

Chapter 18 Ongoing Management Programs that Address State Water Project and Central Valley Project Impacts

The material provided in this chapter is for informational purposes only and provides background and a general summary of the various cooperative management programs that help protect listed species and address effects on critical habitat. Although many of these actions are included as part of the overall project description in Chapter 2, Environmental Species Act (ESA) coverage for these actions is not requested under the Operations Criteria and Plan (OCAP) consultation, but have been addressed under separate Section 7 consultations.

This chapter also summarizes ongoing planning activities that could result in future actions and provides informational needs to benefit listed species. The Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) are working with U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS), California Department of Fish and Game (DFG), and various stakeholders on multiple actions, and funding frameworks, to mitigate losses of salmon, delta smelt, steelhead and green sturgeon. Several agreements and programs are in place that, in combination with the actions described in the Project Description, help mitigate for direct losses attributable to the State Water Project (SWP) and Central Valley Project (CVP), and help improve and restore fishery resources. Chinook salmon, delta smelt, steelhead and green sturgeon are among the species that benefit from the various actions provided under these agreements and programs.

Central Valley Project Improvement Act

On October 30, 1992, the Reclamation Projects Authorization and Adjustment Act of 1992 (Public Law 102–575) was signed into law, including Title XXXIV, the Central Valley Project Improvement Act (CVPIA). The CVPIA amends the authorization of the CVP to include fish and wildlife protection, restoration, and mitigation as project purposes having equal priority with irrigation and domestic uses, and fish and wildlife enhancement as a purpose equal to power generation. Implementation of CVPIA measures to double anadromous fish populations, improve habitat, and reduce losses of steelhead, spring-run salmon, and other salmon races include habitat restoration, improvement of fish passage, and diversion screening.

DFG has identified the CVPIA as one of the two major restoration plans addressing habitat restoration projects to benefit Chinook salmon, with great potential to successfully fund and implement restoration actions needed to protect and restore the run (DFG, 1998). The other major restoration plan is DFG's action plan for restoring Central Valley streams (DFG, 1993).

Since passage of the CVPIA, Reclamation and the FWS, with the assistance of the State of California and the cooperation of many partners, have completed many of the necessary administrative requirements, conducted numerous studies and investigations, implemented hundreds of measures, and have generally made significant progress towards achieving the goals and objectives established by the CVPIA. A summary of the actions completed in these past 14

years is provided below in Table 18–1. A more detailed narrative discussion of these efforts and of the progress toward achieving CVPIA goals follows.

CVPIA Sections 3406 (b)(1) through (21) authorize and direct actions that will ultimately assist in protecting and restoring salmon and steelhead. These actions include modification of CVP operations, management and acquisition of water for fish and wildlife needs, and mitigation for pumping plant operations. Also included are actions to minimize and resolve fish passage problems, improve fish migration and passage (pulse flows, increased flows, seasonal fish barriers), replenish spawning gravels, restore riparian habitat, and establish a diversion screening program.

Table 18–1 Summary of CVPIA accomplishments – 1992–2007

PROGRAM OR PROJECT	STATUS
Anadromous Fish – Habitat Restoration	
Anadromous Fish Restoration Program (AFRP)	<p>Developed Restoration Plan to guide implementation efforts, partnered with local watershed groups, acquired over 8,200 acres and enhanced over 1,000 acres of riparian habitat, restored over 16 miles of stream channel, placed 72,600 tons of spawning gravels, and eliminated predator habitat in San Joaquin River tributaries. Between 2002 and 2007, the program reopened nearly 200 miles of river to fish passage through the removal or bypass of 7 fish barriers.</p> <p>The program identified 128 structural and non-structural actions to be taken in support of fish doubling goals (53 structural actions and 75 non-structural actions).</p> <p>The 1992-2007 average natural production for all races of Chinook salmon is 477,312, approximately 48% of the doubling target. However, average Chinook salmon production for the period 1992-2006 has exceeded the doubling goal target on Clear and Butte Creeks where substantial funding for passage or habitat improvements has occurred.</p>
Dedicated CVP Yield	<p>The program manages the dedication of 800,000 AF/year for CVPIA purposes. The target has been met each year since 2000; in 2005 and 2006 (both wet years) a portion of this water was banked for future use. In 2007, Reclamation dedicated 800,000 acre-feet of 2007 water and approximately 195,000 acre-feet of banked 2006 water through the (b)(2) program.</p> <p>Improved stream flows created by the dedicated yield in Clear Creek, Sacramento River, American River and Stanislaus River have resulted in increased survival of juvenile anadromous fish passing through the Delta.</p>
Water Acquisition Program (Anadromous Fish Focus)	<p>On average, the program has achieved approximately 50% of its 200,000 AF/year target for annual instream water acquisitions since 2001. Most of this water was acquired pursuant to the San Joaquin River Agreement.</p> <p>An additional purchase of 35,000 AF in 2007 provided water for the federally-listed delta smelt.</p>

PROGRAM OR PROJECT	STATUS
Clear Creek Fishery Restoration	<p>Reclamation and the Service removed McCormick-Saeltzer Dam in 2000, immediately providing access to upstream reaches. As of 2007, the agencies have restored 1.6 miles (of targeted 2 miles) of stream channel and approximately 68 acres of floodplain.</p> <p>Approximately 103,371 tons of spawning gravel were added to the stream since 1995 to create anadromous fish spawning habitat. Approximately 152 acres of shaded fuelbreak were constructed. 12 miles of roadway were treated to control erosion.</p>
Gravel Replenishment and Riparian Habitat Protection	<p>Since 1997 placed a total of 151,000 cubic yards of gravel on the Sacramento, Stanislaus and American rivers to create anadromous fish spawning habitat.</p> <p>Program monitoring has shown improvement in spawning distribution relative to total escapement (Sacramento and Stanislaus rivers) and redd density per square meter (American River). Salmonids have been observed spawning on the gravel at each of the placement sites on the three rivers.</p> <p>In 2007, environmental permitting was acquired for gravel addition at eight new sites in the Stanislaus River. Aerial photos of the American River reviewed in 2007 showed more anadromous fish than available spawning habitat; data will be used in 2008 for gravel placements.</p>
Trinity River Restoration Program	<p>Since 1997 the program has made significant progress toward goals. The flow evaluation study was completed in 1999 and the Record of Decision (ROD) for the Trinity River Mainstem Fisheries Restoration EIS/EIR was issued in 2000.</p> <p>The program completed an inventory of floodplain structures for more than 500 private parcels, replaced 3 bridges, relocated 1 house, improved 1.5 miles of road accessing private homes, and completed all other necessary infrastructure improvements to allow for peak releases of up to 11,000 cfs in compliance with the ROD. The program also has completed 8 mechanical channel rehabilitation projects and added 12,000 tons of coarse sediment (spawning/rearing gravel) to the river.</p> <p>Reclamation has achieved full ROD flows since 2005 following successful resolution of litigation that initially constrained ROD flows in 2001-2004. Water year types since 2005 have included Normal, Extremely Wet, and Dry, with volumes ranging from 453,000 AF to 815,000 AF. More than 1.5 million additional acre-feet of water have been released into the Trinity River since 2001 than would have been without the ROD.</p>

Anadromous Fish – Structural Measures	
Jones Pumping Plant Mitigation	<p>As of 2007, the program has completed 10 of the 23 identified actions (43%) related to improving fish protection.</p> <p>2007 actions include continued study efforts to determine the TFCF's present-day fish salvage efficiency, assessment of above-ground holding tanks in the lab (Denver), re-assessment of the outdated Bates Table used for establishing fish hauling densities during transport, improvement to debris and predator management as well as hydraulic control of the facility, collection of water quality data at the entrance to the DMC, distribution of various Tracy Research Volume Series and publications, and updating of the Tracy Research Web site.</p> <p>Also, Reclamation proceeded with replacement of fish transfer buckets and new fish haul trucks and tanks, and began construction of a new onsite research building.</p> <p>All improvements to date have already significantly improved Reclamation's ability to successfully salvage all species of Delta fish, including anadromous fish, and release them safely back into the Delta Estuary.</p>
Contra Costa Canal Pumping Plant Mitigation	<p>Established cooperative program for fish screen project for Rock Slough intake of Contra Costa Canal (CCC); 90% designs and environmental evaluation completed in 2002; reassessment of design alternatives completed in 2007.</p> <p>Implemented an expanded fish-monitoring program in 2004 to assess the status of the fisheries near the pump; conducted in 2006 a Cumulative Impacts Assessment to serve as the basis for future NEPA documentation, identified existing conditions and potential future alternatives.</p>
Shasta Temperature Control Device (TCD)	<p>Program completed in 1999.</p> <p>TCD approved for operation February 1997; final construction report/closeout of construction contract completed in 1999.</p> <p>The TCD has increased operators' ability to control river temperature, turbidity and dissolved oxygen without bypassing power generation (loss in power generation pre-TCD was \$35 million over seven years).</p>
Red Bluff Dam Fish Passage Program	<p>Completed interim actions and modification of Red Bluff Diversion Dam operations to meet needs of fish and water users in 1993; as a result, approximately 20 percent of the adult spring-run Chinook and approximately 50 percent of the green sturgeon achieve passage. Draft EIS/EIR of fish passage alternatives issued in 2006; final EIS/EIR expected 2008.</p> <p>Implemented operational changes in 2007 in response to loss of adult green sturgeon near the dam, preventing further loss.</p> <p>Achieved 100% of 25,000 AF of refuge water conveyance capacity.</p>

Coleman National Fish Hatchery Restoration and Keswick Fish Trap Modification	<p>Two phases of the nine-phase Station Development Plan (SDP) remain to be implemented and are expected to be complete by 2010.</p> <p>To date, the program has completed the following SDP projects: installed an ozone water treatment system, installed fish trap improvements, improved raceways and barrier weir and ladders, and installed interim screens at intakes.</p>
Anderson-Cottonwood Irrigation District (ID) Fish Passage	<p>Program completed in 2001.</p> <p>Monitoring program of adult passage through fish ladders completed in 2003.</p> <p>Modified dam and operations to improve fish passage; designed new fish ladders and screens.</p>
Glenn-Colusa ID Pumping Plant	<p>Program completed in 2007</p> <p>Constructed fish screen for 3,000 cubic feet per second (cfs) diversion, completed water control structure and access bridge, completed improvements on side channel, implemented biological and hydraulic testing and monitoring to determine if facility is operating per the design criteria.</p> <p>Mitigating actions to reduce impact on terrestrial species near the pumping plant included transplanting 211 elderberry shrubs; planting 6,718 elderberry bush associate plants; will provide 10 years maintenance and monitoring.</p> <p>The program has screened up to 105,000 AF of firm annual water supply to 20,000 acres of Sacramento NWR lands</p>
Anadromous Fish Screen Program	<p>Since 1994, the program has worked with the state of California and assisted irrigation districts and water companies with fish screening at 23 diversions ranging from 17 cubic feet per second (cfs) to 960 cfs. Cumulatively, the program has supported/funded the screening of more than 4,200 cfs of diversions.</p> <p>Majority of fish screen projects have been on the Sacramento River; e.g., the Sutter Mutual Water Company (SMWC) Tisdale Positive Barrier Fish Screen Project, which screens the largest unscreened diversion (960 cfs) on the Sacramento River; and the Reclamation District 108 Fish Screen Project, which screens three diversions at a new, consolidated 300 cfs diversion.</p>
Refuges and Waterfowl	
Refuge Water Conveyance/Wheeling	<p>Since 1992, the program has, on average, delivered approximately 75% of Level 2 water (out of a target of 422,251 AF); and has delivered all of the Incremental Level 4 water acquired by the Refuge Water Acquisition program.</p>
Facility Construction/ San Joaquin Basin Action Plan	<p>To date, the programs have completed 31 of 46 actions (structures or projects) identified in the environmental documents and related design and specification documents.</p> <p>The success of the program is measured by the capacity of each refuge to accept Full Level 4 water delivery; 14 of the 19 CVPIA refuges now have sufficient external conveyance capacity to accept Full Level 4 water.</p>

Refuge Water Acquisition	From 2002 to 2006, the program has acquired 60,000 - 85,000 AF of Incremental Level 4 water, representing approximately 50 percent of the quantity mandated in CVPIA.
Other Fish and Wildlife	
Habitat Restoration Program	The program has funded 89 projects supporting the recovery of threatened and endangered species; program funds have also been used to protect 100,000 acres of native habitat for threatened and endangered species.
Land Retirement Program	Launched the Land Retirement Demonstration Program, a pilot program to study environmental impacts and effective restoration strategies for land retirement. Through the pilot program, acquired 9,203 acres and retired 8,345 acres from agricultural production in the San Joaquin Valley. To date, 4,440 of these acres have been restored through the program.
Monitoring	
Comprehensive Assessment and Monitoring Program	Four annual reports have been produced since 1995 to document monitoring activities and the assessment of the biological results and effectiveness of fish restoration activities. The most recent 1997 annual report provides an overview of population numbers from 1992 to 2006 and discusses relevant anadromous fish production trends.
Studies, Investigations, and Modeling	
Flow Fluctuation	Coordinated management of CVP facilities and developed standards to minimize fishery impacts from flow fluctuation; studies on American and Stanislaus rivers are ongoing; Draft Stanislaus River flow fluctuation study to be completed.
Shasta and Trinity Reservoir Carryover Storage Studies	Biological assessment for the CVP Operations Criteria and Plan (OCAP) completed June 2004; included the analysis of storages in Trinity and Shasta reservoirs; identified requirements to ensure the protection of fisheries resources on the lower American and Stanislaus Rivers.
San Joaquin River Comprehensive Plan	Goal is to reestablish and sustain naturally reproducing salmon in the San Joaquin River below Friant Dam to the confluence with the Sacramento-San Joaquin Delta. An 18-year legal challenge has delayed development of the Plan. In support of the Plan's development, in 2007 initiated organizational and management actions with CVPIA authority and funding including development of a Program Management Plan, public involvement/outreach program, and a process for preparation of technical documents for PEIS/R.
Stanislaus River Basin Water Needs	Prepared Stanislaus and Calaveras river-water-use program and federal Endangered Species Act (ESA) report; additional studies were performed concurrent with the development of Stanislaus River long-term management plans to assess water temperature parameters, refine analysis of groundwater resources, determine effects of flood-lain development and the relationship between reservoir management and the ecological functioning of the river.

Central Valley Wetlands Water Supply Investigations	<p>Program completed in 2000.</p> <p>Report completed that identified private wetlands and water needs, alternative supplies, and potential water supplies for supplemental wetlands. Developed geographic information system (GIS) database to identify potential water supply sources.</p>
Investigation on Maintaining Temperatures for Anadromous Fish	<p>Program completed in 2001.</p> <p>Completed report in 2001 on maintaining temperatures for anadromous fish; included field investigations on interaction between riparian forests and river water temperatures and on the general effects on water temperature of vegetation, irrigation return flow and sewage effluent discharge.</p> <p>Completed report including investigations on tributary enhancement in 1998 and submitted to Congress in 2000.</p>
Investigations on Tributary Enhancement	<p>Program completed in 1998.</p> <p>Completed report on investigations to eliminate fish barriers and improve habitat on all Central Valley tributary streams</p>
Report on Fishery Impacts	<p>Program completed in 1995.</p> <p>Completed report describing major impacts of CVP reservoir facilities and operations on anadromous fish.</p>
Ecological and Hydrologic Models	<p>Developed six of nine models designed to evaluate existing and alternative water management strategies and improve scientific understanding of ecosystems in the Sacramento, San Joaquin, and Trinity river watersheds.</p> <p>Since 1998, the Ecological/Water Systems Operations Model Program has provided a high level of support for CALSIM, the integrated CVP/SWP model. CALSIM is available to the public and has been used in many large-scale water supply improvement studies including the CVP OCAP and the CALFED feasibility study for storage and conveyance.</p>
Project Yield Increase (Water Augmentation Program)	<p>Program completed in 1996.</p> <p>Developed least-cost plan considering supply increase and demand reduction opportunities; submitted to Congress.</p>

Tracy Fish Facility Improvement Program

The Tracy Fish Facility Improvement Program (TFFIP) is a component of CVPIA Section 3406(b)(4) and its primary focus is identifying and making physical improvements and operational changes, assessing fishery conditions, and monitoring salvage operations at the TFCF in order to reduce the loss of delta fish species during the salvage and trucking process. Research and evaluation efforts to date have included predator removals, whole facility efficiency estimates for various species of interest, holding tank fish stress and damage analysis, biology and movements of local native species within and around the facility (Chinook salmon, delta smelt, splittail, striped bass, etc), evaluation of debris impacts and recommendations for improvement, water quality monitoring, egg and larvae density studies, improved fish handling, and improved fish identification. Facility improvements have included new fish hauling trucks

and fish transfer buckets, new primary louver transition boxes, predator removal operations, improved instrumentation, and surface painting of holding tanks to minimize fish abrasion. All activities accomplished under the TFFIP are documented in Reclamation reports as part of the Tracy report series. To date, approximately 35 reports have been completed or are currently under preparation. Reclamation's research efforts are coordinated with the other water and regulatory agencies through the IEP and CALFED. ESA considerations are covered either through language contained in the biological opinions or application of ESA Section 10 permits.

Reclamation is conducting research efforts on-site at Tracy and in Reclamation's lab in Denver to test and assess similar fishery conditions and demonstrate new technologies to be used in the south Delta for improved fish protection.

Chinook Salmon and Steelhead Benefits

Chinook salmon and steelhead benefit greatly through the efforts of the TFFIP and implementation of measures to reduce their loss during the salvage and trucking process. Examples of where improvements have benefited salmon as well as steelhead include:

Primary Louver Bypass Modification at TFCF

Fish bypass transition boxes have deteriorated and were replaced in May 2004. The new transition boxes were previously modeled in Reclamation's lab in Denver and will be modeled again for velocity field conditions after installation. Additional hydraulic testing was completed in 2005. Field fishery evaluation of the new transition boxes were completed using Sacramento blackfish as a substitute species.

Tracy Fish Screen Debris Studies

The existing TFCF does not handle incoming debris loads very well. Several projects are scheduled over the next several years to improve Reclamation's ability to clear debris from the trashrack and louver structures such that they operate more as originally designed. Other research will be conducted on-site to explore improved debris removal at various points in the system.

TFCF Full Facility Evaluation

Reclamation will be conducting full facility evaluations of the TFCF as it relates to the various species of fish entering the facility, especially those that are listed or POD species, and how well the system can effectively louver fish into the holding tanks for release back into the Delta. Research has already been conducted within the secondary louver system for several different species.

Improve Removal Procedures from Fish Holding Tanks

Recently conducted studies indicate that survival of fish in holding tanks could be improved with new fish removal procedures, especially during high debris events. The studies will consider new designs that would have application to both the Tracy and Federal fish facilities. Tank and valve development, fish separation strategies, and consideration of pumping techniques that are less stressful on fish will be analyzed and considered for future modifications.

Delta Fish Agreement

On December 30, 1986, the Directors of DWR and DFG signed an agreement to provide for offsetting direct losses of fish caused by the diversion of water at Harvey O. Banks Pumping Plant (Banks Pumping Plant). The Agreement is commonly referred to as the Delta Fish Agreement, and later became known as the Four Pumps Agreement because it was adopted as part of the mitigation package for four additional pumps at the Banks Pumping Plant. Among its provisions, the Agreement provides for the estimation of annual fish losses and mitigation credits, and for the funding and implementation of mitigation projects. The Agreement gives priority funding to mitigation measures for habitat restoration and other non-hatchery measures to help protect the genetic diversity of fish stocks and reduce over reliance on hatcheries. Fish mitigation from the Delta Fish Agreement projects may be quantified in smolt or yearling “equivalents,” or may be unquantified recognizing that some benefits are not measurable. In the case of Chinook salmon, priority is given to salmon protection measures in the San Joaquin system.

The 1986 Delta Fish Agreement has been amended three times to extend the period for expenditure of the \$15 Million Lump Sum funding component of the original Agreement, with the most recent extension through December 2007. The other funding component of the Agreement is the Annual Mitigation funding, which has no termination date. Since 1986, approximately \$60 million in combined funding from the Annual Mitigation and \$15 Million Lump Sum components have been approved for over 40 fish mitigation projects through December 2007. About \$47 million of the approved funds have been expended to date and the remaining approved funds are allocated for new or longer term projects.

The 1986 Delta Fish Agreement offsets direct losses of striped bass, Chinook salmon and steelhead. Paragraph B of Article V of the Agreement states measures to offset direct losses for fish species not covered in the original Agreement shall be included when more information is obtained to develop effective measures, and provides for the addition of other species to the Agreement.

Article VII of the Agreement directs DFG and DWR to develop ways to offset the adverse fishery impacts of the State Water Project (SWP) not addressed in the Agreement, and provides for the resolution of indirect fishery impacts through the existing Agreement.

In the July 8, 2005, letter to the Director of Fish and Game, the Director of Water Resources proposed expanding the scope of the 1986 Delta Fish Agreement to establish a separate fund with an initial annual budget of \$2.5 million in SWP funds to quickly address near-term pelagic fish issues related to the Pelagic Organism Decline (POD), including declining abundance of delta smelt. In the February 2, 2006, letter to the Director of Water Resources, DFG agreed with the proposal to fund POD studies and actions. A “POD and Special Mitigation Account” was set up under the Delta Fish Agreement with an initial budget of \$2.5 million that could be used for immediate actions, but was not intended to address all future mitigation needs for POD species.

On July 28, 2006, DWR and DFG, along with the California Bay-Delta Authority (CBDA), the Reclamation, FWS, and six water agencies, entered into a *Memorandum of Agreement for Certain Ecosystem Actions and Support for Implementation of Near-Term Water Supply, Water Quality, Ecosystem, and Levee Actions* (Bay Delta Conservation Plan (BDCP) MOA). The

BDCP MOA was intended to enable funding of key programs and to further the development of the BDCP, which is anticipated to provide Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA) compliance for coordinated SWP and Central Valley Project (CVP) operations in the Sacramento-San Joaquin River Delta through a Habitat Conservation Plan (FESA Section 10) and a Natural Community Conservation Plan (NCCP) (Fish and Game Code Section 2800 et seq.).

2008 Delta Fish Agreement Amendment

On May 7, 2007, DWR and DFG entered into a Memorandum of Understanding (MOU) in order to facilitate and expedite completion of the reinitiated consultation of the federal biological opinions on the coordinated SWP and Central Valley Project (CVP) operations, commonly referred to as the Operations Criteria and Plan (OCAP). In Paragraph 7 of the MOU, the parties agreed to begin negotiations to amend the 1986 Delta Fish Agreement to “at least address direct and indirect take of delta smelt and indirect take of salmon and methods to develop mitigation credits for this take.”

DWR and DFG are currently negotiating the Delta Fish Agreement 2008 Amendment. The actions that will be identified in the 2008 Amendment are intended to address impacts associated with operation of the Banks Pumping Plant on native fishes, (winter-run Chinook salmon, spring-run Chinook salmon, delta smelt, and longfin smelt), after all appropriate (feasible) operational actions have been implemented to minimize and/or avoid direct and indirect impacts (operational constraints in the OCAP).

Through the 2008 Amendment to the 1986 Delta Fish Agreement made pursuant to Article V and Article VII, DWR will mitigate for direct and indirect losses of winter-run Chinook salmon, spring-run Chinook salmon, delta smelt, and longfin smelt (referred to hereinafter as “covered species”) proportionally caused by the diversion of water by the Banks Pumping Plant. The Amendment is intended to provide mitigation over a 10-year period beginning in 2008 and until the time that the BDCP is implemented, and may be revisited by mutual agreement based on unanticipated changes to the BDCP schedule or process, or upon a revision based on substantially changed conditions. DFG has determined the mitigation for direct and indirect losses of covered species over the period of this amendment will be through funded mitigation actions.

DWR and DFG will work together to implement approved mitigation actions using a phased approach to ensure that funding is secured and that some actions are implemented immediately. DFG and DWR will also work together to provide for the funding and development of additional actions. To increase the probability of quickly demonstrated results, mitigation actions to be considered first will be the early implementation actions chosen by DWR and DFG. These early implementation actions include, but are not limited to, protection and restoration of the Cache Slough Complex with an initial focus on habitat restoration at Prospect and Liberty Islands, a contribution to the Battle Creek Restoration Project, restoration of Hill Slough West Tidal Marsh and a contribution to the Delta Smelt Refugia Culture Facility. These early implementation actions will be subject to DFG approval and completion of all necessary environmental review and permitting.

DWR will also continue funding and implementation of the following ongoing annual mitigation actions which have been acknowledged to provide benefits for salmonid species of concern: Salmon Stock Ocean Harvest Inland Escapement Data Processing Program; Deer Creek Flow Enhancement Program; Mill Creek Water Exchange Program; Butte Creek Fish Passage Monitoring and Maintenance Program; Spring-run Chinook Salmon Warden Protection Program.

Potential additional mitigation actions for future years include, but are not limited to, projects in the Yolo Bypass, Sacramento Basin, the Delta, Suisun Marsh, and Cache Slough Complex that are determined by DFG to provide direct and indirect benefits to the covered species. These potential additional actions will be identified by DFG and DWR with assistance from FWS and NMFS and submitted for final conceptual approval to DFG.

Consistent with the BDCP Planning Agreement, DFG agrees that these mitigation actions are also considered early implementation actions to mitigate SWP impacts on winter-run Chinook salmon, spring-run Chinook salmon, delta smelt, and longfin smelt for the BDCP. The Amendment will also outline the selection, approval, and review of mitigation actions. The mitigation actions described above and potential additional mitigation actions, including but not limited to those for future consideration discussed above, will be identified by DFG and DWR with assistance from FWS and NMFS and submitted for final conceptual approval to DFG. Mitigation actions may be selected through any of the following methods: Directed Actions; Open Continuous Solicitation; DWR Sponsored Projects; Mitigation Banks, Cost-Share Projects (Partnerships with DWR or other Entity); or other selection process mutually agreed upon by DWR and DFG.

Delta Fish Agreement Project Benefits

Since 1986, approximately \$60 million in combined funding from annual appropriations and a one-time lump sum amount of \$15 Million has been approved for over 40 fish mitigation projects under the Delta Fish Agreement. About \$47 million of the approved funds have been expended through December 2007, and the remaining approved funds are allocated for new or longer term projects.

1986 Delta Fish Agreement Ongoing Mitigation Projects

Projects that are ongoing, have been completed, or will be implemented in future years under the 1986 Delta Fish Agreement are listed by project type as follows:

Fish Screens

Screening of unscreened water diversions in Butte Creek (two screens). The Durham Mutual Fish Screen projects on Butte Creek have been implemented and completed. The two Durham Mutual screens were completed in 1999. This project continues to improve passage for adult and juvenile spring-run Chinook salmon on Butte Creek, with secondary benefits to fall-run Chinook salmon and steelhead. This project is part of the Butte Creek Spring-run Salmon Improved Migration Pathway Project, which also includes the Butte Creek fish ladders described below.

Screening of unscreened water diversions in San Joaquin tributaries (two screens). The Cook & Dale Ditch and the Ferrell Ditch Screens are part of the San Joaquin River Tributary

Diversion Fish Screening Pilot Project. These two screens were completed by DFG in 2006. These screened diversions continue to provide entrainment protection benefits to fall-run Chinook salmon and steelhead, and increase the number of Chinook salmon in the San Joaquin River system.

Screening of unscreened water diversions in Suisun Marsh (eight screens). These screens include seven fish screens that were completed in 1997 designed to DFG specifications to provide protection to delta smelt and salmon, and one Grizzly Island Fish Screen that was completed in 1995 designed to DFG specifications to provide protection to salmon. The Grizzly Island Fish Screen also provides protection to delta smelt when they are present in the area. DFG reduces diversions through the screen to lower approach velocities to meet delta smelt criteria. These projects continue to provide benefits to delta smelt and fall-run, winter-run and spring-run Chinook salmon.

Annual operations and maintenance of 14 fish screens in Suisun Marsh (one project). This project provides for the annual operation and maintenance of 14 existing fish screens in Suisun Marsh over a twelve-year period. This project was implemented in 2006. These screens are designed to DFG specifications to provide protection to delta smelt and salmon. This project benefits delta smelt and fall-run, winter-run and spring-run Chinook salmon.

Enhanced Enforcement

Enhanced law enforcement efforts to reduce illegal harvest in the Bay-Delta and upstream in the Sacramento-San Joaquin basins (two projects). Enhanced law enforcement efforts from San Francisco Bay upstream into the Sacramento and San Joaquin rivers and their tributaries benefit fall-run, winter-run and spring-run Chinook salmon, and many other species. In addition to enhanced law enforcement efforts, focused enforcement efforts from the Bay upstream into the Sacramento River specifically benefit winter-run and spring-run Chinook salmon.

The Spring-run Salmon Increased Protection Project provides overtime wages for DFG wardens to focus on spring-run Chinook salmon protection by reducing illegal take and illegal water diversions on upper Sacramento River tributaries and inspecting adult holding areas where fish are particularly vulnerable to poaching. The project covers Mill, Deer, Antelope, Butte, Big Chico, Cottonwood and Battle creeks, as well as the Sacramento, Yuba and Feather rivers and has been in effect since 1996.

The Delta-Bay Enhanced Enforcement Program (DBEEP) is a larger effort, initiated in 1994, that also provides increased salmonid enforcement from the San Francisco Bay and Delta upstream into the Sacramento and San Joaquin basins. This program currently has a team of 10 wardens that focus enforcement efforts to protect steelhead and fall-run, winter-run and spring-run Chinook salmon, as well as other anadromous species of concern. In the Sacramento Basin, DBEEP continues to focus targeted enforcement during the spring-run Chinook salmon migration and summer holding period.

Fish Passage Improvements

Seasonal barriers to guide salmon away from undesirable spawning habitat or migration pathways (two projects). These seasonal fish barrier projects are the Georgiana Slough Acoustic Fish Barrier and the Hills Ferry Fish Barrier. Both of these projects have been implemented.

The Georgiana Slough Barrier was an experiment, completed and installed for one year in 1994 and provided benefits to downstream migrating Chinook salmon smolts. This project intended to reduce the number of Sacramento River salmon outmigrants entering Georgiana Slough and thereby improve smolt survival throughout the Delta. All parties involved determined that the project cost-benefit was not great enough to continue.

The Hills Ferry Barrier was first installed in 1993 and continues to provide seasonal barrier protection benefits to fall-run Chinook salmon by directing upstream migrating salmon into suitable spawning habitat in the Merced River and away from unsuitable habitat in the San Joaquin River and dead end sloughs and canals as previous DFG studies have indicated. Although funding for this action ends in 2009, funding will likely continue if requested by DFG. This action will need to be coordinated with the San Joaquin River Restoration Program effort currently underway.

Water exchange projects on Mill and Deer creeks to provide salmonid passage flows for adult spawners and out-migrant young (two projects). The water exchange projects on Mill and Deer Creeks provide for new wells that enable irrigators to switch from stream flow to groundwater, thus leaving water in the creeks during critical spring and fall migration periods. Spring-run Chinook salmon are the primary benefactors of these projects, with secondary benefits to steelhead and fall-run Chinook salmon through improved migration and rearing conditions. The Mill Creek project is implemented and has operated since 1990. A pilot pumping project for the Deer Creek Project using one of the three wells proposed for the project was tested in summer 2003 and 2004. The Deer Creek Flow Enhancement Project Memorandum of Agreement was signed September 2007. The Deer Creek project is currently being implemented.

Fish ladders for improved upstream salmonid passage for adult spawners on Butte Creek (two projects). The Parrot Phelan project was completed in 1995 and the Durham Mutual project was completed in 1999. These projects improve passage for adult spring-run salmon on Butte Creek, with secondary benefits to steelhead and fall-run Chinook salmon. These fish ladders have improved salmon and steelhead survival by allowing adult spawners to pass upstream during low water periods, facilitating passage of progeny downstream, and by decreasing injury of adults during all water years. These passage projects were implemented with Delta Fish Agreement cost-share funding that helped fund construction. This project is part of the Butte Creek Spring-run Salmon Improved Migration Pathway Project, which also includes the Butte Creek fish screens above.

Habitat Enhancement and River Restoration

Spawning gravel replacement and maintenance on the Sacramento system (two projects). The Upper Sacramento River Spawning Gravel project was completed in 1991. The Mill Creek Spawning Gravel project was constructed in 1988 and completed in 1998. These two projects in the Sacramento River basin provide benefits to spring-run and fall-run Chinook salmon through improved spawning gravel conditions. The Upper Sacramento River Spawning Gravel project also provides benefit to winter-run Chinook salmon.

Spawning gravel replacement and maintenance on the San Joaquin tributaries (six projects). There are six gravel replacement and maintenance projects on the San Joaquin tributaries that provide benefits to fall-run Chinook salmon and steelhead: One project site on the Stanislaus River, two project sites on the Tuolumne River, and three project sites on the Merced

River. Gravel replacement has been completed for all sites and they continue to provide benefits to fall-run Chinook salmon and steelhead, with the exception of the La Grange gravel replacement site on the Tuolumne River. The La Grange site has been partially implemented and is scheduled for additional gravel placement in summer 2008. All of these San Joaquin gravel replacement projects are in the planning phases for continued gravel maintenance into the future under the San Joaquin Gravel Projects Maintenance Project proposal.

Other salmonid habitat enhancement projects that combine spawning and rearing habitat improvement; fish passage improvement; elimination of salmonid predator habitat; and improved channel, floodplain, and riparian areas (seven projects). The M.J. Ruddy project site, constructed in 1993 on the Tuolumne River, provided benefits to fall-run Chinook salmon. There are six different project area sites on the Merced River - Magneson Pond, Ratzlaff Reach, Robinson Reach, Upper Western Stones, Lower Western Stones and the Robinson Conservation Easement. The Magneson Pond project construction was completed in 1996. The Ratzlaff project construction was completed in 1999. Construction was completed on the Robinson Reach project in 2002. The Robinson, Ratzlaff and Magneson projects will continue to provide benefits to fall-run Chinook salmon. The Upper Western Stone project and the Robinson Conservation Easement are in varying stages of planning and implementation. The Lower Western Stone site has been funded, but has not been implemented.

All of these habitat enhancement project sites provide improved fall-run salmon survival by reducing warm water predator habitat from the juvenile fall-run migration pathway and salmon rearing areas, and also provide an improved migration pathway for both downstream juvenile outmigrants and upstream adult fall-run Chinook spawners. These projects also provide benefits to steelhead in the area.

Salmon hatchery production projects (three projects). The Delta Fish Agreement provides cost-share funding for Chinook salmon production at the Merced River Fish Hatchery (MRH). MRH funding has been implemented and continues to provide for yearly fall-run Chinook salmon smolt production. The Delta Fish Agreement receives fish mitigation credits for steelhead production at the SWP funded Feather River Hatchery (FRH). The Tuolumne River Fish Hatchery (TRH) project was funded for land acquisition and planning for a potential hatchery project and has never been implemented. The property has been turned over to DFG as a Salmonid Habitat Restoration Center and DFG field office which focuses a significant amount of time and effort towards salmonid habitat improvement activities.

Salmon acclimation pens to improve survival of hatchery salmon released in Carquinez Strait (one project). This project was implemented annually from 1994 to 1999 for fall-run Chinook salmon production at the Feather River Fish Hatchery and to improve their survival upon release into Carquinez Strait. Spring-run Chinook salmon production from FRH was included in 1999. Coded Wire Tag Return results showed that acclimated juveniles had a significantly greater survival to the ocean fishery.

Delta Fish Agreement Amendment - Proposed Early Implementation Mitigation Actions

The following projects are in various stages of planning which involves a variety of State, Federal, and stakeholder participation.

Hill Slough West Restoration Project

Project Location

The Project site is located in northern Suisun Marsh, Solano County and is bounded by State Route 12 to the north, McCoy Creek (Grizzly Island Road) to the east, DFG-managed wetlands (Pond 3) to the south, and a maintained tidal channel (Whispering Bay) to the west. The site is located on the USGS 7.5 minute topographic map, Fairfield South.

Project Description

The Hill Slough West Habitat Restoration Project (Project) will restore tidal wetlands and moist grassland habitat to approximately 700 acres of diked seasonal and perennial wetlands in northern Suisun Marsh. The site is part of the Hill Slough Wildlife area and is owned and managed by DFG. The wetland restoration will re-introduce tidal action to the site. The desired outcome is a self-sustaining marsh ecosystem created through restoration of natural hydraulic and sedimentation processes and reliance on natural abiotic and biotic succession processes.

The Hill Slough West Restoration Project will potentially create habitat for juvenile salmonids, including Central Valley Steelhead, Central Valley spring-run Chinook salmon, Central Valley fall/late fall-run Chinook salmon, and Sacramento River winter-run Chinook salmon.

Phase 1 - Battle Creek Salmon and Steelhead Restoration Project

Project Location

Battle Creek Salmon and Steelhead Restoration Project is located in Shasta and Tehama Counties near the town of Manton, CA.

Project Description

The purpose of the Battle Creek Salmon and Steelhead Restoration Project is to restore approximately 42 miles of habitat in Battle Creek and an additional 6 miles of habitat in its tributaries while minimizing the loss of energy produced by the hydroelectric project. The Restoration Project will be accomplished through the modification of hydroelectric project facilities and operations, including instream flow releases. Habitat restoration would enable safe passage for naturally produced salmonids and would facilitate their growth and recovery in the Sacramento River and its tributaries.

The Battle Creek Salmon and Steelhead Restoration Project will benefit juvenile and adult Central Valley Steelhead, Central Valley spring-run Chinook salmon, Central Valley fall/late fall-run Chinook salmon, and Sacramento River winter-run Chinook salmon. This project will benefit these fish species by providing cooler water temperatures, improving fish passage with higher instream flows and construction of reliable and effective fish ladders, and increase of food production for fish from increasing instream flows.

Prospect Island Restoration Project

Project Location

Prospect Island is the most easterly feature of the Cache Slough Complex. The island is bounded by the Sacramento Deep Water Ship Channel on the west, the remnants of Little Holland Tract to

the north, Miner Slough to the east, and the confluence of the ship channel and Miner Slough to the south. It is located in eastern Solano County, and it covers approximately 1,692 acres.

Project Description

There are two major land owners on Prospect Island: the Port of Sacramento, who owns roughly the southern one-third of the island, and Reclamation, which owns approximately the northern two-thirds of the island. There are also small parcels in private ownership. Reclamation is currently working to divest themselves of Prospect Island.

Permanently breaching the levees on Prospect Island and restoring open water, tidal marsh, mudflats, and shaded riverine aquatic habitat would provide spawning and rearing habitat for delta smelt and Sacramento splittail, and rearing habitat for winter-run and spring-run Chinook salmon, and steelhead. Large quantities of plankton and detritus produced by the tidally influenced wetlands would support benthic forage on-site as well as elsewhere within the Sacramento-San Joaquin Delta (via tidal action transport). Other benefits include increased oxygen levels and the sorption of excess nutrients by sediments and emergent plants resulting from the high surface-to-volume ratio of the shallow wetlands.

Liberty Island Restoration Project

Project Location

Liberty Island lies within the Yolo Bypass and is the northwest land feature of the Cache Slough Complex. It is located along the boundary between Yolo and Solano Counties and covers approximately 5,200 acres, the majority of which are under water. The island is bounded by sloughs and remnant perimeter levees: Shag Slough on the west, a “stair step” channel that separates it from mainland Yolo Bypass to the north, the Liberty Cut and Prospect Slough to the east, and Cache Slough to the south.

Project Description

Liberty Island is ideal for tidal wetland restoration due to the minimal subsidence that has occurred on the island (typical interior island elevations range from 5 feet in the north to -10 feet or deeper in the south). The entire island is ringed with an intermittent (deteriorated) levee. Based on the current progression of the single primary northern breach in the central “stair” of Liberty Island, additional breaches in the other two “stairs” and the subsequent formation of tidal channels and sloughs could accelerate the restoration of the island. Within the ten years that the island has been flooded, over 800 acres of freshwater tidal marsh and tules have developed, without any human intervention, management, or funding. There are four land owners on Liberty Island. The majority is owned by Trust for Public Lands (TFPL). Portions of the stair step area are owned by Reclamation District 2093, the Kerry Trust, and the West Family Trust. Wildlands Inc. and TFPL are acquiring the Kerry and West properties (respectively) with the intent to create a mitigation bank on the Kerry property (northeast “stair step”). Reportedly they would use some of the funds raised to create an endowment for the entirety of Liberty Island to create an incentive for a public agency to accept ownership and responsibility for it. It is expected that private development will offer the advantage of hastening restoration, and that mitigation credits will be at a high premium.

Aiding recovery of the area by breaching northern levees would be expected to enhance the tidal marsh and mudflat habitats at minor expense to riparian habitat quantity. Increases in habitat complexity of tidal marsh, mudflats, and shaded riverine aquatic habitat would improve rearing habitat for delta smelt, Sacramento splittail, winter-run and spring-run Chinook salmon, and steelhead.

CALFED Bay-Delta Program

State and federal agencies in the CALFED Bay-Delta Program adopted a Record of Decision (ROD) for the Programmatic Environmental Impact Statement and Report (EIS/EIR) in August 2000. This action committed the Program to a 30-year plan to meet objectives for levee system integrity, ecosystem restoration, water supply reliability and water quality. The agencies also agreed to a preferred program alternative – including moving water across the Delta in what is known as “through-Delta conveyance” – and required an evaluation of its performance at the end of the ROD’s first seven years (Stage 1) of the 30-year proposed plan of action.

The CALFED Program has made progress toward meeting its objectives during the first seven years, particularly in areas outside the Delta, however progress within the Delta has been limited. In the past four years there has been a dramatic decline in abundance of the pelagic (open water) species in the Delta, including the threatened delta smelt, which has reached its lowest recorded levels. This decline, combined with increasing knowledge and awareness of future challenges, including climate change and sea level rise, seismic risk and population growth, calls into question whether current uses of the Delta are sustainable. It further leads to the conclusion that the preferred program alternative for conveyance – through-Delta conveyance as originally envisioned – is unlikely to achieve its objectives.

The four CALFED Program objectives outlined in the ROD remain valid for all efforts to develop and manage a sustainable Delta. The End of Stage 1 Report evaluates progress across all areas of the CALFED Program and outlines a plan to build on the interagency cooperation and work already under way, and incorporate the direction provided by the Governor’s Delta Vision, the BDCP and other initiatives to help implement a long-term management plan for a sustainable Delta.

The following conclusions have been reached based on the results of Stage 1 implementation and information that is now available:

California’s population and demand for water are increasing. Forecasts indicate that California’s population may reach 90 million by 2100. More people will mean more demand for water, greater impacts to existing water resources and an increasing strain on Delta resources. California’s existing water infrastructure is struggling to meet the State’s current needs and will not be able to meet the demands of the future. Californians will need to support a comprehensive plan that includes improved conveyance of Delta waters, increased surface and groundwater storage, and programs aimed at increasing regional self-sufficiency.

Climate change and sea level rise will increase the risk to the State’s water supplies. Climate change and the corresponding rise in sea level will have significant adverse impacts in the Delta. Scientists expect California’s climate to become warmer during this century. Storm runoff is likely to become more intense, with higher snow lines causing more winter precipitation to fall in the mountains as rain rather than snow. Average winter flows to the Delta are likely to become

larger in the future, which will cause more flooding. As sea level rises and winter storms become more intense, fragile Delta levees will be overwhelmed. This will result in the loss of Delta islands to flooding and will put the State's largest water supply at risk.

Seismicity and risk of levee failures. A growing body of information supports the fact that Delta levees are at risk of failure due to earthquakes on faults in or near the western Delta. Such a failure would lead to near-instant contamination of the State's water supply from saltwater intrusion, a disruption in operation of state and federal pumps, and shutdown of the Delta infrastructure of highways, railroads, navigation channels, ports and utility supply lines. Homes, business, and agricultural lands would be flooded and recovery would take years and cost billions.

Restoring ecosystem function in the Delta remains a challenge. Large scale restoration of upstream tributaries and floodplains has been initiated and is continuing successfully. In the Delta, emphasis on targeted research has greatly increased understanding of Delta ecosystem processes, but restoration solutions remain elusive. As in the years preceding CALFED, there remains a conflict between water exports and ecosystem protection in the Delta. The decline in pelagic fishes has highlighted this conflict and the uncertainty surrounding any proposed solutions. Major investments in large-scale experimentation and adaptive management may be needed to clarify how ecosystem function can be improved, given the highly-altered nature of the Delta.

Species invasions need to be controlled. Non-native invasive species constitute one of the greatest obstacles to recovering native species in the Delta. Preventing new invasions and containing and managing existing invasions are essential if viable populations of some native species are to be sustained. Containing aquatic invasive species is particularly challenging. Current scientific thinking is that managing the Delta to increase spatial and temporal habitat variability may improve conditions for native species. While undoubtedly posing trade offs for other Delta constituencies, including agriculture.

Through-Delta Conveyance needs to be reassessed. A growing body of information related to risk of levee failure, water quality, fish losses at export pumps, and rising sea level raises questions about the ability of through-Delta conveyance to meet future water and environmental management objectives. Alternative conveyance methods need to be identified and their costs and benefits assessed to ensure that the water management infrastructure is able to meet future needs of water supply and water quality.

CALFED anticipated a reevaluation of the preferred alternative at the end of Stage 1. In doing so, it allowed for the possibility for changes in programs and projects that would best enable the agencies to meet the still-valid CALFED goals of a reliable supply of water from the Delta, improved water quality for both the ecosystem and for drinking, a restored ecosystem and improved levee stability. Two major efforts now underway will set the stage for how we move forward in the Delta. The challenges of managing a sustainable Delta and providing for the state's water future will be met through cooperative commitment of state and federal CALFED agencies and collaborative efforts with Delta landowners.

Highlights of Accomplishments in Years 1-7

CALFED Program funding has totaled approximately \$2.8 billion for water supply reliability projects and programs. Since the ROD was signed, more water has been reliably delivered than in the years of crisis that led to the establishment of the CALFED Program. New groundwater storage and recycling projects are expected to provide a projected 687,000 to 860,000 acre-feet of new water. Favorable hydrology and implementation of projects to increase operational flexibility have resulted in meeting the target of 65 to 70 percent of contract amounts for water deliveries to the Central Valley Project (CVP) south-of-Delta water users in most years since the ROD was signed. In urban areas, investments in water use efficiency, recycling and storage have helped stabilize demand for Delta water. Surface storage feasibility studies are continuing on four potential projects that 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 to cities and farms. Much has been learned about the Bay-Delta system relevant to water supply reliability.

One of the cornerstones of the CALFED Ecosystem Restoration Program (ERP) has been the development of a common vision or single "blueprint" for ecosystem restoration. The ERP was also instrumental in developing a framework for adaptive management. Numerous important projects have been implemented, ranging from targeted research to full-scale restoration. Significant investments in fish screens, temperature control, fish passage improvements and improvements in upstream habitats have improved the outlook for most salmon populations throughout the Central Valley. CALFED ERP agencies have been successful at acquiring and protecting important lands in the Delta and along its tributary rivers and streams.

CALFED-funded research on the Delta has fundamentally changed how scientists now understand Delta functioning. During Stage 1 understanding of the problem of species and ecosystem restoration in the Delta has become clearer, but practical solutions remain elusive. To date, more than 130,000 acres of habitat targeted for important species have been enhanced, protected or restored. More than 54,000 acres of agricultural lands have been protected for their value as habitat. ERP funding has neared the \$1 billion ROD target, totaling approximately \$900 million and funding an estimated 550 projects.

The CALFED Water Quality Program set as a goal the continuous improvement of Delta water quality for all uses, including in-Delta, drinking water, environmental and agricultural uses. Since the CALFED ROD was signed, drinking water quality standards at the tap have generally been met, but little or no improvement has yet occurred in Delta source water quality. Advances in treatment technology have allowed water users to remain in compliance despite an increasingly challenging water quality and regulatory environment. Research has resulted in a better understanding of how mercury is methylated in the Bay-Delta system and how this affects wildlife and human health. CALFED agencies made progress in understanding and reducing the impacts to water quality from low-dissolved oxygen in the San Joaquin River deep-water ship channel near Stockton, pesticides and toxicity and the bioaccumulation of selenium. Despite meeting current regulatory standards, risks to human health from Delta drinking water remain. It seems likely that regulatory standards for drinking water will become progressively stricter so that future provision of safe and affordable drinking water will depend on improved source water quality. Actual spending during Stage 1 from State and federal sources was approximately \$125 million in water quality programs.

The Levee System Integrity Program funds earmarked for levee improvements in State Propositions 13 and 50 were used to replace the State's share of levee maintenance. As a result levee maintenance programs were funded, but long-term levee improvements defined under the CALFED ROD were under funded. Funding to reimburse local maintenance districts for eligible expenditures has reduced the rate of catastrophic levee failure during Stage 1. Substantial progress has been made for reusing dredge material to help stabilize Delta levees and improving the Delta Emergency Response Plan. A Levee Risk Analysis was conducted and resulted in the launching of a study called Delta Risk Management Strategy, which is now underway and shows promise of providing important information on statewide risks associated with Delta levee failure. Program funding from state and federal sources was approximately \$140 million, with a Federal share of \$1.4 million. Of the state's contribution, approximately \$60 million was spent to reimburse local districts for about half of their expenditures on levee maintenance.

Delta Vision – One Vision for the Delta

Delta Vision is a broad initiative designed to study the Delta from all perspectives – not only as a source of water or a unique ecosystem. It was created by Executive Order of the Governor and given the ultimate task of developing a strategy for the Delta's sustainable future by the end of 2008.

The Sacramento-San Joaquin Delta is a unique natural resource of local, State, and national significance. Although it builds on work done through the CALFED Bay-Delta Program, Delta Vision has broadened the focus of past efforts within the Delta to recommend actions to address the full array of natural resource, infrastructure, land use, and governance issues necessary to achieve a sustainable Delta. Delta Vision is based on a growing consensus among scientists, and also supported by recent legislation and other information, indicating that:

- Environmental conditions and current Delta “architecture” are not sustainable.
- Current land and water uses and related services dependent on the Delta are not sustainable based on current management practices and regulatory requirements.
- There is growing consensus that the Delta is dependent upon a levee system that is aging and deteriorating.
- Factors outside of our control will significantly change the Delta during the coming decades. These include seismic events, land subsidence, sea level rise, increasing temperature, more intense winter storms, species invasions and population growth.
- Current fragmented and complex governance systems within the Delta are not conducive to effective management of its fragile environment in the face of the cumulative threats identified above.
- Failure to act to address identified Delta challenges and threats will lead to potentially devastating environmental and economic consequences of statewide and national significance.

A key component of Delta Vision was the appointment of an independent Blue Ribbon Task Force by the Governor that is responsible for recommending future actions to achieve a sustainable Delta. The Task Force has extensively evaluated the existing and proposed land and

water uses, ecosystem functions and processes, and management practices in the Delta. Alternative Delta management scenarios are being identified and evaluated. By applying the best available scientific information, and input provided by experts and the public during its open meetings, the Task Force has recommended natural values and functions, services and management practices that should be considered priorities for future management as part of a sustainable Delta.

The Strategic Plan that emerges from Delta Vision will identify and evaluate alternative measures and management practices that would be necessary to implement Delta Vision recommendations. These implementation recommendations will involve considering changes in the use of land and water resources, services to be provided within the Delta, governance, funding mechanisms, and ecosystem management practices. The final Task Force Strategic Plan recommendations will be submitted to the public and the Delta Vision Committee by October 31, 2008. The Delta Vision Committee will submit its report on the final Delta Strategic Plan to the Governor and Legislature by December 31, 2008.

The Delta Vision Strategic Plan will define actions including those that will be implemented in Stage 2 of the CALFED Program.

Bay-Delta Conservation Plan – Conservation Planning

State and federal agencies, along with stakeholders, are developing a conservation plan for the Delta. The Bay-Delta Conservation Plan (BDCP) is intended to provide state and federal endangered species authorizations for the state and federal water projects and their contractors. The BDCP is being developed by a steering committee of state and federal water management and resource agencies, water contractors and non-governmental organizations. When approved, it will provide for conservation of the covered species, water supply reliability, regulatory assurances and funding assurances for implementation of conservation actions. These actions would contribute to implementation of many parts (water quality, supply and ecosystem) of the CALFED Bay-Delta Program. While not intended to be a comprehensive approach to ecosystem restoration of the Delta, the BDCP is focused on the conservation of species closely associated with aquatic habitats that may be affected by water conveyance through the Delta.

On October 6, 2006, DWR and DFG, along with the California Resources Agency, Reclamation, FWS, the NMFS, seven water agencies and other Delta water users, and four non-governmental organizations, signed the BDCP Planning Agreement. Consistent with the NCCP Act, the Planning Agreement recognized that the parties could “elect to preserve, enhance, or restore, either by acquisition or other means, aquatic and associated riparian and floodplain habitat in the Planning Area that support native species of fish, wildlife, or natural communities prior to approval of the BDCP” and that DFG, FWS, and NMFS could agree, if appropriate, to “credit such resources toward the land and water acquisition or habitat protection, enhancement, and restoration requirements of the BDCP.”

The completed BDCP is expected to cover a subset of species and habitats within CALFED’s purview and provide a mechanism with which to address improvements. A BDCP Planning Agreement has been completed and a draft BDCP is scheduled for completion in late 2008. BDCP parties reached points of agreement at the end of 2007 that evaluation of a dual

conveyance option provided the greatest potential for meeting water supply and ecological goals of the plan.