# California Bay-Delta Authority




2003 ANNUAL REPORT

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# INTRODUCTION



## Annual Messages

As the Chair of the Bay-Delta Public Advisory Committee (BDPAC) and the new Chair of the Bay-Delta Authority, I have seen firsthand that the Program takes seriously its commitment to collaborative solutions, extensive public and stakeholder involvement, and balanced implementation. With the establishment of the new Authority and passage of Proposition 50, we have the leadership and the resources necessary to build on these strengths to meet the diverse water needs of the state.

This next year, our top priorities include:

- Securing long-overdue federal legislation authorizing the Program
- Developing a long-term finance plan to address our funding needs
- Completing a balanced package of Delta improvements
- Facilitating the development of local and regional integrated water management plans

I look forward to working with the Authority and BDPAC to accomplish these ambitious goals and others as we continue working to ensure a healthy ecosystem and a reliable, high quality source of water for all Californians.

**Gary Hunt**
*California Bay-Delta Authority Chair*

In looking back on the first three years of the Bay-Delta Program, there is no question that this unprecedented collaborative effort is paying great dividends for the people of California. Since the CALFED Plan was issued in the summer of 2000, we have:

- Invested nearly $2 billion in water supply, water quality, and ecosystem restoration programs
- Significantly reduced conflicts over delta operations through better agency coordination and the new Environmental Water Account
- Established a new governance structure to oversee implementation
- Launched an independent science program, which brings national experts together to conduct workshops and reviews of all major program activities

If there is a common thread among these accomplishments, it is the importance of leadership – from our member agencies, our Advisory Council, and the hundreds of stakeholder representatives and scientists who actively participate in the program. As a new set of leaders emerges from the Authority and the new state administration, their support and direction will be vital to meet the challenge of securing California's water future.

**Patrick Wright**
*Director*

# ACCOMPLISHMENTS SUMMARY

Now in its fourth year of implementation, the Bay-Delta Program is delivering on its promise to break through years of gridlock and litigation by providing a balanced, collaborative approach to the state's most challenging water issues. Fish populations are improving, water supplies are becoming more dependable and several large-scale water quality projects are underway.

The California legislature established the California Bay-Delta Authority as a new governance structure to oversee the Program and the CALFED agencies. Collectively these agencies have allocated nearly $2 billion for local projects to expand groundwater storage, ensure efficient water use, increase water recycling, stabilize levees and restore ecosystems.

## Highlights of Accomplishments in Years 1 – 3

- CALFED agencies have achieved major progress on **groundwater storage**, with more than $180 million in grants and loans awarded for local projects that will improve groundwater management and increase the water supply yield from groundwater storage and conjunctive use by more than 200,000 acre-feet a year. Groundwater storage projects are increasingly providing multiple benefits, including water quality improvements, environmental enhancement and flood control.
- **Surface storage** feasibility studies are well underway on all five potential projects under investigation. The projects could increase the state's water storage capacity and add flexibility needed to protect at-risk species, meet water quality standards and ensure reliable water supplies for cities and farms. Decisions on which projects, if any, will move ahead are expected in 2005/06.
- State and federal agencies continue to make progress on **conveyance** improvements proposed in the South Delta, including an intertie between the State Water Project and Central Valley Project canals and other actions that will improve water quality for water users in and near the Delta. The South Delta Improvements Program includes plans to increase State Water Project pumping in the Delta to 8,500 cfs and install operable barriers at key locations. Actions planned for Veale and Byron tracts will reduce the effects of agricultural drainage on drinking water quality.
- On **water transfers**, CALFED agencies have made strides on streamlining the approval process and assisted in the transfer of more than 500,000 acre-feet of water in 2003 (including 277,000 acre-feet for the Environmental Water Account). Meanwhile, work is underway on an environmental impact report on state-sponsored water transfer activities.

- Significant investments have been made in **water use efficiency** and recycling projects, particularly in Southern California and the San Joaquin Valley. To date, nearly $46 million in state and federal funds have been invested that will conserve an estimated 46,000 acre-feet of water per year. Another $122 million has been invested in local recycling programs that will produce more than 400,000 acre-feet of recycled water each year.
- Launched initially as a four-year experiment, work is underway to renew the **Environmental Water Account (EWA)** as a long-term program. So far, state and federal agencies have spent about $219 million on EWA efforts and provided over 900,000 acre-feet of water to protect at-risk species and maintain deliveries to water users.
- Bay-Delta agencies to date have invested $34 million in 21 **drinking water quality** projects, including source water protection, monitoring and treatment technology. In addition, a drinking water framework is under development to help factor water quality considerations into the planning process for all Bay-Delta Program areas.
- More than 700 miles of **Delta levees** have been preserved and improved. CALFED agencies have awarded $37 million in funding since 2001 to improve Delta levees, and more than 324,000 cubic yards of dredge material has been reused to increase levee stability and enhance habitat in the Delta.
- **Ecosystem restoration** efforts continue to improve habitat and address the needs of key species. To date, $476 million has been invested in over 400 ecosystem projects. 100,000 acres of habitat have been protected or restored. CALFED agencies have funded projects to install 68 new or improved fish screens and launched 23 comprehensive studies to answer important scientific questions linked to implementation of the program.
- The **Watersheds** Program awarded 83 grants totalling $25.5 million to 50 community-based organizations for projects addressing watershed health, drinking water quality, non-point sources of pollution and watershed protection. Twenty watershed coordinators are now in place throughout the Bay-Delta system.
- Through the **Science** Program, the Authority has brought together many of the nation's most distinguished scientists to work on Bay-Delta issues. An Independent Science Board is up and running to make recommendations on science issues to the Authority. A new Science Consortium is integrating related research topics and scientific resources.

# Program Overview

## Why Focus on the Bay-Delta

The Bay-Delta is one of California's unique and valuable resources. The Bay-Delta system provides drinking water for 22 million people and is an intregal part of California's water system. It supports California's trillion-dollar economy, including its $27 billion agricultural industry. Its levees protect farms, homes and infrastructure. It is the largest estuary on the West Coast and is home to 750 plant and animal species. The Bay-Delta supports 80% of the state's commercial salmon fisheries.

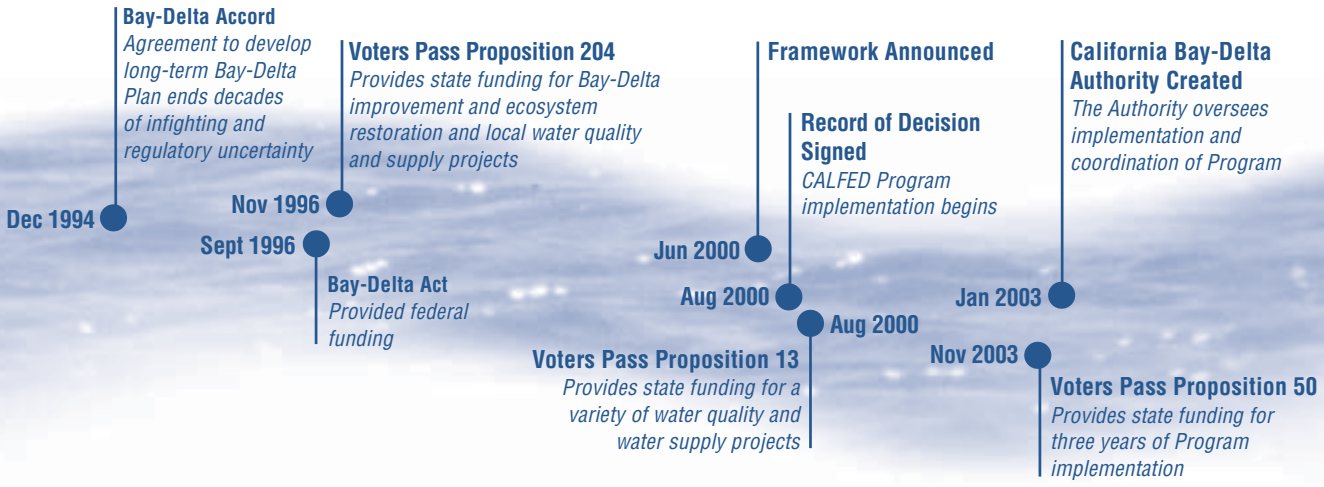
The Bay-Delta has been in decline for decades. Growth and development in California have increased demands on the Bay-Delta for water supply. At the same time the health of the Bay-Delta ecosystem has deteriorated and populations of important fish species are at-risk.

The CALFED agencies working with local partners are implementing hundreds of projects to improve the quality and reliability of the Bay-Delta system. As a result, conflict in the Delta has been reduced. Water supplies are becoming more reliable, water quality issues are gaining the attention they deserve and the Bay-Delta environment is showing some favorable responses.

## The CALFED Bay-Delta Program

In August 2000, the CALFED Bay-Delta Program issued a Programmatic Record of Decision (ROD) that set forth a 30-year plan to address ecosystem health and water supply reliability problems in the Bay-Delta. The document laid out specific actions and investments to meet Program goals and described a strategy for implementing the plan. The Program addresses

### California Bay-Delta Program Timeline



four interrelated, interdependent resource management objectives concurrently:

Water Supply Reliability

Water Quality

Ecosystem Restoration

Levee System Integrity

The Program's four objectives are further addressed through 11 major program elements as a way of sustaining the CALFED Plan's balanced and comprehensive approach. The following is a summary of the major components of the CALFED Bay-Delta Plan:

## Resource Management Objectives


### Water Supply Reliability

- Assist local partners in developing 500,000 to 1 million acre-feet of groundwater storage.
- Pursue planning and other actions at state and federal level to expand surface storage capacity by up to 3.5 million acre-feet.
- Optimize water conveyance facilities in the Delta and in other locations to maximize flexibility, protect water quality and fish species, and increase water supply reliability.
- Invest in local projects that boost water use efficiency through annual water conservation and recycling competitive grants / loan program.
- Streamline water transfer approval process and develop an effective water transfer market that protects water rights, the environment and local economies.

*The California Bay-Delta Program is an comprehensive collaboratiove effort that will take 30 years or more to complete*

**2007**

**Completion of Stage 1 (First Seven Years)**
*Foundation of long-term Program direction completed*

# PROGRAM OVERVIEW

## Water Quality

- Develop and implement source control and drainage management programs.
- Invest in treatment technology.
- Implement aggressive measures to improve Delta water quality and water quality science.

## Ecosystem Restoration

- Conduct grant program to fund local projects in habitat restoration, fish passage, invasive species management and environmental water quality.
- Recover at-risk native species and their habitats.
- Augment streamflow in upstream areas to benefit native fish and invest in fish passage improvements through dam removal and improved fish ladders.
- Provide local and technical assistance to assess watershed conditions and develop plans to address watershed problems.
- Manage Environmental Water Account to acquire water from willing sellers to protect fish species without reducing water supply reliability. Conduct annual science review to assess effectiveness.

## Levee System Integrity

- Maintain and strengthen Delta levees, provide protection to Delta resources and drinking water quality.
- Develop best management practices for beneficial reuse of dredged material.
- Improve Delta Emergency Management Plan and develop Risk Management Strategy to identify risks to Delta levees, evaluate consequences and recommend actions.

## Science

- Establish Independent Science Board to integrate world class science into Program implementation.
- Implement comprehensive monitoring and research programs. Develop performance measures to evaluate program accomplishments.

## Oversight and Coordination

- Develop and implement program tracking system to ensure accountability and assess Program progress.
- Submit annual report to the Legislature and Congress to assure balanced progress in meeting Program goals.
- Establish a public advisory council and ensure public involvement in Program implementation.
- Address environmental justice and tribal needs associated with Program implementation.
- Protect working landscapes.

## Authority Membership

### State Members

**Michael Chrisman**
*Resources Agency*

**Terry Tamminen**
*Environmental Protection Agency*

**A.G. Kawamura**
*Department of Food and Agriculture*

**Lester Snow**
*Department of Water Resources*

**Ryan Broddrick**
*Department of Fish and Game*

**Dr. Kevin Reilly** (Authority designee)
*Department of Health Services*

### Federal Members (non-voting)

**Gale Norton**
*Department of the Interior*

**Wayne Nastri**
*Environmental Protection Agency*

**Col Michael J. Conrad, Jr.**
*Army Corps of Engineers*

**Rodney McInnis**
*National Marine Fisheries Service*

**Steve Thompson**
*Fish and Wildlife Service*

**Kirk Rodgers**
*Bureau of Reclamation*

### Public Members

**Alfred Montna**
*Sacramento Valley*

**Susan Kennedy**
*San Francisco Bay*

**Patrick Johnston**
*Sacramento-San Joaquin River Delta*

**Jim Costa**
*San Joaquin Valley*

**Paula Daniels**
*Southern California*

**Marc Holmes**
*Senate Appointee*

**Daniel Wheeler**
*Assembly Appointee*

### Public Advisory Committee Member

**Gary Hunt, Chair**
*Bay-Delta Public Advisory Committee*

### Ex-Officio Members

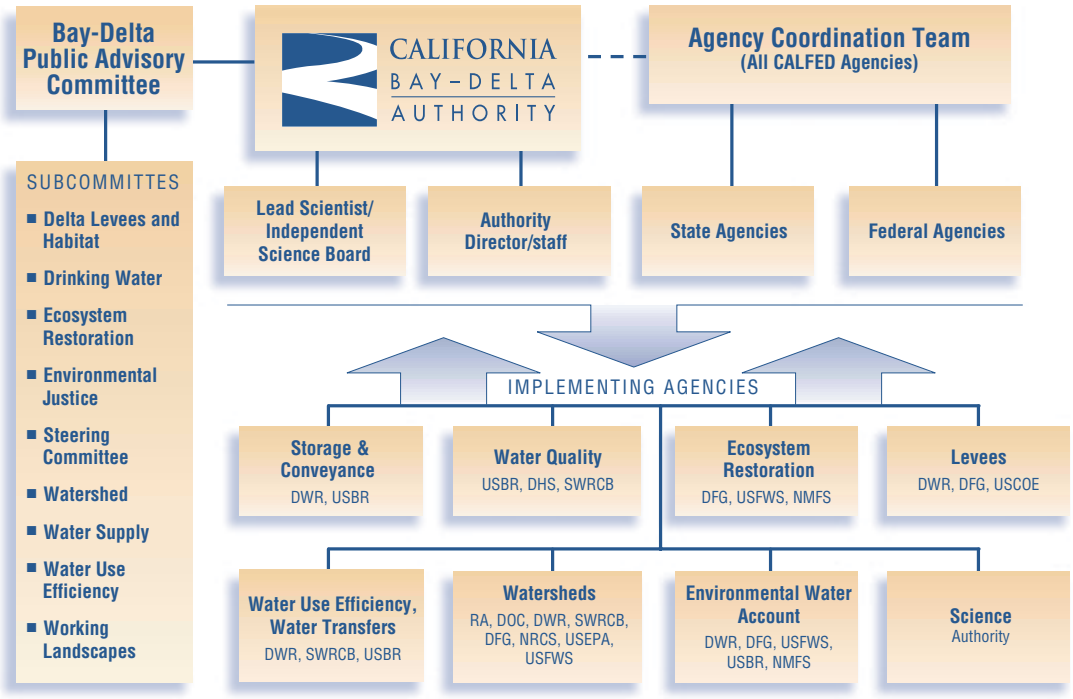
**Senator Michael Machado**
*Chair, Senate Agricultural and Water Resources Committee*

**Senator Charles Poochigian**
*Vice-chair, Senate Agricultural and Water Resources Committee*

**Assemblyman Joseph Canciamilla**
*Chair, Assembly Water, Parks and Wildlife Committee*

**Assemblyman Rick Keene**
*Vice-chair, Assembly Water, Parks and Wildlife Committee*

## Program Structure




## The California Bay-Delta Authority

The California Bay-Delta Authority oversees the 23 state and federal agencies working cooperatively through the CALFED Bay-Delta Program to improve the quality and reliability of California's water supplies while restoring the Bay-Delta ecosystem.

The California Bay-Delta Act of 2003 established the Authority as the new governance structure and charged it with providing accountability, ensuring balanced implementation, tracking and assessing Program progress, using sound science, assuring public involvement and outreach, and coordinating and integrating related government programs.

*The California Bay-Delta Authority membership includes state, federal and public representation.*

# WATER SUPPLY RELIABILITY

*California Aqueduct*

Because no single strategy will resolve California's water supply problems, CALFED agencies are implementing a diverse portfolio of projects and approaches.

Through partnerships with local and regional agencies, the Program aims to increase water supplies, ensure efficient use of water resources and add flexibility to California's water system.

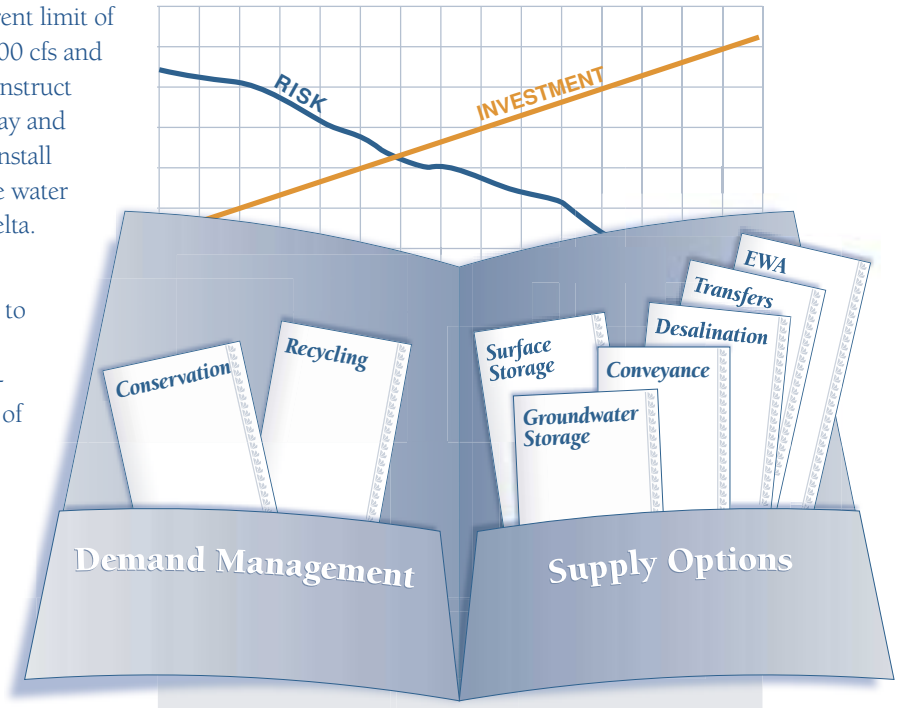
## Summary of Accomplishments

- Significant headway has been made on efforts to expand **groundwater** and **surface water storage**. More than $180 million in grants and loans has been awarded for local groundwater storage and conjunctive use projects. The local cost share on these projects exceeds $600 million. Partnerships with local and regional agencies are ongoing in 18 areas of the state to improve groundwater management and develop conjunctive use projects and programs. Major progress has been made to investigate five potential surface water storage projects.
- Key advances have been achieved on **conveyance** efforts such as the South Delta Improvements Program (SDIP), an intertie between the SWP and CVP canals, and other actions that will improve water quality for users in and near the Delta.
- CALFED agencies have helped stretch existing water supplies by facilitating **water transfers** totaling over 500,000 acre-feet in 2003. The transactions moved water from willing sellers to areas of need while protecting other water users, local economies and the environment.
- Investments in **water conservation** and **recycling** projects have generated significant water savings already, and will continue to pay off by reducing water demands, improving water quality and freeing up water to meet habitat and ecosystem needs.
- Through the **Environmental Water Account** (EWA), CALFED agencies have protected fish and reduced conflicts at Delta pumping facilities. In the past three years, the EWA has made about 900,000 acre-feet of water available to be used for fish protection measures, better protecting the Delta without reducing deliveries to cities and farms.
- Due to coordinated water project operations and other measures, the SWP and CVP exceeded 70% of requested deliveries south of the Delta in 2003 when rainfall conditions were below normal.
- The CALFED agencies awarded $3.9 million to support seven projects that improve water supplies of local agencies.

## CALFED Plan
### Record of Decision (ROD)

The CALFED Plan includes the following water supply reliability goals:

- Surface Storage: Expand surface storage capacity at existing reservoirs and strategically located off-stream sites by up to 3.5 million acre-feet: North-of-the-Delta off-stream storage, Shasta Lake enlargement, Los Vaqueros Reservoir expansion, In-Delta storage and additional storage in the Upper San Joaquin (Friant), or a functional equivalent.
- Groundwater: Develop locally managed and controlled groundwater storage and conjunctive use projects in the Sacramento and San Joaquin valleys with a total of 500,000 to 1 million acre-feet of additional storage capacity.
- Conveyance: Increase permitted pumping at State Water Project (SWP) facilities from current limit of 6,680 cubic feet per second (cfs) to 8,500 cfs and eventually to 10,300 cfs. Design and construct new fish screens at Clifton Court Forebay and Tracy pumping plant, and dredge and install permanent operable barriers to improve water levels and water quality in the South Delta.
- Water Use Efficiency: Implement an aggressive water use efficiency program to make the best use of existing water supplies, including: definition of appropriate water measurement; certification of urban best management practices (BMPs) and refinement of quantifiable objectives for agricultural water use efficiency.
- Water Transfers: Promote an effective water transfer market that protects water rights, the environment and local economies.




**Developing a Diversified Portfolio**

*Through the use of a diversified portfolio, the gap between water supply and demand can be greatly reduced. A multitude of approaches helps realize goals while reducing risks and optimizing investment dollars.*

# WATER SUPPLY RELIABILITY

*Shasta Dam*

*Delta Cross-Channel*

## Water Supply Reliability Accomplishments by Region

### Sacramento Valley

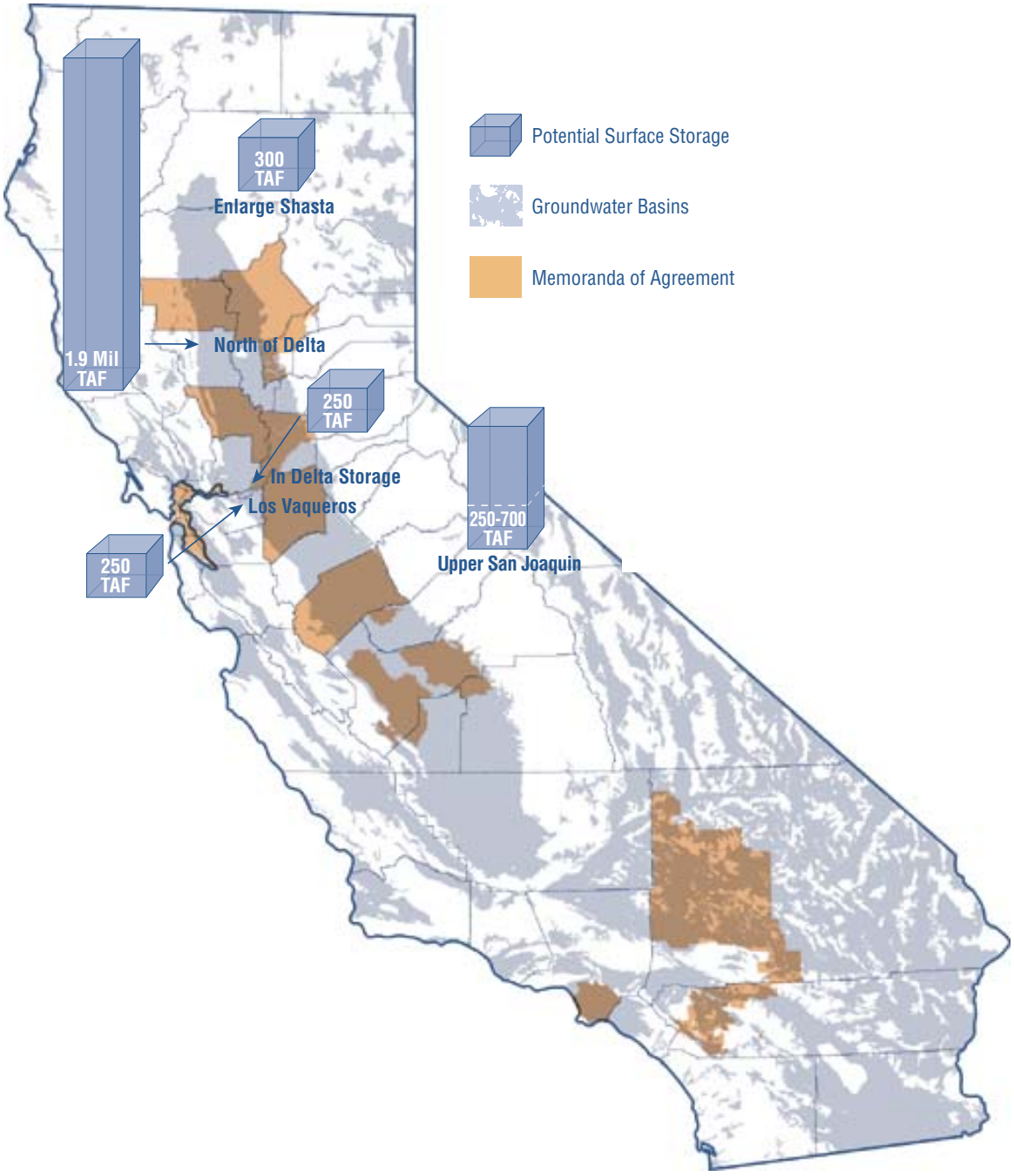
- $30 million invested in 22 local projects to improve groundwater management and expand conjunctive use in the Sacramento Valley, with a potential water supply yield of 30,000 acre-feet annually.
- Progress made on studies for potential north-of-Delta off-stream storage and Shasta Lake enlargement. The proposed projects are among five surface storage options being studied to increase storage capacity and provide flexibility to the state's water system.
- $11 million in grants awarded for agricultural and urban water use efficiency programs.
- Streamlined water transfers and facilitated transfer agreements that protect local water users, economies and ecosystems.

### Bay and Delta Regions

- $2.4 million invested in six local projects to improve groundwater mangement and expand groundwater storage.
- Draft engineering feasibility study completed for in-Delta storage project and proposed expansion of Los Vaqueros Reservoir. The projects are two of five surface water storage options under evaluation to add storage capacity and flexibility to the water system.
- Progress made on design and environmental review of South Delta Improvements Program.
- Feasibility studies are under way on San Luis Low Point Improvement Project to address water quality and conveyance issues for South Bay water users.
- Modeling studies completed for State Water Project / Central Valley Project Intertie and environmental documentation and conceptual design work initiated.
- Two years of research and experiments conducted on Delta Cross-Channel re-operation as well as water quality monitoring and fish tracking studies. Preliminary results were presented at public workshops.
- $15.7 million invested in 35 local agricultural and urban water conservation programs.
- $43 million in grants awarded to increase water recycling by 3,500 acre-feet a year.
- Installed site-specific diversion improvements to assure water supply to south Delta farms.

## Groundwater and Potential Surface Water Storage

- *Continued studies on the 5 potential surface storage projects.*
- *Signed agreements for 16 groundwater partnerships and Memoranda of Agreement.*
- *Invested $131 million in 104 groundwater projects with a potential yield of 210,000 acre-feet.*



# WATER SUPPLY RELIABILITY

*Friant Dam*

## San Joaquin Valley

- $49.8 million invested in 42 local projects to improve groundwater management and expand groundwater storage in the San Joaquin Valley, with a potential water supply yield of 64,000 acre-feet annually.
- $8.6 million invested in agricultural water conservation programs that will save 8,524 acre-feet of water per year. Another $3.1 million invested in local urban conservation programs.
- Milestones adopted for agricultural conservation to help evaluate regional progress and identify barriers to implementation.
- Progress made on developing an on-farm water efficiency incentive program with significant public input.
- Water supply reliability improved and conflicts over Delta exports reduced through Environmental Water Account actions.
- Met 70% water supply delivery target for CVP contractors.
- Progress made on Upper San Joaquin River Basin storage studies, one of five potential surface storage projects currently under evaluation.

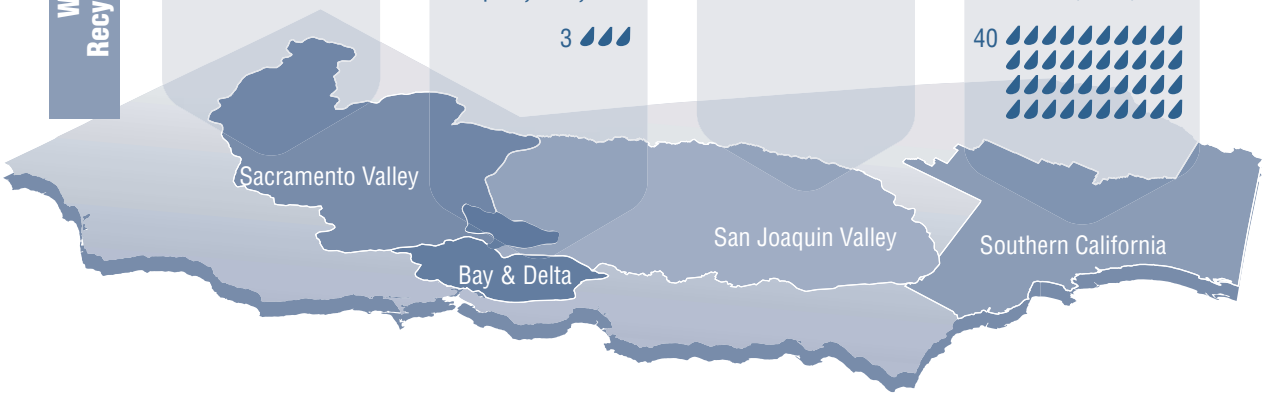
## Southern California

- Over $100 million invested in 36 local projects to improve groundwater management and expand groundwater storage in Southern California basins, with a potential water supply yield of more than 115,000 acre-feet annually.
- $28.5 million invested in urban water conservation programs that will save more than 9,000 acre-feet of water a year.
- $440 million in local, state and federal funds invested in water recycling programs that will recycle more than 408,000 acre-feet of water a year.
- Water supply reliability improved through the Environmental Water Account.
- Local water supplies augmented through water transfers facilitated by CALFED agencies.

## Water Use Efficiency Accomplishments

*Through the Water Use Efficiency Program, CALFED agencies are making targeted investments in cost-effective, local water conservation and recycling programs throughout the state. Funding grants and loans in such areas as agricultural water conservation, urban water conservation and water recycling helps meet the Bay-Delta Program's water supply reliability, water quality, and ecosystem restoration objectives.*

| | Sacramento Valley | Bay & Delta | San Joaquin Valley | Southern California |
|---|---|---|---|---|
| Ag Water Conservation | 35 Projects<br>$168,000<br>$1,100,000<br>$2,000,000<br>6 | 7 Projects<br>$89,100<br>$679,300<br>$10,400 | 64 Projects<br>$178,000<br>$4,500,000<br>$4,000,000<br>9 | 7 Projects<br>$4,900<br>$100,000<br>$163,000 |
| Urban Water Conservation | 51 Projects<br>$1,100,000<br>$1,700,000<br>$5,000,000<br>3 | 28 Projects<br>$4,700,000<br>$200,000<br>$10,500,000<br>12 | 8 Projects<br>$346,000<br>$59,700<br>$2,800,000<br>7 | 45 Projects<br>$14,200,000<br>$177,000<br>$14,200,000<br>9 |
| Water Recycling | | 3 Projects<br>$32,400,000<br>$10,800,000<br>3 | | 24 Projects<br>$335,700,000<br>$68,600,000<br>$43,300,000<br>40 |




Number of Projects Awarded / Funding: $Local $Federal $State / Reported Potential Yield (thousand acre-feet)

# WATER SUPPLY RELIABILITY

## Cross-regional benefits

The Bay-Delta Program's regional approach emphasizes local involvement and strives to address local issues and needs. But many actions in specific regions directly benefit other regions and the state as a whole. These include:

- Creating new groundwater and surface storage opportunities improves water quality and flexibility for water supply reliability throughout the state.
- Improving water conveyance in the South Delta increases flexibility and improves water quality for ecosystems as well as cities and farms in the Delta, the Bay Area, the San Joaquin Valley and Southern California.
- Investing in water recycling and water use efficiency programs reduces water demands in all regions and relieves pressure on the Delta and the water delivery system.
- Acquiring, storing and releasing water through the Environmental Water Account provides water for fish protection and keeps water supplies flowing to cities and farms in the Bay-Delta and beyond.
- Streamlining the approval process of water transfers helps stretch supplies and reduces regional demands on the Delta.

PROJECT HIGHLIGHT

### San Luis Reservoir Low-Point Improvement Project

***Introduction:***

- *San Luis Reservoir, with a capacity of more than 2 million acre-feet, is a key component of the state and federal water supply systems*
- *Jointly owned and operated by the U.S. Bureau of Reclamation and the California Dept. of Water Resources, the reservoir supplies water to CVP and SWP contractors*
- *A separate intake provides water to the Santa Clara Valley Water District and San Benito County Water District and the Pajaro Valley in the future*

***Objective:*** *Water quality degrades when the reservoir reaches a certain low point during the summer, the peak demand season. In response, water levels are maintained at about the low-point elevation, resulting in 200,000 acre-feet that cannot be used.*

***Solution:*** *The Santa Clara Valley Water District, working with the Bureau of Reclamation, is conducting a feasibility analysis and formulating a solution.*

*Through initial studies and public input, 75 conceptual alternatives were initially identified and narrowed down to seven preliminary alternatives that will be fully analyzed in the environmental review process.*

***Benefit:*** *This project will increase the operational flexibility of storage in the reservoir and ensure a high-quality, reliable water supply.*

*Project information can be accessed through the SCVWD web site: www.valleywater.org.*

*Projects like this help to accomplish Program goals by increasing water supply reliability and quality.*

*San Luis Reservoir*

PROJECT HIGHLIGHT

## Delta Improvements Program

*Conflicts in the Delta are common. Historically, actions to maintain water supply, assure good water quality, and protect important fish species have been at odds with each other in the Delta.*

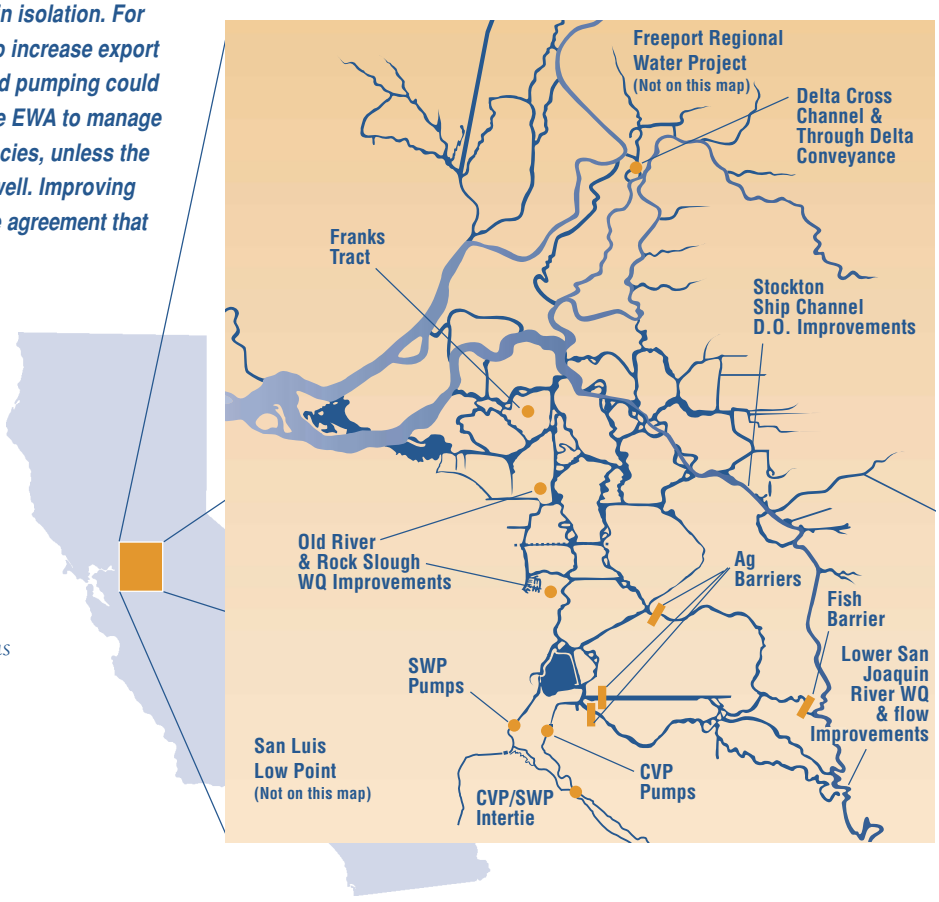
*State and federal agencies through the CALFED Program are proposing to undertake a series of activities over the next few years to carry out key ROD commitments related to improvements in the Delta. These include: South Delta Improvements Program (SDIP), a Central Valley Project (CVP)-State Water Project (SWP) Intertie, significant in-Delta water quality improvements, and a decision whether to continue the Environmental Water Account (EWA). Together, these activities are expected to increase water supply reliability, improve Delta water quality, and improve conditions for Delta fish.*

*Many of the activities undertaken by the CALFED agencies are interrelated. Key decisions on Delta components cannot be made in isolation. For example, the SDIP proposes to increase export pumping of the SWP. Increased pumping could reduce the effectiveness of the EWA to manage for recovery of at-risk fish species, unless the EWA assets are improved as well. Improving the EWA, however, will require agreement that the EWA would continue beyond its four-year experimental period. In addition, science has played a key role in how the agencies plan to move forward with improvements in the Delta. State, federal and local agencies are making huge investments in cooperative research studies to better understand how water, fish and salt move through the Delta.*

*The CALFED agencies are coordinating their assumptions and schedules to move forward with a set of Delta activities that are consistent with the CALFED Program's principle of balance. Following an extensive public review process, the agencies expect to issue an integrated set of final decisions, together with a financing plan, in the summer of 2004. Coordination of these key activities will help avoid the conflict and gridlock that the Program was created to address, and to meet the water supply reliability, water quality and ecosystem restoration goals of the Program.*

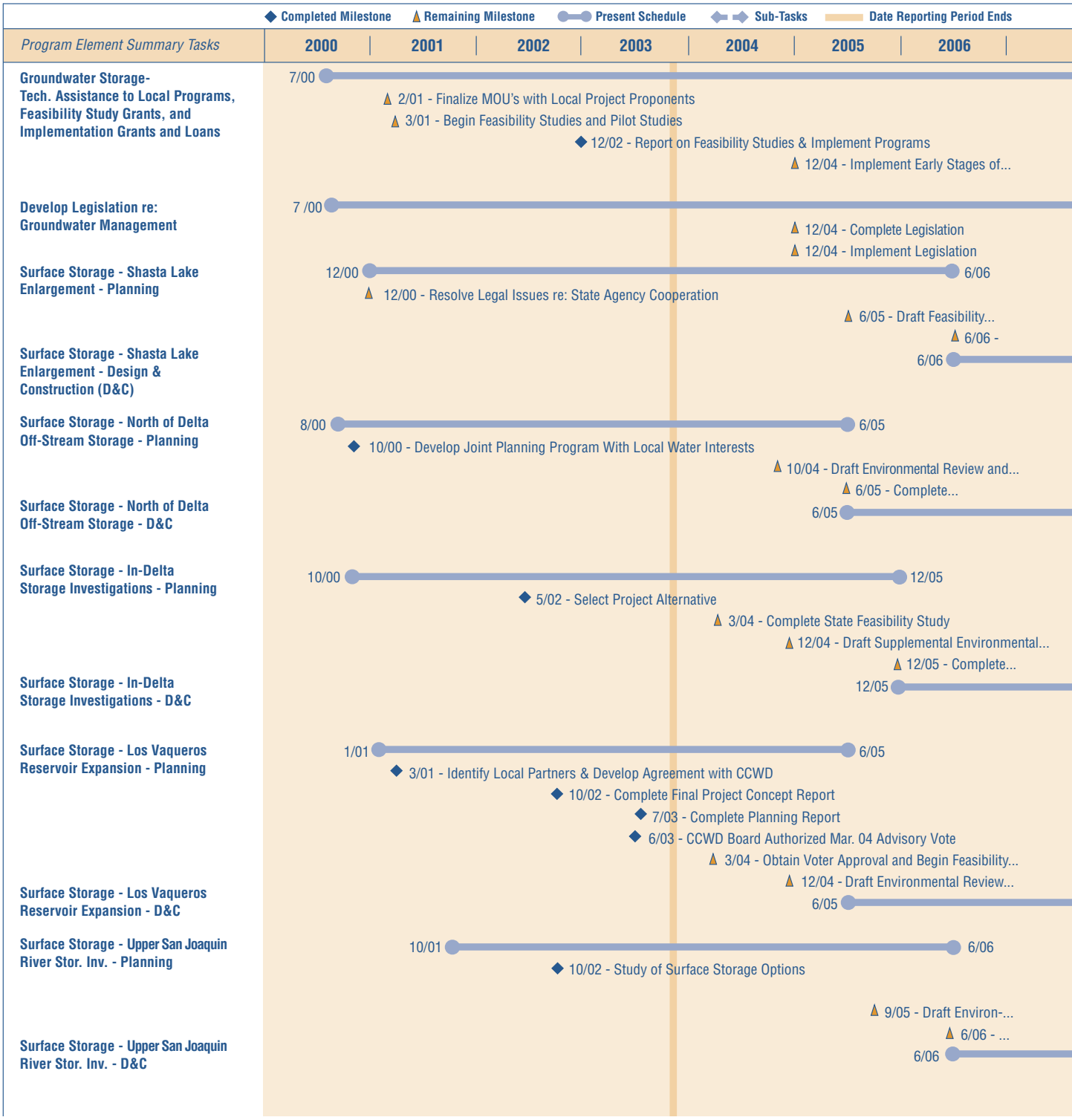
### Conveyance and Water Quality

*The goal of the Delta Improvements Program is to identify and implement water quality and water conveyance modifications in the Delta that will improve water supply reliability for in-Delta and export users, support continuous improvement in drinking water quality, and complement ecosystem restoration. The projects highlighted here will help accomplish this goal.*

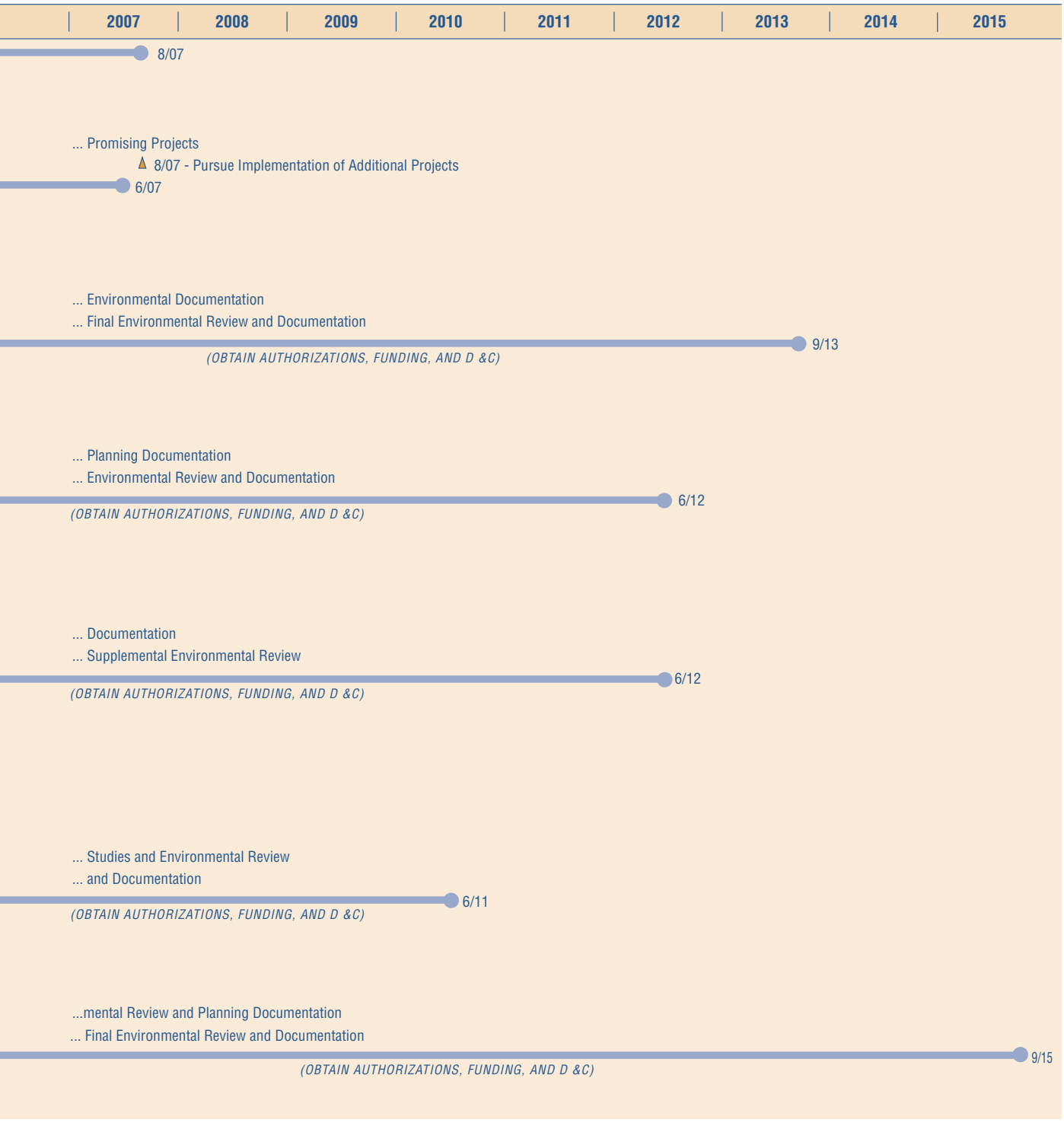


# WATER SUPPLY RELIABILITY

## STORAGE






2007
2008
2009
2010
2011
2012
2013
2014
2015
8/07
... Promising Projects
8/07 - Pursue Implementation of Additional Projects
6/07
... Environmental Documentation
... Final Environmental Review and Documentation
9/13
(OBTAIN AUTHORIZATIONS, FUNDING, AND D &C)
... Planning Documentation
... Environmental Review and Documentation
6/12
(OBTAIN AUTHORIZATIONS, FUNDING, AND D &C)
... Documentation
... Supplemental Environmental Review
6/12
(OBTAIN AUTHORIZATIONS, FUNDING, AND D &C)
... Studies and Environmental Review
... and Documentation
6/11
(OBTAIN AUTHORIZATIONS, FUNDING, AND D &C)
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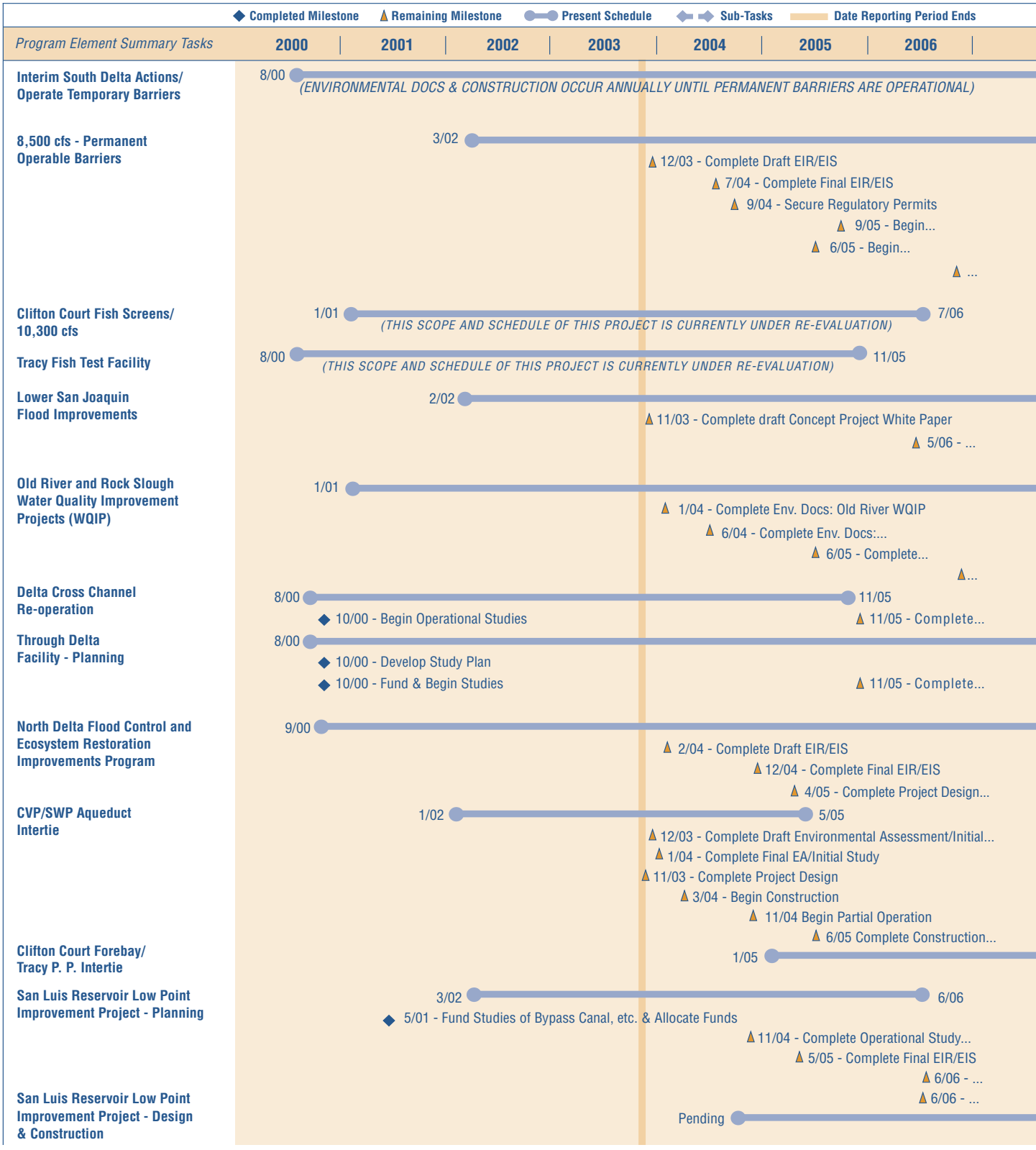
... Final Environmental Review and Documentation
9/15
(OBTAIN AUTHORIZATIONS, FUNDING, AND D &C)

# WATER SUPPLY RELIABILITY

## CONVEYANCE





| 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|

12/08

1/08 - Convert to Permanent Barrier at Head of Old River

1/09 - Convert to Permanent Barriers in Middle, Old & Grantline Canals

1/09

... Construction at Head of Old River Barrier

... Construction of Middle, Old & Grantline Canal Barriers

... 11/06 - Complete Construction of Middle River Barrier

11/07 - Complete Construction of Head of Old River Barrier, Old River & Grantline Canal Barriers

1/13

... Secure USCOE Project Management Plan and Funding/staffing authorization

12/08 - Prepare River Management Plan

12/07

... Rock Slough; 3/05 Rock Slough - Canal WQIP

... Construction: Old River & Rock Slough

... 12/06 - Complete Construction: Rock Slough Canal WQIP

... Studies & Make Recommendations

12/07

... Studies & Make Recommendations

12/07 - Complete Final EIR/EIS

6/08

... & Funding Plan

6/08 - Complete Construction

... Study

... and Full Operation

6/10

... and Alternative Screening Report

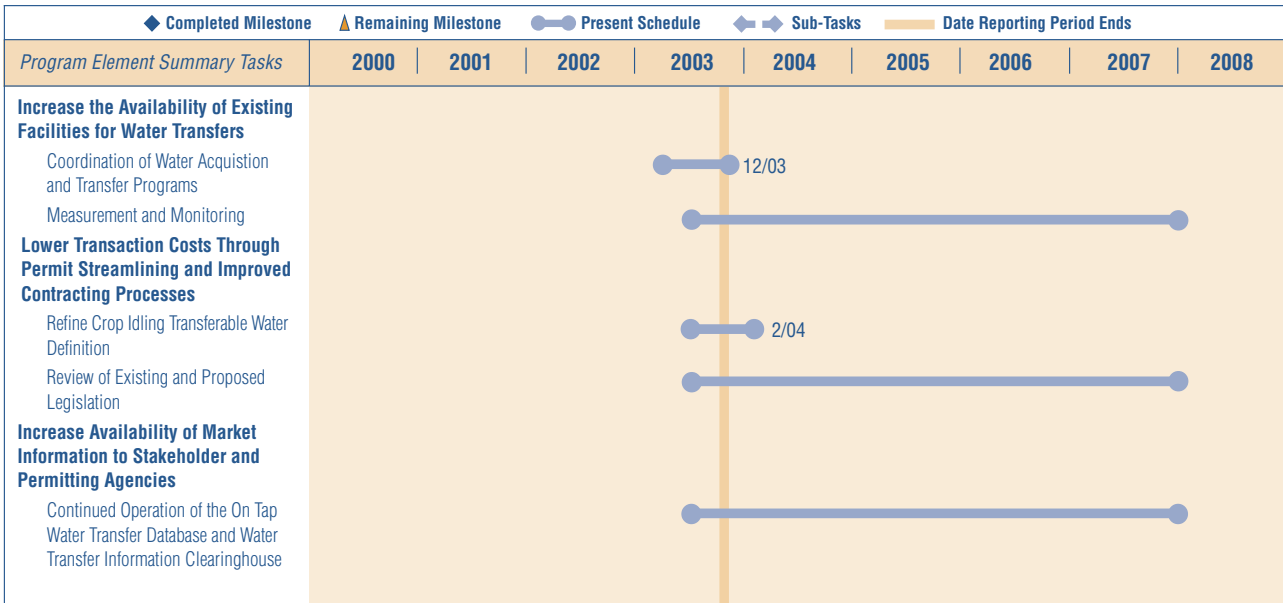
... Begin Authorization & Funding

... Begin Final Design & Land Acquisition

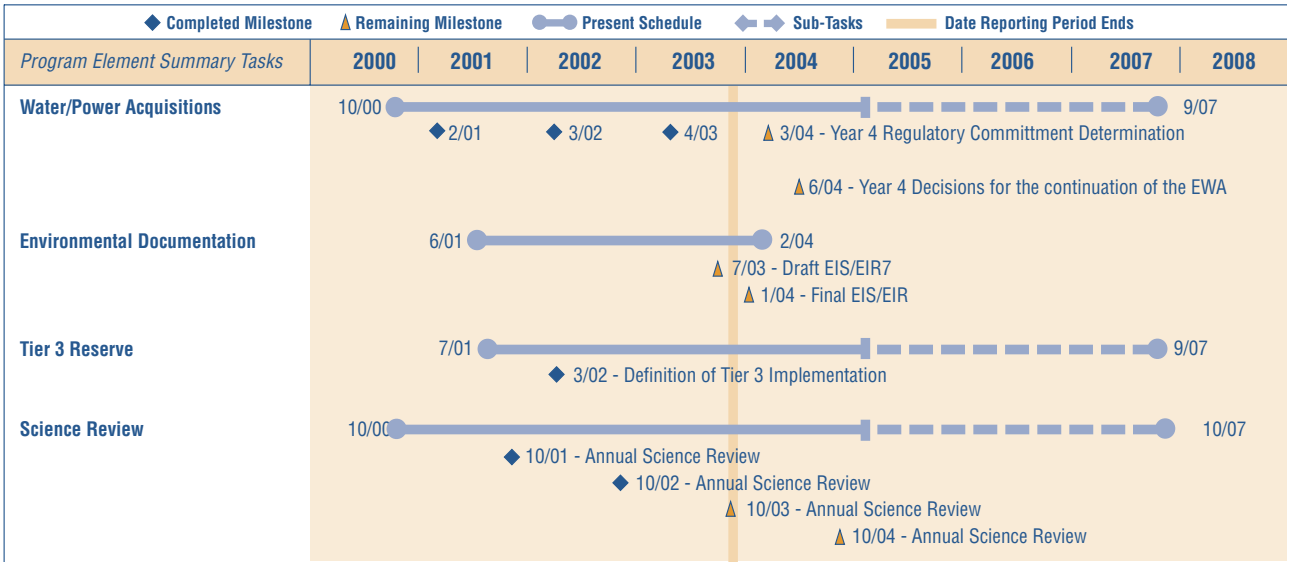
Pending

# WATER SUPPLY RELIABILITY

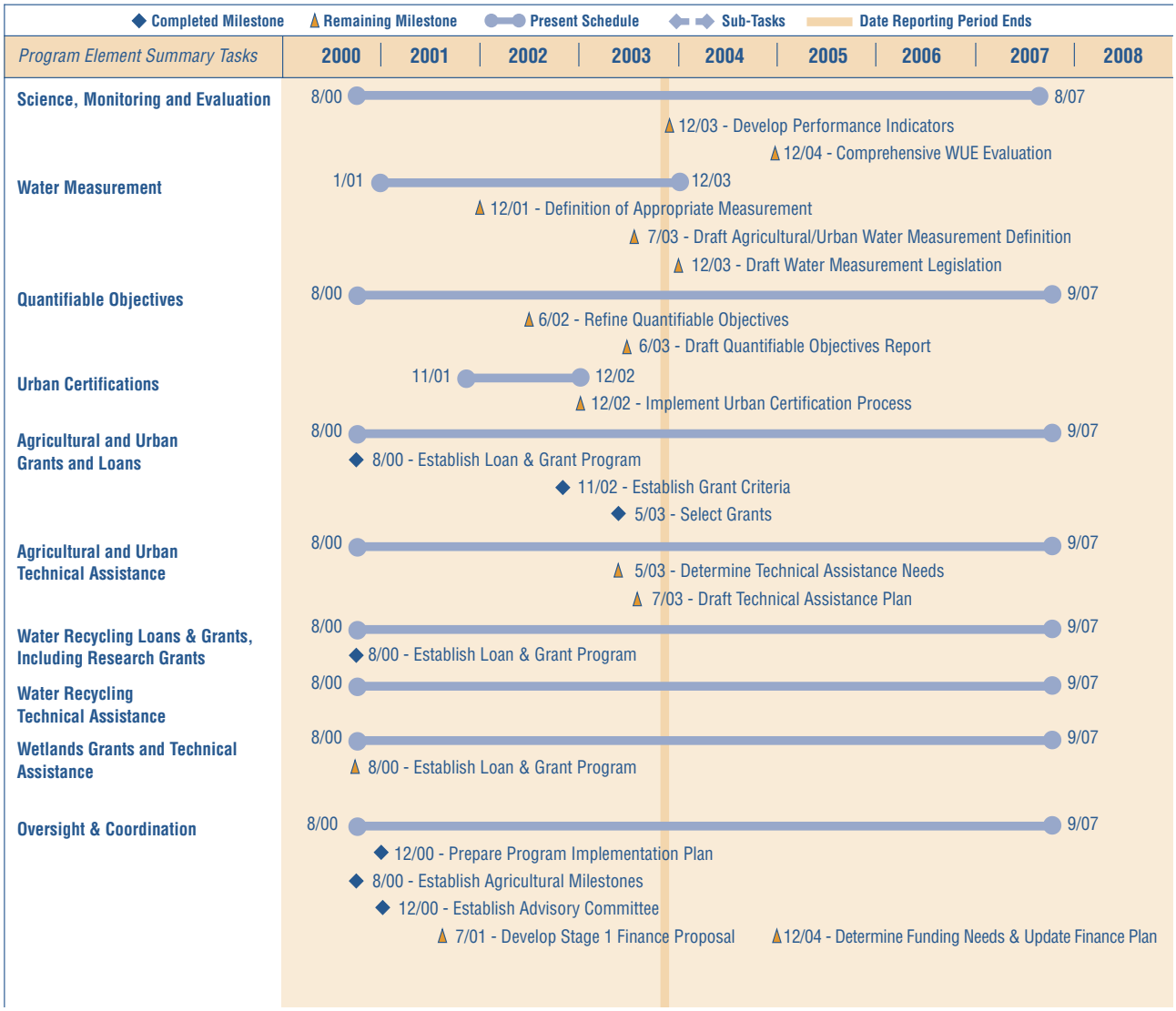
## WATER TRANSFER PROGRAM




## ENVIRONMENTAL WATER ACCOUNT



## WATER USE EFFICIENCY



# WATER QUALITY

Through the Drinking Water Quality Program, CALFED agencies are investing in projects to improve water quality from source to tap. Water quality improvements benefit more than 22 million Californians whose drinking water supplies come from the Bay-Delta watershed. Additional environmental water quality improvements are identified in the Ecosystem Restoration and Watersheds section of the report.

## Summary of Accomplishments

- Targeted investments are being made to improve water quality at the source, protect water quality in the Delta through conveyance improvements, and to explore new treatment technologies. To date, $34 million has been invested in 21 drinking water quality projects.
- Bay-Delta agencies are working to address organic carbon, mercury, selenium and low dissolved oxygen through major research and monitoring programs. Knowledge gained will shape future efforts to improve water quality and protect public health and ecosystems.
- Work is underway to develop a drinking water framework to factor water quality considerations into the planning process for all Bay-Delta Program areas. The effort has elevated the importance of drinking water quality and focused renewed discussion on funding priorities.
- The program is spurring research into new treatment options and technologies such as desalination. By awarding grants in such areas as ultraviolet light disinfection and ion exchange for carbon removal, CALFED agencies are helping develop technologies that may vastly improve water quality and lower treatment costs.
- Through Watershed Program grants, 43 projects for $12 million have been funded primarily supporting water quality goals.

## CALFED Plan
### Record of Decision (ROD)

The CALFED Plan includes the following water quality goals:

- Develop and implement source improvement and drainage management programs.
- Invest in treatment technology projects.
- Develop Bay Area Blending and Exchange Program (also known as the Bay Area Water Quality and Supply Reliability Program) to enable Bay Area water districts to cooperatively address water quality and reliability issues.
- Facilitate efforts to develop alternative sources of water supply for Southern California.
- Improve dissolved oxygen conditions in the San Joaquin River near Stockton as part of the ecosystem restoration efforts.



## Drinking Water Quality Accomplishments by Region

### Sacramento Valley

- $595,000 invested to protect drinking water quality and watershed health on Steelhead Creek in Sacramento County.
- Sanitary surveys completed for State Water Project and its key sources, including the Sacramento River watershed. Surveys identified potential threats to water quality.
- Pilot study underway on options to reduce dissolved organic carbon and nitrogen exports from rice fields.
- Research funded through the Ecosystem Restoration Program to investigate mercury and other pollutants from abandoned mines.

### Bay and Delta Regions

- $7.4 million invested in 16 drinking water quality projects.
- $10.1 million invested in six ecosystem restoration projects with water quality benefits and $1.7 million invested in four projects to monitor and assess organic carbon sources and processes in the Delta.
- Progress made on evaluating intake relocation options as part of the North Bay Aqueduct Alternative Intake Study.
- Evaluation completed for watershed management on Barker Slough through North Bay Aqueduct Watershed Study. Project involved water quality monitoring and developing pilot best management practices.
- Substantial progress made on Delta water quality modeling, and how various conveyance and storage alternatives could affect water quality.
- Real-time salinity monitoring and modeling program implemented for salinity in the San Joaquin River.
- Progress made on Phase 2 of Bay Area Water Quality and Supply Reliability Program. Work includes analyzing and evaluating exchanges and other alternatives that meet objectives of various Bay Area water suppliers.
- Modeling studies completed for operational improvements and recirculation in the San Joaquin River.
- Program established to monitor dissolved oxygen and other parameters in the Bay-Delta and San Joaquin River through Ecosystem Restoration Program.
- Research funded through Solano County Water Agency to investigate ion exchange technology for removing organic carbon.

### San Joaquin Valley

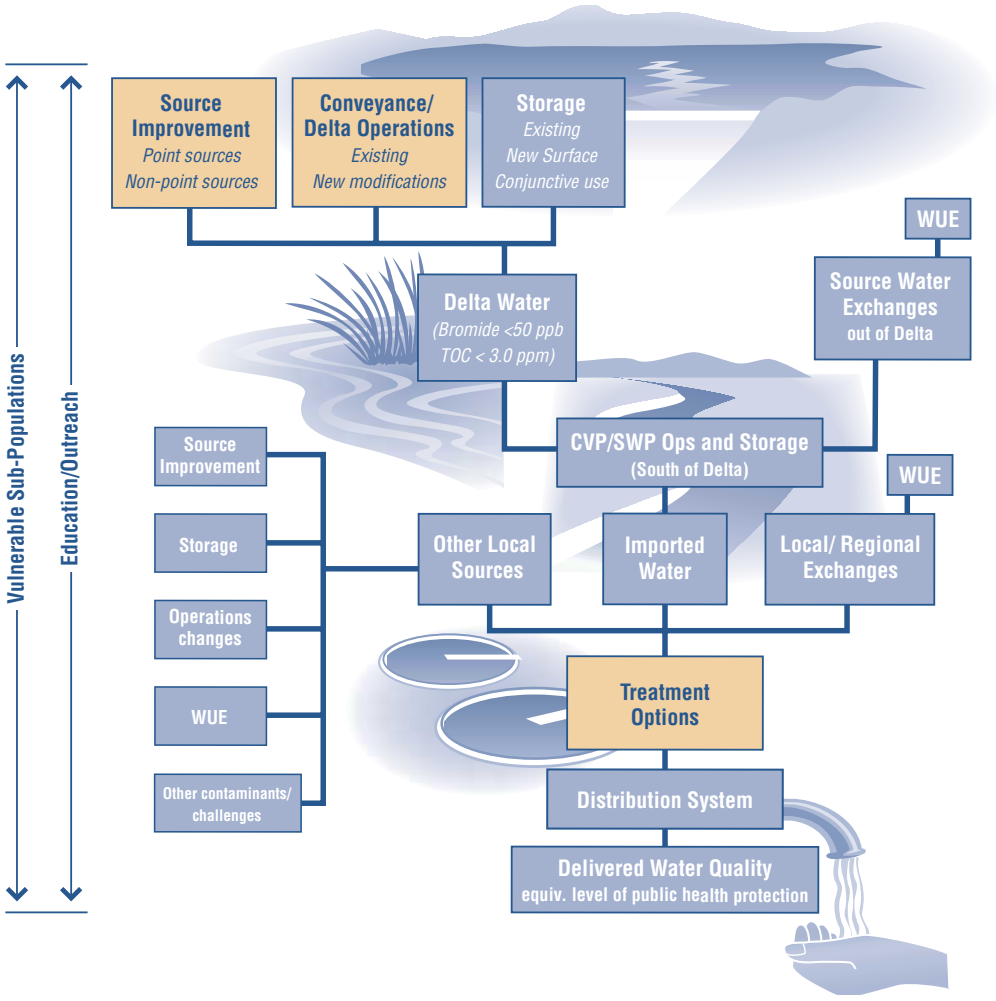
- $24.9 million invested in 13 projects to improve drinking water quality.
- Draft basin plan amendment completed and circulated for review by Central Valley Regional Water Quality Control Board. The plan addresses salinity and boron in the San Joaquin River.
- Progress made on agricultural drainage program aimed at reducing salinity and selenium. Efforts include management and coordination, monitoring and evaluation, on-farm drainage reduction, treatment, integrated drainage management, and environmental investigations.
- Regional study funded to use membrane technology to treat and recycle agricultural drainage water.
- Seven projects funded through State Water Resources Control Board grants to address non-point pollution sources.

# WATER QUALITY

## Southern California

- $2.6 million invested in three major water quality projects.
- Research funded to study use of ultraviolet light in disinfection process. Effort could lead to advances in treatment technology that reduce potentially harmful by-products of chlorine disinfection.
- Support and assistance provided for partnerships to explore water exchanges with San Joaquin Valley water agencies. Effort could lead to programs that resolve water supply and water quality problems in both regions.
- Funding provided for Desalination Research and Innovation Partnership (DRIP). Program already has resulted in development of advance reverse osmosis membranes.

## Equivalent Level of Public Health Protection (ELPH)




*This conceptual diagram shows options and opportunities to improve water quality as it moves through the system from source to tap.*

*This year the Water Quality Program focused efforts on three components of the diagram:*

- *Source Improvement*
- *Conveyance/Delta Operations*
- *Treatment Options*



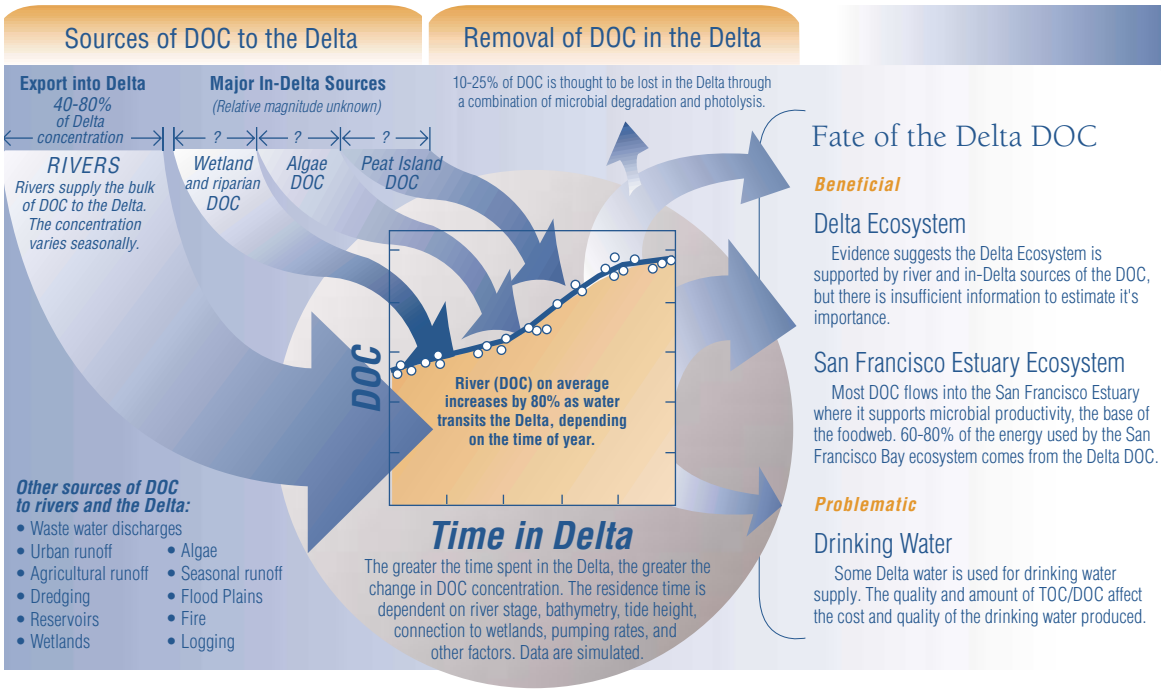
## Cross-regional Benefits

The Bay-Delta Program's regional approach emphasizes local involvement and strives to address local issues and needs. But many actions in specific regions directly benefit other regions and the state as a whole. These include:

- Water quality improvements in Bay-Delta watersheds help support healthy ecosystems and anadromous fish populations, which in turn improve water supply reliability for cities and farms.
- Protecting water quality at the source reduces the cost of treatment needed to meet drinking water standards.
- Protecting and improving water quality in the Delta benefits cities and farms in the Bay Area, San Joaquin Valley and Southern California that rely on Delta water exports.
- Improved regional cooperation on water quality improvements and regional exchanges and interties can help relieve pressure on the Delta during droughts and other emergencies.

## Conceptual Model: Source and Fate of Dissolved Organic Carbon in Delta Water

*Total Organic Carbon (TOC) is an indicator of the quality of Delta water as a source of drinking water. In the Delta, TOC is composed primarily of dissolved organic carbon plus a smaller amount of particulate organic carbon. Source water with high DOC and bromide concentrations requires additional treatment steps, is more costly to treat, and may lead to increased health risk from exposure to disinfection byproducts. Although this diagram was prepared for dissolved organic carbon (DOC), the sources and fate of TOC are nearly identical. CALFED agencies continue to look for ways, both in treatment technology and long-term source improvements, to address this problem.*



# WATER QUALITY

PROJECT HIGHLIGHT

## Solano County Water Agency

*The Solano County Water Agency has taken a comprehensive regional approach, addressing the problem on multiple fronts to implement the Equivalent Level of Public Health strategy. The agency is also investigating local water exchanges – an important aspect of the strategy. This approach is a model for other regions.*

### Source Improvement — North Bay Aqueduct Watershed Improvements for Water Quality

*Solano County Water Agency worked cooperatively with range land owners and other agricultural entities to perform water quality assessments, install fencing and provide alternative water supplies for livestock, re-vegetate stream banks and implement grazing management plans to improve water quality in the North Bay Aqueduct watershed.*

*Fencing off waterways from grazing helps keep pollutants out and improves water quality in Barker Slough.*

### Conveyance/ Delta Operations — North Bay Aqueduct (NBA) Intake Study

*Barker Slough, a tributary slough to the Sacramento/San Joaquin River Delta in southeast Solano County, is the source of water for the North Bay Aqueduct. The slough's water quality degrades during and after rainfall events because the water runoff in this watershed is primarily grazing land. Lower quality water is difficult and costly to treat.*

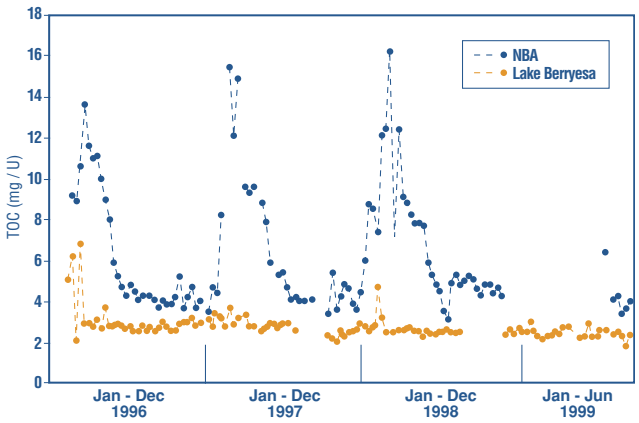
*The SCWA received grant funding to conduct an engineering feasibility study to evaluate alternative diversions that may provide higher quality water more consistently and potentially greater diversion volumes for the water users. Six alternatives were identified in the study. Program staff will need to evaluate the report to determine the best overall strategy to improve North Bay Aqueduct water quality.*

### Treatment Options — Advanced Pretreatment Using Ion Exchange for Organic Carbon Removal from Delta Water Bench Scale Project

*This bench scale project will evaluate ion exchange resins as an advanced pretreatment process to remove organic carbon from North Bay Aqueduct water. This may substantially reduce disinfection by-product formation. Although treatment projects are showing early positive results, the Program still recognizes the need to focus efforts on long-term source improvements.*

**North Bay Total Organic Carbon (TOC)**

*TOC Comparisons Between North Bay Aqueduct Water at the North Bay Regional Water Treatment and Lake Beryessa, 1996 to 1999*




*This data shows the higher levels of TOC at the intake of the North Bay Aqueduct compared to Lake Berryessa. Solano County Water Agency is also looking into local water quality exchanges - another aspect of the ELPH strategy.*



## DRINKING WATER QUALITY

◆ Completed Milestone ▲ Remaining Milestone ⟷ Present Schedule ◆⟷◆ Sub-Tasks ▮ Date Reporting Period Ends

| Program Element Summary Tasks | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|
| **Bay Area Water Quality and Supply Reliability Program** | 7/01 ⟷ 9/06<br>◆ 7/01 - Identify Partners & Develop Agreements for Studies / Secure Authorization & Funding for Feasibility Studies<br>◆ 7/01 - Begin Feasibility Study & Environmental Review<br>▲ 7/02 - Complete Feasibility Study<br>▲ 12/04 - Complete Env. Review, Documentation & Preliminary Design of Alternative<br>▲ 12/04 - Finalize Agreements with Participants<br>▲ 10/05 - Obtain Authorization and Funding<br>▲ 9/06 - Begin Construction | | | | | | | | |
| **San Joaquin Valley/Southern California Water Exchange** | 8/00 ⟷ 12/04<br>◆ 12/00 - Initiate Studies of Infrastructure Capabilities & Improvements<br>▲ 6/03 - Complete Feasibility Studies & Identify Projects<br>▲ 12/04 - Complete Env. Review / Begin Impl. of Long-Term Program | | | | | | | | |
| **San Joaquin Valley Agricultural Drainage** | 12/01 ⟷ 12/03<br>▲ 3/04 - Finalize State Basin Plan Amendment & Total Max. Daily Load for Salinity in Lower S. J. River | | | | | | | | |
| **Source Control** | ▲ 3/04 - Begin Implementation of Source Control Measures<br>3/03 ⟷ 12/06<br>▲ 3/03 - Develop Monitoring & Assessment Program<br>▲ 12/04 - Evaluate & Determine Additional Protective Measures<br>▲ 12/04 - CVRWQCB - Establish State Drinking Water Policy - Delta and Upstream Tributaries<br>CVRWQCB- Begin Implementation of Source Control Measures ▲ 12/06 | | | | | | | | |
| **Control Runoff into Conveyances** | 12/01 ⟷ 12/05<br>◆ 12/01 - Initiate Evaluation of Physical Modifications<br>▲ 1/04 - Develop and Implement Watershed Programs Adjacent to Conveyance Channels<br>▲ 12/05 - Identify and Begin Implementation of Necessary Physical Improvements | | | | | | | | |
| **Treatment Technology** | 3/02 ⟷ 1/07<br>◆ 12/02 - Initiate UV Disinfection Plant Demo Project<br>◆ 12/02 - Initiate Regional Desalination Demo Project<br>▲ 1/07 - Evaluate & determine timeline for full-scale Implemtation | | | | | | | | |
| **North Bay Aqueduct** | 3/02 ⟷ 12/03<br>◆ 12/02 - Provide Funding to Implement Watershed Runoff Water Quality Best Management Practices<br>▲ 12/03 - Study Feasibility of Relocating North Bay Aqueduct Intake | | | | | | | | |
| **Operational Improvements/ Recirculation** | 9/00 ⟷ 12/02<br>◆ 10/00 - Develop a Work Plan<br>◆ 12/00 - Initiate Feasibility Study of Recirculation of Exported Delta Water<br>▲ 12/02 - Provide Recommendations to CALFED re: Use of Recirculation to Meet Objectives | | | | | | | | |
| **South Delta Water Quality Standards** | 9/00 ⟷ 8/02<br>▲ 8/02 - Develop & Implement Plan to Meet State Water Quality Standards | | | | | | | | |
| **Drinking Water Subcommittee** | 9/00 ⟷ 12/07<br>▲ 12/03 - Support Completion of Assessments Toward Water Quality Targets & Alternative Treatment Technologies | | | | | | | | |

# LEVEE SYSTEM INTEGRITY

*Core samples are taken on a Delta levee to determine the levee's integrity.*

The goal of the Levee System Integrity Program is working to protect water supplies needed for ecosystems, cities and farms. Levee improvements reduce the threat of levee failure and seawater intrusion, and also protect major interstates, roadways, cities, towns, agricultural lands and habitat.

## Summary of Accomplishments

- Federal, state and local agencies have preserved and protected more than 700 miles of levees, boosting water supply reliability and water quality by reducing the threat of levee failure due to earthquakes or floods.
- $37 million has been invested over three years in levee system improvements. The improvements benefit not only Delta water users and habitats, but also cities and farms elsewhere in the Bay Area, San Joaquin Valley and Southern California.

## CALFED Plan
### Record of Decision (ROD)

The CALFED Plan includes the following Levee System Integrity goals:

- Provide funding for local reclamation districts to reconstruct Delta levees to a base level of protection (PL 84-99).
- Increase levee stability on levees of particular importance to the Delta system for water supply and quality.
- Develop Best Management Practices for beneficial reuse of dredged material.
- Refine Delta Emergency Management Plan and development of a Delta Risk Assessment.
- Develop a management strategy to identify risks to Delta levees, evaluate consequences and recommend actions.

## Levee System Integrity Accomplishments by Region

### Delta Region

- Provided funding to improve 40 miles of Delta levees up to the PL 84-99 limit, including projects on Sherman, Bradford and Jersey Islands and Webb Tract.
- Successfully reused more than 324,000 cubic yards of dredged material to increase levee stability while enhancing habitat.
- Significant progress made on levee subsidence studies with a demonstration project launched on Twitchell Island and a strategic framework developed for addressing subsidence.
- Emergency response capabilities improved through draft Multi-Agency Emergency Response Plan, improved coordination and acquisition of flood fight materials.
- Studies initiated to analyze seismic risk to Delta levees.
- Suisun Marsh Levee Investigation completed and efforts launched to develop a long-term plan for levee protection consistent with regulatory requirements and endangered species protection.

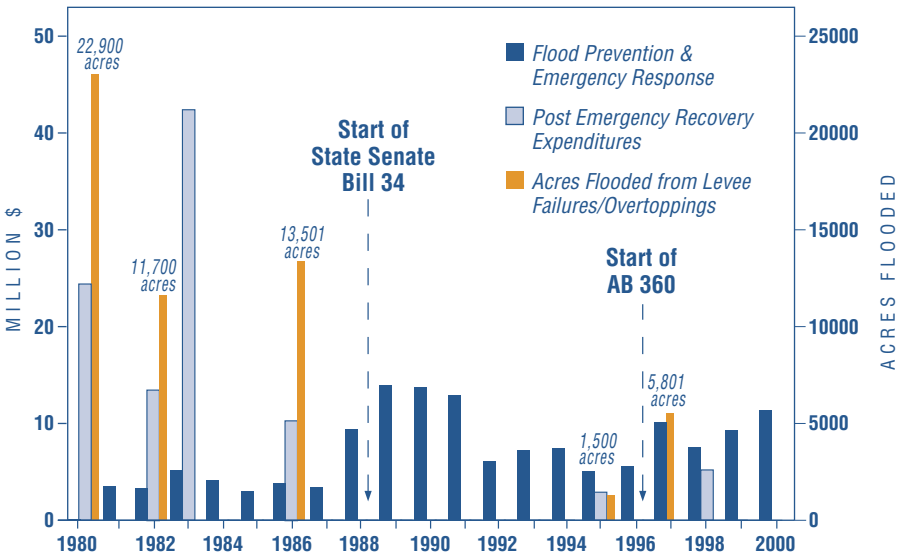
## Cross-regional Benefits

Though the Levee System Integrity Program is focused on the Delta region, investments there benefit other regions and the state as a whole. Examples include:

- Levee improvements protect water quality for millions of Californians who rely on the Delta for all or part of their water supplies.
- Projects that stabilize levees while enhancing habitat help restore the Bay-Delta ecosystem, which in turn improves conditions for key species and increases water supply reliability for cities and farms in the Bay Area, San Joaquin Valley and Southern California.
- Reducing the risk of levee failures improves water supply reliability for water users in all regions.

## Delta Levee Flood Prevention Costs

*Post Disaster Assistance Costs and Acres Flooded*




*This indicator measures the number of acres in the Delta flooded each year. Flooding can cause significant damage, especially to agriculture, but to other land uses as well. Levees are also important for the control of salinity at key points in the Delta, and flooding at certain locations can thus threaten fresh water supplies crucial to a wide range of agricultural, urban, and ecosystem uses.*

# LEVEE SYSTEM INTEGRITY

PROJECT HIGHLIGHT

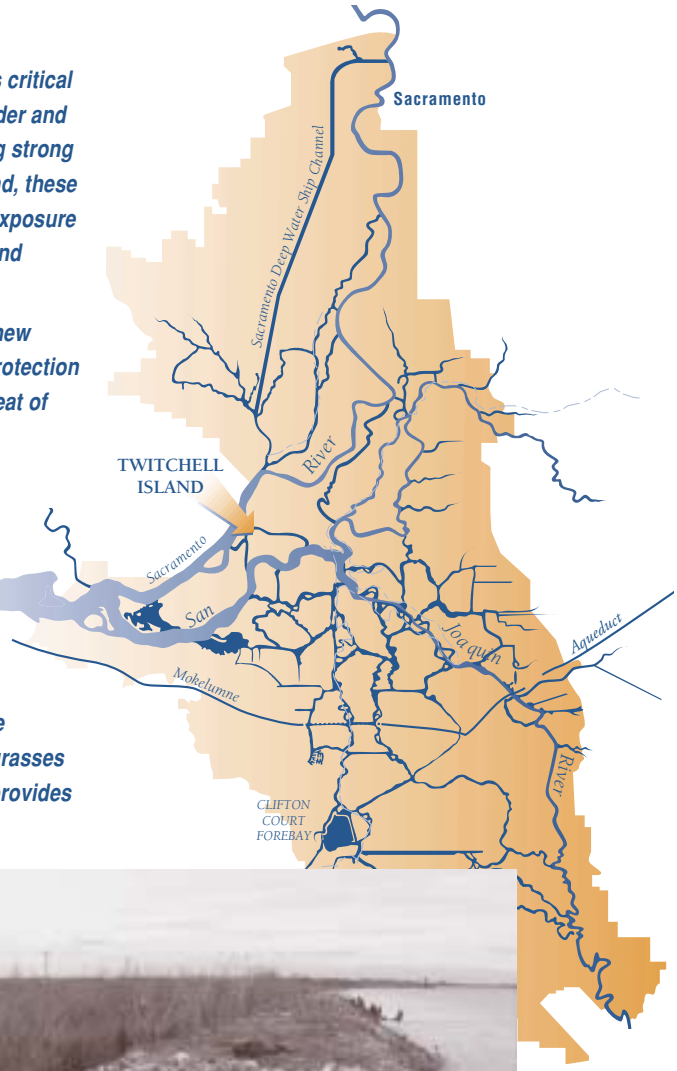
## Twitchell Island Levee Setback Project

***Introduction:*** *Twitchell Island is one of the eight key western Delta islands critical to the protection of the state water supply. Every year, the levees that border and protect Twitchell Island are pounded by waves driven by high winds during strong winter storms. Because of the large expanse of water adjacent to the island, these wind-driven waves can rapidly degrade the island's levees. The constant exposure to these conditions made the island susceptible to scouring and erosion and eventually loss of levee integrity.*

***Objective:*** *Recognizing the need to improve levee stability and to create new wildlife habitat, $3 million in bond funding was set aside by DWR for the protection of the portion of Twitchell Island that was already under the immediate threat of levee failure.*

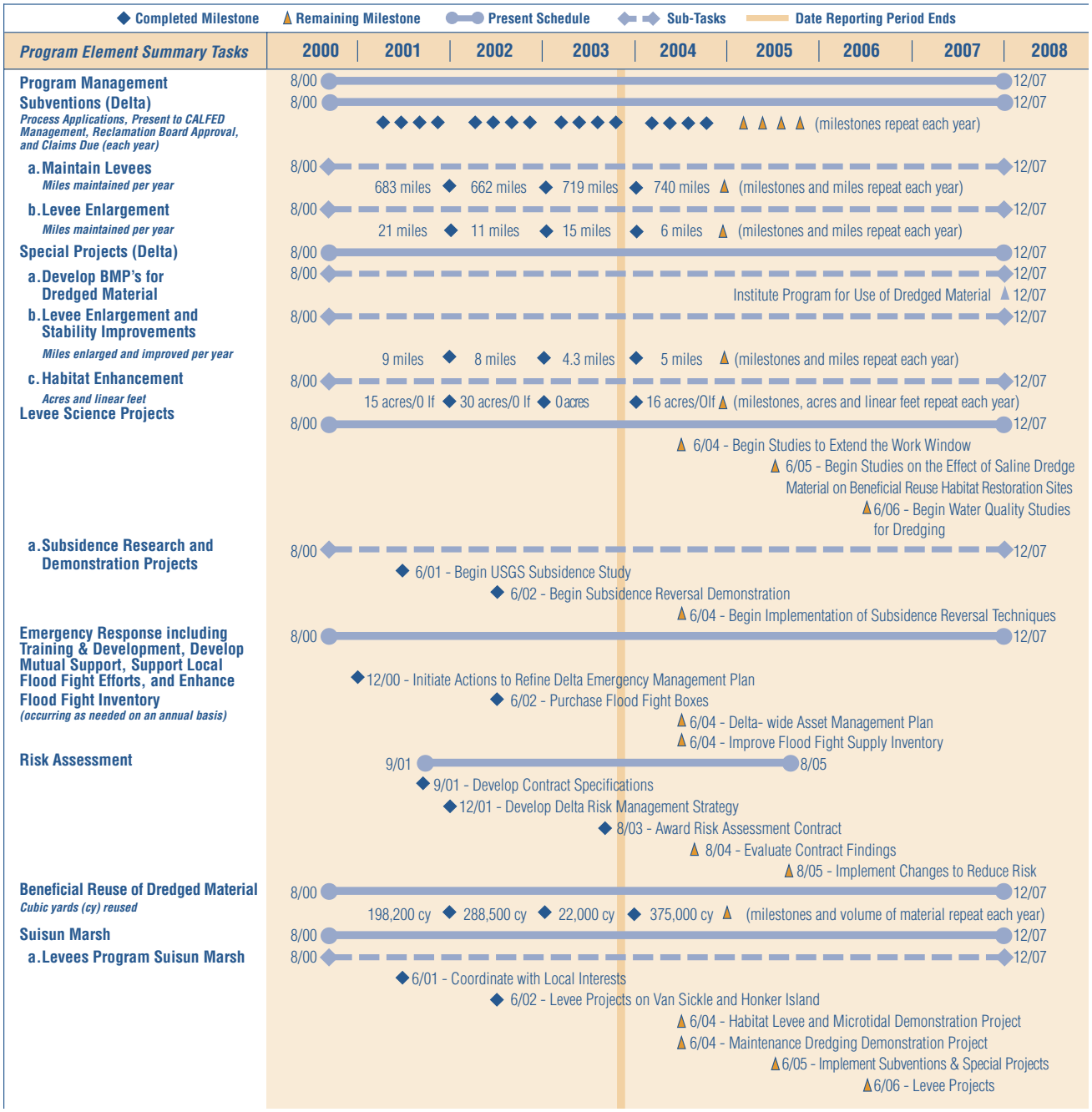
***Solution:*** *The Twitchell Island Reclamation District worked with the Department of Water Resources and Department of Fish and Game to design a levee repair that incorporated habitat enhancement. The design included construction of a 3,000 foot section of setback levee, with a bench, protected shallow 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.*

***Benefit:*** *The project has several benefits, such as levee stability, water quality, water system reliability, flood protection, and habitat enhancement. This first setback levee for improving levee stability and flood control in the Delta has created a model for similar projects being planned on Staten and Sherman islands.*




*The Bay-Delta Levee System Integrity program funded special improvements projects like root wads used at the openings in the berm at the Twitchell Island setback levee to provide protection to small fish while stabilizing the embankment.*

## LEVEE SYSTEM INTEGRITY



# ECOSYSTEM RESTORATION & WATERSHEDS

The CALFED agencies are working to improve the ecological health of the Bay-Delta watershed through restoring and protecting habitats, ecosystem functions and native species. The Watershed Program provides funding, coordination and technical assistance to support local watershed activities.

## Ecosysystem and Watershed Projects


## Summary of Accomplishments

- Bay-Delta agencies have invested $476 million in over 400 projects aimed at improving and restoring ecosystems.
- 100,000 acres of habitat have been protected or restored.
- State and federal agencies have funded projects to install 68 new or improved fish screens and launched 23 comprehensive studies to answer important scientific questions.
- Sacramento splittail was removed from the list of threatened species because threats to the splittail are being addressed through restoration actions.
- 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.
- Funding and assistance have been provided to support 20 watershed coordinators throughout the Bay-Delta solution area.
- CALFED agencies have funded projects to support wildlife friendly agriculture on about 53,000 acres of farmland.
- $12 million invested to develop and implement a strategy to build the scientific foundation for assessing and eventually reducing mercury-related risks in the Bay-Delta ecosystem.



## CALFED Plan
### Record of Decision (ROD)

The CALFED Plan includes the following Ecosystem Restoration and Watershed goals:

- Restore habitat in the Delta and its tributary watersheds.
- Augment stream flow in upstream areas through voluntary water purchases of up to 100,000 acre-feet annually for native fish.
- Improve fish passage through modification or removal of dams, improved bypasses, and ladders.
- Integrate flood management and ecosystem restoration.
- Build local capacity to assess and effectively manage watersheds that affect the Bay-Delta system; develop watershed assessments and plans; implement specific watershed conservation, maintenance and restoration actions.
- Manage an Environmental Water Account to provide benefits to fish as well as water supply reliability to farms and cities.

## Ecosystem Restoration and Watershed Management Accomplishments by Region

### Sacramento Valley

- $172 million invested in 139 local ecosystem restoration projects including over 50 projects to improve fish passage. Funded projects include habitat restoration,watershed monitoring and assessment.
- $11.4 million invested in 40 local watershed projects addressing areas such as floodplain management and watershed education and outreach.
- $12 million provided for studies addressing mercury and other pollutants associated with abandoned mines.

### Bay and Delta Regions

- $180 million invested in 150 ecosystem projects, including wetlands protection, habitat restoration, wildlife-friendly agriculture and efforts to curb invasive species.
- $8 million invested in 22 watershed projects, including assessment, monitoring and protection efforts.
- Major studies funded to monitor and examine issues such as effects of pesticides on fish in the Bay-Delta and dissolved organic carbon and methyl mercury releases from restored wetlands.

### San Joaquin Valley

- $81 million invested in 46 ecosystem restoration projects, including major restoration efforts on the Merced, Tuolumne and Stanislaus rivers.
- $3.2 million invested in 13 watershed projects.
- $4 million invested in research to determine the sources and causes of dissolved oxygen in the lower San Joaquin River.

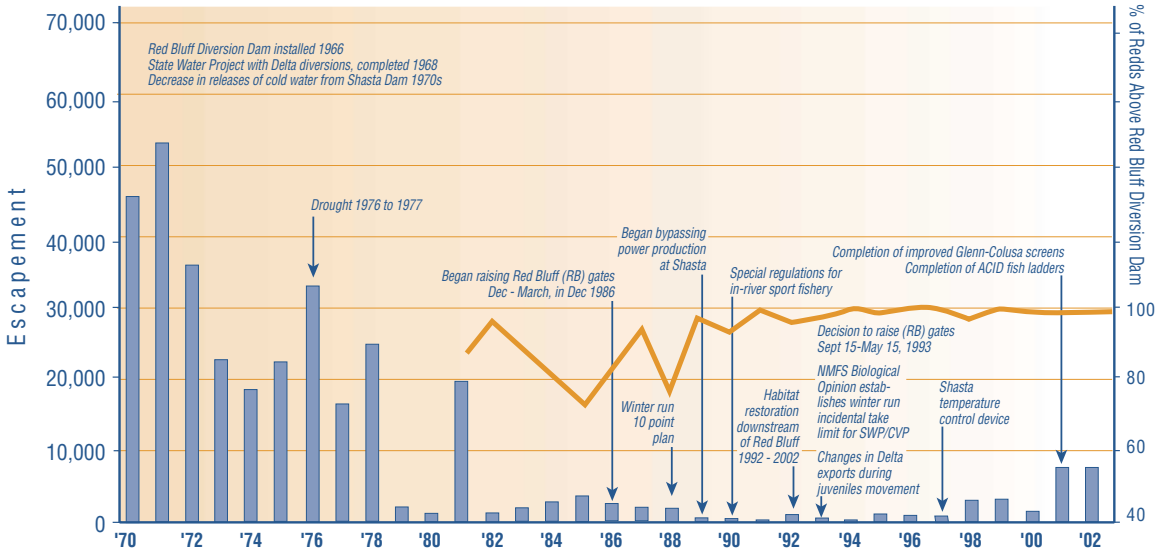
### Southern California

- $2.3 million invested in six watershed management projects, including watershed education, monitoring and management and water replenishment programs.

# ECOSYSTEM RESTORATION & WATERSHEDS

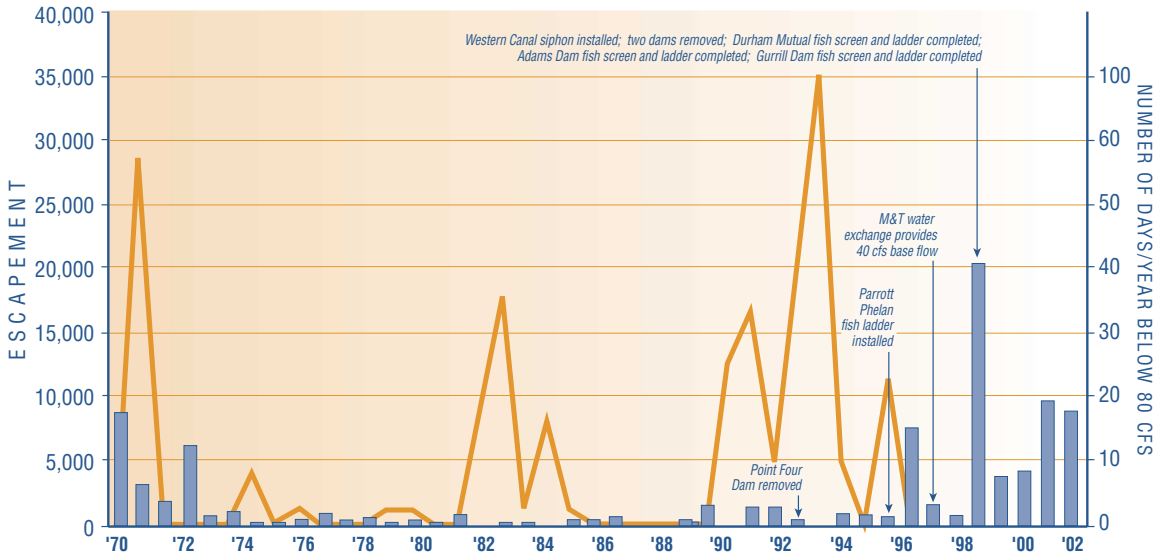
## Ecosystem Restoration Performance Measures

### *Sacramento River Winter Run*




*This performance measure reports the escapement (the number of adult salmon escaping mortality and successfully returning each year to spawn) of adult winter-run Chinook salmon, an endangered species under the state and federal Endangered Species acts, on the Sacramento River. The Sacramento River population is the only remaining population of winter-run Chinook salmon.*

### *Spring Run Escapement for Butte Creek*




*This performance measure reports the escapement (the number of adult salmon escaping mortality and successfully returning each year to spawn) of adult spring-run Chinook salmon, a threatened species under the state and federal Endangered Species acts, on Butte Creek. The Butte Creek population is one of the few remaining self-sustaining populations of spring-run Chinook salmon in the Central Valley. The spring-run in Butte Creek has been affected by significant impediments to upstream passage of adults stemming from dams, inoperative fish ladders, and reduced flows as a result of water diversions. Since 1995, restoration actions have included dam removal, installation and/or repair of fish ladders and fish screens, and improvements to base flow.*

## Cross-Regional Benefits

The Bay-Delta Program's regional approach emphasizes local involvement and strives to address local issues and needs. But many actions in specific regions directly benefit other regions and the state as a whole. These include:

- Improved habitat contributes to improving the overall health of the Bay-Delta estuary and key species, which in turn results in greater water supply reliability for water users in much of the state.
- Environmental Water Account activities provide water to protect native fisheries in the Delta and improve water supply reliability for cities and farms in the Bay Area, San Joaquin Valley and Southern California.
- Investments in water quality research help guide management actions to reduce the effects of contaminants.

PROJECT HIGHLIGHT

### Protecting Working Landscapes

*Through the third year of implementation, the Bay-Delta agencies made progress on the commitment to work cooperatively with farmers and ranchers and other local partners to achieve Program objectives while maintaining and enhancing the sustainability of agriculture productivity and reduce the conversion of agriculture to other uses.*

*Since the signing of the Record of Decision (ROD) in August 2000, the Bay-Delta agencies are becoming leaders in protecting and restoring ecosystems in ways that keep farmland producing food, fiber, and income. In addition, the Program's track record shows that, in cases where projects affect agricultural land, efforts are being made to minimize or avoid impacts on, and enhance existing land uses.*

*The Ecosystem Restoration Program has committed to using land already owned by the state or federal government wherever possible. In addition, CALFED agencies are actively pursuing partnerships with landowners to provide ecosystem benefits through easements and programs that protect and improve the sustainability of farming and ranching.*

*Since the ROD was issued in the summer of 2000:*

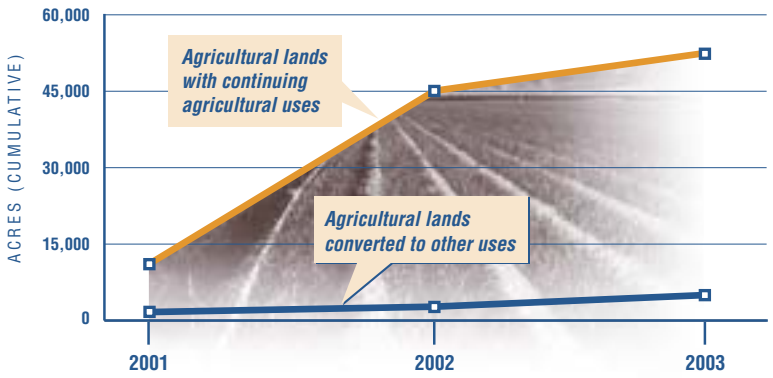
- *87% of the land protected for ecosystem purposes has remained as privately owned agricultural land.*
- *The Ecosystem Restoration Program has permanently protected 53,000 acres of agricultural land, largely through easements, and converted less than 3,500 acres to other uses (see graph below).*

#### *Working Landscapes Subcommittee*

*A subcommittee of the California Bay Delta Public Advisory Committee on Working Landscapes provides a forum for farm groups, conservation organizations, agriculture and fish and wildlife agencies to promote conservation partnerships between CALFED agencies, private landowners, local governments and conservation groups.*

*Partnership goals include providing landowners with incentives and support for integrated farming and habitat management practices; assisting them with regulatory processes and permits, including Endangered Species Act assurances, and minimizing adverse impacts to agricultural resources.*

**Trends in Aquisition and Use of Agricultural Land for Ecosystem Purposes**



# ECOSYSTEM RESTORATION & WATERSHEDS

PROJECT HIGHLIGHT

## Murphy Creek Restoration Project

***Introduction:*** *Murphy Creek is a five-mile long tributary of the Mokelumne River— an important tributary of the Bay-Delta System. Restoration of Murphy Creek will provide the opportunity to implement elements of the Lower Mokelumne River Watershed Stewardship Plan, including the protection and enhancement of anadromous fisheries and other ecosystem benefits, and improvement of water quality for the Murphy Creek watershed, the Mokelumne River, and the Bay-Delta System.*

***Objective:*** *The objective of the project is to restore rearing and spawning habitat for Chinook salmon and steelhead, restore native riparian vegetation and re-establish native birds and other wildlife species, improve water quality and water flows, and promote sustainable agriculture practices to continue to support livestock and vineyard production in the watershed.*

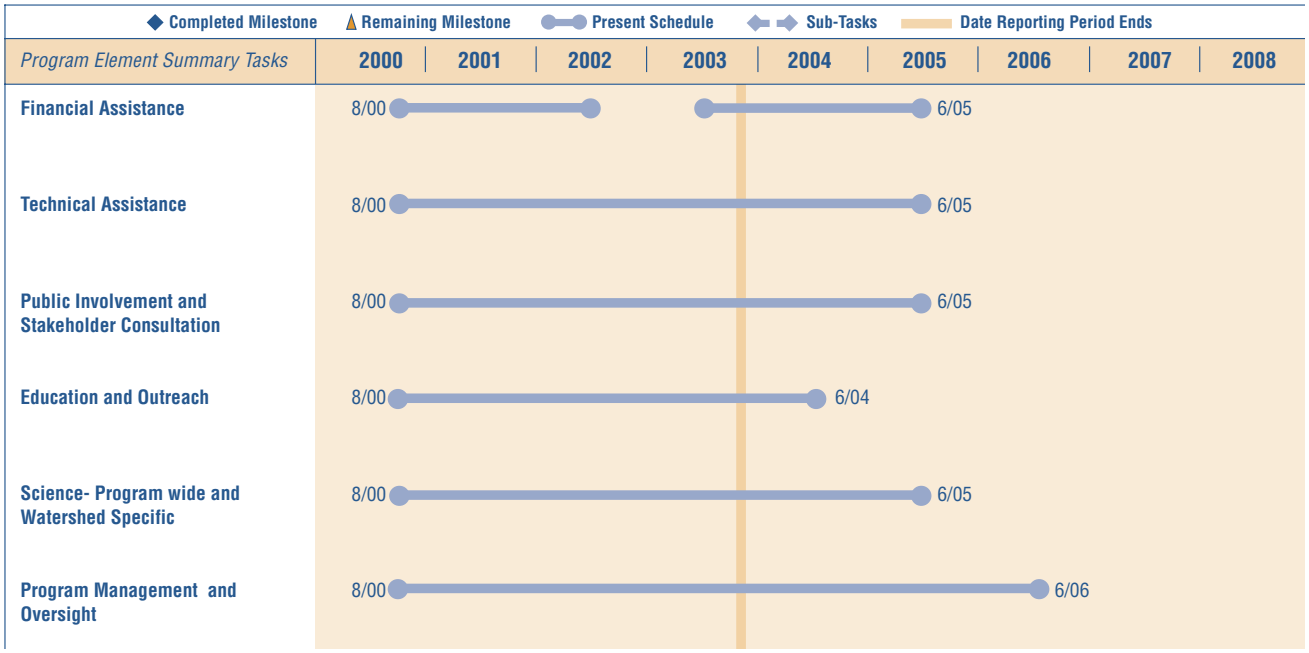
*Bulldozer removes a dam on Murphy Creek.*

***Solution:*** *Representatives from Univ. of CA, Davis, the Natural Resource Conservation Service, East Bay Municipal Utility District, and various state and federal agencies provided assistance to develop an assessment of the watershed. The actions implemented included removing fish passage barriers (including the removal of a dam on Murphy Creek), reduction of livestock access to riparian zones and the creek, removal of non-native species and re-introduction with native vegetation, repairing erosion/bank instability to reduce sedimentation, and promoting sustainable agriculture within the watershed through use of best management practices.*

***Benefit:*** *The 30-month project will restore historical salmon and steelhead spawning habitat with associated improvements to other species while maintaining sustainable agriculture practices, increase water flows and improve water quality in the watershed. The Murphy Creek Restoration Project restores river functions through restoration of a free-flowing stream system and improves water quality by controlling erosion and improving riparian environment. The stakeholder participation and cooperation will encourage other landowners to implement similar projects that can ultimately help achieve Bay-Delta goals and objectives.*

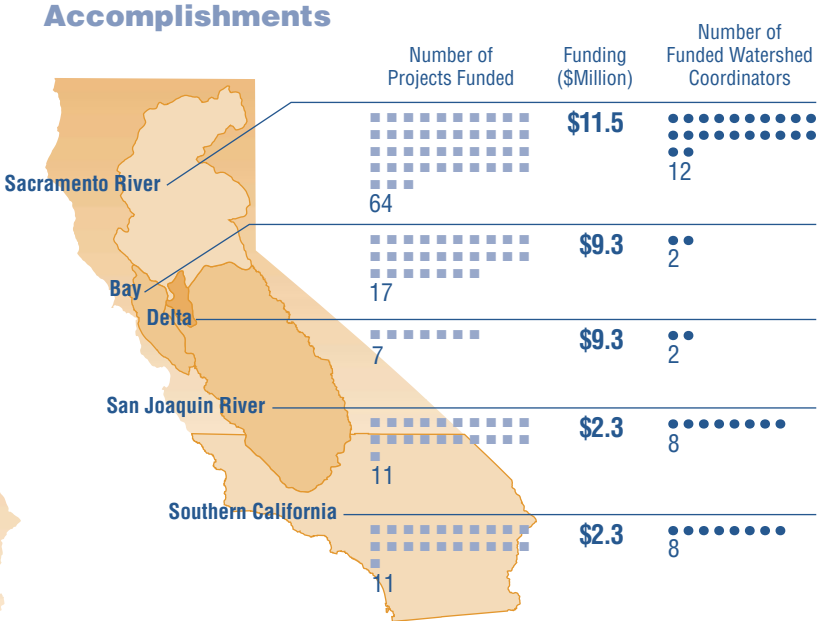
*Website: www.sjcrcd.org*

## WATERSHEDS




## Watersheds with Funded Grant Projects

## Watershed Accomplishments



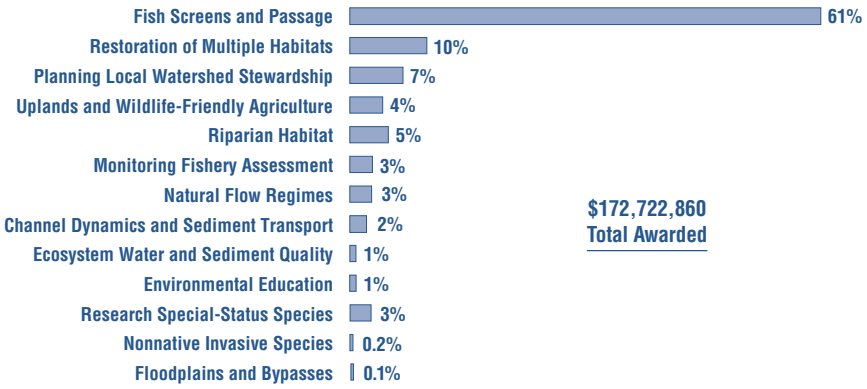
# ECOSYSTEM RESTORATION

More than $476 million has been awarded to date for more than 400 Ecosystem Restoration projects. Ecosystem Restoration efforts continue to improve habitat and address the needs of key species. Accomplishments include:

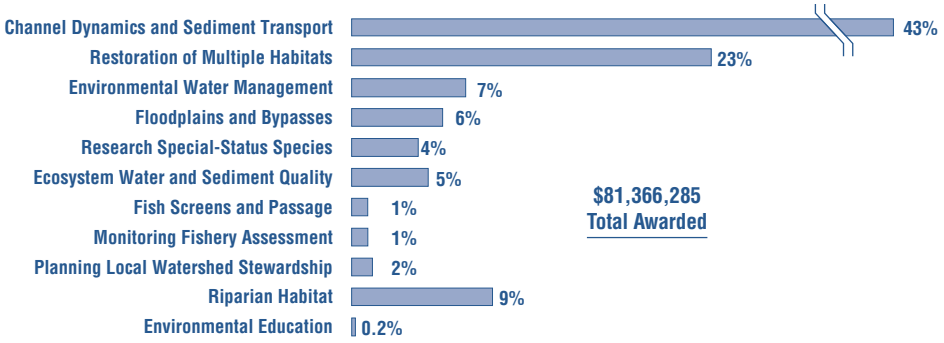
- Single blueprint approach
- 100,000 acres of habitat protected or restored
- 68 new or improved fish screens
- 23 comprehensive scientific studies
- Contributed to meeting regulatory commitments for all Program elements

## Regional Spending

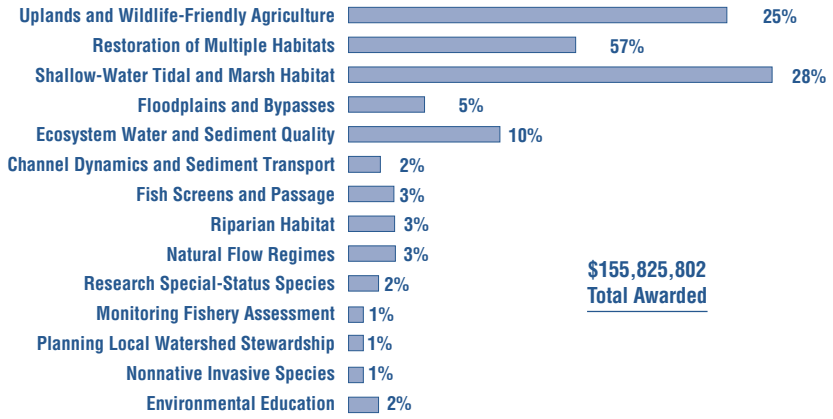
*Percent of total spent on Sacramento Region ERP Actions*




*Percent of total spent on San Joaquin ERP Actions*

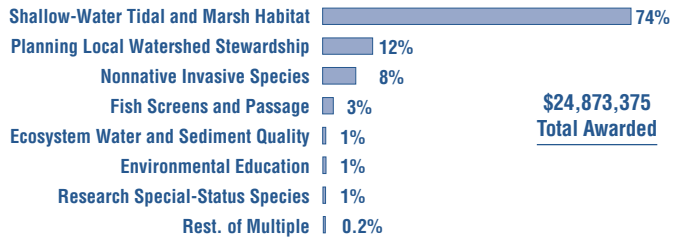



*Percent of total spent on Delta and Eastside Tributaries Region ERP Actions*

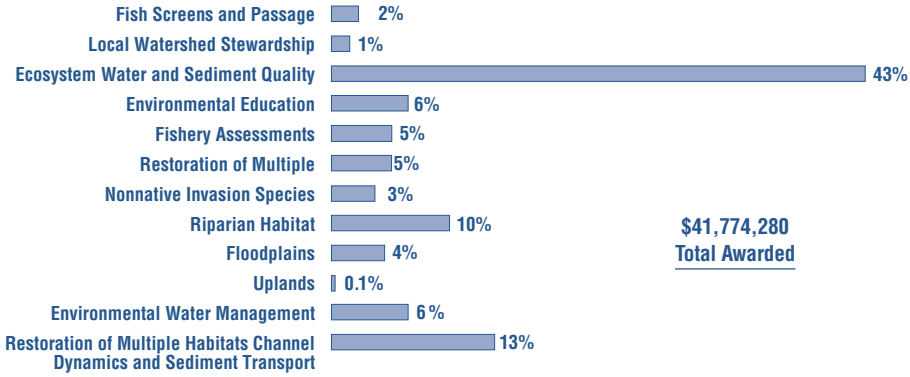


## Regional Spending (cont.)

*Percent of total spent on Bay Region ERP Actions*

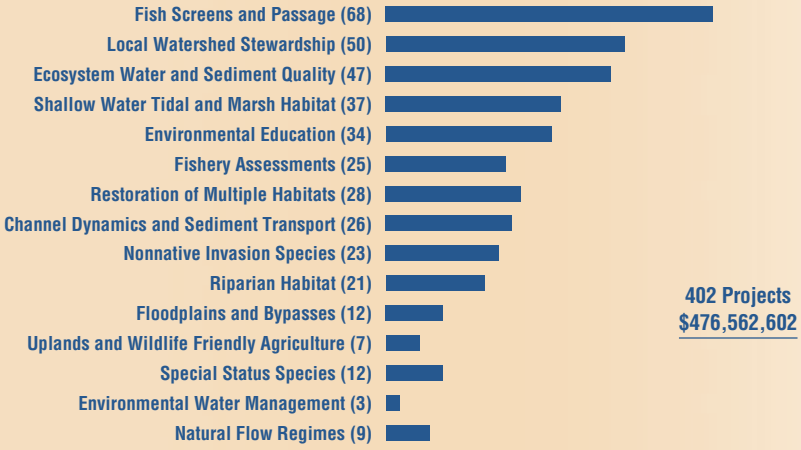



*Percent of total spent on ERP Actions with cross-regional benefits*

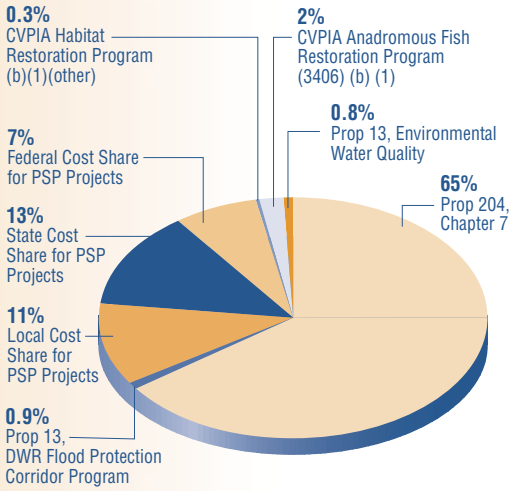



## Total Spending

*Types and number of restoration projects funded by the ERP*




*Fund sources and amount of funding to support the selection of projects through the 2002 PSP including directed actions in 2003*



# SCIENCE

Incorporating the best-available scientific knowledge into all Bay-Delta Program activities and decisions is the goal of the Science Program. In addition to exploring questions specific to individual projects, the Science Program focuses on large-scale issues that cut across multiple program objectives and regions.

## Summary of Accomplishments

- The California Bay-Delta Authority established the Independent Science Board to make recommendations on science issues to the Authority and the Bay-Delta Public Advisory Committee. The board will help ensure the Bay-Delta Program meets its goals by evaluating the science agenda and assuring balance and credibility in all scientific reviews and analyses.
- Three annual technical reviews of the Environmental Water Account were conducted, yielding valuable insight into what worked and didn't work and providing recommendations to help guide future EWA decisions.
- Science Program staff helped identify knowledge gaps and focus scientific discussion with a series of workshops on water project operations and their impacts on fish. Information gleaned from the workshops will help prioritize future research.
- Issue-specific workshops also were held on topics such as Delta salinity, Battle Creek salmon and Delta smelt. 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.
- The Science Program continues to provide technical advice to other program areas, including Drinking Water Quality and in-Delta storage.
- Science Program staff 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.
- A template was developed for choosing indicators and performance measures to assess how projects and programs are meeting their objectives.

### Science Program Reviews and Workshops – 2003

**Program Level Reviews**

*EWA Review II*

**Project Level Reviews**

*Delta Cross Channel Project Review*

*In-Delta Storage Feasibility Review*

*Watershed-wide Mercury Science and Restoration Strategy Review*

**Workshops**

*Planning for Hydrologic Change in California: Scenarios for Delta Water Resources through the 21st Century*

*Performance Measures Workshop*

*Salmon Escapement Workshop*

*EWA - Salmonid Workshop*

*Non-native Invasive Species Workshop*

*EWA - Delta Smelt Workshop*

*Central Valley Salmonid Recovery Planning Technical Workshop*

**Symposia**

*Water Operations Science I Symposium*

*Larval Fish Symposium*

**Conferences**

*CALFED Science Conference*

*Lower American River Conference (Water Forum)*



PROJECT HIGHLIGHT

## Bay-Delta Science Consortium

*The Bay-Delta Science Consortium was established as a way to bring together the diverse scientific efforts underway in the Bay-Delta. The Consortium is comprised of 14 state, federal, private and academic institutions. The Bay-Delta Science Consortium promotes collaboration between scientists and scientific disciplines and efficiency through shared information and resources.*

### *Current Activities and Key Goals*

*Enhancing Collaboration*

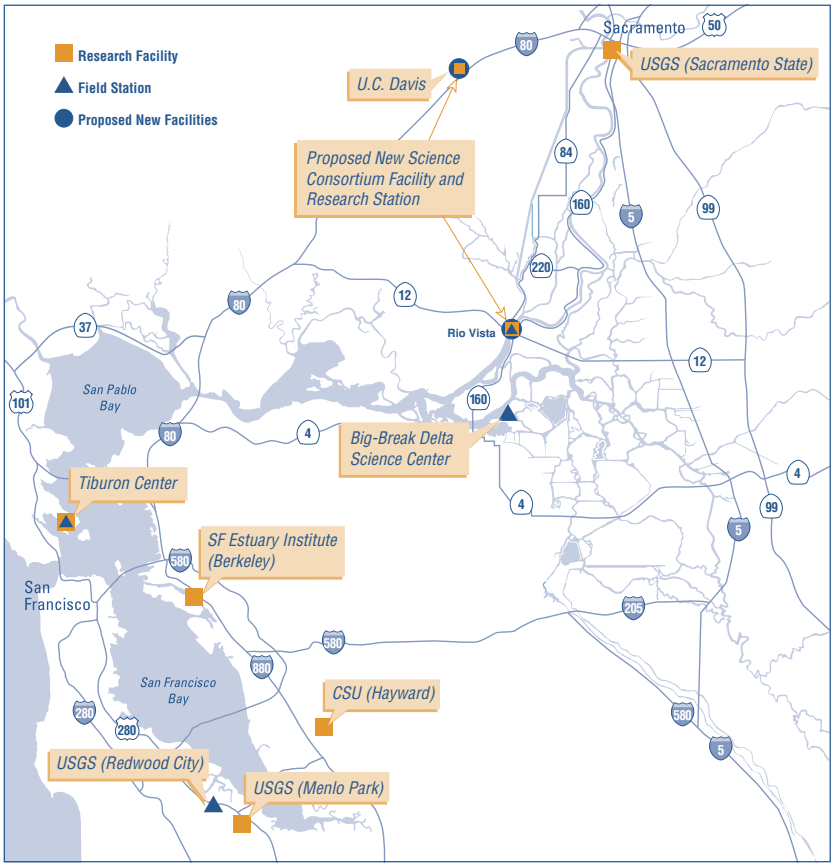
- *Organizing forums where scientists can exchange ideas and develop multi-disciplinary projects*
- *Providing feedback to the Program on collaborative proposals*

*Common Data Management Systems*

- *Helping researchers locate and utilize meaningful data from a wide range of sources, contributing to the Science Program's distributed data management strategy*

*Joint Facilities and Research Stations*

- *Coordinating the development of new facilities for many of the member institutions to occupy*
- *Locating existing resources such as facilities and equipment that member institutions have agreed to share with one-another*




*New Electronic Journal:*

*http://repositories.cdlib.org/jmie/sfews*
*Helping launch a new electronic journal serving as a forum for discussing science in the Bay-Delta Program and publishing peer reviewed technical reports written by and for the Bay-Delta Program community*

*A Web Site:*

*www.baydeltaconsortium.org*
*Helping scientists share information on current and planned research, monitoring, and outreach activities*

# SCIENCE

PROJECT HIGHLIGHT

## Franks Tract

*A flooded island in the Central Delta may hold the key to improving water quality during low flood periods without additional water costs, say scientists about new results from multidisciplinary scientific studies funded by the Ecosystem Restoration Program.*

*Researchers were conducting a large field experiment in Franks Tract in the Central Delta on selenium transport when they discovered hydrodynamic patterns in their data that might help address an age-old water quality management problem. Field data from this experiment show that the tides transport salt through a series of narrow levee breaches into the pool of water in Franks Tract, but channel configurations keep the salt from draining out on the outgoing tide. The result of this tidal "pumping" and "trapping" process can be a gradual build-up of salt in the Central Delta during late summer through the early winter period.*

*Following up the field studies with computer modeling, researchers now think that the Central Delta behaves like a large mixing "bowl." This means that freshwater inflows from the northern Delta and diversion rates in the South Delta appear to only have an indirect effect on salinity in the Central Delta—and that tidal currents significantly contribute to salinity levels in Franks Tract.*

*Aerial view of Franks Tract*

*These findings suggest an opportunity to improve Delta water quality without requiring additional upstream water releases or curtailments of pumping by the state and federal diversions and may explain why at times salinity in the Central Delta can be slow to respond to releasing water from upstream reservoirs, lowering pumping rates by the state and federal diversions, and opening the Delta Cross Channel gates. These management tools are all located on the periphery of the Delta and their effects are relatively small compared to the transport of salt due to mixing by the tides in the Central Delta.*

*With Franks Tract right in the middle of the Central Delta, there may be opportunities to work directly with the natural tidal processes. Physical changes such as repairing the northern and western section of levees, or constructing tidal gates could allow operators to manage natural tidal processes that influence salt concentrations and other water quality conditions such as water temperature and water depth.*

*Much more work on fish passage and the transport of organisms in this area is needed, as well as more detailed examinations of how this Central Delta "pool" of fresh water works. However, these new findings suggest a number of new management opportunities, potentially improving Delta salinities without costing more water. These findings are examples that investments in scientific studies aimed at better understanding natural processes can produce useful information in unexpected ways.*



PROJECT HIGHLIGHT

## Delta Cross Channel — Highlighting Science in Action

*Constructed in 1950-1951, the Delta Cross Channel (DCC, cross channel) is a key facility of the Central Valley Project that connects the Sacramento River with the Mokelumne River near Walnut Grove. At the head of the cross channel, two 60-feet radial gates are opened to improve water quality in the central Delta, and are closed to provide flood protection and to prevent young salmon headed out to the ocean from getting detoured into the central Delta where their chances of survival decrease sharply.*

*Scientists agree the key to helping fish while maintaining water quality standards is understanding how to operate the gates. Therefore, an interdisciplinary, interagency, collaborative research team was formed to conduct intense field investigations at the DCC.*

*In one of the Bay-Delta Program's most intensive research efforts yet, 15 scientists from eight agencies have been studying the hydrodynamics, fish movements and water quality impacts related to the DCC. The studies were organized into 3 intensive efforts with a year in between each so lessons learned could be incorporated into the next effort.*

*Through a tremendous coordination effort, scientists:*

- *Measured the water quantities, qualities, and velocities experienced by the fish;*
- *Tracked the movement of salmon smolts with paint marks, radio tags, sonar and nets;*
- *Followed 100 adult salmon swimming up from the lower San Joaquin River to see if gate operations affected their migration patterns.*

*Delta Cross Channel Gates*

*These interdisciplinary studies have significantly improved our scientific understanding of the hydrodynamics, water quality, and fish movement in the DCC region.*

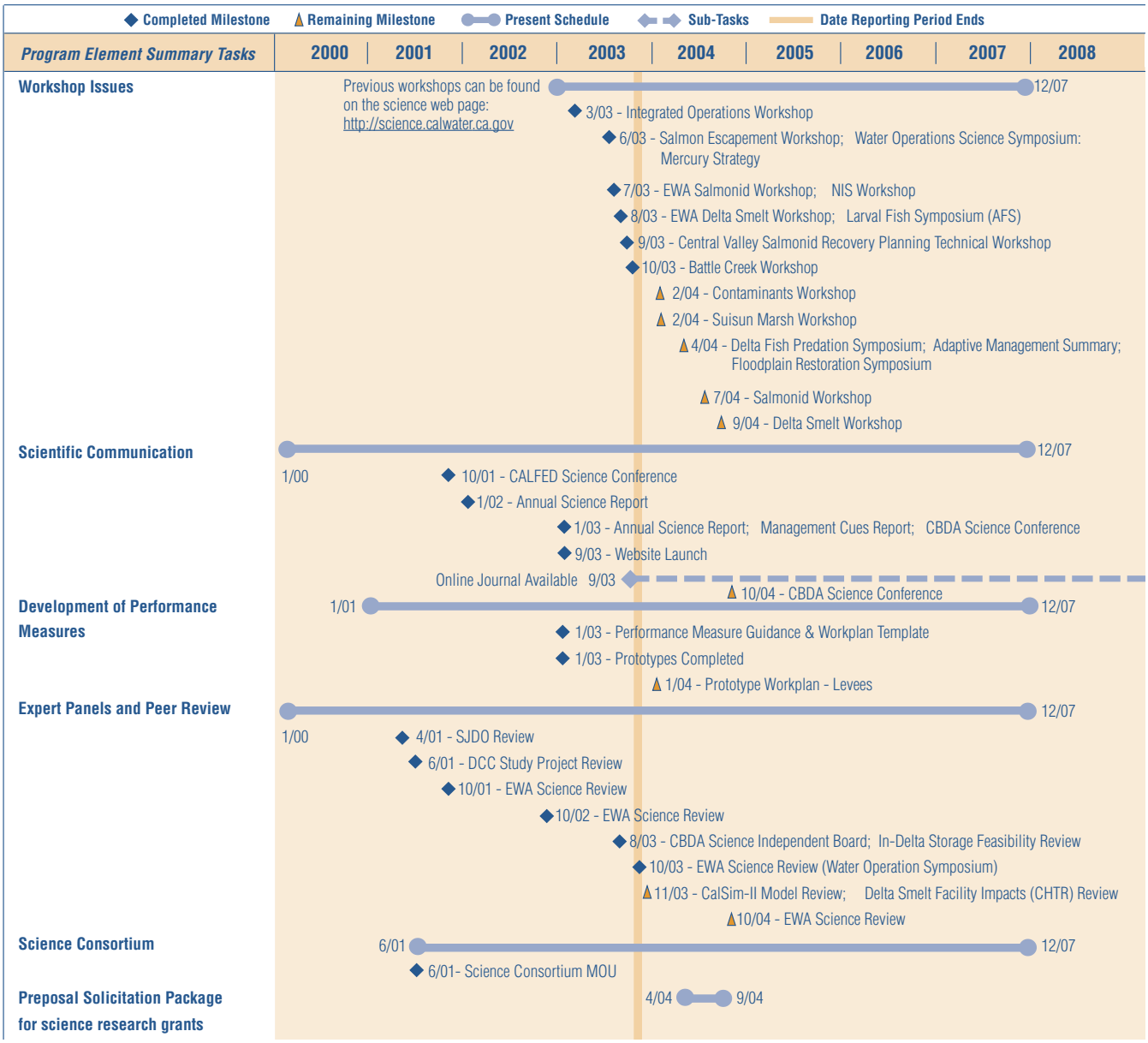
*Some of the results were unexpected and surprising:*

- *Tidal currents have a much greater influence on the long-term transport of materials (salt, organic carbon, toxics, small fish, etc.) in the central Delta than originally thought;*
- *Water flowing into the central Delta via the DCC and Georgiana Slough and entering the Mokelumne system is influenced largely by gate operations and the Sacramento River flow; not by water exports in the south Delta;*
- *Gate operations affect the percentage of Sacramento River flow that enters Georgiana, Steamboat and Sutter sloughs. When the DCC gates were closed, unexpectedly high entrainment rates occurred in Georgiana Slough;*
- *Salinity response to tidal operation of the DCC gates in the western Delta was difficult to detect given the large influence of the spring/neap cycle;*
- *Salmon entrainment into the DCC largely depends upon the flow field the fish encounter when they arrive at the DCC, as well as day-night differences in fish abundance, movements, and spatial location in the channel;*
- *Fish seem to orient to areas of highest flow velocities in the river or channel and their position in the water column may be influenced by geometric features such as river bends;*
- *Migratory patterns of adult chinook salmon within the Delta often did not follow a direct pathway upstream and thus the travel time of adults through the Delta varied greatly, from weeks to months. The DCC is an important migratory pathway for adult Chinook salmon.*

*With this type of enhanced understanding, scientists and managers can determine if different DCC gate operation scenarios could better protect fish while minimizing effects to water quality and water project operations.*

# SCIENCE

## SCIENCE



# Oversight & Coordination



The California Bay-Delta Authority and its staff are responsible for overseeing and coordinating the diverse activities associated with implementing the Bay-Delta Program. Key functions of the Authority include integration of Program activities, oversight of activities that span multiple programs and multiple agencies, tracking Program funding and accomplishments, assuring public involvement and transparency in Program implementation, assisting with regional implementation of the Program, and supporting environmental justice and tribal activities associated with implementation of the Program.

## Summary of Accomplishments

This year saw the formation of the California Bay-Delta Authority as a separate state agency within the California Resources Agency. The Authority includes a 24-member body composed of state and federal agency directors, public members, a representative of the Bay-Delta Public Advisory Committee, and *ex officio* elected officials. Created by state legislation passed in 2002, the Authority members govern the activities of the Authority staff and provide additional public oversight and transparency for the Program's decision-making process.

Specific accomplishments within the Oversight & Coordination function include:

- Completed an updated Memorandum of Understanding among the California Bay-Delta Authority and the 23 other state and federal agencies participating in the Bay-Delta Program. The MOU, which originated with adoption of the Record of Decision in 2000, affirms the agencies' support for and ongoing commitment to the Program.
- Placed additional emphasis on both environmental justice and tribal relations. An environmental justice multi-year workplan was developed and several presentations were made and forums held as part of the plan to incorporate environmental justice into each of the Bay-Delta Program elements. In addition, a Tribal Coordinator began work on outreach to the various tribal governments throughout the state.
- Supported staff regional coordinators for four of the five regions. Funding has been provided to two regional forums: the Southern California Water Dialogue and the Association of Bay Area Governments (ABAG) CALFED Task Force. Regional coordinators also have worked with other regional groups to update them regarding California Bay-Delta Program activities and learn about their issues and concerns.
- Produced a California Bay-Delta Program Tracking Report which summarizes fiscal information & Program accomplishments for all agencies and Program elements.

*Ken McGhee, EJ Coordinator, facilitates discussion at the October Lake County Pomo Tribal Environmental Justice Forum.*

# OVERSIGHT & COORDINATION

*At the March '03 BDPAC public meeting, a Duck's Unlimited representative receives a federal Central Valley Project Improvement Act grant.*

- Supported the Bay-Delta Authority and the Bay-Delta Public Advisory Committee (BDPAC), including renewal of its federal Charter. Working through nine subcommittees, BDPAC advises federal and state agencies, including the Authority, on all aspects of Program implementation.
- Initiated development of regional profiles and strategies to better integrate local planning and water management activities with those undertaken by various state and federal agencies to avoid duplicative efforts and better allocate scarce financial resources.
- Continued efforts to develop a two-way dialogue with elected officials, stakeholders and the general public through enhanced communications including media relations, development of electronic newsletters and project-specific informational materials.
- Developed a water management strategy that focuses efforts to develop and use a unified set of data and modeling tools (common assumptions) as various state and federal agencies conduct water management analyses.
- Initiated development of a long-range finance plan for the Authority, including the establishment by staff of an Independent Panel with *ad hoc* and technical advisory groups to develop recommendations for the plan.

## Bay-Delta Public Advisory Committee Members & Subcommittees

### *Subcommittees*

**Delta Levees & Habitat**

**Drinking Water**

**Ecosystem Restoration**

**Environmental Justice**

**Steering Committee**

**Watershed**

**Water Supply**

**Water Use Efficiency**

**Working Landscapes**

### *Members*

**Gary Bobker**
The Bay Institute

**Ryan Broddrick**
Ducks Unlimited

**Denny Bungarz**
Glenn County

**Christopher Cabaldon**
City Of West Sacramento

**Tom Clark**
Kern County Water Agency

**Marci Coglianese**
City of Rio Vista

**Martha Davis**
Inland Empire Utilities Agency

**George Fraser**
Northern California Power Agency

**Dan Fults**
Friant Water Users Authority

**Gregory Gartrell**
Contra Costa Water District

**P. Joseph Grindstaff**
Santa Ana Watershed Project Authority

**David Guy**
Northern California Water Association

**Martha Guzman**
United Farm Workers of America, AFL-CIO

**Steve Hall**
Association of California Water Agencies

**Gary Hunt**
California Strategies, LLC

**Leslie Lohse**
Paskenta Band of Nomlaki Indians

**Robert Meacher**
Plumas County

**Jerry Meral**
Planning and Conservation League

**Barry Nelson**
Natural Resources Defense Council

**Dan Nelson**
San Luis & Delta-Mendota Water Authority

**Pietro Parravano**
Pacific Coast Federation of Fishermen's Association

**Bill Pauli**
California Farm Bureau Federation

**Timothy Quinn**
Metropolitan Water District of So.California

**Mike Rippey**
Napa County

**Michael Schaver**
Big Valley Rancheria

**Frances Spivy-Weber**
Mono Lake Committee

**Maureen Stapleton**
San Diego County Water Authority

**O.L. "Van" Tenney**
Glenn-Colusa Irrigation District

**Marguerite Young**
Clean Water Action

**Thomas Zuckerman**
Central Delta Water Agency

## Legislative Actions

### State Legislation

Measures relating to water meters, implementation procedures for a recently passed statewide water bond, and a package of bills facilitating a plan to reduce the state's use of Colorado River water were among the water-related measures passed by the California Legislature session in 2003.

**AB 514 (Kehoe) Water Meters (Chapter 680)** requires the installation and use of residential water meters by Jan. 1, 2013, primarily affecting Central Valley homeowners in Folsom and Fresno. The legislation applies to residential customers who receive water through contracts with the federal Central Valley Project water system and live in homes constructed before 1991 (state law already requires meters for homes constructed after 1991). The state action matches 1992 Congressional adoption of the Central Valley Project Improvement Act (CVPIA), which has been interpreted by the Secretary of the Interior to mean that all urban users of CVP water must install and use water meters.

**AB 1747 (Committee on the Budget) Public Resources (Chapter 240)** requires state agencies disbursing grants or loans to develop project solicitation and evaluation guidelines for the purposes of implementing Proposition 50, the November 2002 statewide water bond. The bill also directs some funding to specific state agencies and also directs agencies (where appropriate) to include in the guidelines requirements for matching funds. The bill requires each state agency, prior to finalizing the guidelines, to conduct two public meetings to consider public comments.

**Colorado River Package** – Three bills provide the crucial legal and financial underpinning for a historic and long-awaited agreement on sharing water from the Colorado River. The bills also mark the end of decades of regional water conflicts along the Colorado River, stabilize California's overall water supply, and set the stage for an unprecedented effort to save the Salton Sea, an important refuge for wildlife and waterfowl, including several endangered species. The bills are **SB 277 (Ducheny), SB 317 (Kuehl), and SB 654 (Machado).**

### Federal Reauthorization

Three bills that would reauthorize and provide federal funding for the California Bay-Delta Program worked their way through Congressional subcommittees this year. **S. 1097 (Feinstein-Boxer) CALFED Bay-Delta Authorization Act**, would reauthorize federal participation in the Program consistent with the Record of Decision (ROD) and provide $880 million over a four-year period according to specific allocations. **H.R. 2828 (Calvert-Napolitano) Water Supply Reliability & Environmental Improvement Act** is similar to the Senate bill, including the $880 million, but also includes authorization (but no appropriation) for a competitive grants program available nationwide. **H.R. 2641 (Miller-Tauscher)** was also introduced and generally mirrors S. 1097 although it also requires that the California legislature enact measures to control groundwater pumping.

# 2003 Statement of Progress

The Record of Decision (ROD) and the California Bay-Delta Authority Act require the California Bay-Delta Authority to report on the status of implementation of all elements of the California Bay-Delta Program each year. The following is a brief description of the status of each program element:

## Levee System Integrity

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. Although the 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. 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. Lack of federal authorization for the Levee System Integrity Program continues to have an adverse effect on program implementation.

## Conveyance

Significant research has been conducted and new information developed regarding the movement of fish and salt in the Delta, which will provide knowledge about how to better operate Delta facilities for fish protection and water quality. Completion of the planning phase for increasing south Delta pumping capacity to 8,500 cfs, construction of permanent operable barriers in the south Delta, construction of an intertie between the State Water Project and the Central Valley Project and construction of the North Delta Improvements project was delayed approximately one year to 2004. Although the availability of federal funds and cost sharing on several of the projects continues to be uncertain, Proposition 50 provides $75 million to continue the implementation of water conveyance facilities.

## Storage

Groundwater storage has shown greater potential to provide short-term water supply benefits then originally anticipated in the ROD. Significant funding from Proposition 13 has allowed many locally managed and controlled groundwater feasibility studies and pilot projects to be developed. 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 Year 3. The In-Delta Storage program has not received federal feasibility authorization. Proposition 50 provided $50 million for surface storage investigations. These funds will be expended before the investigations are completed. A decision on whether to move forward on in-Delta storage, and a voter proposition for Los Vaqueros

Reservoir expansion are expected in Year 4. Decisions on whether other surface storage projects should move forward are expected in 2005-06.

### Watersheds

Contracts have been finalized and work initiated on 51 of 83 local watershed projects funded in the first two years of the Program. The Year 3 grant funding process currently administered by the State Water Resources Control Board will be completed in early 2004. Contracting delays have put implementation of all second-year grant projects well behind schedule. 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. Proposition 50 provides $90 million for implementation of the watershed program in Year 3 and over the next 2 years.

### Drinking Water Quality

In the first three years of the Program, implementing agencies awarded $34 million for 21 water quality projects, with an emphasis on source improvement, treatment technology and science. Contracts are in place for 13 of the projects. Significant progress was made on treatment technology demonstration projects. 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. 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.

### Environmental Water Account

In its first three years, the Environmental Water Account has been successful in providing fisheries protection and water supply reliability benefits. The third annual science review of EWA operations was held, and new levels of multi-agency cooperation were reached on regulatory and fish protection issues. EWA managers acquired 308,000 acre-feet of water in Year 3, including 31,000 acre-feet carried over from the prior year. A total of 315,000 acre-feet was used to maintain deliveries to water users during export reductions due to fishery needs. A key focus of Year 3 has been the discussion and negotiations to establish a long-term EWA for succeeding years.

### Water Use Efficiency

CALFED agencies provided more than $40 million in financial support through grants and loans and technical support for more than 200 different local water conservation and recycling projects that contribute to the goals of the Program. 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. The program continues to move forward with efforts

to develop "appropriate measurement" of both urban and agricultural water use. Completion of water measurement proposals that will assist in the successful long-term implementation of water conservation measures is anticipated in Year 4.

### Water Transfers

The program is on track, assisting in the transfer of 515,000 acre-feet of water in 2003, including the Environmental Water Account, and more than 1 million acre-feet in the first three years of the Bay-Delta Program. The On Tap web site is operational, although refinements have been delayed. The development of in-stream water tracking protocols also has been delayed.

### Ecosystem Restoration

Since its inception seven years ago, implementing agencies and staff of the Ecosystem Restoration Program (ERP) have made significant improvements in the habitats and species associated with the Bay-Delta and its watersheds. The CALFED agencies have invested more than $476 million on more than 400 projects aimed at improving and restoring ecosystems, with more than $80 million awarded in 2003. Progress is being made on restoring ecological processes and habitats, recovery of at-risk species, the Environmental Water Program, Upper Yuba River Studies Program, development of a mercury strategy with the science program, dissolved oxygen in the San Joaquin River and other ongoing activities. 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.

### Science

During Year 3, the Bay-Delta Science Program staff continued an intensive effort to clarify the state of knowledge and identify knowledge gaps in a number of specific scientific areas by organizing workshops and symposia, commissioning white papers, launching the program's web site and a peer reviewed online journal that highlights relevant local research and monitoring. A major milestone accomplishment for Year 3 has been the establishment of the Independent Science Board and appointment of world-renowned science experts to advise the Authority on science issues within the Bay-Delta Program and provide external peer review for all program elements. Proposition 50 provides funding to support program-wide science for the next two years. 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.

### Oversight & Coordination

The California Bay-Delta Authority was established in January 2003 to provide long-term governance for the California Bay-Delta Program. The Authority is a 24-member body composed of state and federal agency directors, public members, Bay-Delta Public Advisory Committee representative and *ex officio* elected officials. The Bay-Delta Public Advisory Committee continues to provide an important public forum for the Program, and provides advice to the state and federal Bay-Delta agencies and the Authority. The Authority has begun work on the development of the long-term finance plan which is expected to be more fully developed in Year 4. Environmental justice and tribal coordinators at the Authority continue to work towards effective implementation of environmental justice and tribal activities across all program elements and agencies. In coordination with the Department of Water Resource's State Water Plan, the Authority is developing regional profiles that will provide information on regional water use and needs, funding, priorities and opportunities to build state/federal and local partnerships to maximize regional and statewide benefits.

## Year 3 Conclusions

In the first three years, progress was made in all program areas. Major accomplishments include:

**Invested $2 Billion** - More than $2 billion was invested in projects and programs to meet the Bay-Delta Program objectives.

**Reduced Conflicts** - Conflicts over Delta operations were reduced significantly. The Environmental Water Account provided water to protect fish and stabilize water supplies.

**Increased Coordination** - Agencies increased the level of their coordination and continue to work towards efficient, integrated, scientifically based funding processes.

**Established Governance Structure** - The California Bay-Delta Authority was established, and the Bay-Delta Public Advisory Committee charter was renewed.

**Expanded Science Program** - Increased integration of science into all program elements and formed an Independent Science Board comprised of nationally renowned experts to assist in the development and implementation of the science agenda.

**Passed Water Bond**– Secured passage of Proposition 50, the largest water bond in the state's history, to provide the state's share of funding for the next few years.

Securing reliable state and federal funding continues to be the greatest challenge for the Program. In the first three years, the Drinking Water Quality, Agricultural Water Use Efficiency, Levee System Integrity and

Science Programs have been particularly short of funds when compared to levels projected in the Record of Decision. Lack of federal authorization has adversely affected implementation of projects in the Water Use Efficiency, Conveyance and Levee System Integrity Programs. All program elements have been affected by budget cuts and staffing reductions associated with the state's fiscal crisis. The passage of legislation establishing the California Bay-Delta Authority and the passage of Proposition 50 should provide the funding and oversight necessary to keep the Program in balance for the next two years.

## Year 4 and Beyond

To ensure ongoing balanced implementation of the California Bay-Delta Program, priorities for 2004 include:

**Federal Authorization** - Aggressive pursuit of federal authorization for full federal participation in the Program and adequate federal funding to support program implementation.

**Finance Plan** - Development of a long-term finance plan and user fee proposal that addresses financing questions and linkages for all program elements.

**Delta Improvements** - Completion of a coordinated package of Delta improvements that will better integrate SWP and CVP operations with an increase in SWP pumping capacity to 8,500 cfs, along with development of a long-term Environmental Water Account and improvements to in-Delta water quality.

**Integrated Funding** - Coordination of Proposition 50 grants and loans to ensure progress in the Bay-Delta Program, with a particular focus on the use of Proposition 50 drinking water funding to support key objectives of the Bay-Delta Drinking Water Quality Program.

**Regional Profiles –** In cooperation with the California Water Plan, development of regional profiles that provide insight into regional water use and needs, regional funding, regional priorities and opportunities to build state/federal and local partnerships to maximize regional and statewide benefits.

**Performance Measures** - Continued development of appropriate performance measures that will evaluate how well specific program elements are meeting the objectives of the Bay-Delta Program.

In addition to these priorities, the California Bay-Delta Authority directed staff to work with state, federal and local agencies to refine the mechanism used to track progress, and to re-evaluate the targets and budgets for all program elements necessary to meet Program goals. This effort will include Year 4 assessments of the Water Use Efficiency, Drinking Water Quality and Ecosystem Restoration Programs as described in the CALFED Record of Decision.

# Fiscal Information



Funding for the first three years of the Bay-Delta Program is summarized in the following charts and tables. Funding levels, in most cases, have not met the Program needs due to the lack of federal authorization for the Program and the state's fiscal crisis. However, with the passage of Proposition 50 (The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002), increased funding is available for the Program beginning in Year 4 (state fiscal year 2003-04). Proposition 50 provides $825 million directly for the Program and additional funding for related activities. Proposition 50 funding will support Program activities for two to three years; however, after that time new funding sources need to be identified.

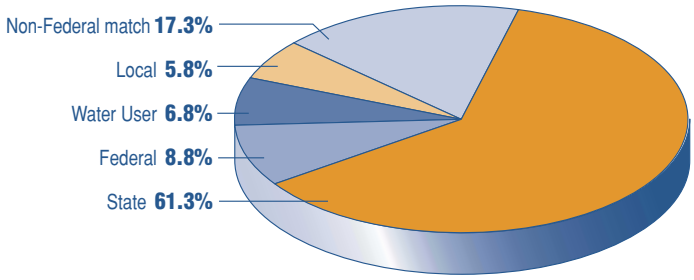
The Authority is in the process of developing a long-term finance plan for the Program. With stakeholder and agency involvement, and an independent panel review, Authority staff is developing a Finance Options Report for the Bay-Delta Public Advisory Committee and Authority to consider in 2004.

## Years 1-3 Program Funding by Source

(dollars in millions)

| SOURCE | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 1-3 TOTAL |
|---|---|---|---|---|
| Non-federal match | $49.8 | $55.9 | $221.7 | $327.4 |
| Local | $34.3 | $26.8 | $49.2 | $110.3 |
| Water User | $34.5 | $55.7 | $39.1 | $129.3 |
| Federal | $51.2 | $67.6 | $47.4 | $166.2 |
| State | $421.8 | $425.6 | $310.0 | $1,157.4 |
| **Total per Year** | **$591.6** | **$631.6** | **$667.4** | **$1,890.6** |

*Years 1-3 Total Funding Percentages by Source*




### Source Definitions

**STATE**: The state budget includes funding for the California Bay-Delta Authority, Department of Water Resources, Department of Fish and Game, State Water Resources Control Board, Resources Agency, Department of Forestry and Fire Protection, Department of Conservation and the San Francisco Bay Conservation and Development Commission.

**FEDERAL**: Federal funding sources include U.S. Bureau of Reclamation Water and Related Resources funding for the Bay-Delta Program (W&RR, In-lieu of Bay-Delta), U.S. Bureau of Reclamation Water and Related Resources (USBR W&RR), U.S. Army Corps of Engineers appropriations (USACE). Other federal funding includes the U.S. Fish & Wildlife Service, U.S. Geological Survey, and the National Marine Fisheries Service.

**STATEWIDE**: Proposition 50 has allocated an additional $235 million in FY 03-04 for Drinking Water Quality, Desalination, and Integrated Regional Water Management. A portion of this funding is expected to support the California Bay-Delta Program objectives.

**NON-FEDERAL MATCH**: The USBR reports a non-federal share for the Title XVI recycling projects in FY 2004. The breakdown for state/local contribution amounts is not available at this time and is therefore shown as non-federal funding.

**WATER USER**: Water User funds include State Water Project Funds and CVPIA Restoration Funds that are collected from state water contractors and Central Valley Project water users, but are budgeted and appropriated through the federal and state governments.

**LOCAL**: Local grant matching funds are an estimate of local cost sharing for grant projects/programs and are updated as information becomes available.

# Fiscal Information

## California Bay Delta Program[1] Years 1-3 Cumulative Funding ($ in millions)

| Program Element | Total Years 1-3 | State Funding [2] | | | | | | Federal Funding [3] | | | | Water User/Local Funding [4] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | General Fund | Proposition 204 | Proposition 13 | Proposition 50 | Other State[5] | State Subtotal | USBR | USACE | Other Federal[6] | Federal Subtotal | CVPIA RF | SWP | Local Grant Matching | Non Federal Match | User/Local Subtotal |
| **Ecosystem Restoration** | $488.6 | $11.5 | $274.5 | $47.9 | $0.6 | $6.1 | $340.6 | $5.7 | $3.4 | $10.7 | $19.8 | $65.6 | $9.9 | $52.7 | | $128.2 |
| **Environmental Water Account** | $136.0 | $60.1 | $56.3 | | $0.4 | | $116.8 | $18.9 | | $0.3 | $19.2 | | | | | |
| **Water Use Efficiency** | $600.7 | $24.7 | 60.0 | $49.9 | $11.0 | $46.6 | $192.2 | $68.9 | | | $68.9 | | | $12.2 | $327.4 | $339.6 |
| *Conservation* | *($151.1)* | *($23.9)* | | *($31.6)* | *($1.0)* | *($4.9)* | *($61.4)* | *($27.7)* | | | *($27.7)* | | | *($12.2)* | *(49.8)* | *($62.0)* |
| *Recycling* | *($449.6)* | *($0.8)* | *(60.0)* | *($18.3)* | *($10.0)* | *($41.7)* | *($130.8)* | *($41.2)* | | | *($41.2)* | | | | *($277.6)* | *($277.6)* |
| **Water Transfers** | $1.5 | $1.3 | | | | | $1.3 | $0.2 | | | $0.2 | | | | | |
| **Watershed** | $83.5 | $14.4 | | $20.5 | $14.3 | $1.1 | $50.3 | | | $3.4 | $3.4 | | | $29.8 | | $29.8 |
| **Drinking Water Quality** | $90.0 | $18.6 | | $46.3 | $20.6 | | $85.5 | | | | | | | $4.5 | | $4.5 |
| **Levees** | $59.6 | $5.6 | $11.3 | $28.5 | $2.1 | | $47.5 | | $0.4 | | $0.4 | | $1.2 | $10.5 | | $11.7 |
| **Storage** | $242.9 | $38.8 | | $171.1 | $12.7 | | $222.6 | $20.3 | | | $20.3 | | | | | |
| *Groundwater Storage & Other* | *($195.5)* | *($15.9)* | | *($171.1)* | *($6.0)* | | *($193.0)* | *($2.5)* | | | *($2.5)* | | | | | |
| *Surface Storage* | *($47.4)* | *($22.9)* | | | *($6.7)* | | *($29.6)* | *($17.8)* | | | *($17.8)* | | | | | |
| **Conveyance** | $87.1 | $7.3 | | $40.0 | | | $47.3 | $6.9 | | | $6.9 | $9.5 | $23.4 | | | $32.9 |
| **Science** | $64.3 | $18.0 | | | $1.5 | $3.3 | $22.8 | $15.3 | $0.3 | $5.6 | $21.2 | $2.0 | $17.7 | $0.6 | | $20.3 |
| *CALFED Science* | *($21.9)* | *($16.9)* | | | *($1.5)* | | *($18.4)* | *($1.2)* | | *($2.3)* | *($3.5)* | | | | | |
| *IEP* | *($42.4)* | *($1.1)* | | | | *($3.3)* | *($4.4)* | *($14.1)* | ($0.3) | *($3.3)* | *($17.7)* | *($2.0)* | *($17.7)* | *($0.6)* | | *($20.3)* |
| **Water Supply Reliability** | $1.6 | | | | $1.6 | | $1.6 | | | | | | | | | |
| **Oversight & Coordination** | $34.8 | $28.9 | | | | | $28.9 | $4.8 | $0.6 | $0.5 | $5.9 | | | | | |
| **Grand Total** | **$1,890.6** | **$229.2** | **$402.1** | **$404.2** | **$64.8** | **$57.1** | **$1,157.4** | **$141.0** | **$4.7** | **$20.5** | **$166.2** | **$77.1** | **$52.2** | **$110.3** | **$327.4** | **$567.0** |

**1** The Bay Delta Authority tracks the cumulative spending and progress of several state and federal agencies toward planning objectives set forth in the ROD. The figures in this chart provide a broad overview of the cumulative funding by federal and state agencies under individual authorities and programs, many of which pre-date the ROD. While the agencies cooperate with each other through the Program, and they sometimes jointly fund or implement specific projects, they maintain their authority to make final decisions on their own projects.

**2** State funding sources include: Resources Agency, Department of Water Resources, Department of Fish and Game, State Water Resources Control Board, Department of Forestry and Fire Protection, Department of Conservation, State Lands Commission and the San Francisco Bay Conservation and Development Commission.

**3** Federal funding sources include U.S. Bureau of Reclamation Water and Related Resources funding for the Bay-Delta Program (W&RR, In-lieu of Bay-Delta), U.S. Bureau of Reclamation Water and Related Resources (USBR W&RR), U.S. Army Corps of Engineers appropriations (USACE). Other federal funding includes the U.S. Fish and Wildlife Service, U.S. Geological Survey and the National Marine Fisheries Service.

**4** Water User/Local funding includes State Water Project Funds and CVPIA Restoration Funds that are collected from state water contractors and Central Valley Project water users, but are budgeted and appropriated through the federal and state governments. Local grant matching funds are estimated and updated as information becomes available. In addition, the USBR reports a non-federal share for the Title XVI recycling projects. The state vs. local contribution of this amount is unknown at this time and is therefore shown as non-federal funding.

**5** Includes DWR funds that contribute to the Water Conservation Program, SWRCB funds from the State Revolving Fund and previous bond acts based on current SWRCB estimates, and Interagency Ecological Program (IEP) funds from various departments that contribute to the Science Program.

**6** Includes ERP, EWA, and Oversight & Coordination funding from the National Marine Fisheries Service, and IEP funding (Science) from U.S. Fish & Wildlife Service, U.S. Geological Survey, and National Marine Fisheries Service that contribute to the Science Program.

## California Bay Delta Program[1] Year 4 Funding ($ in millions)

| | | State Funding [2] | | | | | | Federal Funding [3] | | | | | Water User/Local Funding [4] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Program Element** | Total Year 4 | General Fund[5] | Proposition 204 | Proposition 13 | Proposition 50[6] | Other State Funds[7] | State Subtotal | W&RR, In-lieu of Bay-Delta[8] | USBR W&RR | USACE | Other Federal[9] | Federal Subtotal | CVPIA RF | SWP | Local Grant Matching | Non Federal Match | User/Local Subtotal |
| **Ecosystem Restoration** | $173.2 | $1.1 | $50.1 | $10.0 | $67.7 | | $128.9 | | $1.1 | $0.2 | $1.6 | $2.9 | $14.1 | $7.3 | $20.0 | | $41.4 |
| **Environmental Water Account** | $44.4 | $0.1 | | $6.3 | $35.8 | | $42.2 | $2.0 | | | $0.2 | $2.2 | | | | | |
| **Water Use Efficiency** | $354.4 | $2.1 | | $31.0 | $77.9 | $1.7 | $112.7 | | $20.2 | | | $20.2 | | | $11.0 | $210.5 | $221.5 |
| *Conservation* | *($60.5)* | *($1.4)* | | *($9.3)* | *($34.9)* | *($1.7)* | *($47.3)* | | *($2.2)* | | | *($2.2)* | | | *($11.0)* | | *($11.0)* |
| *Recycling* | *($293.9)* | *($0.7)* | | *($21.7)* | *($43.0)* | | *($65.4)* | | *($18.0)* | | | *($18.0)* | | | | *($210.5)* | *($210.5)* |
| **Water Transfers** | $0.6 | $0.5 | | | | $0.1 | $0.6 | | | | | | | | | | |
| **Watershed** | $30.0 | $0.2 | | | $29.8 | | $30.0 | | | | | | | | | | |
| **Drinking Water Quality** | $2.8 | $0.5 | | $2.0 | $0.3 | | $2.8 | | | | | | | | | | |
| **Levees** | $26.1 | $0.2 | | | $21.4 | | $21.6 | | | $1.1 | | $1.1 | | $0.4 | $3.0 | | $3.4 |
| **Storage** | $36.4 | $0.4 | | $10.6 | $19.9 | | $30.9 | $4.5 | $1.0 | | | $5.5 | | | | | |
| *Groundwater Storage & Other* | *($13.1)* | *($0.4)* | | *($10.6)* | *($1.1)* | | *($12.1)* | | *($1.0)* | | | *($1.0)* | | | | | |
| *Surface Storage* | *($23.3)* | | | | *($18.8)* | | *($18.8)* | *($4.5)* | | | | *($4.5)* | | | | | |
| **Conveyance** | $33.0 | $1.2 | | $9.7 | $0.6 | | $11.5 | $1.0 | $1.0 | | | 2.0 | | $19.5 | | | $19.5 |
| **Science** | $34.5 | | | $2.0 | $19.3 | $1.1 | $22.4 | | $4.0 | | $1.7 | $5.7 | | $6.2 | $0.2 | | $6.4 |
| *CALFED Science* | *($21.8)* | | | *($2.0)* | *($19.0)* | | *($21.0)* | | | | *($0.8)* | *($0.8)* | | | | | |
| *IEP* | *($12.7)* | | | | *($0.3)* | *($1.1)* | *($1.4)* | | *($4.0)* | | *($0.9)* | *($4.9)* | | *($6.2)* | *($0.2)* | | *($6.4)* |
| **Water Supply Reliability** | $77.2 | | | | $77.2 | | $77.2 | | | | | | | | | | |
| **Oversight & Coordination** | $10.3 | $8.5 | | | | | $8.5 | $1.5 | | $0.1 | $0.2 | $1.8 | | | | | |
| **Total** | **$822.9** | **$14.8** | **$50.1** | **$71.6** | **$349.9** | **$2.9** | **$489.3** | **$9.0** | **$27.3** | **$1.4** | **$3.7** | **$41.4** | **$14.1** | **$33.4** | **$34.2** | **$210.5** | **$292.2** |

**1** The Bay Delta Authority tracks the cumulative spending and progress of several state and federal agencies toward planning objectives set forth in the ROD. The figures in this chart provide a broad overview of the cumulative funding by federal and state agencies under individual authorities and programs, many of which pre-date the ROD. While the agencies cooperate with each other through the Program, and they sometimes jointly fund or implement specific projects, they maintain their authority to make final decisions on their own projects.

**2** The year 4 state budget includes funding for the California Bay-Delta Authority, Department of Water Resources, Department of Fish and Game, State Water Resources Control Board, Resources Agency, Department of Forestry and Fire Protection, Department of Conservation and the San Francisco Bay Conservation and Development Commission.

**3** Enacted FY 2004 federal funding sources include U.S. Bureau of Reclamation Water and Related Resources funding for the Bay-Delta Program (W&RR, in-lieu of Bay-Delta), U.S. Bureau of Reclamation Water and Related Resources (USBR W&RR), U.S. Army Corps of Engineers appropriations (USACE). Other federal funding includes the U.S. Fish and Wildlife Service, U.S. Geological Survey and the National Marine Fisheries Service. Federal FY 2004 enacted funding is subject to further reductions if required by applicable Appropriation Act language and/or agency delays in program execution.

**4** Water User/Local funding includes State Water Project Funds and CVPIA Restoration Funds that are collected from state water contractors and Central Valley Project water users, but are budgeted and appropriated through the federal and state governments. Local grant matching funds are estimated and updated as information becomes available. In addition, the USBR reports a non-federal share for the Title XVI recycling projects. The state vs. local contribution of this amount is unknown at this time and is therefore shown as non-federal funding.

**5** Additional funding adjustments are possible due to staff lay-offs and other budget actions. This could potentially delay program activities.

**6** Possible staff layoffs & hiring freeze could delay allocation of bond funds for grant and loan programs. Regarding statewide Prop 50 funding, an additional $235 million (not shown in this table) is available in FY 03-04 for Drinking Water Quality, Desalination, and Integrated Regional Water Management. A portion of this funding is expected to support the California Bay-Delta Program objectives.

**7** Includes DWR funds ($1.696m) that contribute to the Water Conservation Program, SWRCB ($144,000) in water rights fund for water transfers, and DFG (1.05m) from the Striped Bass Stamp Fund for the IEP.

**8** Water & Related Resources (W&RR), in-lieu of Bay-Delta funds include $4.5 million for the storage program element: Shasta Enlargement ($0.75m), San Joaquin River Basin ($1.5m), Los Vaqueros ($1.0m) and Sites Reservoir ($1.25m).

**9** Includes ERP, EWA, and Oversight & Coordination funding from the National Marine Fisheries Service, and IEP funding (Science) from U.S. Fish & Wildlife Service, U.S. Geological Survey, and National Marine Fisheries Service that contributes to the Science Program.

# SACRAMENTO VALLEY

## The Sacramento Region:

- *Provides 60%, or 22 million acre-feet of water flowing into the Delta.*
- *Provides water supply for much of California from Sacramento Valley runoff.*
- *Offers major habitat/spawning ground for several threatened and endangered fish species.*
- *Contributes significantly to the state's farmlands and agriculture output.*
- *Provides major resting areas for the Pacific flyway waterfowl.*
- *Provides a dynamic hydrologic interaction between rivers and aquifers, which benefits fisheries, habitat, and wildlife.*

## Innovative Partnerships

Several integrated regional programs emerged from the Sacramento Valley during 2002 that will help meet local water needs for farms, wildlife refuges, cities and local communities and the environment. Many of these programs will help implement the CALFED Plan and will provide benefits to the Bay-Delta and the rest of the state. These exciting and innovative partnerships include the Sacramento Valley Water Management Forum, the Northern Sacramento Valley Water Forum, the Sacramento River Conservation Area Forum, Sacramento Valley Water Quality Coalition, and the Sacramento River Watershed Program.

## Regional Priorities and Issues

- Enhance regional water supply reliability and flexibility by improving water diversions for agriculture, environmental, urban uses and local water-short areas prior to export to other areas.
- Protect source water quality and preserve water rights.
- Improve flood management through watershed, habitat, and levee restoration, surface storage, and fish barrier removal for better protection of agriculture and urban areas.
- Preserve water quality through source control, mine remediation and water use efficiency for all beneficial uses.
- Enhance the Sacramento River recreational fishing and local economic development.
- Increase local resource development by local/regional/ CALFED partnerships in all areas of the watershed.
- Provide regulatory certainty associated with participation in conservation easements and habitat restoration.

## Statewide Benefits:

Many Sacramento Valley actions directly benefit other regions. These include:

- Creating new surface storage, which when used conjunctively with groundwater storage, will improve water quality and flexibility for water supply reliability.
- Improving diversions with fish-friendly screens and barrier removal and other habitat improvements contributes to greater overall populations of salmon in the Sacramento River and Bay-Delta system, allowing for better water supply reliability throughout the state.
- Upper watershed management improves water supply reliability and water quality for the Delta system.



## Regional Accomplishments

### Water Supply Reliability

- Partnerships forged for groundwater planning with local agencies in six areas.
- Work initiated on 22 groundwater management and groundwater storage projects.
- Progress made on studies for potential north-of-Delta off-stream storage and Shasta Lake enlargement. The proposed projects are among five surface storage options being studied to increase storage capacity and provide flexibility to the state's water system.
- $11 million in grants awarded for agricultural and urban water use efficiency programs.
- Key achievements made on streamlining water transfers and facilitating transfer agreements that protect local water users, economies and ecosystems.

### Water Quality

- $595,000 invested in local project to protect drinking water quality and watershed health on Steelhead Creek in Sacramento County.
- Sanitary surveys completed for State Water Project and its key sources, including the Sacramento River watershed. Surveys identified potential threats to water quality.
- Pilot study underway on options to reduce dissolved organic carbon and nitrogen exports from rice fields.
- Research funded through Ecosystem Restoration Program to investigate mercury and other pollutants from abandoned mines.

### Ecosystem Restoration and Watersheds

- $172 million invested in 139 local ecosystem restoration projects. Funded projects, including over 50 projects to improve fish passage, restore habitat,monitor and assess watersheds.
- $11.4 million invested in 40 local watershed projects addressing areas such as spawning gravel, floodplain management and watershed education and outreach.
- $12 million provided for studies addressing mercury and other pollutants associated with abandoned mines.

### Levee System Integrity

Though the Levee System Integrity Program is focused on the Bay and Delta regions, investments there benefit other regions and the state as a whole.

*Fish movement studies at UC Davis Research Facility.*

# THE DELTA

## The Delta Region:

- *The Delta is a 750,000 acre area which includes both a maze of sloughs and islands, cities and towns, as well as a viable agricultural base.*
- *The Delta provides aquatic and terrestrial habitat for over 750 species of plants and animals.*
- *It is the hub of California's water system, supplying water to cities in the Bay area and Southern California as well as to farms in the San Joaquin Valley.*
- *The Delta is an important recreation area which supports many different activities.*

## Innovative Partnerships

The Delta Protection Commission has been charged with regional planning for the "heart" of the Delta. This includes land uses and resource management for the Delta area. Key land uses are agriculture, wildlife habitat and recreation. The Commission, as a CALFED agency, works closely to keep local stakeholders informed about how the CALFED plan is being implemented and brings their concerns and suggestions forward.

## Regional Priorities and Issues

- Preserving a viable agricultural base.
- Maintaining strong levees.
- Protecting water quality for agricultural and urban water users in and around the Delta.
- Protecting and increasing recreational opportunities.
- Restore healthy ecosystems to benefit native species.

## Statewide Benefits

Many Delta actions directly benefit other regions.These include:

- Improving levee reliability in the Delta also protect water quality and supply for exporters.
- Partnering with local efforts to support wildlife-friendly agriculture can help restore fish and wildlife populations while protecting the viability of agriculture.
- Protecting water quality in the Delta is also important for water users that divert from the Delta.
- Maintaining Delta recreational resources benefits anglers, boaters, and recreational interests from other areas.
- Restoring habitat in the Delta benefits recreational users and improves water supply reliability.

## Regional Accomplishments

### Water Supply Reliability

- Draft engineering feasibility completed for in-Delta storage project. The project is one of five surface water storage options under evaluation to add storage capacity and flexibility to the water system.
- Progress made on design and environmental review of South Delta Improvements Program to increase Delta pumping to 8,500 cubic feet/second and install permanent operable barriers to improve water supply reliability and water quality for local users.

- Work continued on installation of temporary barriers and site-specific diversion improvements to assure water supply to south Delta farms.
- Planning and design continued for SWP and CVP intertie.
- Modeling studies completed for State Water Project / Central Valley Project intertie and environmental documentation and design initiated.
- Two years of research and experiments conducted on Delta Cross-Channel re-operation as well as water quality monitoring and fish tracking studies.

## Water Quality

- $10.1 million invested in six ecosystem restoration projects with water quality benefits and $1.7 million invested in four drinking water quality projects to monitor and assess organic carbon sources and processes in the Delta.
- Substantial progress made on Delta water quality modeling of conveyance and storage alternatives.
- Real-time salinity monitoring and modeling program implemented in the San Joaquin River.
- Major program funded to monitor dissolved oxygen and other parameters in the Bay-Delta and San Joaquin River.

## Ecosystem Restoration and Watersheds

- $155 million invested in 107 ecosystem projects, studies, and aquisition, including wetlands protection, habitat restoration, wildlife-friendly agriculture and efforts to curb invasive species.
- Major studies funded to monitor and examine issues such as effects of pesticides on fish in the Bay-Delta and dissolved organic carbon and methyl mercury releases from restored wetlands.

## Levee System Integrity

- Funding provided to improve 40 miles of Delta levees up to the PL 84-99 limit, including projects on Sherman, Bradford and Jersey Islands and Webb Tract.
- Over 324,000 cubic yards of dredged material reused to increase levee stability while enhancing habitat.
- Significant progress made on levee subsidence studies with a demonstration project launched on Twitchell Island and a strategic framework developed for addressing subsidence.
- Emergency response capabilities improved through draft Multi-Agency Emergency Response Plan, improved coordination and acquisition of flood fight materials.
- Studies initiated to analyze seismic risk to Delta levees.

*Sturgeon in Yolo Bypass fish screen.*

# THE BAY

## The Bay Region:

- *The Bay region is the fourth largest metropolitan area in the United States and the second largest in California, with water supply reliability and drinking water quality issues becoming even more challenging in the future.*
- *The Bay and adjoining Delta comprise the West Coast's largest estuary.*
- *The Bay region drains more than 40% of the state's water.*
- *The Bay has lost over 75% of its vital wetlands.*

## Innovative Partnerships

- Association of Bay Area Governments (ABAG) Task Force: Local elected officials and elected water district board members established a task force in 2000 to promote the Bay-Delta program in the Bay Area.
- Bay Area Water Agencies Coalition (BAWAC): Seven Bay Area water agencies joined together in 2002 to provide a unified voice in resolving the region's water quality and supply reliability challenges.
- Integrated Regional Water Management Planning in the Bay Area: Water districts, stormwater management agencies, sanitation districts, and cities and counties around the Bay are exploring the development of an integrated regional water management plan.

## Regional Priorities And Issues

- Improve ecosystem health in the San Francisco Bay and its tributary watersheds to contribute to the overall resilience of the Bay-Delta estuary.
- Improve drinking water quality across the region by continuing to meet and exceed current drinking water standards.
- Improve water supply reliability across the region to protect the environment and public health as well as economic health and quality of life.

## Statewide Benefits

Many actions taken in the Bay benefit other regions. These include:

- Improving regional cooperation on water quality improvements and regional interties can help take pressure off Delta diversions during droughts and other emergencies.
- Restoring wetlands in the Bay contributes to improved overall health of the estuary.
- Improving water quality in the Bay and its watersheds help support healthy anadromous fish populations.



## Regional Accomplishments

### Water Supply Reliability

- $2.4 million invested in eight local projects to study and expand groundwater storage.
- Significant progress made on studies for proposed expansion of Los Vaqueros Reservoir. The project is one of five surface water storage options under evaluation to add storage capacity and flexibility to the water system.
- Feasibility studies are under way on San Luis Low Point Improvement Project to address water quality and conveyance issues for South Bay water users.
- $15.7 million invested in 35 local agricultural and urban water conservation programs.
- $43 million in water recycling grants awarded to increase water recycling by 3,500 acre-feet a year.

### Water Quality

- $7.4 million invested in 16 drinking water quality projects.
- Progress made on evaluating intake relocation options as part of the North Bay Aqueduct Alternative Intake Study.
- Evaluation completed for watershed management on Barker Slough through North Bay Aqueduct Watershed Study. Project involved water quality monitoring and developing pilot best management practices.
- Progress made on Phase 2 of Bay Area Water Quality and Supply Reliability Program. Work includes analyzing and evaluating exchanges and other alternatives that meet objectives of various Bay Area water supplies.
- Research funded through Solano County Water Agency to investigate ion exchange technology for removing organic carbon.

### Ecosystem Restoration and Watersheds

- $24 million invested in 43 ecosystem restoration projects.
- $8 million invested in 22 watershed projects, including assessment, monitoring and protection efforts.

### Levee System Integrity

- Completed Suisun Marsh Levee Investigation and launched efforts to develop a long-term plan for levee protection consistent with regulatory requirements and endangered species protection.

*Hydrodynamic measurement crew in Suisun Marsh.*

# San Joaquin Valley

## The San Joaquin Valley Region:

- *Supplies 45% of the nations fruits and vegetables.*
- *Has the three largest agricultural counties in the Nation based on gross receipts.*
- *Provides drainage for seven major Sierra Nevada rivers.*
- *Provides major resting areas for the Pacific flyway waterfowl.*
- *Contains 12 different groundwater basins - six are subject to critical overdraft.*
- *Anticipates population to double in the next 20 years.*

## Innovative Partnerships

The San Joaquin Valley is rich in agricultural and natural resources. Bay-Delta agencies are contributing to local initiatives aimed at restoring and enhancing ecological, water supply, and water quality resources. Ongoing programs in the region include:

- State and federal resource agencies are working with landowners and local irrigation districts to restore the ecological health of the valley's rivers, particularly on the Tuolumne and Merced Rivers.
- Conjuctive Use Studies - DWR is working with local groundwater management agencies to investigate the potential for aggressive conjunctive use programs.
- San Joaquin River watershed interests are working with agencies to develop long-term solutions to solve the dissolved oxygen deficit in the lower San Joaquin River and improve water quality conditions for aquatic life.

## Regional Priorities and Issues

- Expand existing or construct new facilities to increase water supply reliability, improve water quality, and contribute to restoration in the San Joaquin River.
- Develop and support locally managed conjunctive use programs.
- Recover at-risk native species by restoring habitat and rehabilitating natural riverine processes.
- Contribute to improved public health by improving water quality, particularly in the lower San Joaquin River.

## Statewide Benefits

As progress is being made on improving local water supply reliability, water quality, and the health of the ecosystem, these regional actions provide benefits to the state as a whole, including:

- Reduced Delta demand during critical periods by increasing the use of groundwater storage (e.g., Kern Water Bank).
- Improved tributary ecosystems contribute to improving the overall health of the estuary and its native species.
- Improved regional water quality in the San Joaquin River and its tributaries.
- Investing in local efforts to restore watersheds contributes to the overall environmental and economic health of the region.
- Increasing utility of water supplies by streamlining water transfers and investing in local water use efficiency projects reduces regional demands on the Delta.

## Regional Accomplishments

### Water Supply Reliability

- Partnerships forged for groundwater planning with local agencies in six areas.
- 41 groundwater storage projects initiated.
- $8.6 million invested in agricultural water conservation programs that will save 8,524 acre-feet of water per year. Another $3.1 million invested in local urban conservation programs.
- Progress made on milestones for water conservation to help evaluate regional status and identify barriers to implementation.
- Water supply reliability improved and conflicts over Delta exports reduced through Environmental Water Account actions.
- 70% or better supply delivered in 2003 due to coordinated water project operations and other interim water supply reliability measures.
- Progress made on Upper San Joaquin River Basin storage studies, one of five potential storage projects currently under evaluation.

### Water Quality

- $24.9 million invested in 13 projects to improve drinking water quality.
- Progress made on agricultural drainage program aimed at reducing salinity and selenium. Efforts include management and coordination, monitoring and evaluation, on-farm drainage reduction, treatment, integrated drainage management, and environmental investigations.
- Regional study funded to use membrane technology to treat and recycle agricultural drainage water.
- Seven projects funded through State Water Resources Control Board grants to address non-point pollution sources.
- Draft basin plan amendment completed and circulated for review by Central Valley Regional Water Quality Control Board. The plan addresses salinity and boron in the San Joaquin River.

### Ecosystem Restoration and Watersheds

- $81 million invested in 46 ecosystem restoration projects, including major restoration efforts on the Merced, Tuolumne and Stanislaus rivers.
- $3.2 million invested in 13 watershed programs.
- $4 million invested in research to determine the sources and causes of dissolved oxygen in the lower San Joaquin River.

### Levee System Integrity

- Though the Levee System Integrity Program is focused on the Bay and Delta regions, investments there benefit other regions and the state as a whole.

*Water sampling studies*

# SOUTHERN CALIFORNIA

## The Southern California Region:

- *As California grows, half of its anticipated new residents will reside in the semi-arid Southern California region.*
- *Adequate supplies of high quality water are required to achieve economic potential in the region and state.*
- *Southern California is working to ensure continued water supply reliability and improved water quality through investment in local sources of water and innovative technology and approaches.*

## Innovative Partnerships

Southern California uses integrated planning processes to manage diverse water resources including imported water from the Delta, Colorado River, and Owens Valley, local groundwater supplies, recycled water, conserved water, and desalinated ocean water.

Stakeholders representing environmental, water, wastewater, flood control, watershed, wetlands, agricultural, environmental justice, business, and community interests are successfully collaborating in regional planning and coordination efforts. The Metropolitan Water District of Southern California, Santa Ana Watershed Project Authority, and Southern California Water Dialogue are among the groups facilitating this collaboration. The Water Dialogue is working with stakeholders throughout the region to develop comprehensive regional profiles. The regional profiles will include information on current supply and demand, water quality strategies, accomplishments, and planning to meet future supply augmentation and demand reduction challenges.

## Regional Priorities and Issues

The Southern California region is planning and implementing multiple projects to assure a sustainable water supply for the future. These projects will reduce the need for additional water from the Bay-Delta to meet the growing needs of the region. Regional goals include:

- Producing drinking water supplies that meet or exceed increasingly stringent state and federal standards.
- Maximizing use of groundwater basins by expanding conjunctive use and groundwater cleanup programs.
- Expediting water use efficiency projects including conservation, reclamation, and water management programs.
- Expanding watershed partnerships and developing integrated solutions to restore ecosystems and manage polluted storm water run off.
- Developing mutually beneficial water transfer programs.
- Reducing salinity levels in imported water and the overall salt balance of the region.
- Developing ocean water desalination project.

## Statewide Benefits

Many projects and programs implemented in Southern California provide multiple benefits to the Delta and other regions of the state. The efforts include:

- Increasing storage capacity through conjunctive use. Southern California produces an average 1.3 million-acre feet of groundwater per year. During droughts, groundwater production can increase by approximately 500,000 acre-feet.
- Increasing water conservation and recycling projects to reduce dependence on water imported from the Delta. The region is achieving the annual use of approximately 250,000 acre-feet of recycled water and 75,000 acre-feet of desalinated brackish groundwater, and the conservation of 480,000 acre-feet.



- Developing new treatment technology and water quality exchanges to improve Southern California drinking water quality and reduce the need for water exported from the Delta during critical periods.
- Investing and managing for healthy watersheds that can improve Southern California water quality and provide other local water management benefits.
- Developing and funding desalination technology to help continue supply reliability through diversified resource supplies.

## Regional Accomplishments

### Water Supply Reliability

- Partnerships forged for groundwater planning with local agencies in six areas.
- 34 groundwater management and groundwater storage projects initiated.
- $28.5 million invested in urban water conservation programs that will save more than 9,000 acre-feet of water a year.
- $440 million in local, state and federal funds invested in water recycling programs that will recycle more than 408,000 acre-feet of water a year.
- Water supply reliability improved through the Environmental Water Account.
- Local water supplies augmented through water transfers facilitated by Bay-Delta agencies.

### Water Quality

- $2.6 million invested in three major water quality projects.
- Research funded to study use of ultraviolet light in disinfection process. Effort could lead to advances in treatment technology that reduce potentially harmful by-products of chlorine disinfection.
- Support and assistance provided for partnerships to explore water exchanges with San Joaquin Valley water agencies. Effort could lead to programs that resolve water supply and water quality problems in both regions.
- Funding provided for Desalination Research and Innovation Partnership (DRIP). Program already has resulted in development of advance reverse osmosis membranes.

### Ecosystem Restoration and Watersheds

- $2.3 million invested in six watershed management projects, including watershed education, monitoring and management and water replenishment programs.

### Levee System Integrity

Though the Levee System Integrity Program is focused on the Bay and Delta regions, investments there benefit other regions and the state as a whole.

*Salinity Lab, Riverside, CA, Evapotranspiration (ET) controller project.*

# Reference Documents

**California's Water Future: A Framework for Action – June 9, 2000**

**Final Programmatic Environmental Impact Statement/Report (EIS/EIR) – July 21, 2000**

- Main Document (Impact Analysis) – 1,200 pages
- Executive Summary of EIS/EIR Main Document – 40 pages
- Phase II Report – 200 pages
- Implementation Plan – 190 pages
- Ecosystem Restoration Program Plan – 1,200 pages, four volumes
- Levee System Integrity Program Plan – 500 pages
- Water Quality Program Plan – 300 pages
- Water Use Efficiency Program Plan – 190 pages
- Water Transfer Program Plan – 100 pages
- Watershed Program Plan – 100 pages
- Multi-species Conservation Strategy – 500 pages
- Comprehensive Monitoring Assessment & Research Program Plan – 150 pages
- Response to Comments – 1,500 pages, three volumes

**Record of Decision – August 28, 2000**

**ERP Draft Stage 1 Implementation Plan**

**Year 3 Program Plans**

*These documents are available on CD or on our website:* **www.calwater.ca.gov**

## CALFED Agencies

### California

The Resources Agency
- California Bay-Delta Authority
- Department of Water Resources
- Department of Fish and Game
- The Reclamation Board
- Delta Protection Commission
- Department of Conservation
- San Francisco Bay Conservation and Development Commission

California Environmental Protection Agency
- State Water Resources Control Board

California Department of Health Services

California Department of Food and Agriculture

### Federal

Department of the Interior
- Bureau of Reclamation
- Fish and Wildlife Service
- Geological Survey
- Bureau of Land Management

Environmental Protection Agency

Army Corps of Engineers

Department of Agriculture
- Natural Resources Conservation Service
- Forest Service

Department of Commerce
- National Marine Fisheries Service

Western Area Power Administration

*The mission of the CALFED Bay-Delta Program is to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta.*

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