
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. The Stage 1 actions are subject to revision, including modification, deletion, or addition of individual actions, based upon information developed during program implementation; available resources, including funding and personnel; and logistical considerations.

The outcome of and certain sites for Stage 1 decisions will not be known until additional information, including analysis of alternatives and 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 decision on the Programmatic EIS/EIR.

With extensive input from CALFED agencies and stakeholders, CALFED has begun work on developing a linked set of high priority Stage 1 actions that provide regional and programmatic balance, as described below. 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.

The State and federal fish and wildlife agencies charged with making the programmatic determinations for the CALFED Program pursuant to federal ESA, CESA, and the NCCPA will be describing program performance measures or milestones for the Ecosystem Restoration Program (ERP) and MSCS. The milestones will be derived from the ERP targets and programmatic actions and MSCS conservation measures. These milestones will be an integral component of the federal biological opinions and NCCPA authorization.

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. The level of flood protection to be provided by Suisun Marsh levees will be defined during Stage 1. 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 based on statewide benefits;*
- *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; and*
- *Development of a risk assessment and implementation of a 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).
4. Conduct project level environmental documentation and obtain appropriate permits for each action/group of actions (yr 1-7).
5. Implement demonstration projects for levee designs, construction techniques, sources of material, reuse of dredged 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 restoration projects into levee projects. Continue to develop techniques as major levee projects are implemented (yr 1-7).

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7. Fund levee improvements up to PL84-99 in first stage; e.g., proportionally distribute available funds to entities making application for cost sharing of Delta levee improvements (yr 1-7).
 8. Further improve levees which have significant statewide benefits in Stage 1; e.g., statewide benefits to water quality, highways, etc.(yr 1-7).
 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; e.g., establish a 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 (yr 1-7).
 11. Implement current Best Management Practices (BMPs) to correct subsidence effects on levees. Assist CALFED Science Program activities to quantify the effect and extent of inner-island subsidence and its linkages to all CALFED objectives (yr 1-7).
 12. Develop BMPs for the reuse of dredge materials (yr 1).
 13. Institute a program for using Bay and Delta dredge material to repair Delta levees and restore Delta habitat (yr 1-7).
 14. Complete total risk assessment for Delta levees and develop and begin implementation of risk management options as appropriate to mitigate potential consequences (yr 1-7).
 15. 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. Water quality actions are a combination of source protection and improvement measures, pilot facilities for treatment and control, operational measures using existing and new storage, research and studies, water exchanges, and conveyance improvements. The majority of the water quality actions rely on comprehensive monitoring, assessment, and research to improve understanding of effective water quality management and on the 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 (TOC) loading, salinity, nutrients, and pathogens that degrade drinking water quality, and reducing oxygen depleting substances and sediment loads that degrade ecological water and habitat quality. 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.

General Water Quality Actions

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).

Environmental Water Quality

4. Conduct the following mercury evaluation and abatement work:
 - Cache Creek*
 - Support risk appraisal and advisory for human health impacts of mercury (yr 1-5).
 - Support development and implementation of total maximum daily loads (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 1-5).
 - 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 1-5).
 - Participate in remedial activities (yr 3-5).
 - 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 1-7).
 - Determine potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level organisms (yr 1-5).
5. Conduct the following pesticide work:
 - Support development and implementation of a TMDL for diazinon (yr 1-7).
 - Support development of 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 of BMP implementation (yr 4-7).

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6. Conduct the following trace metals work:
 - Determine spatial and temporal extent of metal pollution (yr 3-7).
 - Determine ecological significance and extent of copper contamination (yr 2-4).
 - Review impacts of other metals such as cadmium, zinc, and chromium (yr 1).
 - Participate in Brake Pad Partnership (as a stakeholder) to reduce introduction of copper (yr 1-7).
 - Partner with municipalities on evaluation and implementation of storm water 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 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).
 - 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; e. g., recommendations of San Joaquin Valley Drainage Implementation Program, Central Valley Project Improvement Act (CVPIA) for retirement of lands with drainage problems that are not subject to correction in other ways; Central Valley Regional Water Quality Control Board (RWQCB) water quality actions (selenium TMDL); and Grasslands Bypass project (yr 1-7).
 8. Conduct the following sediment reduction work/organochlorine pesticides:
 - Participate in implementation of U. S. Department of Agriculture (USDA) sediment reduction program (Organochlorine pesticides are also reduced as they are tightly bound with sediment.) (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).
 - Coordinate with ERP on sediment needs (yr 1-3).
 9. Conduct the following work addressing dissolved oxygen (DO) and oxygen depleting substances (including nutrients):
 - Define 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).

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- Develop, implement, and support measures to reduce pollutant (oxygen depleting substances, nutrients, and ammonia) discharges from concentrated animal feeding operations (yr 1-7).
 - Support finalization of investigation of methods to reduce constituent that cause low DO for inclusion in the TMDL recommendation by the Central Valley RWQCB (yr 1-2).
 - Support finalization of Basin Plan Amendment and TMDL for constituents that cause low DO in the San Joaquin River (yr 2).
 - Support implementation of appropriate source and other controls as recommended in the TMDL (yr 3).
10. Conduct the following toxicity of unknown origin work:
- Participate in identifying toxicity of unknown origin and addressing as appropriate (yr 1-7).

Drinking Water Quality Actions

11. Actions specific to drinking water improvements:
- Work cooperatively with Bay Area water suppliers as they develop a Bay Area Blending/Exchange Project (yr 1-7).
 - Address drainage problems in the San Joaquin Valley to improve downstream water quality (yr 1-7+).
 - Implement source controls in the Delta and its tributaries (yr 1-7+).
 - Support the ongoing efforts of the Delta Drinking Water Council (yr 1-7+).
 - Facilitate water quality exchanges and similar programs to make high quality Sierra water in the eastern San Joaquin Valley available to urban Southern California interests (yr 1-7).
 - Invest in Treatment Technology Demonstrations (yr 1-7).
 - Control runoff into the California Aqueduct and other similar conveyances (yr 1-7+).
 - Address water quality problems at the North Bay Aqueduct (yr 1-7+).
 - Conduct comprehensive evaluations, pilot programs, and full scale actions to reduce TOC contribution through control of algae, aquatic weeds, agricultural runoff, and watershed improvements (yr 1-7).
 - Improve DO concentrations in the San Joaquin River near Stockton (yr 1-3).
 - Study recirculation of export water to reduce salinity and improve DO in the San Joaquin River. If feasible, and consistent with ERP goals and objectives, implement a pilot program (yr 1-4).

2.3 Ecosystem Restoration

The CALFED 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 MSCS, 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 stream flow, stream channels, watersheds, and flood plains. 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 review, 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. To ensure success, CALFED will be facilitating the development of a single blueprint or coordinated plan for environmental restoration throughout the CALFED focus area. The general priorities for restoration activities will be first on existing public lands as appropriate, second to work with landowners in volunteer efforts to achieve habitat goals 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 Stage 1 action (yr 1-7).
3. Full coordination and funding partnerships with other ongoing activities which address ecosystem restoration in the Bay-Delta system; e. g., CVPIA, Four Pumps Agreement, Non-native Invasive Species Task Force, etc. (yr 1-7).

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4. Implement habitat restoration in the San Francisco Bay, Sacramento-San Joaquin Delta, Suisun Bay and Marsh, and Yolo Bypass to improve ecological function and facilitate recovery of endangered species consistent with the goals of the ERP Strategic Plan and MSCS (yr 1-7). 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 1,200 to 2,300 acres of saline 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, restore 7,000 to 10,000 acres of seasonal wetlands, and establish 8,000 to 12,000 acres of wildlife friendly agricultural habitat. Focus early restoration on the Yolo Bypass, Mokelumne/Cosumnes, and San Joaquin habitat corridors. 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 making progress towards achieving the goals in the ERP and the MSCS. Consistent with the CALFED solution principle to reduce conflicts in the system and ERP Goal # 1, *At-Risk Species*, highest priority will be placed on actions that restore populations of at-risk species that most strongly affect the operations of the SWP/CVP diversions in the south Delta. The results of these actions will begin to inform the adaptive management process and will help guide 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 1-4).
 7. Pursue full implementation of ERP upstream flow targets through voluntary purchases of at least 100,000 acre-feet by the end of Stage 1. 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 the twelve uncertainties identified in the ERP Strategic Plan (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).

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10. Complete the remaining 60% of the easements and/or acquisition for the Sacramento River meander corridor identified under the SB 1086 Program (yr 1-7). 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.
 11. Acquire flood plain easements, consistent with ecosystem and flood control needs along the San Joaquin River in coordination with the Corps' 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 (yr 1-7). Most gravel work would be implemented in subsequent stages with designs and plans for ecosystem reclamation of gravel mining sites.
 14. Begin implementing the CALFED comprehensive non-native (exotic) invasive species prevention, control, and eradication plan including the following (yr 1-7):
 - 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; 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. (yr 1-7).
 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).
 18. Implement projects on selected streams to provide additional upstream fishery habitat by removing or modifying barriers, see also discussion of Fish Migration Barrier Removals in Section 2.7 - Storage (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 MSCS for which up-to-date plans are not available. Begin implementing appropriate additional restoration actions identified in these plans (yr 1-7).
 20. In coordination with South Delta Improvements (Conveyance), identify and advance specific regional ERP goals (yr 1-7).

2.4 Water Use Efficiency

The CALFED water use efficiency (WUE) element is designed to accelerate the implementation of cost-effective actions to conserve and recycle water throughout the State in order to increase water supplies available for beneficial uses. The major components of the program are: 1) support ongoing urban and agricultural sector processes for certifying and endorsing local agency implementation of cost-effective efficiency measures; 2) provide technical and planning assistance to local agencies and districts developing and implementing WUE measures; and 3) institute a competitive grant/loan incentive program to encourage WUE investments in the urban and agricultural sectors.

1. Expand Existing State and Federal Agricultural Water Conservation Programs to Support On Farm and District Efforts - Expand State and federal programs (Department of Water Resources [DWR], U. S. Bureau of Reclamation [USBR], U. S. Fish and Wildlife Service [USFWS], Department of Fish and Game [DFG], Department of Health Services [DHS], Natural Resources Conservation Service [NRCS], and SWRCB) to provide technical and planning assistance to local agencies and districts in support of local and regional conservation and recycling programs (yr 1-7).
2. 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 (yr 1-7).
3. Agricultural Water Management Council (AWMC) Evaluation of Agricultural Water Management Plans - Utilize the AB 3616 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 (yr 1-7).
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, and implement program (yr 1-3).
5. Implement Urban BMP Certification Process - Implement a process for certification of water suppliers' compliance with terms of the Urban MOU with respect to analysis and implementation of BMP's for urban water conservation. Provide funding support for the California Urban Water Conservation Council (CUWCC) to carry out this function (yr 1-7).
6. Prepare a program implementation plan, including a proposed organizational structure consistent with the overall CALFED governance structure, for an competitive grant/loan incentive program for WUE (yr 1). This will include:
 - Incentives in the agricultural sector that will consider several factors, including: (i) potential for reducing irrecoverable water losses; (ii) potential for attaining environmental and/or water quality benefits from WUE measures which result in reduced diversions; (iii) regional variation

in water management options and opportunities; (iv) availability and cost of alternative water supplies; and (v) whether the recipient area experiences recurrent water shortages due to regulatory or hydrological restrictions. Many of these factors are included in the Quantifiable Objectives for Agricultural Water Use Efficiency, and as such, the Quantifiable Objectives will be an important component of the agricultural incentive criteria.

- Incentives in the urban sector will assist in identifying and implementing urban water conservation measures that are supplemental to BMP's in the Urban MOU process and are cost effective from a statewide perspective.
 - Incentives for water recycling in the urban and agricultural areas.
 - The plan will include annual reporting and evaluation mechanisms to gauge effectiveness of the program.
7. 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 1-3).
 8. Research effort to establish appropriate reference conditions for evaluating program progress, and to identify improved methods for WUE (yr 1-7).
 9. Assess the Need for Additional Water Rights Protections - After consultation with CALFED agencies, the Legislature, and stakeholders, evaluate the need for additional state regulations or legislation providing protection for water rights holders who have implemented WUE measures and subsequently transferred water to other beneficial uses (yr 1-4).
 10. Water Measurement - 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).
 11. Create Public Advisory Committee - Within the context of the broader CALFED public involvement plans, create a public advisory committee to advise State and Federal agencies on structure and implementation of assistance programs, and to coordinate State, federal, regional and local efforts for maximum effectiveness of program expenditures (yr 1).

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.

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1. Develop an Interactive Water Transfer Information Web-site - CALFED agencies will develop, implement, and maintain an interactive, publicly available web-site called On Tap (yr 1-7). This site will serve as an interim and long-term interface to stakeholders and the public with respect to CALFED water transfer actions including: 1) streamlining the approval process, 2) defining transferrable water, 3) providing public disclosure of proposed transfers, and 4) facilitating the sharing of water transfer related data, research, and assessment methodology. The web-site will initially be designed to include:
 - an on-line transfer application process that will provide proponents with information regarding who has approval authority (USBR, SWRCB, DWR), what must be provided to the responsible agency, and what criteria the agency will use during the review period;
 - a searchable database of all approved transfers (going back to the late 1980's and adding new transfers as they are approved); and
 - information regarding other CALFED Water Transfer Program actions.Initial aspects of this web-site will be publicly available in the first year after signing of the Programmatic ROD.

Improve Information Sharing:

2. Establish the California Water Transfers Information Clearinghouse to operate and maintain the On Tap web site, 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 1-7).
3. Coordinate with CALFED agencies to require water transfer applicants to provide additional impact assessment information as allowed under existing law (yr 1-4).
4. CALFED agencies will identify, arrange, fund, and carry out a specific number of targeted water transfers for in-stream environmental purposes as part of the ERP, with a goal of using these transfers to evaluate the effectiveness of and make any necessary improvements to California Water Code Section 1707 procedures and tracking protocols (yr 1-3).
5. As part of the WMS, a groundwater assistance program (discussed more explicitly under Storage tools) will be established to fund studies to gather groundwater data and to enable local entities to develop and implement local groundwater management/monitoring programs (yr 1-2).

Lower Transaction Costs Through Permit Streamlining:

6. Development by CALFED agencies of a streamlined water transfer approval process including "pre-certification" of certain classes of transfers and expedited environmental review procedures (yr 1-6).
7. CALFED agencies work with stakeholder representatives to clarify and define what water is deemed transferrable under what conditions (yr 1-3).

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8. CALFED agencies continue to work with stakeholder representatives to resolve conflicts over carriage water criteria (yr 1-3).
 9. Establish a refill criteria policy for reservoir storage based water transfers (yr 1).

Increase the Availability of Existing Facilities for Water Transfers:

10. 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 1-7).
11. 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 promote collaboration and integration among 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 illustrate the benefits of watershed management 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 Program (yr 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 (yr 1-7).
3. Implement a funding process and provide watershed stewardship funds to build the capacity of community based programs to carry out comprehensive long-term watershed management (yr 1-7).
4. Improve the use and usefulness of existing or future watershed information management functions to provide data and other information to people involved in watershed management (yr 3-7).
5. Ensure the completion of project level environmental documentation and permitting; assist with documentation and permitting processes as appropriate (yr 1-7).
6. Evaluate the benefits (including economics) that accrue from watershed plans and projects designed to achieve CALFED goals and objectives (yr 3-7).

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7. Establish, fund, and maintain watershed restoration and maintenance assistance to aid local watershed groups and private landowners in project concept, design, and implementation (yr 1-7).
 8. Collaborate with other CALFED and non-CALFED programs on watershed related activities (yr 1-7).
 9. Provide appropriate information and assistance to stakeholders and the Legislature to develop a state-wide umbrella watershed management act (yr 1).

2.7 Storage

Groundwater and surface water storage 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 operations with existing flood control reservoirs. New groundwater and surface storage will be developed as appropriate to meet CALFED program goals as part of a comprehensive WMS that includes aggressive implementation of water conservation, recycling, an improved water transfers market, and habitat restoration. Decision to construct groundwater or surface storage will be predicated on maintaining balanced implementation of all Program elements and compliance with all environmental review and permitting requirements.

During Stage 1, CALFED intends to take the necessary steps to pursue expansion of two existing reservoirs and construction of a new off-stream reservoir, with a total capacity of 950 thousand-acre-feet (TAF) and a major expansion of groundwater storage for an additional 500 TAF to 1 million-acre-feet (MAF). In addition, CALFED will study two potential reservoir locations through partnerships with local agencies. These projects are described in the Phase II Report. CALFED will continue to evaluate these surface and groundwater storage opportunities, initiate permitting, NEPA and CEQA documentation, and construction - if all conditions are satisfied. These efforts will be coordinated under CALFED's Integrated Storage Investigation (ISI).

In addition, CALFED will continue work to refine and periodically update the WMS. ISI studies will evaluate the utility of specific storage projects in providing water quality, water supply reliability, and ecosystem benefits. This information, together with information gained from implementation of other CALFED Program elements and updated information on California's changing water management needs, will be considered in an Evaluation Framework. This Framework will include: 1) a comprehensive hierarchy of objectives for the CALFED Program; 2) well-defined measures of performance associated with the achievement of objectives; and 3) provide a basis for comparison of alternative long-term water management strategies. The Evaluation Framework will provide a structure for periodically updating the WMS and determining appropriate levels of the future investment in various water management tools.

Groundwater Banking and Conjunctive Use - *Develop locally managed and controlled groundwater and conjunctive use projects with a total of 500 TAF to 1 MAF of additional storage. This effort 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. Finalize agreements with new local project proponents for joint planning and development (yr 1).
2. Begin feasibility studies (yr 1).
3. Report on the performance of feasibility studies, implementable projects, and potential benefits and beneficiaries (yr 3).
4. Implement early stages of the most promising projects (yr 1-5).
5. Aggressively pursue implementation of additional project (yr 1-7).
6. Support legislation that supports groundwater management by local agencies at the sub-basin level.

Surface Storage - *CALFED agencies identified a list of twelve potential surface storage projects that are in varying stages of the environmental review or feasibility process. Actions taken in Stage 1 will focus on completing the necessary studies to implement or proceed with five surface storage projects:*

1. In-Delta storage project (approximately 250 TAF) - An in-Delta storage facility can provide both fishery benefits and enhances water project flexibility. CALFED will explore the lease or purchase of the Delta Wetlands project. CALFED also will initiate a new project, in the event that Delta Wetlands proves cost prohibitive or infeasible (Planning: yr 1-2, Construction: yr 3-7).
2. Expand CVP storage in Shasta Lake by approximately 300 TAF - Such expansion will increase the pool of cold water available to maintain lower Sacramento River temperatures needed by certain fish and provide other water management benefits (Planning: yr 1-4, Construction yr 6-7).
3. Expand Los Vaqueros Reservoir by up to 400 TAF with local partners as part of a Bay Area water quality and water supply reliability initiative - As part of a Bay Area initiative, an expanded Los Vaqueros Reservoir would provide water quality and water supply reliability benefits to Bay Area users. As an existing reservoir operated by the Contra Costa Water District (CCWD), the Los Vaqueros Reservoir is subject to a number of mandates and agreements, CALFED intends to work with CCWD and interested stakeholders to assure that previous commitments, including local voter approval required for expansion, are respected (Planning: yr 1-5, Construction yr 6-7).
4. Sites Reservoir - Construction of Sites Reservoir, with a project capacity of up to 1.9 MAF, could enhance water management flexibility in the Sacramento Valley. By reducing water diversion on the Sacramento River during critical fish migration periods, this project can greatly increase reliability of supplies for a

significant portion of the Sacramento Valley. It can also provide storage and operational benefits for other CALFED programs including Delta water quality and the EWA. CALFED will join local partners to evaluate this project in Stage 1 (yr 1-5). Extensive technical work, significant environmental review, and development of cost-sharing agreements must be completed before a decision to implement this project as part of the CALFED Program can be made.

5. Additional storage in the upper San Joaquin River watershed - Additional storage capacity of between 250-700 TAF would be designed to contribute to restoration of and improved water quality for the San Joaquin River and facilitate conjunctive water management and water exchanges that improve the quality of water deliveries to urban communities. Additional storage could come from enlargement of Millerton Lake at Friant Dam or a functionally equivalent storage program in the region. CALFED will join local partners to evaluate this project in Stage 1 (yr 1-6). Extensive technical work, significant environmental review, and development of cost-sharing agreements must be completed before a decision to implement this project as part of the CALFED Program can be made.

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 SWRCB, 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).
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 SWRCB, 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

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- 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 site-specific environmental review and permitting. This will allow conveyance projects to be ready for 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 through-Delta conveyance strategy or potential modifications. The conveyance improvement actions listed below would be implemented concurrently with other Stage 1 actions in the South Delta which are components of the other CALFED Program elements.*

1. Construct and evaluate a 500 cubic feet per second (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 1-7).
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 (yr 1-7).
4. 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 project canals downstream of the export pumps (yr 1-7).
5. Increase SWP pumping by 500 cfs from July through September (yr 1-4).
6. Facilitate SWP export flexibility up to 8,500 cfs with appropriate constraints (yr 1-3).
7. 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+).
8. Dredge and install operable barriers to ensure water of adequate quantity and quality is available for diversion to beneficial uses within the south Delta (yr 1-7). For the purposes of the project level environmental analysis for the South Delta Improvements, various operable barrier configuration alternatives or their functional equivalents will be evaluated including the installation of a

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- permanent fish migration barrier at the Head of Old River and construction of three permanent flow control structures at Old River at Tracy, Middle River upstream of Victoria Canal, and Grant Line Canal. The Grant Line Canal would be constructed and operated in accordance with conditions and directions specified by USFWS, National Marine Fisheries Service (NMFS), and DFG. All temporary barriers installations will be phased out as soon as feasible.
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. Dredging of selected channel segments to limit scour velocities and for water supply availability, navigation, and flood control (yr 3-7).

North Delta Improvements - *Provide a coordinated regional solution to ecosystem, watershed, water quality, water supply reliability, and flood control concerns in the North Delta Region. 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 flood plain, wildlife, and fisheries habitat. A screened diversion on the Sacramento River will be evaluated and may be implemented if necessary.*

1. Evaluate and implement improved operational procedures for the Delta Cross Channel to address fishery and water quality concerns (yr 1-4).
2. Simultaneously evaluate a screened through-Delta facility with a diversion capacity of up to 4,000 cfs on the Sacramento River. This evaluation would consider the effectiveness of water quality measures and 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. Complete environmental review of recommended Delta Cross Channel operational procedures and the screened diversion evaluations. If the environmental review demonstrates that this diversion facility is needed to improve water quality in the Delta and at the export facilities, and can be constructed and operated without adverse effects to anadromous and estuarine fish, construction will begin late in Stage 1. This diversion would likely include a fish screen, pumps, and a channel between the Sacramento and Mokelumne Rivers. The historic emphasis has been on a screened diversion at Hood on the Sacramento River. This and other potential sites will be considered as part of this evaluation (yr 4-7).
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 1-7).

5. Facilitate region-wide coordination of all CALFED related projects in the north Delta region (yr 1-7).

Additional Conveyance Actions - *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 parts per billion (ppb) bromide and 3 parts per million (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 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).
3. Additional environmental review. Construction of an isolated facility component of a dual Delta conveyance is not an element of the CALFED Preferred Program Alternative. A decision to construct such a facility would require separate environmental review and alternatives analysis that has not been done as part of the CALFED programmatic analysis.

2.9 Governance Arrangements

After the ROD, CALFED will begin the implementation phase of the Program. The CALFED agencies are proposing the creation of a joint state and federal commission to oversee and direct the CALFED Program in the long-term. A new commission will require State and federal legislation. In the interim, until a new commission is established, the CALFED agencies will use the Policy Group governance structure. A new Interim Governance Agreement will be developed and executed, which describes the interim governance structure and decision-making process.

1. Implement the interim governance structure and decision-making process at the time of the ROD. The interim structure and functions will continue until the long-term structure is in place.
2. Establish CALFED Independent Science Board, establish EWA independent science panel, establish other independent science panels as needed.
3. Form public advisory council to advise the new commission or Policy Group.
4. Initiate actions to implement the long-term governance structure for CALFED. New federal and state legislation will be needed to clarify/modify existing agency

authorities and to establish a new joint federal-state commission for program oversight and implementation.

5. Establish the new commission: implement administrative, fiscal, personnel changes to form the commission.

2. 10 Finance

The Financing Plan contains the initial framework for developing a strategy for funding the Preferred Program Alternative (including total costs for implementation/improvements, mitigation, and ongoing annual operating and maintenance costs). 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 are selected, implemented, operated, and maintained. The Financing Plan includes financial principles incorporating a benefits-based approach, a discussion of historical cost-sharing, cost-allocation procedures, proposed cost-sharing scenarios, cost estimates for Stage 1 of Program Implementation, and a preliminary identification of classes of beneficiaries for each of the Program elements. The Plan recognizes the public and user 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 1-2).
 - Finalize details surrounding repayment or crediting (yr 1-2).
 - 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).
 - Work with local interests to develop state legislation to create a user fee that will generate reliable funding for program elements with broad public benefits, such as the Ecosystem Restoration Program (yr 1-2).
 - Develop and refine cost estimates as program actions are identified (yr 1-7).
 - Prepare a cross-cut budget on an annual basis showing the funding of related state and federal programs and incorporate into finance strategies and funding requests (yr 1-7).

2. 11 Science Program

As part of the Science Program, establish monitoring, data assessment, and research activities for all program elements which provide information for evaluating the effectiveness of the program actions in reaching the program objectives. All the monitoring, data assessment, and research activities will be done within an adaptive management framework. Consequently,

most of the activities will be undergoing continual refinement through the duration of the program. The program will be designed to examine 30 year trends within which, components will be tailored to examine the short term time step of the 1-7 year Phase III, Stage 1 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 III, 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 (yr 1-7+).
5. Through a peer review process, evaluate the validity of the data evaluation and the application of the evaluation by the program decision making process (yr 1-7+).
6. Review the progress towards achieving overall CALFED program goals and objectives (yr 1-7+).
7. Complete monitoring identified by diversion-effects-on-fisheries team to provide feedback on actual diversion effects of south Delta pumps (yr 2-7).
8. Design long-term, system wide, baseline monitoring with focused research to increase understanding of ecological processes and ways to reduce uncertainty; definition of needed studies is currently under development, the 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.
9. Provide available data on need to reduce bromides, total dissolved solids, TOC, pesticides, and trace metals (yr 5).
10. Provide available data on water quality in south Delta and lower San Joaquin River (yr 1-7).
11. Monitor and assess the impacts of WUE measures on water demands and available supplies, and develop better information for water balances in the Bay-Delta system (yr 1-7).
12. 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).

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13. Analyze status and need for adjustments of actions for later stages (yr 5-7).
 14. Monitor and report land use changes, such as agricultural land conversion, resulting from CALFED actions (yr 2-7).
 15. Hire an interim science leader and subsequently hire a chief scientist (yr 1-2).
 16. Appoint an Independent Science Board and an independent science panel for the EWA (yr 1-2).
 17. Coordinate existing monitoring and scientific research programs (yr 1-7).
 18. Refine the set of ecological, operational, and other predictive models which will be used in the evaluative process (yr 1-2).
 19. Establish and refine performance measures and indicators for each of the program areas (yr 1-7).

2.12 Regulatory Compliance

1. For each action in the program, ensure that the appropriate environmental documents are prepared, tiering off the Programmatic EIS/EIR, and that all necessary permits are obtained (yr 1-7).
2. For each action in the program, ensure compliance with applicable or relevant and appropriate requirements (yr 1-7).
3. Tiering from the MSCS, begin to develop the project specific restoration, avoidance, minimization, and compensation measures necessary to recover MSCS covered species and to prevent additional listings in the Delta (yr 1-7).
4. Implement a CALFED environmental documentation, mitigation, and permit coordination process (yr 1-7).