A Briefing on the Bay-Delta and CALFED
Updated March 2004

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Editor's Note:

This briefing on the Bay-Delta and the CALFED Bay-Delta Program (now the California Bay-Delta Authority) was originally produced by the Foundation in 2001 as part of its comprehensive Bay-Delta Learning Initiative, a public education program funded by a grant from CALFED. Updated most recently in March 2004, this Internet briefing paper is designed to provide reporters, researchers, students, stakeholders and the general public with 24/7 objective, impartial information on CALFED, and progress in implementing the major restoration plan released in 2000. It also provides extensive background on the Delta, including the history of this region, an analysis of the political and policy issues involved in the Delta, and information – and contacts – on specific components within the CALFED plan.

The mission of the Water Education Foundation, an impartial, non-profit organization, is to create a better understanding of water issues and help resolve water resource problems through educational programs.

More detailed information on the plan and copies of many CALFED reports, documents and meeting packets can be found at the California Bay-Delta Authority web site, http://calwater.ca.gov/. Additional background information on the Delta can be found in other Foundation materials such as the *Layperson's Guide to the Delta*, the video *Setting a Course*, and back issues of *Western Water*. All of these items can be ordered securely through our on-line store, http://www.watereducation.org/store/default.asp

We would like to know what you think about this on-line briefing document and encourage you to fill out our on-line survey http://www.water-ed.org/secure/deltacalfedreport.asp

– Rita Schmidt Sudman, Executive Director, Water Education Foundation

The Basics

The California Bay-Delta comprises just 1 percent of California's total area, yet is at the heart of the state's water supply system and its water controversies. It also is at the center of a multi-billion dollar, multi-year, multi-agency effort to restore its ecological health and improve the water system management for its beneficial uses.

Flowing south, the mighty Sacramento River meets the northbound San Joaquin River just south of Sacramento to form the Sacramento-San Joaquin Delta. Here, the Sacramento and the San Joaquin mingle with smaller tributaries to form a 700-mile maze of sloughs and waterways surrounding 57 manmade islands. The rivers' combined fresh water flows roll through the Carquinez Strait, a narrow break in the Coast Range, and into San Francisco Bay's northern arm.

Much of the past research on and management of the Delta focused on the role of the rivers' fresh water flows. But recent research suggests that the tides play a much more important role in the San Francisco Bay-Delta Estuary than they do in other river deltas such as the Mississippi, with hydrologic studies describing the Delta system as a "giant washing machine agitator;" tidal forces and river flows constantly sloshing water back and forth. Scientists are still studying what this emerging model of Delta hydrology means, but it seems clear that tides play a bigger role than previously believed in how fish move through and pollutants move through the estuary, and that actions taken in one area sometimes can be felt throughout the region.

The Delta is a region of multiple uses. Its islands' rich soil nourishes an agricultural cornucopia, while the labyrinth of sloughs serves as a recreational playground for boaters and anglers. The Delta also is the heart of California's largest water delivery systems – its channels

transport water from upstream reservoirs to the federal Central Valley Project (CVP) and State Water Project (SWP) pumps in the south Delta. These waters are the life-blood for the state's $1.2 trillion economy, 22 million people and 4 million acres of productive farmland, primarily in the San Joaquin Valley

The Delta is home to 54 species of fish; with a total of 130 fish species in the Delta and Bay combined. Populations of several of these fish have declined for a variety of reasons including drought, poor water quality, overfishing, non-native species that compete for food, and entrainment in water diversion facilities. Two Sacramento River Basin salmon runs, the winter-run and the spring-run, are on the endangered species list as is the Delta smelt, a tiny fish found only in the Delta.

Efforts to protect these fish have led to restrictions on water project operations and requirements for more instream water flows, which have sparked controversy and legal action. As part of a settlement of lawsuits filed against the Department of the Interior over the Delta smelt by the California Farm Bureau Federation and the San Luis & Delta-Mendota Water Authority, the U.S. Fish and Wildlife Service (USFWS) announced in August 2003 that it will conduct a five-year review of the smelt to determine if its status has changed since its 1993 listing as "threatened" under the federal Endangered Species Act (ESA).

In a separate action, USFWS officials announced in September 2003 that they were removing the Sacramento splittail from the list of threatened and endangered species. The splittail was listed as threatened under the federal ESA in 1999. In response to a federal court order, the USFWS conducted "five public comment periods and an exhaustive scientific review" to analyze splittail population information and threats to the species. In a Sept. 22, 2003 press release USFWS officials said they "found that threats to the species are being addressed through habitat restoration efforts such as CALFED and the Central Valley Project Improvement, and that as a result, the splittail is not likely to become endangered in the foreseeable future."

The Delta also harbors some 52 mammals, 22 reptile and amphibian species and 225 birds. In addition, the estuary offers important wintering habitat for millions of ducks and geese traveling on the "Pacific Flyway," a major north-south migration route.

The significance of the Delta is illustrated by the number of state and federal governmental agencies, in addition to local water districts, city councils and stakeholder groups, involved in Delta issues. These agencies – and their sometimes-conflicting agendas – illustrate how complicated and controversial Delta issues can be. Each of the Delta's problems, whether it is preserving fisheries, maintaining Delta levees or providing water for agricultural and urban needs throughout the state, brings with it opposing points of view. For the most part, past studies and programs have taken a piecemeal approach to exploring and managing the Delta. It is only recently that state and federal studies, legislation and programs, in particular the CALFED Bay-Delta Program, have begun to address the estuary as a whole.

By the Numbers

- Two-thirds of the state's population receives at least a portion of their drinking water from the Delta.
- 50 percent of California agriculture receives water from the Bay-Delta system.
- The Delta sustains 80 percent of the state's commercial fisheries.
- Some 7,000 agencies or cities have permits to develop and use water supplies from the Bay-Delta and its watershed region.
- The Bay-Delta is the largest estuary on the West Coast.
- The Delta is home to 54 species of fish; with a total of 130 fish species in the Delta and Bay combined.

The Conflicts

Northern California vs. southern California, farmers vs. fishermen, rural residents vs. big cities, environmentalists vs. water users, in-Delta water users vs. water exporters. These basic conflicts have ebbed and flowed with the history of water in California, and illustrate the competing values of the Bay-Delta system.

The debate over the best way to resolve the Delta's environmental and water conveyance conflicts is not new. It stretches back more than three decades as agricultural, environmental and urban water interests, the primary stakeholder groups, fought over how to allocate the Delta's limited water resources. Other stakeholders include in-Delta water users, Sacramento Valley farmers and landowners, rural mountain counties, commercial and sports fishing groups, and business leaders from throughout California.

The conflict between Delta water exports and environmental protection reached a peak in the late 1980s and early 1990s. The 1987-1992 drought – the second worst drought in California history – resulted in reduced water deliveries to farms and cities up and down the state. It also exacerbated conditions for fish and wildlife. With the National Marine Fisheries Service's 1989 listing of the Sacramento River winter-run as "threatened" under the federal ESA (changed to endangered in 1994), water project operations were modified to protect the winter-run as it migrates through the Delta. As other fish were added to the endangered species list, the window for CVP and SWP export pumps has narrowed.

Other factors that came into play included passage of the federal Central Valley Project Improvement Act (CVPIA) in 1992, which allocated a portion of the CVP's water to the environment, and the need to develop new water quality standards for the Bay-Delta. These issues set into motion a state vs. federal dynamic as agricultural CVP contractors lobbied hard in Congress against the CVPIA and state officials resisted the U.S. Environmental Protection Agency's (EPA) pressure to adopt federally designed water quality rules.

When then-Gov. Pete Wilson criticized what he called the federal agencies' piecemeal efforts to resolve issues in the Delta, the Clinton administration responded with the formation of Club-FED, the Federal Ecosystem Directorate. Club-FED took four federal agencies – the U.S. Bureau of Reclamation, (Reclamation) the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and EPA – with often-diverse points of view on water and environmental issues in the Delta and helped them speak with one voice. Club-FED provided a forum for these agencies and ultimately led to the state-federal framework that became the foundation of CALFED.

In June 1994, state and federal government officials announced that they had signed a framework agreement in which they agreed to coordinate CVP/SWP operations to meet water quality standards and protect endangered species; adopt mutually acceptable state water quality standards; and develop a long-term strategy to resolve fish and wildlife, water supply reliability, levee stability and water quality problems. Six months later, water stakeholders and state and federal officials announced a compromise set of water quality standards for the Delta and signed the landmark 1994 Bay-Delta Accord.

Flash forward to 2004. Even as state and federal agencies, along with stakeholder groups, work to implement portions of a comprehensive plan to "fix" the Delta, the politics of Delta issues continues to be one of an ebb and flow of collaboration and conflict among competing interests. Political, legal and fiscal developments are the force behind the continuing debate that exists on the best way to address the Delta's dual roles as the hub of the state's water system and home to a wide variety of fish and wildlife.

Timeline

1978 – State Board adopts Water Rights Decision 1485 and a water quality control plan for the Bay-Delta.

1986 – Racanelli ruling determines 1978 plan inadequate because it only assessed the effects of the CVP and SWP. Ruling stipulates that the State Board should consider all beneficial uses, instream and consumptive, when setting water quality standards.

1987 – EPA officials notify State Board that the 1978 water quality plan is inadequate under federal Clean Water Act (CWA).

1991 – State Board adopts water quality control plan for the Bay-Delta and begins work on a separate water rights decision. EPA disapproves the plan under the CWA.

1992 – State Board releases and later withdraws interim Delta standards, Decision 1630 December 1993 EPA release draft federal water quality standards after being sued by environmentalists.

1994 – State and federal officials announce framework agreement in June: coordinated CVP/SWP operation to meet water quality standards and protect endangered species; adoption of mutually acceptable state water quality standards; and development of a long-term strategy to resolve Delta fish and wildlife, water supply reliability, levee stability and water quality problems.

Water interests and state and federal officials announce compromise water quality standards in December and sign landmark Bay-Delta Accord, creating CALFED Bay-Delta Program.

1995 – State Board adopts water quality plan with objectives similar to those in the accord. EPA approves plan and withdraws federal standards.

1996 – CALFED Bay-Delta Program releases phase I report outlining core programs and three potential solutions.

1998 – CALFED Bay-Delta Program releases phase II draft Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) with three alternatives, including the one with the best technical performance.

1999 – CALFED releases draft programmatic EIS/EIR.

2000 – Final programmatic EIS/EIR released July 21. Record of Decision (ROD) released August 28, concluding phase II.

2002 – CALFED Program enters second year of seven-year phase III – implementation of the preferred alternative.

2003 – New state California Bay-Delta Authority is established on Jan. 1. State appointments announced in mid-June.

Late that year, officials from Reclamation and the California Department of Water Resources (DWR) and the water contractors propose a packaged deal of items included in the ROD, such as increased pumping at the state pumps, as well as an intertie between the CVP and SWP, a permanent Environmental Water Account and South Delta improvements.

2004 State Board initiates review of the 1995 Water Quality Control Plan for the San Francisco Bay/San Joaquin Delta Estuary.

CALFED

The CALFED Bay-Delta Program was formed in 1995 following adoption of the Accord. The goal of the program was to turn conflict into consensus and develop a 30-year collaborative plan to address four main problem areas: ecosystem health, water quality, water supply reliability and levee system integrity.

Other program elements were added later, with CALFED's final plan ultimately addressing 11 program elements: ecosystem restoration, watershed management, water supply reliability, storage, conveyance, the environmental water account, water use efficiency, water quality, water transfers, levees and science. In addition, CALFED officials have focused on the regional

aspects of each of these program elements and the actions and studies called for in the preferred alternative. The ultimate “Delta fix,” officials stressed throughout development of the plan, would be one in which “everyone would get better together.”

State of California members of CALFED:

The Resources Agency
The Department of Water Resources
The Department of Fish and Game
Reclamation Board
Delta Protection Commission
Department of Conservation
San Francisco Bay Conservation and Development Commission
California Environmental Protection Agency
State Water Resources Control Board
Department of Health Services
Department of Food and Agriculture

Federal agency members of CALFED:

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

The Plan

For more than five years, the joint state-federal CALFED Bay-Delta Program searched for equilibrium among the Delta’s complex problems and its contentious stakeholders. The pieces of the political puzzle fell into place in 2000 when top state and federal officials reached agreement on a vision for balancing the Bay-Delta’s competing interests, releasing “A Framework for Action” and the programmatic Record of Decision (ROD).

The Framework Agreement provided an overview of a seven-year, $8.7 billion program designed to give each of the major stakeholder groups – urban, agricultural and environmental – something. The agreement offered ideas for how to increase water storage and water conservation, improve water quality and restore ecosystem functions through a broad array of projects. But none of the interests got everything it wanted.

The 54-page Framework Agreement essentially covers the first seven years, Stage 1, of the ultimate 30-year CALFED Bay-Delta program. It includes timelines and targets, which are spelled-out in greater detail in CALFED’s 6,500-page programmatic environmental documents released July 21, 2000. Additional studies and analysis on hundreds of individual actions and proposals still need to be completed, however. The 1,199-page federal ROD was released in August 2000.

The CALFED plan itself is extremely comprehensive; the solution will not be implemented overnight, and it will take time to see results. The Ecosystem Restoration Program alone calls for over 600 different actions in all the regions of the Bay-Delta watershed. Other elements are

equally complex. How to ensure the plan is implemented over the next 30 years given the cycle of political administrations in California and Washington, D.C., remains a major issue.

As the program enters year four of implementation, reviews remain mixed. Progress on all the separate elements has not been uniform, in large part because some elements are better funded than others. (Ecosystem restoration, for example, has received a greater share of funding than the levees program.) Policy decisions and political complications also have caused some projects to proceed more quickly than others, inviting some criticism from some stakeholder groups that the plan is not living up to its promise that "everyone would get better together."

As 2003 came to a close, stakeholders were divided over significant developments on plans to implement several supply-side elements in the ROD: an increase in SWP pumping to maximize deliveries to southern California and the San Joaquin Valley; construction of an intertie between the SWP and CVP; South Delta improvements and a long-term Environmental Water Account. Because the basis for the SWP/CVP agreements was reached during a special meeting among federal and state agencies and SWP and CVP water contractors held in Napa last summer, environmentalists and some in-Delta water users were critical of these proposals, and questioned whether now was the time to implement them (see below for more information). The ensuing rift among the environmental, urban and agricultural communities is one of the first serious conflicts since the Bay-Delta Accord and formation of CALFED.

Major CALFED Programs, Recommended Actions and Studies

Levee System Integrity Program

Since the 19th century, more than 1,000 miles of levees have been built to form Delta islands, preventing flooding and allowing cultivation of the rich soil. Today, many of the islands are 20 feet below sea level and the surrounding levees have been built taller and taller, subjecting them to greater water pressure. A sound, well-maintained levee system is vital to protect Delta farms and towns, and the supply of fresh water moving through Delta waterways. When levees fail, salty water from the Bay rushes into the lower-than-sea-level islands, reducing the quality of the water for millions of people.

CALFED agencies have adopted five overall goals for the levee program:

- Improve Delta levees to a higher standard for greater flood protection
- Improve emergency response capabilities
- Ensure levee maintenance and habitat needs are met
- Improve coordination of permit processes
- Develop adequate and reliable funding for levee maintenance

Water Quality Program

CALFED's Water Quality Program is intended to improve overall drinking water quality for water users around the state. In the past, problems such as salinity, and high levels of bromide, organic carbon and algae, have plagued municipalities from the Bay Area to Los Angeles. These problems also can extend to agriculture and the environment.

The Delta has organic soils containing compounds that when combined with chlorine – the major disinfectant for surface water – can form suspected human carcinogens, including trihalomethanes (THMs).

Components of CALFED's program include developing a Bay Area Blending/Exchange project that would allow access to supplies of higher quality water via transfers or new connections; reducing the discharge of pesticides by developing and implementing best management practices (BMPs) for urban and agricultural users; reducing the impacts of trace metals such as copper from abandoned mines in the upper watershed and from urban storm runoff; reducing mercury levels in rivers from abandoned mines in the upper watershed; reducing salinity in the Delta by managing tidal inflow and reducing salt input from urban and

agricultural wastewater; and improving dissolved oxygen in sections of the San Joaquin River. Stage 1 expenditures were estimated at $950 million.

Ecosystem Restoration Program

The Ecosystem Restoration Program (ERP) is intended to address a variety of issues related to reduced numbers of native fish, wildlife and plants as a result of water diversions and land use. The ERP, along with CALFED's water management strategy, also is designed to assist with the recovery of endangered species found in the Bay-Delta.

A key component of the ERP is its focus on adaptive management. Adaptive management can help bridge the gap between scientific theory and actual results by allowing for scientific research, test programs and monitoring of pilot restoration projects. For example, scientists would identify a goal; such as increasing Delta smelt populations, and a range of options to achieve that goal. These actions would then be monitored to determine if they are meeting the goal. If not, they would be modified.

Some of the typical ERP actions identified by CALFED include acquiring water from sources throughout the Bay-Delta's watershed to provide flows and habitat conditions for fishery protection and recovery, improving Delta outflow during key periods, constructing setback levees, developing assessment, prevention and control programs for invasive species, and modifying or eliminating fish passage barriers, including the removal of some dams, and construction of fish ladders and fish screens at other dams.

The ERP proposes that 138,000 to 191,000 acres of land within the Delta be converted to wildlife habitat or other uses, including 98,000 acres to 115,000 acres of farmland (some of which – 40,000 to 70,000 – would be "wildlife friendly" and would not require a total cessation of farming). Specific Delta islands on which CALFED is restoring fish and wildlife habitat include Staten, Prospect, Twitchell and Sherman islands, and McCormick-Williamson Tract. Stage 1 costs are estimated at $1.6 billion.

Other actions identified in the ERP include proposals to:

- Improve fish passage through modifications or removal of the following locally owned dams: small diversion dams on Butte Creek; eight Pacific Gas & Electric Company diversion dams on Battle Creek; McCormick-Saeltzer Dam on Clear Creek; Woodbridge Dam on Mokelumne River; and Clough Dam on Mill Creek.
- Restore habitat in San Pablo Bay, Suisun Bay and Suisun Marsh and the Yolo Bypass including tidal wetlands and riparian habitat.
- Complete protection and restoration of the Sacramento River meander corridor as part of the Sacramento River Conservation Area/SB 1086 program.
- Implement an invasive species program, including prevention, control and eradication.
- Improve dissolved oxygen conditions in the San Joaquin River near Stockton. The dissolved oxygen in the river dips below state environmental criteria, causing a migratory block for salmon and threatening other fish.

Water Use Efficiency Program (Water Conservation and Recycling)

The water use efficiency program focuses on water conservation and water recycling. The conservation components are largely based on the best management practices (BMPs) adopted by urban agencies in 1991 and the efficient water management practices (EWMPs) adopted by agricultural interests in 1997. The Water Use Efficiency Program has identified potential recovery of currently irrecoverable water losses of over 1.4 million acre-feet of water annually by 2020 as a result of CALFED actions.

Water conservation-related actions identified in the ROD include proposals to: expand state and federal programs to provide increased levels of planning and technical assistance to local water suppliers; identify and implement practices to improve water management for wildlife

areas; and conduct directed studies and research to improve understanding of conservation actions.

Water recycling actions identified in the ROD include proposals to help local and regional agencies comply with the water recycling provisions in the Urban Water Management Planning Act, expand state and federal recycling programs to provide more planning, technical, and financing assistance (through loans and grants) and provide regional planning assistance to increase opportunities for the use of recycled water. Stage 1 expenditures were estimated at $2.9 billion.

Water Transfers Program

Water transfers – the transfer, lease or sale of water or water rights from one user to another – are seen as an important means of stretching California's water supplies and meeting new urban and environmental demands. CALFED's Water Transfer Program proposes a framework of actions, policies and processes that, collectively, will facilitate water transfers and further the development of a statewide water transfer market.

The program calls for establishing a California Water Transfer Information Clearinghouse to allow for better public understanding of transfers, including through research and data collection. Other actions call for streamlining the water transfer approval process currently used by state and federal officials, increasing the availability of state and federal storage and conveyance facilities for use in transfers, reducing transfer costs by creating certain classes of "pre-approved" transfers; and establishing "On-Tap," an on-line water transfers information source for California water market transactions. Stage 1 expenditures were estimated at $15 million.

Watershed Program

In recent years, the concept of "watershed management" has gained broad support because it offers a comprehensive, integrated approach to assess and control all sources of pollution within a watershed or river basin.

The goal of the CALFED Watershed Program is to promote locally led watershed management activities and protections that contribute to the achievement of CALFED goals for ecosystem restoration, water quality improvement, and water supply reliability. The Program will accomplish these tasks by providing financial and technical assistance to local community watershed programs.

The CALFED watershed management program encompasses several goals including improved water supply reliability, flood management, environmental restoration and water quality. Under Stage 1, the program will provide grants to local projects that are in keeping with CALFED's watershed improvement goals. The program also will devise methods of advising and measuring the success of these projects. CALFED proposed $300 million for Stage 1 of the program.

Storage

Throughout the stakeholder process to develop a CALFED plan, the issue of additional water storage proved to be one of the most divisive. Water users pushed hard for more storage projects while environmental groups advocated a solution that would rely heavily on demand-side management through greater conservation and other water use efficiency measures to increase water supply.

In the ROD, CALFED identified new groundwater and surface water storage as not only a way to increase water supply reliability, but to provide water for the environment at times when it is needed most, improve water quality and protect levees through coordinated operation with existing flood control reservoirs. The ROD calls for the development of some 500,000 acre-feet to 1 million acre-feet of additional supplies through groundwater banking and conjunctive use

projects, and state and federal planning for an additional 950,000 acre-feet of off-stream surface storage.

Twelve potential surface water projects and many groundwater banking sites were identified by CALFED for further evaluation during Stage 1 in an effort to identify acceptable project-specific locations, and initiate permitting, NEPA (National Environmental Policy Act) and CEQA (California Environmental Policy Act) documentation and construction if all conditions are satisfied. Four projects were distinguished in the Framework Agreement as Stage 1 items in which actions will be taken that focus on implementing or proceeding with their review. These are:

- Convert Delta island(s) into storage reservoirs for an additional 250,000 acre-feet, with initial focus on the Delta Wetlands Project. The privately proposed Delta Wetlands would flood Bacon Island and Webb Tract, turning them into shallow reservoirs, and transform Bouldin Island and Holland Tract into wetlands.
- Raise Shasta Dam by 6 feet, increasing storage by 300,000 acre-feet.
- Expand Los Vaqueros Reservoir by up to 400,000 acre-feet.
- Construct a bypass channel to Santa Clara Valley around San Luis Reservoir, potentially increasing storage capacity in San Luis by 200,000 acre-feet. This project would allow for greater drawdown of the existing offstream, state-federal reservoir, drawdown now limited by water quality concerns for the south Bay Area.

Two additional projects were identified for Stage 1 evaluation by DWR and Reclamation through CALFED-local agency partnerships:

- Construction of Sites Reservoir. This offstream reservoir project in the Sacramento Valley could expand surface storage by up to 1.8 million acre-feet.
- Enlargement of Friant Dam, or its equivalent, increasing storage 250,000 to 700,000 acre-feet.

Storage program costs for Stage 1 were estimated at $1.4 billion. See the “Program Developments” section below for more information on the storage studies.

Conveyance

At the heart of much of the Delta debate over the past decades has been whether to build a new channel around the estuary to export water. This new channel, known as the Peripheral Canal, generated one of the most divisive campaigns in California history when California voters rejected it in 1982. Throughout the process to develop the CALFED plan, Delta conveyance was the most controversial issue.

Draft plans released by CALFED in 1999 identified three possible approaches to conveying water across the Delta to the export pumps. Alternative 1 would leave the existing system as is, with a possible slight increase in pumping and storage capacity. Alternative 2 would enhance the existing “through-Delta” conveyance system by widening key channels and creating more habitat. Alternative 3 would develop a “dual conveyance system” by use of these wider channels, and construction of a new, isolated conveyance facility skirting the eastern edge of the Delta. Many saw this approach as the best technical solution to improve drinking water quality because it would allow for the exportation of higher quality water – for municipal purposes – directly from the Sacramento River around the Delta to the SWP and CVP export pumps in the south Delta. The canal also would alleviate the flow pattern problems caused by these pumps, which cause fish to be drawn into the Central Delta and killed.

The isolated channel proved to be an emotional and political lighting rod lighting, however, and with release of the 2000 ROD and other documents, CALFED affirmed that it will focus first on making the existing through-Delta system work. The preferred alternative identifies a staged solution in which during Phase 1, the program will improve the existing through-Delta conveyance system by widening key channels, installing new fish screens and boosting

pollution prevention programs. Only if these efforts do not provide enough fish protection and drinking water quality improvements would CALFED proceed with construction of an isolated canal around the estuary. Costs for Stage 1 were estimated at $921 million.

Specific actions/studies to improve the through-Delta conveyance system identified in the ROD include:

- Construction of a new screened intake at Clifton Court Forebay (the SWP) to provide greater fish protection.
- Construction of either a new screened diversion at Tracy (the CVP) to protect fish; and/or an expansion of the new diversion at Clifton Court Forebay to meet the Tracy Pumping Plant export capacity.
- Implementation of the joint point of diversion for the SWP and CVP, and construction of interties between the two systems.
- Construction of an operable barrier at the head of Old River to improve conditions for salmon migrating up and down the San Joaquin River.
- Construction of operable barriers taking into account fisheries, water quality and water stage needs in the south Delta.
- An increase in SWP pumping from the current limit to 8,500 cubic feet per second (cfs) from March 15 to Dec. 15; and modification of existing pumping criteria from Dec. 15 to March 15 to allow greater use of SWP export capacity, with an eventual increase to 10,300 cfs. This program is designed to increase operational flexibility and allow for more sharing of SWP and CVP facilities.

Science Program

The ROD established the CALFED Science Program to bring world-class science to all elements of the program. The purpose of the program is to provide a comprehensive framework and develop new information and scientific interpretations necessary to implement, monitor and evaluate the success of CALFED (including all program components), and to communicate to managers and the public the state of knowledge of issues critical to achieving CALFED goals.

Despite years of environmental study and review of the Sacramento-San Joaquin River Basin, there is general agreement that many basic scientific questions cannot be answered because more research is needed. There are a variety of reasons for the insufficient scientific information. For one thing, it is only in recent years that natural resources management has begun to shift to the concept of ecosystem management. No studies have been conducted on the entire ecosystem. What studies have been done, for the most part, looked at a specific portion of the basin. This research has centered mainly on impact analysis – state and federal agencies, for example, study the impact of the CVP, SWP and proposed new water projects on the environment.

It is these gaps in scientific knowledge, in part, that creates instances in which stakeholders from competing viewpoints challenge decisions made by federal and state fishery and water quality agencies over how “good” the science is behind a recommended action. With the shift toward ecosystem management – rather than a focus on a specific species or project – agency scientists discovered there were many resource issues that require more research.

During the initial stages of implementation, the emphasis for the CALFED Science Program has been on ecosystem restoration activities, including the design of effective monitoring, targeted research and development of priorities. The Science Program is not directly involved in making regulatory decisions, but rather in ensuring that the California Bay-Delta Authority, and its member agencies, is incorporating the best available knowledge into activities and decisions, as well as continuously working toward narrowing scientific uncertainties, bettering knowledge, and advancing the debate.

Other Policy Issues

Governance

Release of the CALFED programmatic ROD in 2000 was a major milestone on the long road to implement a comprehensive plan to restore and manage California's Bay-Delta system. State and federal officials worked hard to make sure everyone got something in the plan, but that no one got everything. Such compromises were critical in reaching agreement and remain critical as CALFED works to finalize and implement its consensus-based plan.

Long-term management of the CALFED program was a key issue. Through the 1994 Bay-Delta Accord, CALFED was formed as an ad-hoc planning consortium of some 15 state and federal agencies. With most of its staff on loan from these member agencies and with no budget of its own, there was concern about the potential conflict between the various agencies' regulatory requirements and the management duties of CALFED. CALFED officials also wanted more budgetary and contracting authority, allowing them to buy their own office supplies and award their own grants. As a consortium, another state or federal agency had to do both – creating an extra layer of red tape in the grant approval process and delaying the approval and financing of projects selected for grant funding.

The final days of the 2001-2002 legislative session saw passage of bill creating the California Bay-Delta Authority within the purview of the Resources Agency. The bill was signed into law by then-Gov. Davis, establishing the Authority as of Jan. 1, 2003. Members include representatives from six state and six federal agencies (although the federal members are non-voting given the expiration of federal authorization to participate in CALFED); five regional, public members appointed by the governor; a member of the Bay-Delta Public Advisory Committee (BDPAC); and two at-large public members appointed by chairs of the Assembly and Senate water committees. The chairs and vice chairs of those legislative committees are ex-officio members. The Authority will sunset as of Jan. 1, 2006, unless federal legislation has been enacted to authorize he participation of the federal agencies.

In 2003, several Authority appointments were announced: Patrick Wright as Executive Director, and regional representatives Patrick Johnston, Bay-Delta; Jim Costa, San Joaquin Valley; Susan P. Kennedy, San Francisco; Alfred Montna, Sacramento Valley, and Paula A. Daniels, southern California. Marc Holmes of The Bay Institute is the Senate appointee, Daniel Wheeler of the United Association of Plumbers, Pipe Fitters and Sprinkler Fitters International Union is the Assembly appointee and Gary Hunt serves as the BDPAC representative.

The Authority held its first meeting in July, with subsequent meetings held every two months.

Environmental Water Account (EWA)

In order to increase water supply reliability for water users while not impacting endangered fish, CALFED established an Environmental Water Account (EWA.) Five CALFED agencies are partners in the EWA: USFWS, NMFS, DFG, Reclamation and DWR. The EWA was designed to protect at-risk native fish species (primarily Chinook salmon and Delta smelt) by limiting SWP and CVP pumping at certain times of the year. For example, biologists monitoring for the presence of out-migrating salmon down the Sacramento River could advise the projects to curtail pumping and reduce diversions to avoid drawing fish into the pumps. Once the salmon were safely past the pumps, normal operation would resume.

A pilot program set to expire in 2004, the EWA has provided 900,000 acre-feet of additional water above the regulatory baseline to protect the environment at a cost of $120 million. CALFED officials say the pilot program worked, pointing out that no big fights had occurred over fish pumping restrictions since the program began operation in 2002. They also say that fish populations have stabilized, despite two dry years.

The CALFED ROD defined the EWA as a four-year program, unless the EWA agencies agree in writing to extend the program. An EIS/EIR released in January 2004 by Reclamation

and DWR analyzes the continuation of the EWA through 2007. (See the Program Developments section for more information.)

Environmental Justice

Both the ROD and MOU signed in 2000 include provisions related to the issue of environmental justice. Environmental justice has been defined as the pursuit of equal justice and equal protection under the law for all environmental statutes and regulations without discrimination based on race, ethnicity, and /or socioeconomic status. This concept applies to governmental actions at all levels – local, state and federal – as well as private industry activities. Federal and State authorities that require agencies to address environmental justice issues within the scope of their programs and activities include Federal Executive Order 12898, Title VI of the Civil Rights Act and recent California legislation.

Broadly speaking, environmental justice activities are designed to prevent minority or low-income communities from being subject to disproportionately high and adverse impacts and environmental effects from the development of such things as landfills. CALFED's effort focuses on examining the potential effects of water management reforms on rural communities and the public health and financial impacts of other program activities on minorities and disadvantaged people living in urban as well as rural areas.

The CALFED BDPAC established the Environmental Justice Subcommittee to serve as an advisory committee to, among other items, work to achieve the goal of integration of environmental justice into all CALFED Program elements. Membership thus far has been open, consisting of individuals representing a wide array of interests including environmental justice, tribal, agricultural, urban, environmental, local government, community organizations, recreational, fisheries and wildlife, universities, businesses, and state and federal government. But at its January 2004 meeting, the subcommittee decided to pursue a regionally based, more formal membership structure with five members from each CALFED region, including representatives for local government, community based, agency and other CBDA-related interests. A list of 50 potential representatives was to be presented to Executive Director Patrick Wright with the membership proposal forwarded to BDPAC for consideration at its mid-March meeting.

Where We Are Today

The CALFED Bay-Delta Program was formed in an effort to replace conflict and controversy with a common vision and a plan to "fix" the Delta. The release of the 2000 Framework Agreement and other documents capped more than five years of effort to resolve problems stemming from the Delta's dual role as the hub of the state's water system and home to a wide variety of fish and wildlife. For the federal and state agencies, it was a significant step. Where agencies were once often at-odds over the Delta's conflicting roles, a new culture of cooperation has emerged. Staff from the more than 20 state and federal agencies that comprise CALFED meet often to share information on Delta water quality, fisheries populations and water project operations.

Financing the program has become a major issue. As originally envisioned, Stage 1, the first seven years, was an ambitious $8.7 billion program with a long menu of new programs and projects to implement. As proposed, the plan envisioned a three-way split: $2.4 billion from the federal government, $2.5 billion from the state government and $2.5 billion through local user fees, with each program element having its own cost-sharing formula. Identified sources of funding include state bond measures, restoration fees paid under the CVPIA, state and federal budget allocations and user fees designed to fulfill the "beneficiary pays" principle of CALFED.

Four years later, CALFED officials say they are making better progress on some portions of the comprehensive plan than others, particularly on program elements funded by Propositions 204, 13 and 50 – bond measures passed by the state's voters in the last eight years. Less

progress has been made in areas more dependent on state or federal budget items such as water quality and, in certain cases, levees. This has been exacerbated by the state's staggering budget deficit as well as a lack of federal funding. While bond monies have been one of the primary sources of funding, Gov. Schwarzenegger's proposed budget includes a deferment on any bond funding (Proposition 50) until sometime this spring, with the promise to evaluate various alternatives to reorganize and streamline existing resource conservation efforts. And in keeping with reductions made to other state agencies, his proposed 2004-05 budget also includes a 22 percent reduction ($2.4 million) in state general funds for the Authority.

Federal elected leaders have yet to reauthorize the government's participation as the FED component of CALFED – because of differences of opinion over some elements of the program – which has hampered the Authority's ability to garner federal budget appropriations. In February 2004, President Bush proposed spending $15 million for several key elements of the program in fiscal year 2005, money in addition to appropriations in federal agency budgets, including the CVP Restoration Fund. to support CALFED activities. Included in the President's proposal is $2 million for water storage feasibility studies, $8 million for the Environmental Water Account, $1.5 million for planning and management activities, and another $3.5 million for conveyance, water use efficiency and ecosystem restoration activities previously funded in other areas of the federal budget. Getting this money appropriated, however, may prove difficult.

In October 2003, Authority staff released the "Developing Bay-Delta Program Finance Options – Framework & Issues Report," the first of a series of reports being prepared in 2003 and 2004 by staff and consultants for development of the long-term finance plan. The initial report describes a framework to follow and summarizes finance issues, designed to help guide development of a Bay-Delta Program Finance Options Report in 2004.

The staff developed framework proposes four interconnected steps for collecting data and developing information on costs, benefits, and finance options:

1. Determine program or project funding requirements (i.e. what will this cost?)
2. Identify cost responsibility (i.e. who pays how much?)
3. Develop revenue mechanisms and financial structure (i.e. how will the Bay-Delta Plan be paid for over time)
4. Develop an accounting system to organize and track finance information

The October report explains the issues and steps necessary to formulate information for each of the above four items. It also analyzes the 12 Bay-Delta Plan financial concerns raised by the various stakeholder groups, BDPAC members, state and federal managers and others. These include using public funds for locally cost-effective projects; counting local contributions to the Bay-Delta Plan, the difficulty of quantifying and tracking benefits; assurances; financing tools; and funding for science and monitoring.

An underlying theme to many of these issues relates to the CALFED principle of "beneficiary pays" – that those who benefit from certain projects should help pay for them. The issue for the Authority and its member agencies is determining who benefits from what project, how to quantify the degree of benefit and then decide which interest(s) should pay, and how much. Political tensions surround this issue because many of the water user groups contend they should be exempt from such fees while the environmental community strongly supports them.

On the policy side, although the CALFED program has garnered considerable stakeholder support – with many local water districts, consultants and nongovernmental organizations forming partnerships with agencies and securing grants to conduct studies and initiate new programs – periodic dissension over certain elements of the plan continue to arise from all sectors.

Some groups critical of the plan became legal adversaries. Just weeks after its June 2000 release, the California Farm Bureau Federation, Municipal Water District of Orange County and the Regional Council of Rural Counties (RCRC) filed suit against the plan, challenging the

adequacy of its EIR. The Municipal Water District of Orange County settled its lawsuit with CALFED in late 2001. The Farm Bureau and RCRC cases were combined.

In April 2003, a Sacramento Superior Court judge upheld CALFED's EIR report for the CALFED Bay-Delta Program, rejecting arguments by the Farm Bureau and RCRC that the report failed to adequately address several issues, including the program's potential impacts on agricultural lands. The Farm Bureau appealed this ruling in June 2003, saying that by taking away farmland and water, "the CALFED program depletes the environment needed to support sustainable farming communities." RCRC also appealed the decision.

More recent criticism has focused on the plan to proceed with those conveyance and water supply elements in the ROD such as increasing SWP pumping to maximize deliveries to southern California and the San Joaquin Valley and construction of an intertie between the SWP and CVP. The proposal, first unveiled by operators and contractors of the SWP and CVP in mid-summer, has generated concern among environmental groups and in-Delta water users. State Sen. Mike Machado, D-Linden, who represents the Stockton area and serves as chair of the Senate Agriculture and Water Committee, introduced legislation in January, SB 1155, that would prohibit the increased pumping until several specific conditions are met.

Regional Implementation

Guiding implementation of the plan, CALFED agencies are focusing not just on the 11 program components, but also how they work within different regions of the state. Five regions – the Delta, the Bay, the Sacramento Valley watershed, the San Joaquin Valley watershed and southern California – have been identified. And all program components – from fish screens to water quality to storage – for each of these regions are being pursued simultaneously.

For example, to meet these three goals in the Sacramento Valley watershed, 1) restoring habitat, 2) improving water quality and temperature in the Sacramento River; 3) improving reliability of the water supply for agriculture and urban users, CALFED agencies developed this list of strategies:

- Managing surface and groundwater storage conjunctively (potential projects include expanding Lake Shasta, Sites Reservoir and locally controlled groundwater storage)
- Allowing users more flexibility to switch between surface and groundwater supplies.
- Improving fish passage. Providing drought-year supplies.
- Providing greater transfer capacity.
- Restoring degraded salmon/steelhead spawning areas and improving fish access to other areas, working through local partnerships.
- Improving flood management.
- Developing locally led watershed programs with multiple benefits.
- Improving riparian habitat in the Sacramento River and tributaries (establish meander corridor).

Local involvement is key in all the regions. Rather than proceeding with a top-down approach of state and federal agencies choosing which programs to implement and where, CALFED invites local agencies and organizations to submit proposals (RFPs) to develop specific programs and projects that meet CALFED goals – such as construction of a fish screen on a particular diversion facility.

These projects are then screened and prioritized with the top projects selected to receive grant funds. CALFED staff sends out public notices as RFPs (requests for proposals) soliciting projects for different program elements when funding awards are to be announced. These RFPs, in turn, contain deadlines for each project. By focusing either on the five CALFED regions and/or certain program elements, reporters can track progress on fulfilling the preferred alternative and making physical changes/improvements to the Bay-Delta Estuary and its watershed. CALFED also issues an annual report that updates progress on the plan and in July

2001 released a briefing booklet that detailed funding commitments and projects underway throughout the CALFED solution area. These documents are available from CALFED.

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Federal Authorization/Funding

The history of the CALFED program rests on one major principle – that the state and federal agencies with water management and fish and wildlife responsibilities work together to resolve the many conflicting problems of the Bay-Delta Estuary. Their partnership as "CALFED" in the early 1990s was, indeed, an historic event in the ongoing saga of how to manage the estuary.

But congressional authorization for federal agencies such as Reclamation, USFWS, NMFS and EPA to continue to partner with California as the "FED" part of the program expired in fiscal year 2000. The various agencies have continued to participate in the Bay-Delta Authority on a voluntary basis, but gaining reauthorization for their official participation in the Authority has so far ended in a political stalemate.

The 2003 congressional session generated a year of debate and discourse over legislation to provide federal reauthorization and funding for CALFED, ending without either of two authorization/funding bills – S. 1097 by Sen. Dianne Feinstein, D-Calif., and H.R. 2828 by Rep. Ken Calvert, R-Riverside – reaching the floor.

The same bills remain in play during this year's 108th Congressional session. Feinstein's bill received a hearing last fall and negotiations among staff are underway trying to get it ready for an early April markup in Senate Energy and Resources. Calvert's bill did pass the Water and Power subcommittee and is awaiting full committee action. His bill authorizes federal participation in the Bay-Delta Program through 2007 and authorizes $880 million for the federal share of the collaborative state-federal effort. It will become a Chairman's mark, under Rep. Richard Pombo, R-Tracy. Political observers say Pombo is hoping negotiations between the in-Delta users and the Delta exporters over the proposed increasing pumping will produce language for the bill.

Although staff at the Authority have concluded that nearly all of the specific projects in the ROD are authorized under existing statutes, including the Reclamation Act, the CVPIA and the Clean Water Act, they say federal legislation is needed to authorize federal involvement in their efforts to better coordinate these programs with state and local programs to address the state's water supply, water quality, and ecosystem restoration needs.

In testimony last fall before the U.S. Senate's Subcommittee on Water and Power of the Committee on Energy and Natural Resources, Authority Director Patrick Wright said: "With a governance structure and state funding in place, our primary goal now is to secure federal authorization and funding for the program. That is the only way we can continue to have a strong state/federal partnership, rather than a state effort with limited federal oversight. At present, lacking specific authorization to be full participants, the federal members engage in discussions but do not vote. In addition, the legislation establishing the Authority contains a sunset clause that will eliminate the program unless a federal authorization bill is passed by 2006."

Gov. Schwarzenegger has expressed strong support for maintaining a strong stated-federal partnership in implementation of the CALFED ROD. In his state-of-the-state speech, he called upon the state's congressional delegation to set aside party differences and speak with a united voice in Washington, D.C. And in a letter to President Bush, Schwarzenegger urged the president "to work with me in supporting the efforts of the California Congressional delegation to pass legislation authorizing formal Federal participation in the new Authority and to support increased Federal appropriations ... to maintain a balanced program."

In a February 2004 letter to Schwarzenegger, Interior Secretary Gale Norton agreed that "a strong Federal and State partnership is essential if we are to effectively address the many challenges that have arisen in the course of transitioning from a planning process to an implementation program." But, she noted, "One of our greatest challenges will be to adjust the program to recognize that funding on both the Federal and State sides simply cannot meet the expectations laid out in the planning documents."

Given the divisions within the California congressional delegation over the language federal legislation to authorize and fund the Authority, the budget problems and the fact that it is a election year, many political observers hold out little hope for an authorization bill to pass the 108th Congress.

Program Developments

Levee System Integrity Program

In the first three years of the Program, funding through the Delta Levees Subvention Program helped preserve 700 miles of Delta levees and make minor improvements while enhancing the Delta environment. Some $37 million has been invested over three years in levee system improvements.

Some specific projects identified in the Authority's 2003 Annual Report included providing funding to improve 40 miles of Delta levees, including projects on Sherman, Bradford and Jersey Islands and Webb Tract, and reusing more than 324,000 cubic yards of dredged material to increase levee stability while enhancing habitat.

Another major accomplishment was the Twitchell Island Levee Setback Project, which included construction of a 3,000 foot section of setback levee, with a bench, protected shallow channel, and a new stability berm. The new levee was constructed 100 feet landward of the old levee. A channel was developed between the new crest and the old levee to establish its current form. In order to manage the maintenance and erosion on the waterside of the new levee slope, native grasses were planted. The habitat developed as part of this levee stability project provides shade and moderate temperatures for fish and aquatic animals, as well as vegetation for nesting and feeding areas for birds.

Although Levee System Integrity Program has been impacted by the state's fiscal crisis, Proposition 50 provides $70 million, or approximately two additional years of funding. This will allow the levee program to move beyond maintenance and make some long-term levee improvements.

Authority officials warn, however, that without a reliable source of adequate long-term funds, the Levee System Integrity Program will not be able to make the long-term improvements necessary to protect Delta assets including: land and infrastructure, the environment, Delta and export water quality, and water supply reliability for the state and federal water projects. They say lack of federal authorization for the levee program also continues to have an adverse effect on its implementation.

Water Quality Program

During the first three years of implementation of the ROD, the CALFED Drinking Water Program awarded $34 million in grant funding to 21 water quality projects, with an emphasis on source improvement, treatment technology and science. Funded projects include a pilot study on options to reduce dissolved organic carbon and nitrogen exports from rice fields; a research study by Solano County Water Agency to investigate ion exchange technology for removing organic carbon from abandoned mines; a regional study of using membrane technology to treat and recycle agricultural drainage water; and a study of the use of ultraviolet light in disinfection process, which could lead to advances in treatment technology that reduce potentially harmful by-products of chlorine disinfection.

The Bay-Delta agencies also are working to address organic carbon, mercury, selenium and low dissolved oxygen problems through major research and monitoring programs. Staff members say the knowledge gained through these studies will help shape the program's future efforts to improve water quality for fish and wildlife and to protect public health.

In January, the Authority's Science Program released its final mercury strategy, a document outlining an approach for integrated mercury investigations linked to restoration and adaptive management within the Estuary. Ecosystem restoration and management of the Bay-Delta ecosystem are complicated by mercury contamination from historic mining sites in the Sacramento and San Joaquin river watersheds. Mercury-enriched sediment contaminates extensive downstream reaches of streams and rivers, adjoining floodplains and the Estuary itself. Concentrations of methylmercury in some resident fishes exceed the U.S. Environmental Protection Agency's fish-tissue criterion of 0.3 mg/kg (parts per million) wet weight for protecting the health of humans who consume estuarine fish.

The goal of the mercury strategy is to provide a unifying framework for the integrated investigations needed to build a scientific foundation for ecosystem restoration, environmental planning, and the assessment and eventual reduction of mercury-related risks in the Bay-Delta ecosystem. The strategy was developed by a team of independent scientists, with input obtained in two public workshops attended by resource managers, environmental planners, scientists, and other stakeholders from the region, as well as external technical experts.

The Drinking Water Quality Program has been adversely impacted by the lack of consistent funding and has been unable to make significant progress toward achieving some ROD goals. (Proposition 13, for example, did not include much money for water quality projects.) Contracting issues, staff reductions resulting from the state's budget crisis and the lack of funding have affected implementation of projects. Proposition 50, however, provides nearly $2 billion for statewide water quality programs, of which, more than $500 million could contribute to Bay-Delta Program drinking water quality objectives.

Ecosystem Restoration Program

During the first three years of implementation of the ROD, CALFED member agencies have invested $476 million in over 400 projects aimed at improving and restoring ecosystems stretching from Battle Creek in the northern Sacramento Valley to the Merced River in the San Joaquin Valley. More than $80 million awarded in 2003.

Highlights touted in the Authority's 2003 Annual Report include the protection or restoration of 100,000 acres of habitat; funding 68 new or improved fish screens; and the Sacramento splittail's removal from the list of threatened species because threats to this fish are being addressed through restoration actions. Progress also has been made on restoring ecological processes and habitats; the Upper Yuba River Studies Program; development of a mercury strategy (see above) with the science program; and studies of dissolved oxygen problems on the lower San Joaquin River.

The state's fiscal crisis has impacted staff resources, and contracting constraints have delayed preparation of a Delta-wide ecosystem restoration plan and implementation of aspects of the Single Blueprint for restoration activities. Proposition 50 provides $180 million to support ERP implementation over the next two years, including not less than $20 million to assist farmers in integrating agricultural activities with ecosystem restoration, but funding for ERP projects beyond 2003 is unclear. Concerns about the impact of some ecosystem restoration projects on farmland, especially those designed to create new wetlands and other habitat, prompted CALFED to form a new subcommittee and work plan to address those concerns.

Water Use Efficiency Program (Water Conservation and Recycling)

In the ROD, CALFED agencies made a commitment to improve water conservation measures and increase the amount of water recycling to create a more reliable, flexible supply of water. Efforts to implement those elements continued in 2003, with much of the focus on completing a two-year effort to develop an appropriate way to measure the amount of water cities and farms conserve, and how such a measurement program should be managed or regulated.

In January, the Authority announced that it was seeking public input on a staff-developed proposal for ways to implement such a measurement program. The document was developed with the help of an independent scientific review panel, two ad hoc stakeholder work groups and a series of technical and public workshops to identify critical water use measurement gaps and needs related to overarching state and federal water management objectives. According to the Executive Summary, the findings "paint a picture of a system struggling to and falling far short in adequately assessing water use in California. Key failings include inconsistent and redundant state requirements and incomplete and incompatible measurement and reporting of crucial water use data by both local water suppliers and the state."

Key components of the staff's proposal include:

- Development and maintenance of a coordinated water use database and reporting standards, which also would entail development of associated data collection and reporting standards and protocols. The goal of this new system is to combine existing reporting requirements and eliminate redundancy.
- Measurement of urban service deliveries for suppliers above a certain size, which would affect about 7 percent of the state's urban water suppliers who are not currently measuring such deliveries. To assist in the cost of retrofitting systems to allow for such measurements, staff proposes to provide state grant monies.
- Reporting of aggregate farm-gate delivery data, which would require agricultural water suppliers above a certain size to report aggregate farm-gate delivery data. This would impact all affected water suppliers, as this is a new requirement.
- Measurement and reporting of agricultural diversions, which would require agricultural water districts and individual water diverters above a certain size to measure diversions using the best available technologies, and report this data annually to the state. Staff estimates that this requirement would affect about 20 percent of agricultural water suppliers, but that the increased reporting requirement would impact all affected agricultural water suppliers.
- Measurement of crop consumption and net groundwater usage, which is designed to upgrade the state's current methods for measuring crop consumption and net groundwater usage. This action would have no impact on locals but would drastically improve the state's ability to project water use.
- Development of an ongoing research and adaptive management program, through which the state would ensure continued effective measurement by utilizing the latest information on emerging technologies and shifting economics.

Among the various stakeholder groups, some of these proposals are more controversial than others. But Authority staff believes they represent a "balanced package" because both efforts include changes that would impact and potentially benefit all users; demand significant financial commitments and would embed a significant enough shift from current policy to require legislative action (farm-gate for agriculture, service meters for urban).

As currently planned, the Authority staff will forward the draft document to advisory and decision-making committees in March and April, and incorporate any changes as they work to refine the proposals.

In other activities since implementation of the ROD began, the Water Use Efficiency Program has:

- Issued 69 urban water conservation grants and 23 agricultural water conservation grants for a total of 40,775 acre-feet estimated annual water savings and an expected total water savings of 754,621 acre-feet from 2001-2003.
- Issued $13.5 million in grants to water suppliers through Reclamation's Water Conservation Field Services Program.
- Awarded six water recycling loans totaling $72 million. Additionally, $20 million of State Revolving Loan funds were committed for water recycling projects. The projects receiving loans are estimated to increase the amount of water recycled by 36,000 acre-feet annually.
- Awarded 20 water recycling grants to local agencies totaling $57 million, the total amount of water recycling construction grant funds available from Proposition 13 and remaining Proposition 204 funds. Proposition 50 provides an additional $180 million that will provide funding over the next three years to support portions of the Water Use Efficiency program.

Water Transfers Program

In 2003, the Water Transfers Program assisted in the transfer of 515,000 acre-feet of water, including water for the Environmental Water Account, with more than 1 million acre-feet transferred during the first three years of implementation of the ROD.

As of early 2004, the On Tap web site was temporarily off line while it was being revamped and expanded. The site, which originally went on-line in 2001, is designed to provide a database of past and current water transfers where visitors can log in and discover the amounts of water being transferred, the duration of such transfers, and how the water was made available for transfer, i.e. through conservation measures. It was due to be up and running by April 2004.

Other major projects underway in late 2003-early 2004 include:

- Completion of the water transfer EIR regarding state-sponsored water transfer-related activities that DWR is preparing. The EIR will evaluate the transfers in which DWR or its contractors plan to move water across or through the Delta from areas upstream of the Delta. Its scheduled completion date is April 2004.
- Coordination of water acquisition and transfer programs, including the EWA, CVPIA, waterfowl refuge supply program, the state's dry year Program, the Colorado River Contingency Program of 2003 and dry year efforts by CVP Contractors and others rely on water transfers across the Delta as a water supply. CALFED agencies realize these programs must coordinate their activities to assist in the management of the CVP and SWP and maximize the conveyance of transferred water. The coordination effort was launched in summer 2003 with a goal of having criteria in place to guide water year 2004 transfer/purchase arrangements.

Watershed Program

Much of the focus of the CALFED Watershed Program is to work with local organizations and agencies to develop, implement and monitor specific watershed plans on specific rivers and streams. The Watershed Program has awarded 83 grants to 50 community-based organizations for projects addressing watershed health, drinking water quality, non-point sources of pollution and watershed protection.

Twenty-one of the watershed grants primarily support ERP goals. Through Watershed Program grants, 43 projects for $12 million have been funded primarily supporting water quality goals.

The Watershed Program offers funding, coordination and technical assistance help locally led water management activities get off the ground. As of 2003, the program had provided funding for 20 watershed coordinators located throughout the Bay-Delta solution area.

Contracts were finalized and work initiated on 51 of 83 local watershed projects funded during the first two years of the Program. But the 2003 grant funding process (for year three) currently administered by the State Water Resources Control Board was not expected to be

completed until early 2004. Contracting delays also put implementation of all second-year grant projects well behind schedule. And as with other elements in the ROD, the current state budget crisis and lack of funding for federal agencies to implement the Watershed Program has affected staffing, technical assistance, science and outreach efforts, with bond monies being the primary funding source. Proposition 50, for example, provides $90 million for implementation of the watershed program for 2003, 2004 and 2005.

Storage

The 2000 ROD was designed to provide the blueprint for a new approach to managing the Bay-Delta system, but one piece continues to invite much debate among stakeholders in 2004: construction of new surface storage projects. With studies underway on five potential projects identified in the ROD, the question of whether to add to the network of dams, reservoirs and canals that already crisscross the state has taken on powerful symbolic meaning to the California water triad: agricultural, environmental and urban water interests.

Agricultural water stakeholders are the biggest proponents of building new surface storage – voicing strong support for the new offstream, Sites Reservoir in the Sacramento Valley or an additional reservoir on the San Joaquin River.

Environmental groups, on the other hand, remain skeptical that any new surface water reservoirs are needed. To boost supplies, they first favor more groundwater banking, water use efficiency and water transfers, pushing hard to fund water conservation and recycling projects. For a new surface storage project to move forward, they say there must be strong evidence that it will not cause too much environmental damage; and that the "beneficiary pays" concept of CALFED is followed, with users, not the state or federal governments, financing the new project.

Meanwhile, urban users say it is the flexibility of the system that is at stake – not building new reservoirs to satisfy new growth – and supplying water for things such as fish flows and to improve water quality.

Work has progressed on surface storage feasibility studies for all five projects under investigation, although lack of stable and adequate state and federal funding has caused some delays. Federal authorization to conduct feasibility studies for three of the projects was not provided until 2003, year three of implementation. For example, the In-Delta Storage program has not received federal feasibility authorization. Bond funds from Proposition 50 do provide $50 million for surface storage investigations, but Authority staff said these funds will be spent before the investigations are completed.

A decision on whether to move forward on in-Delta storage is expected in 2004. In the March 2004 primary, Contra Costa County voters OK'd additional studies on a proposed expansion Los Vaqueros Reservoir, allowing the analysis of this surface water project to proceed. The Authority is expected to make further decisions on whether other surface storage projects should move forward in 2005-06. The status of the various studies/projects:

The **in-Delta storage project** proposes to convert Delta island(s) into storage reservoirs for an additional 250,000 acre-feet of water. The initial focus of the CALFED studies has been the Delta Wetlands Project. This privately proposed Delta Wetlands would flood Bacon Island and Webb Tract, turning them into shallow reservoirs, and transform Bouldin Island and Holland Tract into wetlands. The ROD also includes an option to initiate a different in-Delta storage project if Delta Wetlands proved cost prohibitive or technically infeasible.

In January 2004, DWR and the Authority, with technical assistance from Reclamation, released the completed "In-Delta Storage Program State Feasibility Study, which addresses the technical feasibility of the proposed In-Delta Storage Project. That study concluded that the project concepts as proposed by Delta Wetlands were generally well planned, but that modifications and additional analyses were required if the project were to be purchased by a public agency. Those additional studies, according to the 2004 report's draft executive summary, focused on potential project benefits and effects; project cost analyses; engineering

feasibility and risk analysis; and revised project operations that address drinking water quality concerns, especially organic carbon

After conducting these additional analyses on Delta Wetlands, DWR and the Authority concluded in the 2004 report's draft executive summary that:

- The Project construction and operation meet state feasibility requirements with an acceptable level of risk of structural failure and minimal potential for loss-of-life.
- Additional water quality field and modeling evaluations are necessary to refine project operations for organic carbon, dissolved oxygen and temperature. The recent studies indicate that circulating fresh water through the reservoirs could be effective mitigation to resolve the organic carbon issue. A final field investigations and modeling plan should be developed with recommendations from the CALFED Science Panel Review.
- The In-Delta Storage Project could provide significant improvement in the flexibility of Delta water operations.
- DWR estimates the equivalent annual cost for the In-Delta Storage Project at approximately $60 million. The Department's preliminary benefits analysis conservatively values the annual water supply benefits at approximately $23 to $26 million. This estimate is extremely sensitive to assumptions about the future cost and availability of other water management options, such as conservation, wastewater recycling and groundwater reclamation, and should be refined in consultation with potential beneficiaries and economic experts. DWR estimates that an additional $2 million in annual benefits would be associated with the recreation, flood damage reduction and avoided levee maintenance provided by the project. In addition, the project might provide other benefits, such as operational flexibility, water quality improvements, wildlife and habitat improvements and seismic stability. Before total project benefits and cost can be compared, value must be assigned to these benefits. DWR will work with BDPAC and the Authority to gather input from interested parties before completing this benefits assessment.

DWR is seeking public input on the report's findings before it will recommend appropriate next steps for the Delta Wetlands Project, a comment period that closes March 20. BDPAC and the Authority will make recommendations to DWR and Authority staff in May and June 2004 and a key decision on future project actions is planned before July 2004.

Standing 602 feet tall on the Sacramento River near Redding, **Shasta Dam** forms the 4.5 million acre-feet Shasta Reservoir. It is the keystone of the CVP. Under study through CALFED is a proposal to increase the dam's height by 6 feet, increasing storage by 300,000 acre-feet. It is the most-modest of three potential expansions analyzed by Reclamation in 1999 – 6.5, 102.5 or 202.5 feet. Those studies determined that the most modest raise had the least unit cost of storage, minimized environmental and socioeconomic impacts and was the most viable project for further analysis. The additional water would be used to provide more cold water for fish, and more flexibility of downstream water releases to improve water quality and boost instream flows.

Reclamation and DWR are now conducting systems modeling, design and cost estimates and environmental studies for an Alternatives Information Report, scheduled for completion by December. Reclamation, with participation by DWR, is in charge of conducting a feasibility study, draft and final environmental statements and a ROD on the proposed expansion, with a scheduled completion date of June 2006 for these documents.

A key issue what affect a higher Shasta Dam would have on the McCloud River and the area inundated by the dam. Although the 6.5 feet raise would produce the most modest affects of those expansions initially considered, it would increase the area inundated by the dam by 9 acres, flooding some 2,000 acres of land, including habitat along the McCloud River. This potential damage to the habitat along the McCloud River is of great concern to local American Indian tribes because it "would flood most of our remaining sacred sites along the McCloud River."

Reclamation and DWR officials are expected to examine and report upon expanded reservoir's potential impacts to the McCloud River and the potential benefits of increasing Shasta Lake cold water pool. As it stands now, Reclamation and DWR are expected to complete a feasibility study, draft and final EIR/EIS and other documents by June 2006.

CALFED agencies signed an MOU in 2000-2001 that launched a series of studies designed to evaluate the potential expansion of **Los Vaqueros Reservoir**. There is a note of irony in discussions over expansion of this offstream reservoir, located just south of the Delta in Contra Costa County. When the Contra Costa Water District (CCWD) began initial planning for the reservoir's construction in 1988, officials sought Bay Area partners, with a goal of building up to a 500,000 acre-feet reservoir. No one stepped up, so the district ultimately financed its own smaller 100,000 acre-feet reservoir using local bond funds. Construction was completed in 1998. The reservoir is designed to store water diverted from the Delta during the winter to early summer when high runoff improves water quality (reducing salt) so it can later be blended with water diverted in the late summer and early fall, when Delta water is saltier. The reservoir also provides CCWD with an emergency water supply.

Under consideration by CALFED is a proposal to expand Los Vaqueros to as much as 500,000 acre-feet. Preliminary feasibility studies conducted by CCWD in partnership with DWR and Reclamation began in January 2001. A draft feasibility report released in May 2003 estimated the cost of the expanded reservoir between $1 and 1.5 billion, depending on its size and accompanying facilities with water selling for $150 per acre-foot, if the reservoir were expanded to include environmental water storage and Bay Area drought supplies. South Bay Aqueduct contractors – Zone 7 Water Agency, Santa Clara Valley Water District and Alameda County Water District – are identified as potential partners. The larger reservoir also could allow for the storage of high quality water at times of the year when there is less impact on Delta fish. Fishery agencies could then restrict SWP and CVP pumping at times crucial to protect fish, and the fishery agencies could "pay back" the water lost by drawing on the larger Los Vaqueros for South Bay Aqueduct contractors.

The expansion would require a lot more construction than the word may convey. The existing reservoir would be drained and its dam torn down, with a new dam built to form the larger reservoir, flooding an additional 2,000 acres of habitat. Estimated construction time? Four years.

CCWD would benefit from the expansion through cost sharing. Partners would finance the expansion, with state and federal agencies paying for environmental storage and other project financing their portion. Under the beneficiary pays principle CCWD would pay for its portion of the expansion, but partners would reimburse the district for the cost of existing facilities shared or used in the expansion, offsetting CCWD's project costs with a potential net reimbursement of up to $200 million. CCWD could use this money to purchase additional water storage in the expanded reservoir or reduce its debt on the existing Los Vaqueros Reservoir.

Before proceeding with further analysis of the proposal, CCWD's Board of Directors voted in July to place the question of Los Vaqueros' expansion before local voters. In March 2004, voters approved further study of the project, with 61 percent in favor of the local Measure N. With this vote, further analysis of the proposed reservoir expansion will proceed, which will lead to a formal environmental review of the proposed project. A Notice of Intent/Notice of Preparation will be issued by May 2004 with a draft EIR/EIS scheduled for completion by the end of 2004 and a final EIR/EIS and preliminary design scheduled for completion by mid-2005. If the reservoir expansion is ultimately approved, construction on some facilities could begin as early as the end of 2005.

Raising Shasta Dam is one of two proposals in the ROD to increase surface storage in the Sacramento Valley watershed; construction of the new offstream **Sites Reservoir** near Maxwell is the other. As outlined in the ROD, the 1.8 million acre-feet reservoir at Sites, with a projected capital cost of about $1 billion, could enhance water management flexibility north of the Delta by

reducing water diversions on the Sacramento River during critical fish migration periods, and it could increase reliability of supplies for local users. It also is viewed as a potential source for EWA water and other environmental restoration activities.

In 2001, CALFED agencies signed a Memorandum of Understanding with the Glenn-Colusa Irrigation District (GCID) and Tehama-Colusa Canal Authority to develop a joint planning program. A scoping report on the north-of-Delta-storage proposal was released in October 2002. DWR and Reclamation, in coordination with the Planning Partnership, are now preparing a site-specific EIS/DIR on the project while DWR, in coordination with Reclamation, is developing an engineering feasibility study.

The original schedule had called for DWR and Reclamation to complete these environmental review and planning documents by August 2004; the due date is now June 2005.

One stakeholder said Sites and the Shasta raise might have an edge over other proposals if one considers how rapidly new surface storage could respond in providing more water for water quality or fish flows, because the water could be quickly released into the river to provide instream benefits. Plus, storage higher up the Sacramento River watershed could provide water for fish spawning and migration needs. Another stakeholder, however, said although Sites is a good dam site, the project's biggest drawback is that filling the reservoir would use significant electricity and the facility would generate little to no power. Also, the best time of year to fill Sites may coincide with the best time of year to increase Delta exports (see below), which would be of more benefit to south of the Delta agricultural and urban water users.

Six options are under evaluation in the investigation of ways to **increase San Joaquin River storage**. As identified in the CALFED ROD, the goal is to enlarge Friant Dam, or add its equivalent, increasing San Joaquin watershed storage by 250,000 to 700,000 acre-feet. The ROD's goals include contributing to San Joaquin River restoration, improving San Joaquin River water quality, and facilitating conjunctive use and water exchanges that improve the quality of water delivered to urban communities.

Reclamation released its draft Phase 1 of the study (in progress) in January 2003, with six of the original 16 options for expanded storage retained for further study. (Two others, enlargement of Lake Kaweah and Lake Success, were identified as projects that already have received construction authorization under the U.S. Army Corps of Engineers.) Along with enlarging Friant Dam, these proposals made the first cut: construction of Temperance Flat Reservoir, construction of Fine Gold Reservoir, enlargement of Kerckhoff Reservoir, enlargement of Mammoth Pool and construction of Yokohl Valley Reservoir. These range considerably in size (three different dam sites/reservoir sizes for Temperance Flat alone are under study) with an estimated price range of $100 million to $1.5 billion. As with the other storage studies underway, no specific beneficiaries have yet been identified, so planners are unable to calculate the true value of the resulting water. A series of public scoping meetings were held in March regarding potential actions to increase water storage in the Upper San Joaquin River Basin.

Supporters of increasing storage on the upper San Joaquin River say the additional water could help boost instream flows, supply water for east San Joaquin Valley farms and growing cities, provide for greater river releases to freshen and improve Delta water quality downstream, and play a role in water exchanges that could provide better quality domestic water.

Environmentalists, however, challenged the results of the Phase 1 Upper San Joaquin study because it shows all the water being diverted upstream through Friant-Kern Canal or the Mendota Pool, which would worsen conditions for that stretch of the river between Mendota Pool and Gravelly Ford that often runs dry. How to restore this stretch of the river has been the subject of a lawsuit between the Natural Resources Defense Council and the Friant Water Users Authority for years, and an effort to reach a collaborative solution broke down last year, leading to increasing tension among the different sides over the future of the San Joaquin – and a resurrection litigation filed by environmental groups years ago.

Even as DWR and Reclamation continue to work with local water agencies, environmental groups, and local stakeholders to advance the development of a restoration plan, the Bay-Delta Authority has concluded that a scientifically based environmental restoration plan for the upper San Joaquin River is necessary to study the potential water project's contribution to restoration of the river.

In February 2004, Reclamation announced that it will prepare an EIS, pursuant to the National Environmental Policy Act, to evaluate proposed actions to increase water in the upper San Joaquin River basin by raising Friant Dam or with a functionally equivalent storage program. At the same time, the DWR is preparing an EIR in compliance with the California Environmental Quality Act.

In addition to these surface storage studies, CALFED staff and the member agencies have pursued several potential **groundwater storage projects**. The idea of banking water underground in wet years for use in dry years, known as conjunctive use, is not as controversial among stakeholders as increasing surface storage. Significant funding from the water bonds has allowed many locally managed and controlled groundwater feasibility studies and pilot projects to be developed.

As of 2003, the Authority had signed agreements for 16 groundwater partnerships and Memoranda of Agreement and invested $131 million in 104 groundwater projects with a potential yield of 210,000 acre-feet.

Long-term Environmental Water Account

The Authority's member agencies generally agree that the experimental EWA has been a big success, helping to prevent some of the big fights over fishery protection so they are committed to establishing a long-term EWA. The long-term EWA will likely draw on new management tools, such as groundwater banking and exchange agreements with contractors. Observers say the continuing challenge is the continual integration of science into EWA operation because of the many variables involved with measuring overall health of fish species.

In July 2003, the EWA agencies – Reclamation, DWR, USFWS, NMFS and DFG released the draft EIR/EIS of the long-term EWA. The EIR/EIS analyzed two alternatives (along with a no-action alternative) for a long-term EWA: a flexible purchase option and a fixed purchase option.

The flexible purchase option would allow EWA agencies to purchase up to 600,000 acre-feet of water but would not restrict acquisition of the total quantities from each region. The advantage of this option is that it would allow those agencies to respond to varying hydrologic conditions. For example, during dry years, when greater export pump capacity is available, the agencies could acquire potentially up to 500,000 acre-feet upstream from the Delta for storage, pre-delivery, or delayed delivery within the export service areas. This alternative also would allow the agencies to respond to changes in existing operations and for additional upstream fish actions, such as instream flow enhancements.

As outlined in the EIR/EIS, the water project agencies would acquire water for the flexible purchase option via stored reservoir water, groundwater substitution, groundwater purchase, or crop idling to produce the water for this EWA. The agencies would acquire this water in a manner and in amounts that would not affect the environment or water supplies adversely, with an emphasis on conservation and various mitigation measures to minimize effects of this alternative.

The fixed purchase option alternative is based upon a strict interpretation of the ROD. Under this alternative, the water project agencies would acquire 185,000 acre-feet of EWA assets annually. This alternative includes a target of 35,000 acre-feet for total upstream from the Delta purchases and 150,000 acre-feet for total purchases in the export service areas. By dictating the selling region and the maximum purchase amounts, these targets provide for the maximum level of asset acquisitions and resulting types of actions that the agencies can take.

In comparing the two alternatives, the EWA agencies concluded that the flexible purchase alternative is the environmentally preferred alternative because of the increased benefits it would provide. Public hearings were held on the draft document in August and the comment period closed in September 2003.

In January 2004, the agencies released the final EIS/EIR for the long-term EWA. It reiterated the conclusion that the larger EWA with its flexible purchase option is the environmentally preferred alternative because of the increased biological benefits it would provide. "The EWA Review Panel recognizes that the largest issue of scientific uncertainty that requires attention is how take at the pumps will affect fish populations," reads the final EIS/EIR. "The Panel strongly supports an 'experimental approach to resolving scientific uncertainties through both system level and field experiments.' At this time, the Science Program staff is limited by a lack of data, but acknowledges that the EWA 'provides a valuable opportunity for experimentation that could lead to improved protection of fish species' and intends to move forward to examine uncertainties."

Because the export pumps' effects on the various fish species is difficult to quantify, it is common practice to use the salvage numbers at the pumps (the number of fish collected at pumps' fish screens) to calculate how many fish are killed by the pumps. The EWA agencies' analysis of the two proposed alternatives found that the flexible alternative would has a greater decrease in salvage for Chinook salmon, splittail, steelhead and Delta smelt compared to the baseline condition than the fixed purchase alternative.

Conveyance

During the public debate over development of the CALFED preferred alternative, one of the most controversial issues was conveyance – whether to pursue the idea of building an isolated channel to move water around the Delta or proceed with a "through-Delta" plan that consisted of making improvements to key channels and other facilities to improve the current north-to-south flow of water to the export pumps. The controversy appeared to be set aside when program leaders chose the through-Delta alternative. But as 2003 ended and 2004 began, the issue of conveyance had once again invited conflict and controversy.

At issue are those elements within the ROD that call for increasing the pumping at the SWP's Banks Pumping Plant, implementing the South Delta Improvement Program and construction of an intertie between the SWP's California Aqueduct and the CVP's Delta-Mendota Canal.

By 2002, pressure was building on officials to take action on these conveyance items in the ROD based in part on the belief by many water contractors that CALFED's promises of environmental protection and restoration had taken precedence over improved water supply and water quality. Meanwhile, it had become apparent that DWR and Reclamation officials and their water stakeholders were at loggerheads over separate but related programs to improve project operations upstream and in the Delta.

In mid-summer 2003, state and federal officials, along with their export water contractors, met in Napa to discuss ways to resolve operational conflicts to spur implementation of some of the elements identified in the ROD. Participants emerged with a draft matrix of components under the ROD umbrella including increasing the SWP's pumping capacity to 8,500 cfs during periods when plentiful, high quality water is available, as well as plans to better coordinate upstream storage and conveyance activities between the SWP and CVP.

The announcement and release of the proposal – especially the component that predicted an increased yield of at least 200,000 acre-feet of water annually that would help make water exporters south of the Delta "whole" – generated a barrage of criticism from the environmental community and in-Delta water users. Environmentalists were angry that they were not invited to the Napa meeting and argue that an increase in Banks pumping is premature given the

continued need to provide more water to fish. In-Delta users, meanwhile, fear that the increased export pumping will further erode the quality and quantity of their water.

Because the proposal was related to the ROD, Authority staff stepped in to review the components of the agreement, invite stakeholder input and comment, and coordinate the actions within the so-called "Napa Proposal" into a larger Delta Improvements Package. Their goal was to better coordinate the ideas from the Napa meeting with other conveyance programs such as the proposed long-term EWA, efforts to improve Delta water quality and the South Delta Improvement Program (SDIP). The SDIP includes construction of operable barriers on key channels to improve fishery protection and improve water quality for South Delta users. The water exporters, in turn, began to meet with the in-Delta users in an attempt to reach an accord on key elements affecting both water communities.

As of March 2004, tensions among the stakeholder groups remain high, with some likening the amount of discord to that preceding the signing of the 1994 Bay-Delta Accord. Others say the outcome of this issue could well decide the future of the Bay-Delta Authority and the CALFED plan.

Authority staff members are now working to develop by the end of March a new set of schedules and commitments related to the Delta Improvements Package. The package will be subject to environmental study and extensive public review in coming months. The Authority is slated to discuss the package and the expected new schedule at its April meeting.

Science

The Authority's emphasis on developing new information and scientific interpretations necessary to implement, monitor and evaluate the success of all CALFED program components continued in the third year of implementation. Funding to support program-wide science for the next two years stems largely from Proposition 50. But progress in other areas – integration of science within each program element, development and implementation of performance measures, identifying cross-program conflicts and opportunities – has been much more limited. The science programs have been particularly short of funds when compared to levels projected in the ROD.

In 2003, Science Program's staff continued their effort to identify knowledge gaps in a number of specific scientific areas through workshops, commissioning white papers and launching the program's web site, which includes a peer-reviewed on-line journal highlighting relevant research and monitoring. A major milestone was accomplished with establishment of the Independent Science Board and appointment of world-renowned science experts to provide external peer review on the various program elements. And when it comes to water, salt and fish, scientists have been studying some fundamental issues: how do water, salt, and fish move through the Delta?; the effects of water project operations; how models have changed; what should be done differently as a result; and how to overcome the mismatch between science and water project management.

Among other specific accomplishments in 2003, the Science Program:

- Held workshops on Delta salinity, Battle Creek salmon, Delta smelt and non-native species. The workshops offered an in-depth look at new data and the state of science on issues critical to the health of the Bay-Delta ecosystem.
- Carried out studies and analyses on Delta water quality, sediment issues, Delta hydrodynamics, real-time fish movements and salt transport at the Delta Cross Channel.