BAY-DELTA ACCORD CATEGORY III ECOSYSTEM RESTORATION PROJECTS

STATUS REPORT

CALIFORNIA URBAN WATER AGENCIES

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May 5, 2000

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EXECUTIVE SUMMARY

Uncertainty Led to Cooperation:

With the signing of the Bay-Delta Accord in December 1994, Interior Secretary Babbitt asked the Metropolitan Water District of Southern California (Metropolitan) to jump-start the ecosystem restoration process with three annual $10 million contributions. Soon thereafter other member agencies of the California Urban Water Agencies (CUWA) added funds. At the time no one knew if restoration projects could be implemented, the uncertainty being whether or not distrust between the agricultural, urban and environmental communities would prevent progress. Also, no one knew whether the fish would recover with ecosystem restoration.

CUWA Provided a Three-Year Jump-start in CALFED Restoration:

In retrospect, without the CUWA's contribution of $32.2 million, all the Accord's projects would have suffered a three-year delay. CUWA funded all of the restoration projects in the first three years after the Bay-Delta Accord: 1995, 1996 and 1997. Projects funded by the February 1997 Federal Bay-Delta Act and the November 1996 State Proposition 204 started in 1998, by which time some of CUWA-funded projects were being completed and the fish were responding.

High Level Recognition for CUWA:

These CUWA-funded projects were high profile, attracting the highest level officials in the land: the Secretary of Interior, the Assistant Secretary of Interior for Water and Power, the Secretary of the State Resources Agency, Congressmen, the Commissioner of Reclamation, the Administrator of EPA Region IX, among others. Each of these officials publicly recognized the importance of CUWA's contribution to the success of the Bay-Delta Accord's projects at their dedication ceremonies.

Change in Perception of Fisheries Decline:

These various projects, enabled by CUWA funding, changed the attitudes of many regarding the causes of fisheries decline. The general public and the professionals realized that the decline in the fisheries was due to numerous causes and more importantly, that these causes could be addressed. Screening of agricultural diversions, removing barriers to fish migration, improving habitats, and controlling pollutants, poaching and harvesting are recognized solutions.

CUWA Proved Agricultural, Urban, and Environmental Communities Could Agree on Projects:

The stakeholder-based Category III Steering Committee, chaired by Metropolitan staff, selected projects that would quickly benefit fish. One goal set for the early-start projects was to focus actions in streams with great potential for recovery.

Streams selected were Big Chico Creek and Butte Creek because:

- Remnant endangered spring-run fish populations remained, but only a few migrating fish returned; and
- Strong potential for recovery.

BIG CHICO CREEK

For the first Bay-Delta Accord ecosystem restoration project, Metropolitan worked with the non-profit environmental group, Ducks Unlimited, to implement a high priority fix. This project proved that success was possible. Before, when the M & T Ranch pumps diverted 150 cfs of water from Big Chico Creek the flow would reverse, stranding migrating salmon. This project moved the diversion point to the main stem of the Sacramento River, permitting irrigation of 11,000 acres of farmland and 10,000 acres of wildlife habitat to continue while allowing fish to spawn in Big Chico Creek.

The fish responded. In the decades before the M & T Pump/Fish Screen project, only a remnant population of endangered spring-run Chinook salmon spawned in Big Chico Creek. In 1998, the first season following project completion, 400 spring-run salmon spawned in Big Chico Creek.

BUTTE CREEK

Butte Creek drains high mountain areas off of Mt. Lassen, also favored by endangered spring-run Chinook salmon. In comparison to many other Central Valley watersheds, it is in good shape. However, upstream migrating salmon had to jump over nine diversion

dams, and downstream migrating juvenile salmon had to navigate through the pools behind the dams and past non-native predators that resided and fed on them. Stressors for fish in Butte Creek:

- Impeded passage over diversion dams in the stream;
- Unscreened diversions;
- Insufficient flow which inhibits the upstream and downstream migration of anadromous fish; and
- Illegal harvest (poaching) of salmon in pools behind dams.

CUWA and other co-funders of these projects on Butte Creek restored access to 37 miles of prime spawning habitat in a primary migratory corridor for ESA-protected spring-run salmon. Actions on Butte Creek were:

- Removal of 5 dams;
- Construction of 5 state-of-the-art fish ladders on the remaining dams, replacing 60-year-old ineffective fish ladders;
- Construction of 5 fish screens at diversion points which were unscreened;
- Elimination of 17 unscreened diversion points;
- Consolidation of several diversion points which trapped fish; and
- Acquisition of a 40 cfs water right, a significant increase in flow available for fish.

Again, the fish responded. The spring of 1998 saw an estimated 20,000 endangered spring-run salmon spawning in Butte Creek. One could almost walk the river on their backs, a sight that hasn't been seen since the 1950's.

Although it is too early to claim victory, the Butte Creek experience shows that agricultural, urban and environmental interests can work together to improve environmental conditions.

SACRAMENTO RIVER

CUWA funded Sacramento River projects that screened five of the 10 top diversions of concern for fish on the Sacramento River cited by National Marine Fisheries Service.

- Eliminated 5 unscreened diversion points;
- Consolidated 3 unscreened diversion points for 3 pumping stations into one screened diversion point, one pumping station;
- Screened diversions with a flow capacity totaling 2,000 cfs; and
- Prepared Environmental and Feasibility documentation which received regulatory approval, permitting construction, now

completed, to take place.

BATTLE CREEK

The Battle Creek Restoration Project will re-open over 42 miles of prime habitat rich in cold spring flows for winter-run and spring-run salmon and steelhead. The project will re-establish natural conditions currently obstructed by fish hatchery operations and hydropower operations.

Metropolitan was co-leader in the negotiations with several parties, culminating in an agreement on restoring Battle Creek:

- Remove 5 diversion dams;
- Equip 3 diversions with state-of-the-art fish screens and fish ladders;
- Increase instream flows 20 times more than the required instream flows today; and
- Construct facilities that eliminate the mixing of stream waters, allowing fish to go migrate as nature intends.

The ongoing $50 million Battle Creek Restoration Project, with $28 million specified for engineering and construction work, became a reality due in significant part to the contributions of CUWA. CUWA funded the two key contracts listed below that provided much of the technical basis for obtaining agreement among diverse parties in recommending, and CALFED's approving, the overall Restoration Project. Metropolitan staff assisted in forging this $50 million agreement.

THE DELTA

CUWA has funded several projects in the Delta, either solely or with partners.

- Development of a monitoring plan for Prospect Island Restoration Project
- Planning, design and construction of restoration of the 1300 acre Prospect Island, breaching levees to return farmland to tidal

Title and Proponent	Metropolitan/CUWA Funding and Total Cost	Duration	Description	Benefits
BUTTE CREEK PROJECTS				
Gorrill Dam Fish Screen Project (Phase 1–Environmental Work and Design) Gorrill Land Company	$67,990 of $124,490	January 1998 to June 1998	Plan for two fish ladders and two fish screens at the existing 162-cfs agricultural diversion dam.	Ease fish passage and reduce entrapment of juvenile fish.
Gorrill Dam Fish Screen Project (Phase 2–Construction) Gorrill Land Company	$369,641 of $1,393,907	June 1998 to September 1999	Construct two fish ladders and two fish screens at existing 162-cfs agricultural diversion dam.	
Adams Dam Fish Screen Project (Phase 1–Environmental Work and Design) Rancho Esquon Partners.	$70,304 of $120,304	January 1998 to June 1998	Plan fish ladder and fish screen at existing 135-cfs agricultural diversion dam.	Ease fish passage and reduce entrapment of juvenile fish.
Adams Dam Fish Ladder and Fish Screen Project (Phase 2–Construction) Rancho Esquon Partners.	$216,892 of $896,084	June 1998 to June 1999	Construct fish ladder and fish screen at existing 135-cfs agricultural diversion dam.	
Butte Creek Siphon and Associated Improvements Western Canal Water District	$3,095,873 of $9,457,619	August 1996 to March 1999	Separate canal carrying 1200-cfs of Feather River water for irrigation from Butte Creek by constructing a siphon. Eliminate 12 unscreened diversions from Butte Creek. Remove five diversion dams and replace them with a new delivery system.	Eliminate impediments to fish passage and reduce entrapment of juvenile fish.
Durham Mutual Fish Screen and Ladder Durham Mutual Water Company, LTD	$316,500 of $908,251	May 1997 to June 1999	Construct fish screen and fish ladder at existing 55-cfs agricultural diversion dam.	Ease fish passage and reduce entrapment of juvenile fish.
M & T Ranch Dam Fish Ladder M & T Ranch and Parrott Investment Company	$0 of $800,000 Metropolitan offered $100,000, serving as a catalyst for others to commit to full funding.	December 1995 to March 1997	Construct fish ladder at existing 100cfs agricultural diversion dam. (A year earlier, the California Department of Fish and Game installed a new fish screen for the diversion.)	Improve fish passage.
Butte Creek Watershed Management Restoration Plan California State University Chico Research Foundation	$83,000 of $166,000	March 1997 to March 2000	Development of a watershed plan for Butte Creek to protect the vast and diverse resources within the Butte Creek watershed. An existing condition report identifies the current state of the watershed and its resources, particularly those relating to Butte Creek itself.	Provide information on existing natural, cultural, economic and physical conditions within the watershed. Provide a "baseline" of information for projects to protect and enhance water quality, habitat and other resources.
BIG CHICO CREEK PROJECTS				
M & T Ranch Pump Relocation and Fish Screen Project M & T Ranch and Parrott Investment Company	$1,610,000 of $4,694,000	December 1995 to October 1997	Relocate existing M & T Ranch Pumping Station, construct new pumping station and construct fish screen for a 150-cfs agricultural diversion on the Sacramento River. In the past, the operations of the unscreened M & T pumps reversed flow in Big Chico Creek	Enable fish migration and reduce entrapment of juvenile fish. Provide fish-safe water for 11,000 acres of agricultural land and 10,000 acres of wetlands. The negotiations for the also resulted in acquiring a 40-cfs water right from M & T Ranch for Butte Creek, significant increase in flow available for fish.

Title and Proponent	Metropolitan/CUWA Funding and Total Cost	Duration	Description	Benefits
BATTLE CREEK PROJECTS				
Battle Creek Salmon and Steelhead Restoration Study William Kier & Associates	$306,000 of $306,000	June 1997 to October 1999	This project consisted of a technical plan for developing an overall Battle Creek watershed plan for restoration of steelhead and salmon populations. This project provided the technical basis leading to moving forward with the $28 million Battle Creek Restoration Project.	Increase habitat for spring- and winter-run Chinook salmon and steelhead.
Upper Battle Creek Anadromous Fish Screen and Fish Passage Department of Water Resources	$395,000 of $790,000	July 1998 to ongoing	This project includes engineering investigation of fish passage, and final design of fish ladders and fish screens for three hydropower sites on North and South Fork Battle Creek.	Increase habitat for spring- and winter-run Chinook salmon and steelhead.
Battle Creek Salmon and Steelhead Restoration Study Western Shasta Resource Conservation District	$50,000 of $100,000	June 1997 to April 2000.	This project consists of developing a watershed management strategy for Battle Creek. It also supplements the technical plan addressing hydropower, water flow, and hatchery production and water supply issues (Kier).	Formation of the Battle Creek Watershed Conservancy, a landowner based stakeholder promoting watershed protection and land use values. Development of w watershed management strategy.
SACRAMENTO RIVER PROJECTS				
Princeton Pumping Plant Fish Screen (Phase 1–Feasibility Study) Reclamation District No. 1004	$75,000 of $325,000	September 1996 to June 1997	Prepare feasibility study for fish screens for one of the top ten (by volume) diversions on the Sacramento River, a 700-cfs agricultural diversion.	Reduce entrainment of juvenile fish. Project provides irrigation water for 20,000 acres of crops. Construction of project is complete.
Fish Screen Project (Phase 1–Feasibility Study Princeton-Codora-Glenn Irrigation District and Provident Irrigation District	$75,000 of $150,000	September 1996 to October 1997	Prepare feasibility study for fish screens for three of the top ten (by volume) unscreened diversions on the Sacramento River. Construct a consolidated 600-cfs agricultural diversion.	Reduce entrainment of juvenile fish. Project provides irrigation water for 30,000 acres of crops, including 12,000 acres of winter waterfowl habitat.
Fish Screen Project (Phase 2–Construction) Princeton-Codora-Glenn Irrigation District and Provident Irrigation District	$5,500,000 of $11,281,200	April 1997 to December 2000		
Wilkins Slough Fish Screen (Phase 1–Preliminary Design) Reclamation District 108	$100,000 of $216,300	February 1997 to February 1998	Prepare feasibility study for fish screens for one of the top ten (by volume) diversions on the Sacramento River, .a 700-cfs agricultural diversion.	Reduce entrainment of juvenile fish. Project provides irrigation water for 48,000 acres of crops. Construction of Project is complete.
Sacramento River Riparian Habitat Restoration Department of Water Resources and U.S. Corps of Engineers	$500,000 of $1,000,000	September 1998 to May 2000.	Project includes a feasibility study for restoration of riparian vegetation along the Sacramento River from Verona to Collinsville to improve anadromous fish migration. A demonstration project will be constructed.	Demonstration Project on Grand Island is 95% complete. Also several sites have been selected for the overall feasibility study.

Title and Proponent	Metropolitan/CUWA Funding and Total Cost	Duration	Description	Benefits
Sacramento River Major Tributary Corridor Mapping California State University Chico Research Foundation	$145,200 of $145,200	January 1997 to January 2000	Map riparian vegetation in the Sacramento Valley portions of Colusa, Sutter, Yuba, Yolo and northern Sacramento counties, and major Sacramento River tributaries in Glenn County.	Detailed mapping of existing riparian habitat and other vegetation profiles along the Sacramento River and its tributaries. Data into GIS datebase will allow for analysis/interpretation and provide a basis for planning efforts.
DELTA PROJECTS				
Suisun March Fish Screen Project (Phase 1-Installation of 5 Fish Screens) Suisun Resource Conservation District	$450,000 of $900,000	March 1996 to September 1997	Project consisted of installing five fish screens on intake gates along Montezuma Slough in the Suisun Marsh. Screening also allows proper management of seasonal wetlands in the Marsh that provide habitat for diverse wildlife including listed species such as salt marsh harvest mouse.	Benefits: • Innovative fish screen design proven effective; • Reduction of salmon becoming stranded in Suisun Marsh. Reduction of mortality of Delta smelt and splittail in the marsh.
Prospect Island Shallow Water Habitat/Wetlands Restoration U.S. Corps of Engineers Department of Water Resources	$2,500,000 of $6,100,000 restoration. $1,250,000 of $1,250,000 endowment fund for operation and maintenance.	May 1996 to ongoing	Restoration of 1,300 acres of shallow water, tidal wetlands and aquatic habitat of former farm land. A separate monitoring plan will evaluate the biological, chemical and physical effects of the restoration.	This project provides spawning and rearing habitat for delta smelt, Sacramento splittail, winter-run Chinook salmon in addition to serving as a habitat for waterfowl and shorebirds.
Prospect Island Monitoring Plan Development Department of Water Resources	$35,000 of $35,000	October 1997 to July 1998	Project developed a plan for monitoring the biological, chemical and physical effects of the restoration.	Provided basis for subsequent approval by CALFED of $1 million for implementation of the Prospect Island Monitoring Plan.
Sacramento-San Joaquin Delta Breached Levee and Wetlands Study. University of Washington	$575,172 of $575,172	April 1997 to April 2000	Evaluate and monitor the evolution of ecological functions in restored wetlands (previously diked for farming).	Assess potential for environmental gains for future similar projects.
Inventory of Rearing Habitat for Juvenile Salmon. California State University, Sacramento Foundation	$24,500 of $24,500	November 1997 to August 1999	Conduct an inventory of rearing habitat for fisheries, including fishery surveys on existing and restored rearing habitats for juvenile salmon in the North Delta area.	Gather and provide information regarding fisheries in the Delta to distinguish races of juvenile salmon, compare conditions such as temperature and other growth factors.
Introduction of non-indigenous aquatic species research program. San Francisco Estuary Institute	$197,000 of $197,000	May 1997 to December 1999	Development of a regional monitoring program to address the invasion of the San Francisco Estuary by exotic species. The program will assist in identifying potential eradication efforts and mitigation measures.	Provide management techniques to control invasions through ballast water and post invasion control mechanisms. In addition, the program will provide information for public education and outreach activities.

STATUS REPORT FOR EACH PROJECT

SACRAMENTO VALLEY - CLEAR CREEK PROPERTY ACQUISITION (96-M14) [25]

Legend (year 1996-M14) is CALFED project identification
[25] is CUWA project identification, Tables A and B(separate document).

Proponent	Bureau of Land Management	
Project Manager	National Fish and Wildlife Foundation (NFWF)	
Term		
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$211,000	$6,803
CVPIA	$211,000	

Description: The Category III funds will be used for the property acquisition efforts on the Schmitt exchange, the Shea acquisition and Straub acquisition. The Schmitt exchange (about 1,000 acres) is currently under negotiation and would be completed via exchange of existing BLM lands of similar value through a third party agreement. The appraised value of this parcel is approximately $3.8 million. The Shea acquisition is about 80 acres and the Straub acquisition is about 40 acres. Acquisition of these properties will facilitate the restoration of approximately six miles of stream channel, restoring aquatic habitat for steelhead and four stocks of Chinook salmon, and associated riparian corridor. Department of Fish and Game estimates that Clear Creek has the capability of producing a distinct and genetically viable population of spring run Chinook in the Central Valley. Acquisition is one of the first steps of a comprehensive restoration plan which addresses adequate stream flow volume, timing and temperature; permanent cessation of gravel mining operations; elimination of migration barriers, spawning gravel recruitment; upland erosion control and fuel management; and channel morphology restoration. BLM will acquire a stream reach that extends from the confluence with the Sacramento River upstream about six miles.

Benefits: Restoration of riparian and wetland vegetation and improvement of floodplain functions.

Status: CUWA has supplied funding to NFWF. NFWF states BLM have not reported any progress on obtaining property.

BATTLE CREEK - CHINOOK SALMON AND STEELHEAD RESTORATION STUDY
(96-M12) [23]

Proponent	William Kier and Associates	
Project Manager	Metropolitan Water District (MWD)	
Term	June 1997 to October 1999	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$306,000	$306,000

Description: This study developed technical information to complete an overall watershed plan for implementing Battle Creek salmon and steelhead restoration. The collaborative proposal by Western Shasta Resource Conservation District facilitates local community input for the development of the watershed plan. The technical information developed in this study includes: (1) a management plan for opening up the fish barrier at the Coleman National Fish Hatchery which will address genetic and disease implications of rebuilding the remnant populations; (2) a complete and updated series of habitat analyses for logical sequencing of restoration actions; and (3) monitoring of water temperature, disease organisms, genetic characteristics, riparian habitat and gravel conditions using aerial photography. This information will support two key long-term agreements critical to restoration/opening up the barrier maintained by the Coleman National Fish Hatchery and increasing the flows below the PG&E hydropower diversions. The benefit of restoring Battle Creek is eventually reducing risk of extinction of spring run Chinook and steelhead and perhaps winter run Chinook, by allowing remnant populations to grow to a large, healthy size in the enlarged habitat.

Benefits: Increase habitat for spring and winter-run Chinook salmon and steelhead.

Status: Study is complete. It includes critical information to guide the Battle Creek restoration effort and was used as the technical basis for stakeholder negotiations which led to CALFED approving $28 million for engineering and construction of the Battle Creek Restoration Project.

BATTLE CREEK - WATERSHED MANAGEMENT STRATEGY PLAN (96-M25) [36]

Proponent	Western Shasta Resource Conservation District	
Project Manager	Metropolitan Water District (MWD)	
Term	June 1997 to May 2000	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$50,000	$45,118
CVPIA	$50,000	$40,000

Description: Western Shasta Resource Conservation District will organize an advisory group to develop a watershed plan for the Battle Creek. The watershed plan will address unscreened diversions, waste discharge/pollution protection, riparian habitat restoration, channel alteration, fish passage and fish barriers and will supplement the technical plan addressing hydropower, water flow, hatchery production and water supply issues. In addition, it will: (1) identify important factors affecting spring run aquatic habitats, especially those on private lands or affecting private interests; (2) recommend projects and programs to address these factors; and (3) describe a monitoring program to evaluate current conditions and results from such projects and programs.

Benefits: Promote watershed protection and land use values and the development of a watershed management strategy.

Status: The Battle Creek Watershed Conservancy is established and accomplishing objectives. The watershed plan is 90% complete.

SACRAMENTO RIVER (VERONA TO COLLINSVILLE) - RIPARIAN HABITAT RESTORATION (PHASE 1) (96-M03) [12]

Proponent	Department of Water Resources and The Reclamation Board	
Project Manager	Metropolitan Water District (MWD)	
Term	September 1998 to May 2000	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$500,000	$246,000
U. S. Army Corps of Engineers	$500,000	$177,000

Description: Phase 1 of this project is a three-year study by the U.S. Army Corps of Engineers to investigate the feasibility of restoring riparian vegetation along the Sacramento River to improve anadromous fish migration. The study area extends along the Sacramento River from Verona to Collinsville and includes Sutter and Steamboat Sloughs. Phase 1 will conclude with a report identifying appropriate restoration sites along the river, opportunities for pole planting, berm construction, and opportunities for setback levees to create planting berms. It will also document five sample design schemes for various shaded riverine aquatic restoration measures, including environmental benefits and cost estimates for each measure. This information will be extrapolated to the rest of the study area to develop possible sites and construction costs. At this point, the issue of federal and non-federal interest will be revisited and a decision will be made on feasibility and likelihood of project implementation.

Benefits: Demonstration project on use of riparian vegetation to restore and improve riparian habitat benefiting fish.

Status: On March 13, 1997, the Reclamation Board and the Department of Water Resources signed a letter of intent to USACE to be the joint non-federal sponsors for the three-year feasibility study. No funding has been identified beyond the first year. The Reclamation Board and the Department have negotiated in-kind services and a scope of work with the USACE as detailed in the Project Study Plan. A demonstration project to evaluate the feasibility of revegetation on levees is 90% complete. Project is on hold because the Corps stopped work due to lack of funds.

DELTA - YOLO BYPASS HABITAT RESTORATION STUDY (96-M13) [24]

Proponent	Department of Water Resources (DWR)	
Project Manager	National Fish and Wildlife Foundation (NFWF)	
Term	Nov. 1998 to Nov. 2000	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$226,000	$151,228
IEP	$30,000	

Description: This study will identify problem areas in the Bypass (e.g. fish stranding and toxics), describe the benefits of existing habitat to fisheries, and develop a better understanding of how the Bypass is linked to the rest of the Estuary. The study will cover the following: (1) develop techniques to sample the Yolo Bypass habitats; (2) estimate the number of fish diverted into, and emigrating from, the Bypass (if feasible); (3) locate habitats used for fish rearing; (4) measure growth rates and condition factors of salmon in the bypass versus the Sacramento River; (5) examine the contribution of the Bypass to the estuarine food chain; (6) identify locations where ponding occurs; and (7) measure contaminant levels in the Bypass. The final report will include recommendations on how the Bypass habitat could be improved for fisheries.

Benefits: Restoration of riparian and wetland vegetation and improvement of floodplain functions.

Status: Field studies are completed, final report under preparation.

DELTA - PROSPECT ISLAND SHALLOW WATER HABITAT/WETLANDS RESTORATION PROJECT (96-M02) [11]

Proponent	Department of Water Resources (DWR)	
Project Manager	Metropolitan Water District (MWD)	
Term	March 2000 to 2003	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$2,500,000	$250,000
U.S. Army Corps of Engineers	$4,500,000	$680,000
State Delta Levee Maintenance Program	$350,000	$0

Description: This project includes the planning, design and construction of improvements to flood land currently used for farming and to create islands. Earlier the U.S.Bureau of Reclamation purchased the farmland for $2.9 million.

Prospect Island has been identified by the U.S. Fish and Wildlife Service as a potential large-scale restoration effort that would restore tidal wetlands in the southern portion of the Yolo Bypass. This project will provide spawning and nursery habitat for delta smelt and possibly nursery habitat for Chinook salmon fry and older juveniles. It should rapidly provide viable tidal wetlands and riparian habitats within a year or two following completion. The project will restore 1,300 acres of shallow-water, tidal wetlands and aquatic habitat and 130 acres of riparian/wetland habitat. Unscreened diversions on the island will be removed, eliminating mortality associated with existing agricultural diversions. The Category III funds will provide the $1.25 million non-federal cost share for the design and construction of this project as well as an endowment fund of $1.25 million for long-term operation and maintenance.

Benefits: Restoration of shallow water habitat and wetlands to benefit fish and waterfowl.

Status: The U.S. Army Corps of Engineers has funded this project in fiscal year 1998 as a Section 1135 habitat restoration project. As a result of a change in the federal law in October 1996, USACE no longer limits the planning, design, and construction costs of a Section 1135 project to $5 million. DWR is the non-federal sponsor in this project. Technical design review meetings were held among DWR, USACE, U.S. Fish and Wildlife Service, and other fishery biologists. Environmental work is complete. Construction is to start in summer, 2000.

DELTA - SHERMAN ISLAND LEVEE HABITAT DEMONSTRATION PROJECT
(96 -M09) [19]

Proponent	Department of Water Resources (DWR)	
Project Manager	Metropolitan Water District (MWD)	
Term	October 1997 to September, 2000	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$480,000	$20,000
Department of Water Resources (DWR)	$480,000	$20,000

Description: The Sherman Island Levee Habitat Demonstration Project will demonstrate the feasibility of developing waterside and landside elements to improve levee bank stabilization and create shallow water habitat and riparian habitat along a linear stretch on the south side of Sherman Island. The project will create small islands, peninsulas, and waterside berms. Additionally, the project will revegetate the existing landside berm.

The final location of the Project site will be adjusted as field investigations and design is advanced. Considerations in selecting this area include need for erosion protection, availability of construction materials for the berm, lack of established wetlands along the levee, hydrology of the adjacent channel, adequacy of channel capacity and ownership of the project site by the State of California.

The Project will be implemented in three phases: (1) biological, geotechnical, and engineering analysis of the site; (2) construction of the project through a work agreement with Reclamation District No. 341; and (3) post monitoring of the site by the Department of Fish and Game.

Benefits: Demonstration project for building levee with beneficial fish habitat.

Status: Construction was scheduled for summer, 1998 but bids exceeded budget. Category III Steering Committee denied request for additional $250,000. DWR is evaluating next step.

SAN JOAQUIN RIVER - BANTA-CARBONA IRRIGATION DISTRICT FISH SCREEN PROJECT (96-M20) [31]

Proponent	Banta-Carbona Irrigation District (BCID)	
Project Manager	Metropolitan Water District (MWD)	
Term		
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$100,000	$0
CVPIA	$1,916,750	$0
BCID (Local)	$0	$0

Status: This project was not implemented because the irrigation district needed full funding in order to proceed. Full funding was obtained and is shown under (97-MO7).

INNOVATIVE FISH SCREEN FOR SMALL DIVERSIONS DEMONSTRATION PROJECT (96-M23) [34]

Proponent	James Buell, Buell and Associates	
Project Manager	Metropolitan Water District (MWD)	
Term	April 1997 to June 1998	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$90,000	$52,000

Description: The project will evaluate the feasibility of application of an overflow weir horizontal profile bar screen with 0.5 mm opening to smaller diversions within the Central Valley. The evaluation will include both hydraulic and biological performance tests. Initial hydraulic tests will be conducted at Coleman Hatchery, where water and fish are available. Biological performance tests using various life stages of juvenile salmonids (fry through smolts) will be conducted at the Hatchery. After those tests, the portable prototype will be transported to a suitable existing diversion site for field-testing.

Benefits: The benefits include: (1) making available a new, practical, low-cost, low-maintenance, compact, standard design, modular fish screening technology; (2) extending screening capability to smaller life stages than presently feasible; (3) helping to form a baseline on entrainment-associated injury which can be used to evaluate "fish friendly" pumps; and (4) enabling a re-assessment of the relative importance of existing approach velocity and sweeping velocity criteria applied to a screening system with exposure times of only a fraction per a second.

Status: Project proponent completed Phase I (hydraulic testing) and Phase II (biological performance testing). Field trials have indicated that the technology has an unresolved problem leading to an unacceptably high injury rate for a critical life stage of salmonid (fry).

SACRAMENTO RIVER - COLUSA TO VERONA RIPARIAN HABITAT RESTORATION PROJECT [7]

Proponent	Wildlife Conservation Board (WCB)	
Project Manager	Metropolitan Water District (MWD)	
Term		
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$400,000	$0
WCB	$140,000	$0
Ducks Unlimited	$20,000	$0

Description: The project consists of planting native riparian vegetation on riverside levee toe, berms and riprapped waterward edges of five berms along the Sacramento River between Verona and Colusa. The berms were constructed as a protective feature for the federal flood control levees. The Reclamation Board, acting as the local non-federal sponsor for the levee project, acquired environmental easements over these berms. The berms have been maintained mostly free of woody vegetation by the local reclamation districts. The project will utilize locally available vegetation, and will require approximately three-year post-planting maintenance, consisting mainly of watering, weeding, and monitoring. Each site is a nearly level berm approximately 40 feet wide. The project will create nearly ten acres along two miles of riparian habitat where none presently occurs.

Benefits: Project cancelled due to local concerns discussed below.

Status: At the request of the local maintenance districts and the Reclamation Board, DWR staff has analyzed the flood risk at the sites and has determined that the flood risk would be minimal. The adjacent landowners and levee districts, however, have remaining concerns that threatened or endangered species occurrence in the restored habitat might create future liabilities. DWR expects the regulations under SB 231 that will be issued in June 1998 to address this issue. SB 231 authorizes the take of species listed as candidate, threatened or endangered incidental to routine, ongoing agricultural activities, while management practices developed under the bill are followed. The Wildlife Conservation Board determined project should not go forward.

LOWER BUTTE CREEK - HABITAT RESTORATION STUDY [16]

Proponent	The Nature Conservancy	
Project Manager	Metropolitan Water District (MWD)	
Term		Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$0	$0
National Fish & Wildlife Foundation (NFWF)	$91,000	
Department of Water Resources (DWR)	$130,000	

Description: The Lower Butte Creek Project is a cooperative effort centered on the lower reaches of Butte Creek and the Sutter Bypass. Duck club operators (managed wetlands), farming interests, regulatory agencies and the environmental community will develop alternatives on upgrading the irrigation systems to assist fish passage, wildlife and agricultural needs. Two local action committees comprised of landowners and irrigation system operators will drive the effort. The Butte Sink committee will cover the area beginning at the Butte Slough outfall gate continuing upstream along Butte Creek to the McPherrin Dam, and the Sutter Bypass committee will cover the area from Butte Slough downstream along the Sutter Bypass to Verona. They will develop, with the help of the agencies and consultants, a list of acceptable alternatives for facilitating fish passage while allowing sustained production of rice and other crops, and retention of existing wetland habitat values.

Benefits: Adoption of an implementation plan by all stakeholders to ensure enhanced fish passage and the availability of water to both farmers and managed wetlands operators. The plan provides water to farmers for winter flooding while providing habitat for migrating waterfowl.

Status: The Nature Conservancy obtained other sources of funding to complete this project.

COLUSA, MADERA, AND SAN JOAQUIN COUNTIES - BIOLOGICALLY INTEGRATED ORCHARD SYSTEMS (BIOS) POLLUTION CONTROL PROGRAM (95-M06) [6]

Proponent	Community Alliance with Family Farmers Foundation	
Project Manager	Metropolitan Water District (MWD)	
Term	October 1995 to June 1999	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$660,000	$660,000

Description: The BIOS project is a three-year information and technology transfer and pollution prevention program for eliminating or reducing use of diazinon and other pesticides used in almond production. Category III funding will be utilized to expand the BIOS project into Madera, San Joaquin and Colusa counties.

Benefits: Protect and improve water quality by reducing the use of pesticides that contaminant water supply.

Status: The Community Alliance with Family Farmers Foundation (CAFF) has completed three years of its BIOS expansion program into Madera, San Joaquin and Colusa counties. The Program accomplishments under the first year include:

- Enrolling 415 acres into the expansion program;
- Eliminating applications of organophosphate dormant sprays (i.e. Diazinon) on enrolled acres; and
- Disseminating BIOS information to over 750 farmers, pest control advisors, researchers, and almond industry professionals.

Changes to the program in the second year resulted in greater emphasis on monitoring of BIOS demonstration sites, data collection and processing, and the development of transition plans for each county to local leadership and support. CAFF recently published, in collaboration with the World Resources Institute, a guide entitled "Learning from the BIOS Approach: A Guide for Community Based Biological Farming Programs."

YUBA RIVER - BROWNS VALLEY IRRIGATION DISTRICT FISH SCREEN PROJECT (96-M17) [28]

Proponent	Browns Valley Irrigation District (BVID)	
Project Manager	Metropolitan Water District (MWD)	
Term	October 1998 to May 1999	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$114,750	$107,000
CVPIA	$114,750	$107,000
BVID	$76,500	$76,5000
Tracy Mitigation Fund	$40,000	$40,000

Description: The project consisted of planning, design and construction of a new fish screen at BVID's pump diversion located on the upper reaches of the Yuba River; a prime spawning and juvenile rearing area for fall run Chinook and steelhead trout. This project will reduce direct fish losses associated with the operation of the pumping station by preventing the entrainment of steelhead trout and Chinook salmon into the diversion.

Benefits: Reduce fish entrainment through the installation of a positive barrier fish screen.

Status: Project is complete. Fish screen was successfully placed in operation.

DELTA – PROSPECT ISLAND MONITORING PLAN DEVELOPMENT (96-M26) [37]

Proponent	Department of Water Resources (DWR)	
Project Manager	Metropolitan Water District (MWD)	
Term	December 1997 to June 1998	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$35,000	$35,000

Description: The project consists of developing a monitoring plan to evaluate the biological, chemical, and physical effects of the restoration of Prospect Island. The major features of the Prospect Island Restoration Project include 1,300 acres of shallow water, tidal wetlands, and aquatic habitat. The existing levees will be breached in two locations to restore full tidal action. The restoration project will provide spawning and rearing habitat for delta smelt, Sacramento splittail, rearing habitat for winter run Chinook salmon and other anadromous fish, habitat for waterfowl and shorebirds and high quality riparian, shaded riverine aquatic, wetland mudflat, freshwater tidal marsh, upland and open water habitat for a wide variety of aquatic and terrestrial species in the delta. The primary components addressed in the monitoring plan include fisheries, wildlife, vegetation, phytoplankton, zooplankton, benthic community, water quality and bathymetry.

Benefits: A monitoring plan for restoration of shallow water habitat and wetland.

Status: Project is complete. The monitoring plan was the basis for CALFED approving $1,000,000 for Prospect Island monitoring.

DECKER ISLAND - TIDAL WETLAND RESTORATION PROJECT [22]

Proponent	Port of Sacramento	
Project Manager	Metropolitan Water District (MWD)	
Term	October 1997 to October 1998	Terminated
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$399,000	$76,000

Description: The Port of Sacramento will plan, design and construct ecosystem enhancements for a pilot project to establish approximately 40 acres of tidal wetland on Decker Island. In addition, the Port will conduct vegetation management activities on the remaining portion of Port-owned property on Decker Island to provide ecosystem benefits.

The Port will remove or modify tidal gates and remove sections of levee at south end of island to restore natural tidal regime, excavate 3,000 to 4,000 linear feet of graduated shallow water channels to restore tidal shallow water habitat, construct several mounds (islands) from excavated material to enhance microtopography of tidal wetland zone and riparian and aquatic habitat diversity, and enhance existing tule habitat, upland habitat, and riparian vegetation along the margins of the island. The Port will also promote aquatic/riparian/upland habitat conversion from grazing lands to natural ecosystem regeneration through prescribed burns and plantings.

The Port will also prepare and conduct a monitoring program to document the pre and post restoration condition of the project site and adjacent island tule habitat. During the first two years after completion of construction, monitoring will be intensive to evaluate the initial success of the habitat restoration measures. To assess long-term success, less intensive monitoring will be conducted for three to five additional years.

Status: In approving the funding for this Project, the Category III Steering Committee required a long-term or permanent arrangement with the Port for the Project. In response, the Port agreed to grant a conservation easement to the Department of Fish and Game over the Project's property in perpetuity. The Port, as part of environmental compliance, sought approval of use of project as a mitigation bank. This was denied and project was terminated.

SUISUN MARSH - FISH SCREENING PROGRAM (PHASE 1) (95-M07) [8]

Proponent	Suisun Resource Conservation District	
Project Manager	Metropolitan Water District (MWD)	
Term	April 96 to November 1996	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$450,000	$450,000
CVPIA	$450,000	$450,000

Description: The project consists of design and installation of five fish screens on intake gates along Montezuma Slough, reducing mortality of downstream migrant salmonid, Delta smelt and splittail in the Suisun Marsh. Screening allows for diversion in the late winter and spring that required proper management of seasonal wetlands in the Marsh. In addition, the screen ensures the habitat is maintained for diverse assemblage of wildlife that includes listed species such as the salt marsh harvest mouse.

Benefits: Reduce mortality rate of Delta smelt and splittail and the number of salmon stranded in the marsh. Prove that this type of innovative screen design is both functional and effective.

Status: SRCD has completed installing all five fish screens, intakes and electric equipment by December 1996. The project is operational and was completed within budget and on schedule.

SUISUN MARSH - FISH SCREENING PROGRAM (PHASE 2) (96-M08) [18]

Proponent	Suisun Resource Conservation District	
Project Manager	Metropolitan Water District (MWD)	
Term		
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$500,000	$0
CVPIA	$500,000	$0

Description: The project continues implementation of a wetland diversion-screening program in the Suisun Marsh. Implementation of this program will reduce impacts to anadromous and special status fish by screening unscreened diversions. With screens, continued management of seasonal wetlands will be possible.

Benefits: Reduce mortality rate of Delta smelt and splittail and the number of salmon stranded in the marsh. Prove that this type of innovative screen design is both functional and effective.

Status: Negotiations stayed pending United States Fish and Wildlife Service (USFWS) decision on project priorities.

NORTH DELTA - INVENTORY OF REARING HABITAT FOR JUVENILE SALMON (96-M27) [38]

Proponent	California State University, Sacramento	
Project Manager	Metropolitan Water District (MWD)	
Term	August 1997 to August 1999	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$24,500	$19,000

Description: The project will survey existing and restored rearing habitat for juvenile salmon in the north delta area, and document their condition and seasonal presence and growth. In addition, fish scales will be analyzed to evaluate the potential to distinguish races of juvenile salmon in the delta. Existing and restored habitat will be evaluated by comparing temperature, growth and condition factors of the juvenile fish.

Benefits: Provide information on fisheries in the Delta to distinguish races of juvenile salmon, and to assess the effects of other factors such as water temperature on fisheries.

Status: The Project Manager, Amy Harris, has obtained agreement from the California State University, Sacramento, to step into the role as proponent for Ms. Harris's project, fulfilling the direction set by the Category III Steering Committee for an institutional arrangement for this project. The MOU to allow sampling for endangered species has been completed between the Department of Fish and Game and Ms. Harris. Ms. Harris has obtained required permits from state and federal agencies. She has identified the primary sampling sites and conducted preliminary field sampling. Sampling in spring was delayed due to high water conditions in the Delta. The project was completed in August 1999.

BAY/DELTA - APPLIED RESEARCH TO ADDRESS THE INTRODUCTION OF NONINDIGENOUS AQUATIC SPECIES (96-M15) [26]

Proponent	San Francisco Estuary Institute (SFEI)	
Project Manager	Metropolitan Water District (MWD)	
Term	August 1997 December 1999	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$197,000	$187,000

Description: The project consists of five elements addressing exotic species issues: (1) development of a regional monitoring program for invasions to provide early warning for eradication effort or mitigating impacts, and for research; (2) priority assessment for control of non-indigenous marsh plants to provide information on the current status of plant invasions and on effects on marsh restoration efforts; (3) potential range and abundance of zebra mussels to assess threat to operation of water diversions and fish screens; (4) status and management of ballast water invasions to provide information for public education and outreach on key invasion route and its management; and (5) examination of post invasion control mechanisms.

Benefits: Provide management techniques to control invasions through ballast waters and post invasion control mechanisms. In addition, the project will provide information for public education and outreach activities.

Status: SFEI completed excellent reports addressing the issues described above, and made presentations at conferences. The above reports were given wide distribution. This project is complete.

CENTRAL VALLEY - APPLIED RESEARCH TO DETERMINE EFFECTS OF TOXICS ON CHINOOK SALMON (96-M18) [29]

Proponent	Fox Environmental Management	
Project Manager	Metropolitan Water District (MWD)	
Term	March 1997 to November 1998	Terminated
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$110,000	$15,000

Description: The purpose of this project is to evaluate and synthesize existing data to determine whether toxics are currently affecting the survival and abundance of Chinook salmon in surface water of the Central Valley.

Benefits: Only first phase of project was completed. Work was done consistent with the contract requirements.

Status: The Category III Steering Committee required the proponent to coordinate her work with a multi-stakeholder advisory group to ensure the work products are 'neutral' in emphasis. David Bernard, the Steering Committee facilitator coordinated with the advisory group and the proponent. No agreement was reached regarding scope of work. Project was not extended beyond first phase.

WINTER-RUN CHINOOK SALMON CAPTIVE BROOKSTOCK PROGRAM (95-M08) [9]

Proponent	U. C. Davis, Bodega Marine Laboratory.	
Project Manager	Metropolitan Water District (MWD)	
Term	December 1996 to June 2000	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$300,000	$284,000
Bureau of Land Reclamation	$125,000	
Department of Water Resources (DWR)	$125,000	

Description: This project will fund the O&M costs for the fifth year of this program. The project will benefit the federally endangered winter-run Chinook salmon by rearing winter-run Chinook salmon under controlled conditions until the salmon became reproductive. These mature adults would then be used as hatchery broodstock for continued propagation of the race.

Benefits: Rearing of endangered winter-run Chinook salmon up to a reproductive age under controlled conditions.

Status: Work under this Category III program is completed.

SACRAMENTO RIVER - GRAVEL RESTORATION PROJECT BELOW KESWICK DAM (95-M04) [4]

Proponent	Department of Fish and Game (DFG)	
Project Manager	Metropolitan Water District (MWD)	
Term		
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$0	$0
DFG	$13,100	$13,100
CVPIA	$39,400	$39,400

Description: This project consisted of placing 7,000 tons of gravel owned by Department of Fish and Game into the Sacramento River below Keswick Dam to improve Chinook salmon spawning. The spawning and rearing habitat on the Sacramento River between Keswick Dam and Cottonwood Creek has been extremely degraded over the past 45 years, due to the blockage of stream gravel migration by Shasta and Keswick dams, gravel mining, bank protection and levee construction. High flows since the dam construction have left the upper 30 miles below Keswick Dam either deficient in spawning gravel or armored with six to 10-inch rocks that are too large for successful spawning.

Benefits: Restoration and enhancement of existing spawning habitat.

Status: Project was completed by the Department of Fish and Game with no expenditures of Category III funds.

SACRAMENTO RIVER - RECLAMATION DISTRICT NO. 108 FISH SCREEN ON SACRAMENTO RIVER - WILKINS SLOUGH FISH SCREEN FEASIBILITY STUDY
(96-M19) [30]

Proponent	Reclamation District (RD No. 108)	
Project Manager	Metropolitan Water District (MWD)	
Term		Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$100,000	$100,000
CVPIA	$100,000	$101,000
RD No. 108	$16,300	$16,300

Description: Reclamation District No. 108 will investigate the feasibility of installing a positive barrier fish screen at its existing Wilkins Slough Diversion along the Sacramento River. This diversion, approximately 20 miles north of Knights Landing, pumps up to 700 cfs, and serves 30,000 acres of irrigated farmlands. The Department of Fish and Game, U. S Fish and Wildlife Service and the National Marine Fisheries Service have identified this diversion as a high priority facility for fish protection.

Benefits: Reduce entrainment of juvenile fish while providing irrigation water for 48,000 acres of crops.

Status: RD 108 has completed the feasibility study. RD 108 was awarded a Category III grant of $2,500,000 in 1997 for the construction of the fish screen. Dedication of completed $14 million fish screen project took place April 14, 2000.

BATTLE CREEK - INTERIM FLOW RESTORATION PROGRAM (95-M01) [1]

Proponent	Department of Fish and Game	
Project Manager	Metropolitan Water District (MWD)	
Term	Spring 1995	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$0	$0
CVPIA	$500,000	

Description: Historically, Battle Creek produced large populations of salmon, including spring-fun and some number of winter-run Chinook and steelhead. Currently, upper Battle Creek is incapable of sustaining the production of Chinook salmon and steelhead primarily as a result incapable of the cumulative removal of over 95 percent of the base streamflow by Pacific Gas and Electric's (PG&E) complex network of unscreened canals operated for hydroelectric power production. A total of $500,000 of Category III funds was earmarked as a commitment to future negotiations.

Benefits: Increases in streamflow benefiting fish.

Status: Up to $500,000 of Category III funds were set aside to indicate the Category III Steering Committee's commitment to work with PG&E and Department of Fish and Game to develop a restoration plan for anadromous fish populations in Battle Creek. This commitment partially resulted in PG&E foregoing power production at a facility in the Battle Creek watershed in 1995, thereby leaving sufficient runoff in a segment of Battle Creek that provides salmonid habitat. U.S. Fish and Wildlife Service has agreed to compensate PG&E for its actions. No Category III funds were used to achieve these fishery improvements.

The Category III Steering Committee reallocated the funds from this project to the Battle Creek Chinook Salmon and Steelhead Restoration Study ($230,000) and to establish the Battle Creek Watershed Group ($50,000). The remainder was released back to the Category III treasury.

BIG CHICO CREEK - M&T/PARROTT PUMPING STATION RELOCATION AND FISH SCREEN PROJECT (95-M05) [5]

Proponent	Ducks Unlimited, Inc.	
Project Manager	Metropolitan Water District (MWD)	
Term	December 22, 1995 to December 31, 1997	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$1,610,000	$1,610,000
CVPIA	$2,254,000	$2,254,000
Wildlife Conservation Board	$500,000	$500,000
Ducks Unlimited	$500,000	$500,000
US Fish & Wildlife Service	$150,000	$150,000
Landowners	$20,000	$20,000

Description: The project consists of a new pumping station with positive barrier fish screens. This project will help restore salmon and steelhead populations in Big Chico Creek by relocating the M&T Ranch Pumping Station from Big Chico Creek to the Sacramento River. Operations of the unscreened M&T pumps created streamflow reversals that have caused a 100% loss of downstream migrants during the critical downstream migration period for spring-run Chinook salmon. Further, migrating adult spring-run Chinook salmon in the Sacramento River had difficulty locating the mouth of the Big Chico Creek during flow reversals.

Benefits: This facility eliminated fish entrainment and mortality resulting from operation of the existing pumping plant on Big Chico Creek and improved stream flow conditions in Butte Creek for spring run Chinook salmon.

Status: A dedication ceremony was held in May 1997 to recognize the completion of this 150 cfs pumping plant and fish screen project. A water right of 40 cfs is dedicated to Butte Creek, providing up to 20 times the low flow of historical periods.

BUTTE CREEK - PARROTT/PHELAN FISH LADDER PROJECT (95-M03) [3]

Proponent	Wildlife Conservation Board (WCB)	
Project Manager	Metropolitan Water District (MWD)	
Term		
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$0	$0
CVPIA	$100,000	$400,000
WCB	$100,000	$400,000

Description: This project consists of constructing a new pool-chute fish ladder on Parrott-Phelan Dam. Parrott-Phelan Dam has presented varying degrees of blockage to migrating salmon and steelhead since it was constructed. Several configurations of fish ladders have been installed over the years to provide fish passage. The previous fish ladder limited fish passage opportunities to a small range of flows, provided minimal to no attraction at its entrance, and was frequently blocked due to debris accumulation. The marginally passable conditions of the dam had the potential to delay or injure migrating salmon and steelhead. Particularly affected were spring-run Chinook salmon which, because of their unique life cycle, needed to rapidly move through the valley reaches of Butte Creek into the summer holding pools located above the Parrott-Phelan Dam. Delay or injury often resulted in adult mortality prior to spawning during August through October.

Benefits: This ladder is providing excellent fish passage at a wide range of flows, with strong attraction flow characteristics and minimal maintenance.

Status: The fish ladder was completed with no expenditures of Category III funds. The above mentioned Category III funding was approved as a contingency for the project if CVPIA funding was not made available.

COSUMNES RIVER - THE NATURE CONSERVANCY COSUMNES PRESERVE (VALENSIN RANCH ACQUISITION) (95-M06) [15]

Proponent	The Nature Conservancy.	
Project Manager	Metropolitan Water District (MWD)	
Term	August 1996 to December 1996	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$1,500,000	$1,500,000
CVPIA	$1,250,000	$1,250,000
Wildlife Conservation Board	$2,650,000	$2,650,000
USBR	$100,000	$100,000
National Fish & Wildlife Foundation	$150,000	$150,000
The Nature Conservancy	$2,000,000	$2,000,000
American Farmland Trust	$250,000	$250,000
TNC Mitigation Funds	$200,000	$200,000
North American Wetlands Conservation Act	$1,000,000	$1,000,000
California Transportation Commission	$2,000,000	$2,000,000
Proposition 117 (Park Bond Act)	$400,000	$400,000
Caltrans	$250,000	$250,000
Natural Resources Conservation Service	$250,000	$250,000

Description: The Cosumnes River Project is a multi-agency effort to restore and protect the integrity of the Cosumnes River ecosystem. The Valensin Ranch is a 4,356-acre property located along the south bank of the Cosumnes River 20 miles south of Sacramento and about four miles upstream (northeast) of the existing Cosumnes River Preserve. Acquisition of the property greatly expanded and complemented the habitat restoration potential within the Cosumnes River Project.

Benefits: Biological resources at this property include vernal pool, freshwater wetland, riparian forest, annual grassland, valley oak woodland, and cropland habitats. The ranch includes permanent wetland habitat for thousands of migratory waterfowl and shore birds, and the largest heron rookery in Sacramento County. A short reach of the Cosumnes River, and three branches of Badger Creek, a tributary, bisect the ranch, supporting extensive seasonal wetlands; the Cosumnes River has a fall run of Chinook salmon, and Badger Creek may provide splittail-spawning habitat.

Status: Escrow for the Valensin Ranch acquisition closed on December 6, 1996.

SACRAMENTO RIVER AND MAJOR TRIBUTARIES - CORRIDOR MAPPING PROJECT (96-M16) [27]

Proponent	California State University, Chico	
Project Manager	Metropolitan Water District (MWD)	
Term	January 1, 1997 to December 1999	Complete
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$145,200	$61,000

Description: This project will result in the Sacramento River riparian mapping of the Sacramento Valley portions for Colusa, Sutter, Yuba, Yolo, and northern Sacramento counties and major Sacramento River tributaries in Glenn County. In addition, Battle Creek will be mapped along the Shasta/Tehama county line. This project will supplement the mapping that has been completed for Shasta, Tehama, Butte and eastern Glenn counties under the Upper Sacramento River Stream Corridor Protection Program. Mapping will be done using color infrared airphotos on base maps at the scale of 1'=400'. Maps will be digitized into geographic information system (GIS) using ArcInfo GIS software. Deliverables include base maps with riparian overlays and ArcInfo digital files with map and database information.

Benefits: Provide detailed mapping of existing riparian habitat and other vegetation profiles along the Sacramento River and its tributaries. The data will be stored in a GIS database to allow for analysis/interpretation and provide a basis for planning efforts.

Status: Aerial photos of the Sacramento River and the other project tributaries are being translated into *orthophotos* for computer interpretation and digitizing. All orthophotos are nearly completed. Computer interpretation of the orthophotos has begun. When the digitizing is completed, ground-truthing (verification) of the digital information will be used to make any needed changes.

BUTTE CREEK - WATERSHED MANAGEMENT STRATEGY (96-M24) [35]

Proponent	California State University, Chico	
Project Manager	Metropolitan Water District (MWD)	
Term	September 1998 to September 2000	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$83,000	$58,000
National Fisheries Wildlife Foundation (NFWF)	$83,000	$70,000

Description: This study will collect information and data regarding the existing conditions of the Butte Creek watershed, including physiology, hydrology, water quality, aquatic biology, terrestrial biology, ecology, land use and current issues and problems. Watershed mapping will be prepared using GIS mapping. Scoping meetings will be conducted with public agency representatives, stakeholders and other interested parties. The results of this work will be consolidated into a comprehensive Watershed Management Plan to protect, restore and enhance water quality and critical habitat for anadromous fish. Using that information, CSU Chico will develop watershed educational programs for schools.

Benefits: Provide information on existing natural, cultural, economic and physical conditions within the watershed. Provide a "baseline" of information for projects to protect and enhance water quality, habitat and other resources.

Status: The draft Existing Conditions Report (ECR) and GIS mapping are nearly completed. Four of six scoping meetings and five Teacher Workshops have been held. While work still remains for the Watershed Management Strategy, the overall project is estimated to be 60% completed.

DELTA - APPLIED RESEARCH TO PREDICT EVOLUTION OF ECOLOGICAL FUNCTIONS OF RESTORED DIKED WETLANDS (96-M10) [20]

Proponent	University of Washington	
Project Manager	Metropolitan Water District (MWD)	
Term	September 1998 to September 2000	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$575,172	$283,000

Description: The Project will determine the potential of wetland restoration in the Delta to support critical fish and other aquatic resources habitat and ecological functions by assessing the recovery period and the long-term prognosis of restoring function to former wetlands that have been historically diked. Results of this project will provide critical information necessary to predict whether breached-dike restoration strategies that may be proposed under CALFED will provide the expected wetland functions of providing rearing habitat for spring-run Chinook salmon, other fishes and aquatic and terrestrial resources and the patterns and rates of restoration through which breached dikes will progress. The objectives of the project are to: (1) assess hydrological, geomorphological, biogeochemical and ecological indicators at differently-aged sites of formerly diked wetlands that have historically reverted to tidal inundation; (2) compare indices of spring-run Chinook salmon and other faunal habitat quality of these naturally breached-dike and artificially restored sites to adjacent reference sites; and (3) using the same indicators, compare the status of these restored wetlands to wetland function at natural marsh sites.

Benefits: Assess potential for environmental gains for future similar projects.

Status: The Project Manager, Charles Simenstad, has negotiated subcontracts for the project with the Louisiana Marine Universities Consortium and Phil Williams and Associates. He is negotiating a subcontract with the California's Interagency Ecological Program (IEP). The work on this two-year study began in 1998. A California-based fisheries team was required by the Category III Steering Committee to implement the fisheries component of this project. This role is being fulfilled by IEP.

SACRAMENTO RIVER - PRINCETON PUMPING PLANT FISH SCREEN (PHASE 1 FEASIBILITY) RD 1004 (96-M04) [13]

Proponent	Reclamation District No. 1004	
Project Manager	Metropolitan Water District (MWD)	
Term	September 1996 to June 1997	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$75,000	$75,000
CVPIA	$150,000	$150,000
Department of Fish and Game (DFG)	$100,000	$100,000

Description: Phase 1 of this project is a feasibility study including environmental documentation to compare different physical barrier designs for a positive barrier fish screen for the Princeton Pumping Plant located on the Sacramento River at River Mile 164.4. The Plant lifts water from the Sacramento River into Drumheller Slough, which is the primary source of irrigation water for the District. Normal operation of the Plant is about 120 to 180 cfs, and peak capacity is about 290 cfs. Operation of this Plant during certain times of the year causes entrainment and loss of juvenile winter-run Chinook salmon. RD 1004 is required to construct a positive barrier fish screen at the Plant by January 1, 1998 to comply with a mandate from the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and the California Department of Fish and Game.

Benefits: Reduce entrainment of juvenile fish while providing irrigation water for 20,000 acres of crops.

Status: RD 1004 has completed the feasibility study. The new pumping plant and positive barrier fish screen will be located one-half mile downstream of the existing plant. RD 1004 was awarded a Category III grant of $1,750,000 in 1997 for the construction of the new pumping plant and fish screen.

ADAMS DAM FISH SCREEN AND FISH LADDER FEASIBILITY STUDY (96-M21) [32]

Proponent	Rancho Esquon Partners	
Project Manager	Metropolitan Water District (MWD)	
Term	January 1998 to June 1998	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$70,304	$70,304
Others	$50,000	$50,000

Description: Phase 1 of this project is a feasibility study including environmental documentation for a new fish screen and fish ladder at the Adams Dam on Butte Creek. This project will improve fish passage on Butte Creek and has been identified as a high priority project in U.S. Fish and Wildlife Service's and Department of Fish and Game's restoration plans for anadromous fish. The goal of the proposed project is to improve survival of spring-run and fall-run Chinook salmon and steelhead, facilitating recovery of these dwindling populations.

Benefits: Ease fish passage and reduce entrapment of juvenile fish.

Status: After this project was completed, the Category III Program, CVPIA, and Ducks Unlimited provided funding for construction that began in June 1998.

GORRILL DAM FISH SCREEN AND FISH LADDER FEASIBILITY STUDY (96-M22) [33]

Proponent	Gorrill Land Company	
Project Manager	Metropolitan Water District (MWD)	
Term	January 1998 to June 1998	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$67,990	$67,990
Others	$56,500	$56,500

Description: Phase 1 of this project is a feasibility study including environmental documentation for a new fish screen and fish ladder at the Gorrill diversion dam on Butte Creek. This project would improve fish passage on Butte Creek and has been identified as a high priority project in U.S. Fish and Wildlife Service's and Department of Fish and Game's restoration plans for anadromous fish. The goal of the proposed project is to improve survival of spring-run and fall run Chinook salmon and steelhead, facilitating recovery of these dwindling populations.

Benefits: Ease fish passage and reduce entrapment of juvenile fish.

Status: After this project was completed, the Category III Program, CVPIA, and Ducks Unlimited provided funding for construction that began in June 1998.

SACRAMENTO RIVER - PRINCETON-CODORA-GLENN/PROVIDENT IRRIGATION DISTRICT FISH SCREEN FEASIBILITY STUDY (96-M05) [14]

Proponent	Princeton-Codora-Glenn Irrigation District and Provident Irrigation District	
Project Manager	Metropolitan Water District (MWD)	
Term	September 1996 to June 1997	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$75,000	$75,000
CVPIA	$75,000	$75,000

Description: Phase 1 of this project is a feasibility study including environmental documentation to consolidate three existing pumped diversions on the Sacramento River belonging to the Princeton-Codora-Glenn Irrigation District and Provident Irrigation District. The three existing diversions were targeted by the Department of Fish and Game in its Fish Screen Action Report. The consolidated diversion will be equipped with fish screens, which will benefit the fall, spring, and winter-run Chinook salmon and provide increased wetlands for waterfowl. The existing in-river facilities will be demolished to restore the unobstructed view of the river from State Highway 45. The three existing diversions have the nominal capacities of 200 cfs, 120 cfs and 260 cfs. The new facility will have a nominal capacity of 600 cfs plus backup capacity.

Benefits: Reduce entrainment of juvenile fish while providing irrigation water for 30,000 acres of crops including, 12,000 acres of winter waterfowl habitat.

Status: This feasibility study is complete. Category III Steering Committee approved funding in the amount of 5,500,000 for the design and construction of the proposed pumping plant.

SACRAMENTO RIVER – APPLIED RESEARCH TO IDENTIFY CHINOOK SALMON RUN VIA GENETICS (96-M11) [21]

Proponent	Pacific Coast Federation of Fishermen's Association	
Project Manager	Metropolitan Water District (MWD)	
Term	Summer 2000	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$450,000	$0
Department of Water Resources (DWR)	$600,000	$0

Description: This research project will refine, improve and apply molecular markers that were developed in the winter-run Chinook salmon project with a focus on spring run. A detailed understanding of the genetic integrity and relatedness of stocks is important for the planning of effective restoration measures.

Benefits: Genetic identification of Chinook salmon to run at particular localities in the river, or possibly in the ocean, will enable modification of water diversions and/or fishing strategies in order to protect particular runs.

Status: Funding in the amount of $450,000 was approved from CUWA for work, similar to the earlier winter-run salmon study, for spring-run salmon. Project is underway.

SACRAMENTO RIVER - PRINCETON-CODORA-GLENN/PROVIDENT IRRIGATION DISTRICT FISH SCREEN (PHASE 2 - INSTALLATION) (97-C01) [17]

Proponent	Princeton-Codora-Glenn/Provident Irrigation District	
Project Manager	Metropolitan Water District (MWD)	
Term	April 1997 to December 2000	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$5,500,000	$4,411,784
CVPIA	$5,281,200	$4,911,967
PCGID/PID	$500,000	$473,319
Proposition 70	$100,000	$64,923

Description: Phase 2 of this project is the design and construction of a new pumping station with positive barrier fish screens to consolidate three existing pumped diversions on the Sacramento River belonging to the Princeton-Codora-Glenn Irrigation District and Provident Irrigation District. Phase 1 of this project was a feasibility study including environmental documentation. The Department of Fish and Game in its Fish Screen Action Report targeted the three existing diversions. This consolidated diversion will be equipped with fish screens, which will benefit the fall, spring, and winter-run Chinook salmon and provide increased wetlands for waterfowl. The existing in-river facilities will be demolished to restore the unobstructed view of the river from State Highway 45. The three existing diversions have the nominal capacities of 200 cfs, 120 cfs and 260 cfs. The new facility will have a nominal capacity of 600 cfs plus backup capacity.

Benefits: Reduce entrainment of juvenile fish while providing irrigation water for 20,000 acres of crops, including 12,000 acres of winter waterfowl habitat.

Status: This project is under construction, with pump station foundation, and the inlet pipeline completed. The project is scheduled to be completed by the end of 2000.

BUTTE CREEK - DURHAM MUTUAL DAM FISH SCREEN AND LADDER PROJECT
(95-M02) [2]

Proponent	Durham Mutual Water Company	
Project Manager	Metropolitan Water District (MWD)	
Term	May 1997 to June 1999	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$316,500	$316,500
CVPIA	$464,720	$464,720
Durham MWC	$38,810	$38,810
Others	$88,220	$88,220

Description: This project will improve the upstream and downstream passage of adult and juvenile spring-run Chinook salmon and steelhead by constructing a fish ladder and fish screen at Durham Dam on Butte Creek. Butte Creek is a critical spawning stream for the spring-run Chinook salmon and has a high potential for restoration.

Benefits: Ease fish passage and reduce entrainment of juvenile fish.

Status: Construction was completed in June 1999. Durham MWC has installed diversion piping, modified the diversion canal for the new fish screen, and excavated and graded the area for the new fish ladder. The project is complete and operational.

BUTTE CREEK - WESTERN CANAL WATER DISTRICT SIPHON AND ASSOCIATED IMPROVEMENTS (96-M01) [10]

Proponent	Western Canal Water District	
Project Manager	Metropolitan Water District (MWD)	
Term	August 1996 to March 1999	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$3,095,873	$2,986,067
CVPIA	$3,095,873	$2,919,415
Tracy Mitigation Fund	$170,000	$170,000
Western Canal WD	$3,095,873	$2,986,066

Description: This project will return a segment of Butte Creek to natural conditions by removing four unscreened diversion dams and replacing them with a siphon and associated delivery improvements. This will provide unrestricted upstream passage for returning adult spawners and eliminate losses of out-migrating juvenile salmon caused by the unscreened diversions.

Benefits: Eliminate impediments to fish passage and reduce entrapment of juvenile fish.

Status: Construction of the siphon under Butte Creek was completed in March 1999. The delivery improvements are now complete. Four dams have been removed. Secretary of the Interior Bruce Babbitt dedicated the facility at a ceremony held in August 1999. The project was completed under budget by $329,419 with $109,806 remaining in the CUWA funding account.

SACRAMENTO RIVER - WILSON RANCH FISH SCREEN AND FISH LADDER
(97 -MO1)

Proponent	Deseret Farms of California	
Project Manager	Metropolitan Water District (MWD)	
Term		
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$200,000	$0

Description: The purpose of this project is to install a new fish screen, replacing the seasonal fish screen on the Wilson Ranch pumping station in order to reduce entrainment of fish and provide operation flexibility. The project is located at the end of the Wilson Slough oxbow near river mile 203 of the Sacramento River in Butte County, California. Deseret Farms of California, the owner, will install a brushed cone fish screen near the existing flat plate screen, which will be abandoned with diversions occurring through the new cone screen. A pipe will be installed from the cone screen through a stone fill dam to reduce entrainment of fish in the oxbow during times of diversion. The stone fill dam will be constructed across the narrowest point of the oxbow to minimize impacts to existing vegetation and habitat and will remain in place throughout the year and be reconstructed before each irrigation season, if necessary. Screen material would consist of perforated stainless steel covering 5/32 inch round opening on 1/4 inch staggered centers. This specification meets or exceeds the screen material criteria for fingerling salmonids. Similar cone screens with solar power brush systems have been installed on five diversions in the Suisun Marsh and have been effective to date. The final screen design and specifications will be developed in consultation with staff from Department of Fish & Game and National Marine Fisheries Service (NMFS).

Benefits: Reduce entrainment of fish and provide operation flexibility. Operation flexibility will be achieved by using the stone fill dam and mounting the screens on timber piles. The Wilson Ranch pumping plant has a maximum capacity of 29 cfs. It is proposed to use a 12-foot diameter cone screen by Intake Screens, Inc. to satisfy the approach velocity criteria of 0.33 fps for Chinook salmon.

Status: Draft contract sent to Deseret Farms of California. Winter storms destroyed project site. Proponent, Deseret Farms of California, is evaluating another site.

SACRAMENTO VALLEY – UPPER BATTLE CREEK FISH SCREEN AND FISH PASSAGE (97-MO2)

Proponent	Department of Water Resources (DWR)	
Project Manager	Metropolitan Water District (MWD)	
Term	July 1998 to June 2000	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$395,000	$26,000
CVPIA	$395,000	$30,000

Description: This project is a planning and engineering investigation of fish passage for selected sites on North and South Fork Battle Creek. Restoring passage for adult and juvenile salmonids on Battle Creek will provide 32 miles of habitat for spawning and rearing. This will benefit spring-run and winter-run Chinook Salmon, and Steelhead Trout. It is estimated that the available spawning habitat opened up by restoring passage will accommodate 2,500 Chinook salmon and 5,700 steelhead (DFG 1994).

DWR will investigate fish ladders for adult salmon and steelhead upstream passage and fish screen facilities for downstream juvenile passage. DWR will work cooperatively with DFG, FWS, local property owners, and PG&E, to provide reconnaissance and preliminary designs for various fish ladder and fish screen locations, which will provide reliable passage and operation. DWR will coordinate its work with the comprehensive technical planning process carried out by Kier and Associates. DWR will provide construction cost data, feasibility information, and basic water temperature and streamflow data.

Benefits: Due to success negotiations, based on technical information from two Category III projects, CALFED approved full funding for the Battle Creek Restoration Project. The scope of the subject project was then changed to redirect DWR work to final design of three fish screens and fish ladders.

Status: DWR is designing facilities in coordination with the U.S. Bureau of Reclamation, the project manager of the Battle Creek Restoration Project

BUTTE CREEK - GORRILL DAM FISH SCREEN AND FISH LADDER CONSTRUCTION (97-M03)

Proponent	Gorrill Land Company	
Project Manager	Metropolitan Water District (MWD)	
Term	June 1998 to September 1999	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$369,641	$369,641
CVPIA	$755,948	$755,948
Others	$268,318	$268,318

Description: The project will complete construction of a new fish screen and fish ladder at the Gorrill diversion dam on Butte Creek. This project would improve fish passage on Butte Creek and has been identified as a high priority project in U.S. Fish and Wildlife Service's and Department of Fish and Game's restoration plans for anadromous fish. The goal of the proposed project is to improve survival of spring run Chinook, fall run Chinook salmon and steelhead, facilitating recovery of these dwindling populations.

Benefits: Ease fish passage and reduce entrapment of juvenile fish.

Status: The Category III Program, CVPIA, and Ducks Unlimited provided funding for construction that began in June 1998. The project is complete and operational.

BUTTE CREEK – ADAMS DAM FISH SCREEN AND FISH LADDER CONSTRUCTION (97-M04)

Proponent	Rancho Esquon Partners	
Project Manager	Metropolitan Water District (MWD)	
Term	June 1998 to June 1999	Completed
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$216,892	$216,892
CVPIA	$508,192	$655,306
Others	$171,000	$171,000

Description: The project will complete construction of a new fish screen and fish ladder at the Adams Dam on Butte Creek. This project would improve fish passage on Butte Creek and has been identified as a high priority project in U.S. Fish and Wildlife Service's and Department of Fish and Game's restoration plans for anadromous fish. The goal of the proposed project is to improve survival of spring run Chinook, fall run Chinook salmon and steelhead, facilitating recovery of these dwindling populations.

Benefits: Ease fish passage and reduce entrapment of juvenile fish.

Status: The Category III Program, CVPIA, and Ducks Unlimited provided funding for construction that began in June 1998. The project is complete and operational.

NORTH SACRAMENTO VALLEY - SAELTZER DAM FISH SCREEN AND FISH LADDER (97-MO5)

Proponent	Townsend Flat Water Ditch Company	
Project Manager	Metropolitan Water District (MWD)	
Term	1997-2001	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$138,200	$0
CVPIA	$250,000	$100,000

Description: Providing fish passage at Saeltzer Dam on Clear Creek has been consistently identified as a key element of restoring anadromous fisheries resources in Clear Creek and the upper Sacramento River in all the anadromous fish restoration plans and legislation (CVPIA) prepared by state and federal agencies over the past decade. Removal and replacement of the existing dam with a side channel diversion located upstream will provide biological performance significantly greater than any option which considers providing passage at the existing dam.

The Design for Saeltzer Dam Removal and Fish Passage Project (Project) consists of engineering design for removing Saeltzer Dam, a significant barrier to fish migration; design of a new Clear Creek side-channel diversion structure and related works Facilities to be designed include improved access roads, removal of the existing Saeltzer Dam and sediment plug upstream of the dam, construction of a new, side-channel diversion facility approximately 4800-feet upstream of the existing dam, installation of approximately 4000-feet of new 42-inch concrete diversion pipe with associated headworks, fish screens and bypass channel, modification to the rock gorge immediately downstream of the existing dam and miscellaneous facilities related to all of the above. The project will be designed for a maximum diversion of 55-CFS.

Benefits: Improve fish passage while maintaining existing agricultural water diversions.

Status: USBR is undertaking environmental and permitting tasks; so CUWA's funding for this project has been reduced by $100,000. Project on hold until negotiations between Townsend Flat Water Ditch Company and USBR regarding water rights are concluded. At this time an MOU is being negotiated which could result in the removal of Saeltzer dam from Clear Creek.

DELTA - HASTINGS TRACT SCREEN FEASIBILITY STUDY (97-MO6)

Proponent	Hastings Island Land Company	
Project Manager	Metropolitan Water District (MWD)	
Term		
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$27,000	$0

Description: Feasibility Study for installation of new (replacement) diversion and fish screen.

Benefits: Study could lead to construction of fish screen on unscreened diversion.

Status: Draft contract has been approved by Metropolitan and HastingsTract.

SAN JOAQUIN RIVER - BANTA-CARBONA FISH SCREEN (97-M07)

Proponent	Banta-Carbona Irrigation District (BCID)	
Project Manager	Metropolitan Water District (MWD)	
Term	June, 1995 to December, 2001	
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$938,875	$41,000
CVPIA	$2,666,750	$116,000
BCID (Local)	$442,575	$19,300
Calif. Dept of Fish and Game, Prop.204	$1,500,000	$65,400
CDFG Prop. 70	$55,800	$30,800

Description: The project is for the design of a vertical vee-screen at the entrance to the District's 250 cfs intake channel at its confluence with the lower San Joaquin River. The project will benefit the anadromous fishery, primarily the remnant spring run Chinook salmon, but will also protect other anadromous and fresh water species, delta smelt and splittail, endemic to the delta. A fish screen on the intake channel will protect runs to three major San Joaquin River tributaries, the Stanislaus, Tuolumne and Merced.

Benefits: Reduce entrainment of outmigrating fish by installing fish screen on diversion. Increase upstream passage of returning adults.

Status: Planning is complete. CEQA work is completed and permit application submitted. . Design is at 30% stage. Biological opinion negotiations are under way.

TOULUMNE RIVER CHANNEL RESTORATION (SRP9) (97-MO8)

Proponent	Turlock Irrigation District	
Project Manager	Metropolitan Water District (MWD)	
Term		
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$2,353,100	$0
CVPIA	$249,000	$0
Others	$50,000	$0

Description: The Special Run Pool (SRP) 9 Restoration Project involves restoration of instream aquatic habitat and shaded riverine aquatic habitat and reduction of predatory fish habitat for the primary benefit of San Joaquin River fall-run Chinook salmon. The project will rebuild a select portion of the Tuolumne River channel, at river mile 25.9, (approximately 15 miles east of Modesto) where past instream gravel mining created a large deep lake area in the main channel. That changed the habitat to one favoring warmwater predator species like largemouth bass. This project will return this portion of the river to a more natural, dynamic morphology that will improve, restore and protect instream and riparian habitat for fall run Chinook salmon survival, including restoring hydrological and geomorphic processes.

Benefits: The channel will be reformed into a 400 to 500 foot wide riparian flood plain re-creating a riffle and run pattern that follows the restored meander channel of the river along with native vegetation planted on fill terraces in a mix similar to that found on undisturbed segments of the river.

Status: Project will follow behind schedule for 97-M09, Mining Reach. For Mining Reach project [97-M09], USFWS requires conservation easements which delayed project. Turlock Irrigation District plans to implement Mining Reach segment and then the SRP 9 (97-M08) segment.

TOULUMNE RIVER SETBACK LEVEES AND CHANNEL ALTERATION (7/11 SEGMENT OF RIVER MINING REACH)-(97-MO9)

Proponent	Turlock Irrigation District	
Project Manager	Metropolitan Water District (MWD)	
Term		
Funding Commitment	**Estimated**	**Actual**
California Urban Water Agencies (CUWA)	$2,801,000	$0
CVPIA	$2,855,600	$1,001,000
Other	$1,412,000	$44,000

Description: The overall Mining Reach project involves restoration of instream aquatic habitat and shaded riverine aquatic habitat for the primary benefit of San Joaquin fall-run Chinook salmon within a 6.1 mile reach (River Mile 34.2 to 40.3) of the lower Tuolumne River below La grange Dam. It includes construction of a system of setback levees along those offstream gravel-mining portions of the Tuolumne River channel damaged in the January 1997 floods. Portions of the 6.1 mile long reach will be reformed to a minimum 400 to 500 foot wide riparian floodplain recreating a riffle and run pattern that follows the restored meander channel of the river along with native vegetation planted on restored river terraces in a mix similar to that found on undistributed segment of the river mile 37.7 to 40.3.

Benefits: The Mining Reach project will return this portion of the river to a more natural, dynamic channel morphology that will improve, restore and protect instream and riparian habitat for fall-run Chinook salmon survival, including restoring hydrological and geomorphic processes.

Status: CALFED approved change of scope and increased project-funding cost of $707,000. Design is 90% complete. Construction scheduled to begin July 2000.