> Includes South of Delta groundwater and North of Delta groundwater (\$300 million), Integrated Storage Investigation and related planning and feasibility work (\$70 million).

<sup>5</sup> Includes South Delta Improvements (\$671 million), North Delta Improvements (\$220 million), conveyance studies (\$22 million).

<sup>6</sup> Assumes monitoring and assessment costs are 5% of total program costs.

**TABLE 5.9**  
**Estimated CALFED Stage 1a Costs <sup>1</sup>**  
(\$ in millions)

<b>Program Area</b>	<b>Year 2000</b>	<b>Year 2001</b>	<b>Total Cost</b>
Ecosystem Restoration	\$136	\$137	\$274
Water Use Efficiency/Recycling	\$50	\$100	\$150
Water Transfers <sup>2</sup>	\$2	\$2	\$4
Watershed Management	\$30	\$30	\$60
Water Quality	\$17	\$21	\$38
Levees	\$33	\$26	\$59
Storage	\$20	\$23	\$43
Conveyance	\$20	\$51	\$71
Monitoring <sup>3</sup>	\$15	\$19	\$34
<b>TOTAL</b>	<b>\$323</b>	<b>\$409</b>	<b>\$732</b>

Notes:

<sup>1</sup> Preliminary; current year dollars based on staff estimates. Costs derived from actions listed on Table 3.1 of this appendix.

<sup>2</sup> No major capital investments are necessary for this program.

<sup>3</sup> Assumes monitoring and assessment costs are 5% of total program costs.

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