

A large, vertical photograph of the Golden Gate Bridge in San Francisco, California. The bridge's iconic red-orange towers and suspension cables are the central focus, set against a bright blue sky with scattered white clouds. The bridge spans across the water, with a rocky shoreline and waves visible in the foreground.

SECTION L

Statewide Priorities





Table of Contents

Section L Statewide Priorities	L-1
L.1 Overview of Statewide Priorities	L-1
L.2 Reduce Conflict between Water Users.....	L-2
L.3 Total Maximum Daily Loads (TMDLs).....	L-9
L.4 RWQCB Water Management Initiatives.....	L-13
L.5 SWRCB NPS Pollution Plan.....	L-21
L.6 Delta Water Quality Objectives	L-25
L.7 Task Force Recommendations	L-29
L.7.1 Floodplain Management Task Force.....	L-29
L.7.2 Desalination Task Force.....	L-33
L.7.3 Recycling Task Force.....	L-34
L.7.4 State Species Recovery Plan.....	L-35
L.8 Environmental Justice	L-38
L.9 CALFED Bay-Delta Program Goals.....	L-42
L.9.1 Water Supply Reliability.....	L-42
L.9.2 Water Quality.....	L-43
L.9.3 Ecosystem Restoration.....	L-45
L.9.4 Levee System Integrity	L-46

List of Tables

Table L-1: Bay Area TMDLs	L-10
Table L-2: RWQCB Region 2's Water Management Initiative Chapter – Water Quality Priorities	L-13
Table L-3: NPS Five-Year Implementation Plan Management Measures.....	L-22
Table L-4: Delta Water Quality Objectives	L-26
Table L-5: Estimated Potable Water Offsets Achieved by Bay Area IRWMP Near-Term Priority Recycled Water Projects	L-34

List of Figures

Figure L-1: Number of Bay Area IRWMP near-term priority projects addressing Statewide Priorities	L-2
--	-----

Acronyms Appearing in this Section

ACREEC	Alhambra Creek Restoration and Environmental Education Collaborative
ACWD	Alameda County Water District
ADLL	Arroyo de la Laguna
AFY	acre-feet per year
BAWSCA	Bay Area Water Supply and Conservation Agency
Bay-Delta	San Francisco Bay/Sacramento-San Joaquin Delta watershed
CCC FC&WCD	Contra Costa County Flood Control and Water Conservation District
CCWD	Contra Costa Water District



Contra Costa RCD	Contra Costa Resource Conservation District
CVP	Central Valley Project
CWA	Clean Water Act
DBPs	disinfection byproducts
DDSD	Delta Diablo Sanitation District
DO	dissolved oxygen
DSRSD	Dublin San Ramon Services District
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utility District
ESA	Endangered Species Act
GGNRA	Golden Gate National Recreation Area
IRWMP	Integrated Regional Water Management Plan
JPA	Joint Powers Authority
MMs	management measures
MMWD	Marin Municipal Water District
MPs	management practices
MWSD	Montara Water and Sanitary District
N/A	not applicable
NBA	North Bay Aqueduct
NPS	non-point source
OC	organochlorine
PCBs	polychlorinated biphenyls
PG&E	Pacific Gas and Electric Company
POTW	publicly owned treatment works
RARE	Richmond Advance Recycled Expansion
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
San Mateo C/CAG	San Mateo City/County Association of Governments
SBA	South Bay Aqueduct
SBWR	South Bay Water Recycling
SCVWD	Santa Clara Valley Water District
SCWA	Sonoma County Water Agency
SFPUC	San Francisco Public Utilities Commission
Solano CWA	Solano County Water Agency
Sonoma CWA	Sonoma County Water Agency
STOPPP	Stormwater Pollution Prevention Program
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
TMDL	total maximum daily load
TOC	total organic carbon
WMI	Water Management Initiative
WQPP	Water Quality Program Plan
Zone 7	Zone 7 Water Agency



Section L Statewide Priorities

IRWMP Appendix A Guidelines

Section L: Statewide Priorities

- *Identify statewide or State agency priorities that will be met or contributed to by implementation of the Plan, proposal, or specific projects.*
- *Describe how the Plan, proposal, or specific projects were developed pursuant to Statewide Priorities.*

DWR and SWRCB have established a number of priorities for water resource management in California. This section presents an overview of these Statewide Priorities, discusses each priority in the context of water management in the Bay Area, and presents the near-term Bay Area IRWMP projects (Cohort 1) that address each priority.

L.1 Overview of Statewide Priorities

The Proposition 50 Guidelines¹ identify the following Statewide Priorities:

- Reduce conflict between water rights users or resolve water rights disputes, including inter-regional water rights issues
- Implementation of TMDLs that are established or under development
- Implementation of RWQCB Watershed Management Initiatives, chapters and policies
- Implementation of SWRCB's NPS Pollution Plan
- Assist in meeting Delta Water Quality Objectives
- Implementation of recommendations of the floodplain management task force, desalination task force, recycling task force, or state species recovery plan
- Address environmental justice concerns
- Assist in achieving one or more goals of the CALFED Bay-Delta Program

All of the Bay Area IRWMP near-term priority projects address one or more Statewide Priorities (see Table F-2 of Section F: *Regional Priorities*) and together, the Bay Area IRWMP priority projects address all Statewide Priorities as shown in Figure L-1.

¹ State Water Resources Control Board (SWRCB) and Department of Water Resources (DWR). 2004. Integrated Regional Water Management Grant Program Guidelines—Proposition 50. Chapter 8. November.

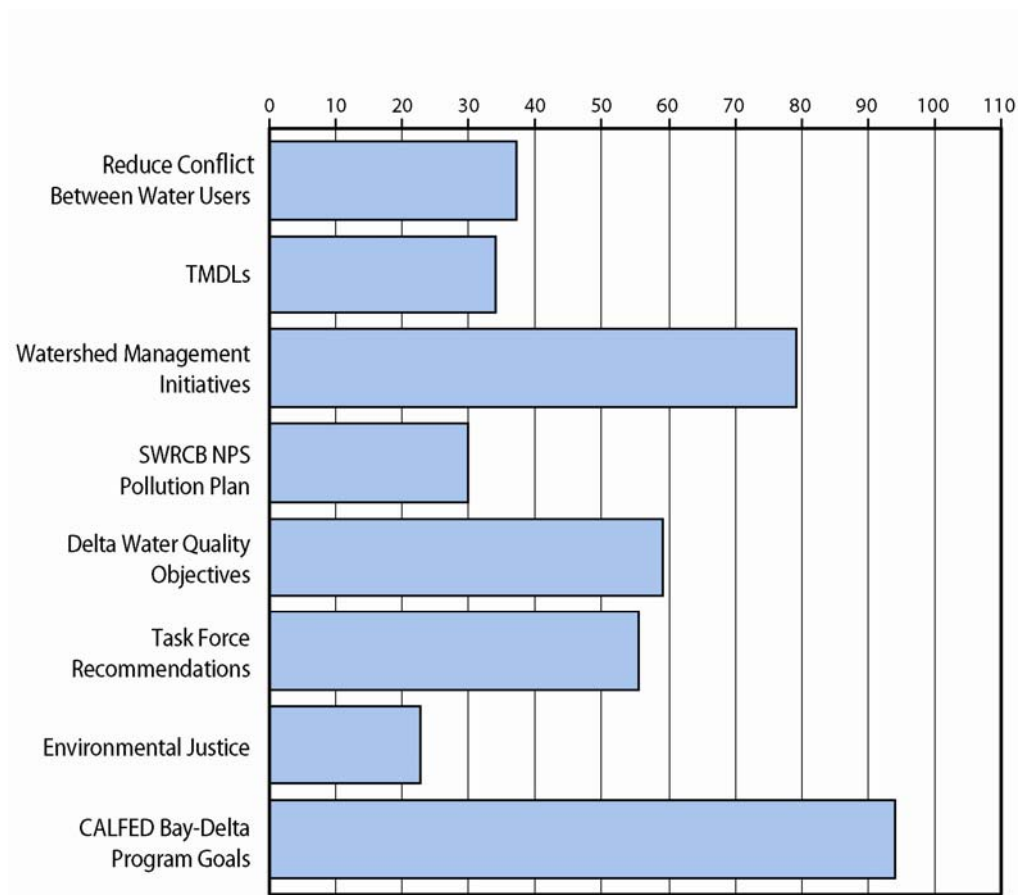


Figure L-1: Number of Bay Area IRWMP Near-Term Priority Projects Addressing Statewide Priorities

The breadth and magnitude to which each project meets each Statewide Priority varies based on the nature of the project. Some projects will have local benefits, or benefits that are contained within the jurisdiction of the project proponent. Other projects will address a Statewide Priority on a regional scale, providing benefits to the region that cross the jurisdictional boundaries of at least two members water management entities. Finally, other projects provide statewide benefits when addressing a particular Statewide Priority. In these cases, project benefits are widespread, and will benefit not only the Bay Area, but also other areas throughout California. An overview of each Statewide Priority and how the Cohort 1 projects address each priority is included in the following sections.

L.2 Reduce Conflict between Water Users

Conflicts over water rights have long been a part of California history. Scarcity of supply and an unequal distribution of water resources have led to water rights disputes throughout the State. Competing demands for different beneficial uses, occurrences of drought, and population growth can exacerbate these issues and create additional conflicts. Conflicts over water rights can lead to the inefficient distribution of this scarce resource, thus impacting all water users. In order to ensure long-term sustainability of water resource management, it is important to resolve and minimize water rights conflicts.

The San Francisco Bay-Delta supports multiple and often conflicting beneficial uses. The projects identified in this proposal will reduce conflicts between water users as follows:



- Balancing Delta Water Supply Allocations with Beneficial Uses
- Balancing Tuolumne River Water Supply Allocations with Beneficial Uses
- Balancing Russian River and Eel River Diversions with Beneficial Uses
- Balancing Alameda Creek Diversions with In-Stream Beneficial Uses
- Balancing Mokelumne River Water Supply Deliveries with Beneficial Uses
- Balancing Recycled Water Use with Protection of Groundwater
- Balancing Bay Area Water Supply Needs with Beneficial Uses during Emergencies
- Balancing Patterns of Groundwater Use to Avoid Overdrafts

The following sections provide an overview of each of these issues and describe the Bay Area IRWMP near-term priority projects that reduce each conflict.

Balancing Delta Water Supply Allocations with Beneficial Uses

The Delta provides drinking water to over two-thirds of California, and irrigation water for more than 7 million acres of the most productive agricultural land in the world. Several water agencies within this region (e.g. ACWD, CCWD, City of Napa, SCVWD, Solano CWA, and Zone 7) rely upon Delta water supplies. Projects that reduce demands on the Delta also reduce conflicts from competing uses by leaving additional water in the Delta for environmental and other purposes.

A number of the Bay Area IRWMP Cohort 1 projects will reduce demands on the Delta by reducing overall water demands (e.g. conservation projects) or developing other water supply sources to offset use of Delta supplies (e.g. recycled water projects).

Bay Area IRWMP near-term priority projects that promote balancing Delta water supply allocations with beneficial uses include the following:

- **Antioch Recycled Water Implementation (DDSD).** This project will reduce statewide conflicts by reducing the City of Antioch's overall dependence on Delta water supplies by 531 AFY. The project is will also reduce regional conflicts with CCWD because it was developed as part of an agreement to resolve a duplication of services issue between DDSD and CCWD.
- **Bay Area Regional Water Conservation Program (SCVWD).** By promoting long-term ongoing regional conservation initiatives, this project will reduce water demands, thereby reducing statewide conflicts over Delta water supply and over other Bay Area water supplies faced with competing uses.
- **Benicia Water Reuse Project (City of Benicia).** By increasing recycled water production and use, this project will reduce the City of Benicia's overall dependence on the Delta by 2,242 AFY, thereby reducing statewide conflicts over Delta water supplies.
- **Canal Encasement Phases II and III (CCWD).** This project will reduce a statewide water rights conflict because it provides mitigation, as required by the CALFED ROD and SWRCB D-1641 for adverse water quality impacts caused by construction of SDIP facilities. Additionally, by improving water quality at the Delta Water Quality Monitoring site at Pumping Plant 1, the risk of impact to the CVP and SWP is reduced, reducing conflict with other users of CVP and SWP water. This project will also reduce system losses and lower demand on the Delta helping to reduce statewide conflict over Delta water supplies. Finally, it reduces regional conflict by mitigating water quality impacts caused by the application of local wastewater effluent adjacent to the unlined canal and the implementation of the Dutch Slough restoration project.



- **Ironhouse Sanitary District Wastewater Conveyance to San Francisco Region (Ironhouse Sanitary District).** This project would eliminate the 2.7 mgd pond treatment/land application disposal system currently employed by ISD and would result in a discharge into New York Slough under a modified DDS D NPDES permit. By allowing ISD to reduce effluent irrigation on the mainland property adjacent to the Contra Costa Canal, a source of drinking water supply, this project would reduce regional conflict with CCWD. In addition, this project would reduce conflict with DDS D and the City of Brentwood by reducing conflict over wastewater effluent discharge expansion and eliminating the need for an new outfall.
- **Mirant Cooling Recycled Water Project (DDS D).** This project would reduce statewide conflict over Delta water uses by increasing recycled water use. The Mirant Power Plant Plants currently use water from the Sacramento-San Joaquin Delta for their cooling processes. This project would replace some or all of the Delta drawn water with recycled water for industrial cooling and other process uses.
- **PG&E Contra Costa Power Plant #8 Recycled Cooling Water (DDS D).** This project will reduce statewide conflicts over Delta water supplies by exploring options to increase recycled water production to supply cooling water to Contra Costa Power Plant No. 8.
- **Pittsburg Recycled Water Implementation (DDS D).** This project will reduce statewide conflicts by reducing the City of Pittsburg's overall dependence on Delta water supplies by 615 AFY. The project will also reduce regional conflicts with CCWD because it was developed as part of an agreement to resolve a duplication of services issue between DDS D and CCWD.
- **San Ramon Valley Recycled Water Program - Phase 2 and Future Phases (DSRSD-EBMUD Recycled Water Authority).** Ultimately, this program will provide 6,400 AFY (including 780 AFY from Phase 2) of recycled water supply to offset use of potable Delta and Sierra water supplies for irrigation. This will reduce statewide conflicts by reducing Delta diversions and will reduce regional conflicts between Mokelumne River users.
- **SBWR Recycled Water Phase 2 Extensions--Santa Clara (City of San Jose).** This project will reduce conflict over Delta water supplies by adding approximately 10 miles of pipeline to increase recycled water deliveries by up to 1,000 AFY, offsetting potable supply.

Balancing Tuolumne River Water Supply Allocations with Beneficial Uses

The SFPUC owns and operates the regional Hetch Hetchy system that conveys water from the Tuolumne River watershed in Yosemite National Park on the western slope of the Sierra Nevada. Water supplies from this watershed provide approximately 20% of the Bay Area's water supply. The Tuolumne River also provides habitat for foothill yellow-legged frog, salmonid fry, rainbow trout, California roach, and Sacramento sucker. In addition, the Tuolumne River is designated as a Wild and Scenic River under the U.S. Wild and Scenic Rivers Act and contains some of the most noted whitewater in the Sierras, making it an extremely popular rafting stream. Offsetting use of this high quality supply to serve non-potable demands helps to balance this supply with other beneficial uses including fisheries and recreation.

Bay Area IRWMP near-term priority projects that promote balancing Tuolumne River water supply allocations with beneficial uses include the following:

- **Milpitas Transit Area Recycled Water Project (City of San Jose).** This project will reduce regional conflicts over Tuolumne River water supply from the SFPUC Regional System by increasing recycled water use to serve non-potable demands that currently use potable water supplies.
- **Mountain View / Moffett Area Water Recycling Project (City of Palo Alto/City of Mountain View).** This project will reduce regional water conflict by offsetting 1,370 to 1,860 AFY of



SFPUC Regional System water in the short-term. This benefit is expected to increase in the long-term as the recycled water system grows to serve a larger portion of the City of Mountain View and the City of Los Altos. The project will also reduce statewide conflict over Delta water supplies, by serving as the backbone for the northern end of a regional recycled water system that SCVWD is developing in part to reduce dependence on water imported from the Delta.

- **Pacifica Recycled Water Project (North Coast County Water District).** This project will offset approximately 171 AFY of water supply currently provided by the SFPUC Regional System reducing regional conflict over local and Tuolumne River water resources.
- **Palo Alto Recycling Project (City of Palo Alto).** This project will reduce regional water conflict by providing approximately 840 AFY of recycled water to meet irrigation demands, offsetting SFPUC Regional System water supply demands.
- **Palo Alto Regional Water Quality Control Plant Water Recycling Program - Phase 3 Expansion (City of Palo Alto).** This project will reduce regional water conflict by providing 1,000 AFY of recycled water to meet irrigation demands in the business and research park area of Palo Alto, offsetting SFPUC Regional System water supply demands.
- **Redwood City Recycled Water Project (City of Redwood City).** Since 1998, Redwood City has exceeded its SFPUC contractual water supply by an average of 780 AFY. This project would enable Redwood City to stay within its contractual entitlement with SFPUC by providing 1120 AFY to 3190 AFY of recycled water for landscape and industrial applications, thereby reducing regional conflict over these supplies.
- **Stanford Central Energy Facility Cooling Tower Recycled Water System (Stanford University).** This project will reduce regional water conflict by providing approximately 56 AFY of recycled water to new campus buildings for toilet flushing and other non-potable uses, offsetting demands for SFPUC Regional System water supplies.
- **Westside Baseline and Harding Park/Lake Merced Projects (SFPUC).** Overall, this project will increase recycled water production and supply to offset 4,592 AFY of potable water supply. This project will reduce regional conflict by offsetting approximately 2,352 AFY of potable water supplies from the SFPUC Regional System. In addition, this project will reduce conflict and avoid overdraft by offsetting groundwater use by approximately 2,240 AFY.

Balancing Russian River Water Diversions with Beneficial Uses

The Sonoma CWA provides water from the Russian River Watershed to its wholesale customers. In addition, MMWD currently obtains approximately 10 to 30 percent (depending on the year) of its water from the Russian River through a contractual agreement with the Sonoma CWA. Three major reservoir projects provide water supply for the Russian River watershed: Lake Pillsbury on the Eel River, Lake Mendocino on the East Fork of the Russian River, and Lake Sonoma on Dry Creek.

In addition to providing water supply, the Russian River provides important fisheries habitat by supporting three species of salmonids (coho salmon, chinook salmon and steelhead trout), support key native riparian plant communities, and provide recreational opportunities.

Reducing demands on the Russian River will reduce conflicts from competing uses while potentially leaving additional water in the streams for fisheries and other beneficial uses.

Bay Area IRWMP near-term priority projects that promote balancing Russian River and local water supply allocations with beneficial uses include the following:



- **Bay Water Desalination Plant (MMWD).** With this project, MMWD will reduce diversions from the Russian and Eel Rivers by more than 7,000 AFY.
- **Peacock Gap Recycled Water Extension (MMWD).** This project will provide recycled water for irrigation demands at the Peacock Gap Golf Course, thereby reducing diversions from the Russian River.
- **Recycled Water Conveyance Pipeline (Novato Sanitary District).** This project will reduce regional conflicts over Russian River supply by increasing recycled water use to serve non-potable demands that currently use Russian River Supplies.
- **Recycled Water Program for North Marin WD & Novato Sanitary District – Phase 1 (North Marin Water District).** The North Marin Water District obtains approximately 80 percent of its water supplies from the Russian River through SCWA. Implementation of the proposed project would offset these supplies by approximately 260 to 560 AFY, reducing conflict over the beneficial uses over Russian River water.

Balancing Alameda Creek Diversions with In-Stream Beneficial Uses

Alameda Creek and its tributaries historically supported anadromous fish runs of steelhead trout, Coho salmon, Pacific lamprey and river lamprey, and possibly Chinook salmon. Alameda Creek still supports one of the best assemblages of native stream fishes in the Bay Area region. Alameda Creek also provides an important water supply to several Bay Area agencies. Currently an on-going effort to restore steelhead to the Alameda Creek watershed is being undertaken. As part of the restoration process, the stakeholders (including ACWD, SFPUC and Zone 7) are working together to determine the need for additional flows for fisheries with the ultimate goal of providing sufficient in-stream flows for fisheries, while minimizing impacts to local water supplies.

Bay Area IRWMP near-term priority projects that promote balancing Alameda Creek water supply diversions with in-stream beneficial uses include the following:

- **Alameda Creek Fishery Enhancement Project (SFPUC).** This project will help reduce conflict between municipal uses of Alameda Creek and environmental needs by providing fishery benefits while protecting water supplies.
- **Phase 2 – Niles Cone Groundwater Recharge and Fish Passage Program (ACWD).** This project would reduce regional conflict over the beneficial uses of Alameda Creek by providing fish passage to Alameda Creek watershed. In addition, the project will reduce local conflict over groundwater supplies by ensuring ACWD's ability to manage the Niles Cone Groundwater Basin for local water supplies and preventing seawater intrusion.

Balancing Mokelumne River Water Supply Deliveries with Beneficial Uses

The Mokelumne River, an eastside tributary to the Delta, and its watershed are the primary source of water for EBMUD providing 95% of its water supply. In addition to water supply, the Mokelumne River provides habitat for fisheries, riparian plants, and wildlife. Reducing deliveries from the Mokelumne River can result in higher reservoir storage levels in EBMUD reservoirs in the Sierra Nevada foothills and increased reservoir releases to the lower Mokelumne River. Under a legally enforceable Settlement Agreement involving State and Federal resource agencies, releases and flows in the lower Mokelumne River during the fall and early winter (a key period for anadromous fish migration) are based on storage levels in these reservoirs. Thus, increased storage may result in some portion being released for fishery purposes.



Bay Area IRWMP near-term priority projects that promote balancing Mokelumne River water supply deliveries with beneficial uses include the following:

- **ConocoPhillips High-Purity Recycled Water Project (EBMUD).** This project will reduce regional water conflicts over Mokelumne River diversions and statewide conflict over Delta resources by using approximately 2,240 AFY of recycled water as a potable water offset for use at the ConocoPhillips Refinery in Rodeo, California.
- **East Bayshore Recycled Water Project – Phase 1B (EBMUD).** This project reduces conflict over beneficial uses of Mokelumne River water by ultimately providing approximately 1,680 AFY of recycled water supply to serve demands that would otherwise be delivered from the Mokelumne River to EBMUD’s service area. In addition, this project would reduce statewide conflict over Delta water supplies since increasing water releases down the river would provide additional benefits for Delta resources and water users once that water reaches the Delta.
- **Richmond Advanced Recycled Expansion (RARE) Water Project (EBMUD).** This project will reduce regional conflict over the beneficial uses Mokelumne River water resources and statewide conflict over Delta resources by providing 3,360 to 4,480 AFY of recycled water to offset the use of potable water supplies in refinery operations.
- **San Leandro Water Reclamation Facility Expansion Project (EBMUD).** This project would provide approximately 34 AFY of recycled water to irrigate the Oakland’s Airport’s roadway landscaping, which currently uses potable water. As such, this project would reduce regional and statewide conflicts by increasing recycled water production and use, reducing the need for diversions from the Mokelumne River and allowing more water to flow downstream into the Delta.
- **Satellite Recycled Water Treatment Plant Project (EBMUD).** This concept-level project will reduce conflict over Mokelumne and Delta water supplies by providing recycled water from a centralized wastewater treatment plant to a remotely located user to offset potable supplies. This project will also have the opportunity to readily illustrate the many benefits and safety of recycled water to the public, which will greatly promote water recycling. By increasing awareness and acceptance of recycled water use, this project could enable other recycled water projects to move forward which would further offset potable supplies.

Balancing Recycled Water Use with Protection of Groundwater

Recycled water provides a drought-resistant, reliable water supply to supplement potable supplies. However, recycled water typically contains higher salinity concentrations than potable supplies. Since the application of water with elevated salinity could have negative impacts on groundwater aquifers, it is important to balance recycled water use with the protection of groundwater supplies.

The following Bay Area IRWMP Cohort 1 projects will allow for expanded use of recycled water while protecting potable groundwater supplies.

- **Livermore-Amador Valley Mocho Groundwater Demineralization Project (Zone 7).** This project will allow for expanded use of recycled water while protecting Zone 7’s potable groundwater supplies by offsetting salt loadings from proposed recycled water uses through the use of reverse osmosis wellhead treatment – a recommendation of Zone 7’s Salt Management Plan.
- **South Bay Advanced Recycled Water Treatment Facility Project (SCVWD).** SCVWD, in partnership with South Bay Water Recycling (SBWR), a cooperative program representing the interest of the City of San Jose, the City of Milpitas, and the City of Santa Clara, is in the process of addressing the impact of recycled water salinity. The project is intended to provide salinity



management benefits to maximize recycled water use for irrigation and industrial customers while continuing to protect the SCVWD's groundwater resources.

Balancing Bay Area Water Supply Needs with Beneficial Uses during Emergencies

Interties allow water agencies to exchange water between their systems, enhancing system flexibility and spreading water supply benefits across the region. These connections can be an important form of emergency preparedness for the agencies. By increasing system flexibility and allowing for more effective sharing of the available regional water supplies during emergencies (e.g. earthquakes, droughts, outages), potential conflicts within the region over supply allocations during these critical outage events will be reduced.

The following Bay Area IRWMP near-term priority projects balance Bay Area Water Supply Needs with Beneficial Uses during Emergencies:

- **EBMUD-CCWD Raw Water Intertie (CCWD).** This project would provide an emergency connection between CCWD and EBMUD.
- **EBMUD-SFPUC/Hayward Emergency Intertie (EBMUD).** This project would provide connect the EBMUD system to the SFPUC-Hayward system.
- **Intertie w/ NBA-Solano Project (Solano CWA).** This project would connect the North Bay Aqueduct to the Solano Project at the Putah South Canal.

Balancing Patterns of Groundwater Use to Avoid Overdrafts

Avoiding patterns of use that could lead to groundwater overdraft will reduce conflict between the multiple users of the Bay Area aquifers including public agencies, private well owners, and groundwater-dependent ecosystems.

The following Bay Area IRWMP Cohort 1 projects balance patterns of groundwater use to avoid overdrafts:

- **Peralta Tyson Groundwater Treatment Facility (ACWD).** This project, in conjunction with Phase 2 – Niles Cone Groundwater Recharge and Fish Passage Program (ACWD), will reduce conflict over groundwater by providing advanced treatment (reverse osmosis) of water extracted at ACWD's well fields. The treated water will be blended with groundwater and treated surface water to serve potable water demands, thereby extending local groundwater supplies.
- **Santa Clara Valley Water District Aquifer Storage and Recovery Project (SCVWD).** This project will reduce local conflict over groundwater supplies by improving SCVWD's ability to more actively use the local groundwater basin and avoid overdraft. The project will provide approximately 3,000 AF of additional recharge capacity and well fields with a capacity of 10 mgd for use during droughts or outages. In addition to reducing conflicts over groundwater resources, this project will reduce SCVWD's dry-year dependence on the Bay-Delta ecosystem, potentially reducing statewide conflicts over Delta water. Finally, improving SCVWD's ability to access local supplies could reduce demands on the SFPUC Regional System during droughts or outage since several local retailers contract with the SFPUC for additional water supplies.
- **SFPUC Groundwater Projects (SFPUC).** This project would reduce conflicts by balancing groundwater supply with groundwater recharge. As part of the three projects incorporated in this project the SFPUC would increase local groundwater supply, offsetting water supplies from the SFPUC Regional System, and would develop a region groundwater supply to reduced normal-year groundwater pumping and allowing the groundwater basin to recharge naturally.



- **North Solano Groundwater Monitoring (Solano CWA).** This project will reduce future conflicts by providing more information about the groundwater basin.

Balancing Local Watershed Beneficial Uses

Local watersheds throughout the Bay Area provide important resources for water supply, habitat and recreation. Competing demands between stakeholders can lead to conflicts over water resources in these watersheds.

Bay Area IRWMP near-term priority projects that promote balancing local watershed beneficial uses include the following:

- **Corte Madera Creek Watershed Plan (Friends of Corte Madera Creek Watershed).** This project will reduce water conflicts within the Corte Madera watershed by conducting a comprehensive watershed assessment which considers the water rights and needs of various user groups and inhabitants. Furthermore, community outreach and collaboration will be a significant component of the project and will most likely address any existing and potential water diversions in Corte Madera Creek.
- **Fisheries and Aquatic Habitat Collaborative Effort (SCVWD).** The project will reduce regional conflicts by balancing water supply operations and habitat needs for salmonid fisheries in Stevens Creek, Coyote Creek and the Guadalupe River. It focuses on water rights, water use and in-stream habitat. Specific activities include re-operation of seven SCVWD reservoirs, improving at least 18 barriers to fish passage, and restoring over 6,000 of riparian habitat.
- **Pilarcitos Creek Integrated Watershed Management Plan Development and Implementation (SFPUC).** Pilarcitos Creek is the principal watercourse draining a coastal watershed of 17,922 acres in north central San Mateo County. Past studies have identified loss of riparian habitat, migration barriers, sedimentation of stream channels, proliferation of non-native vegetation, and competition for water between agricultural, domestic and environmental uses as the principal problems in the watershed. This project will reduce local conflict by determining how to more effectively manage the competing uses of water from Pilarcitos Creek and promote balanced solutions that satisfy environmental, agricultural, public health and economic interests.

In addition to the conflicts previously addressed in this section, the Regional Biosolids Project (Regional Biosolids JPA), will reduce conflicts between water management agencies from a water treatment perspective. This project will develop a regional biosolids recycling and management program that provides economical, diversified, reliable, and sustainable options for managing biosolids that benefit Bay Area communities and the environment. This would reduce competition among wastewater agencies for marketing biosolids, enable smaller agencies to participate in the market, and simplifying the permitting process by aligning the interests of all of the participating agencies.

L.3 Total Maximum Daily Loads (TMDLs)

In order to protect and restore water quality to impaired water bodies throughout the State a number of TMDLs have been established. TMDLs are developed to improve the quality of impaired water bodies by identifying sources of pollutants and specifying actions that create solutions. TMDLs define the total loading of a target pollutant, from all potential sources, that can be added to a water body without exceeding water quality standards.

The RWQCB has found that beneficial uses in the San Francisco Bay and many of its tributaries are impaired by toxic pollutants, including mercury, PCBs, chlorinated hydrocarbon pesticides, and selenium.



The RWQCB is developing several TMDLs (shown in Table L-1) to reduce loading of these pollutants. Since these TMDLs are currently being developed, the specific allowable loading for each pollutant and source has not yet been established.

Table L-1: Bay Area TMDLs²

Waterbody	Pollutant(s)
Guadalupe River	Mercury
Lagunitas Creek	Sediment, Pathogens ³
Napa River	Sediment, Nutrients, Pathogens ³
Pescadero/Butano Creeks	Sediment
San Francisco Bay	Copper, Mercury, Nickel, PCBs, Exotic Species
San Francisquito Creek	Sediment
Sonoma Creek	Sediment, Nutrients, Pathogens ³
Tomaes Bay	Pathogens
Urban Creeks	Diazinon
Walker Creek	Mercury, Sediment ³

The following Bay Area IRWMP near-term priority projects reduce pollutant loading in accordance with one or more of the Bay Area TMDLs:

- **Bay Area Recycled Water Projects.** Because mercury, PCBs, and other pollutants in Bay sediments already impair some beneficial uses in Bay Area water bodies, these water bodies have limited capacity to assimilate pollutants from additional wastewater discharges. Therefore, although wastewater treatment is generally effective, even small pollutant loads from wastewater may be problematic. Water recycling is one of the few cost-effective ways to further reduce the discharge of wastewater pollutants. The following IRWMP near-term priority recycling projects will be a key component of the overall strategy for reducing pollutant loading from POTWs, thereby assisting in the attainment of water-quality objectives in the San Francisco Bay Area:
 - Antioch Recycled Water Implementation (DDSD)
 - Benicia Water Reuse Project (City of Benicia)
 - ConocoPhillips High-Purity Recycled Water Project (EBMUD)
 - East Bayshore Recycled Water Project – Phase 1B (EBMUD)
 - Milpitas Transit Area Recycled Water Project (City of San Jose)
 - Mirant Cooling Recycled Water Project (DDSD)
 - Mountain View / Moffett Area Water Recycling Project (City of Palo Alto/City of Mountain View)
 - Palo Alto Recycling Project (City of Palo Alto)
 - Palo Alto Regional Water Quality Control Plant Water Recycling Program - Phase 3 Expansion (City of Palo Alto)
 - Peacock Gap Recycled Water Extension (MMWD)
 - PG&E Contra Costa Power Plant #8 Recycled Cooling Water (DDSD)

² Total Maximum Daily Loads (TMDLs) Existing or Currently Being Developed, March 2003. <http://www.waterboards.ca.gov/funding/docs/tmdlolist.doc>. Accessed: August 25, 2006.

³ San Francisco Bay RWQCB. Water Management Initiative Integrated Plan Chapter. October 2004. Page 1-6.



- Pittsburg Recycled Water Implementation (DDSD)
- Recycled Water Conveyance Pipeline (Novato Sanitary District)
- Recycled Water Program for North Marin WD & Novato Sanitary District – Phase 1 (North Marin Water District)
- Redwood City Recycled Water Project (City of Redwood City)
- Richmond Advanced Recycled Expansion (RARE) Water Project (EBMUD)
- San Leandro Water Reclamation Facility Expansion Project (EBMUD)
- San Ramon Valley Recycled Water Program - Phase 2 and Future Phases (DSRSD-EBMUD Recycled Water Authority)
- Satellite Recycled Water Treatment Plant Project (EBMUD)
- SBWR Recycled Water Phase 2 Extensions--Santa Clara (City of San Jose)
- South Bay Advanced Recycled Water Treatment Facility Project (SCVWD)
- Stanford Central Energy Facility Cooling Tower Recycled Water System (Stanford University)
- **Bay Area Regional Water Conservation Program (SCVWD).** This project will promote water conservation. By reducing water use the project will also reduce wastewater generation and urban runoff. This will reduce loading of copper, nickel, mercury and other pollutants loading associated with these discharges, addressing the San Francisco Bay TMDLs for these constituents.
- **Bay Water Desalination Plant (MMWD).** The reverse osmosis desalination process used in this project will filter out many of the constituents of concern that are found in the Bay. Removing these pollutants from the water supply will result in higher quality wastewater and urban runoff, ultimately reducing PCB, pesticides, and other pollutant concentrations in the Bay.
- **CreekWise Creek Care Education Program (San Mateo STOPPP).** The jurisdiction of this project includes the TMDLs of San Francisco Bay and San Francisquito Creek. This project seeks to educate landowners and assist with proper creek care, erosion prevention, planting guidance, pollution prevention and professional service referrals. By increasing awareness of pollution issues and educating creek side landowners and educational institutions about proper creek care and maintenance, this project will improve water quality and address the sediment TMDL for San Francisquito Creek.
- **Developing and Implementing Options for Mitigating Risks of Public Health Impacts of Eating Fish (Clean Estuary Partnership).** Among other facets, this project will develop and assess multiple actions to evaluate, address and reduce the health risks and impacts associated with the consumption of fish harvested from the San Francisco Bay. The health risks are directly correlated with bioaccumulated mercury and other pollutants in the tissues of resident aquatic species. This project promotes a regional approach to implementation of TMDLs and specifically addresses the mercury TMDL for the San Francisco Bay.
- **Groundwater Recharge Opportunities (Sonoma CWA).** This project supports groundwater recharge opportunities, thereby reducing the pollutant loading to the San Francisco Bay. By increasing open space buffering and creating seasonal wetlands, this project will reduce the overall volume of runoff reaching the Bay. In addition to lowering runoff volumes, the increased detention time will allow TMDL pollutants such as nickel, copper, and mercury that are typically found in urban runoff to settle out of stormwater prior to reaching the Bay. Thus, this project will address TMDLs for mercury, nickel and copper for the San Francisco Bay.
- **Guadalupe River Watershed Habitat Enhancement (SCVWD).** This project will focus on restoration with native vegetation, woody debris placement and spawning gravel replacement. By



improving sediment retention across the watershed and within the river, the occluded mercury will likely be retained as well, thereby improving the associated TMDL.

- **Guadalupe Watershed Modeling Towards Mercury Management to Achieve TMDL Goals (San Francisco Estuary Institute).** This project will directly address the TMDL goals for mercury in the Guadalupe River by compiling existing data and conducting a comprehensive analysis to determine a cost effective method to reduce contaminant levels.
- **Jack London Lake Restoration and Sedimentation Reduction (California State Parks).** This project will restore Jack London Lake, which is located in the watershed that drains to the federally impaired Sonoma Creek. Currently sediment flowing from this lake is degrading a significant tributary of Sonoma Creek. This project will reduce erosion and repair damage being caused to this tributary, thus addressing both the sediment and nutrient TMDLs for Sonoma Creek.
- **Nathanson Creek Preserve Restoration Project (Sonoma Ecology Center).** Nathanson Creek is listed as impaired by sediment in the RWQCB Basin Plan and is subject to the current sediment TMDL for Sonoma Creek and its tributaries. Project goals include reducing erosion rates to protect adjacent properties and reduce sediment impacts to water quality and aquatic habitat.
- **PCBs Investigation at the Pulgas Creek Pump Station Watershed, San Carlos, California (San Mateo C/CAG).** This project will address PCBs in the Pulgas Creek drainage before it drains to San Francisco Bay. It would support abatement of sources of PCBs and PCB-laden sediments and develop methods that would assist other agencies in the Bay Area to address PCBs in stormwater runoff. This will benefit the San Francisco Bay TMDL for PCBs.
- **Reducing Women and Children's Exposure to Mercury in the Bay and Delta Region (Ma'at Youth Academy).** This program will reduce women and children's exposure to methylmercury in high-risk areas of the Bay and Delta region by raising public awareness, training youth to be community monitors and advocates, collaborating with community health professionals, and maximizing resources for nutritional guidance and education. In addition, this project will partner with public officials and work with existing mercury abatement efforts to help combat the root source of toxic fish. These efforts will help address the mercury TMDL for the San Francisco Bay.
- **Robert Louis Stevenson State Park Erosion Control: Table Rock Trail Re-route (California State Parks).** The project will improve the trail conditions and long-term stability of the Table Rock Trail. This trail restoration work is necessary to reduce the excessive erosion that is occurring as water flows down the entrenched trail and delivers sediment to streams, interrupting hydrologic patterns and watershed function. The two miles of trail redesign and reconstruction will minimize the mobilization of sediments due to excessive erosion, thereby addressing the sediment and nutrient TMDLs for the Napa River.
- **San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration (San Francisquito Creek JPA).** The San Francisquito Creek watershed is listed as impaired by sediment under Section 303(d) of the Clean Water Act and requires the establishment of a TMDL. The project will address the altered sediment regime of the watershed and sediment deposition at the Searsville Dam.
- **Sugarloaf Ridge State Park Erosion Control: Goodspeed Trail Rehabilitation (California State Parks).** The project will improve the trail conditions and long-term stability of the Goodspeed Trail. These improvements will minimize the mobilization of sediments due to excessive erosion. Since this trail is located in the headwaters of the Sonoma River, this reduction in erosion and sediment loading will address the sediment and nutrient TMDLs for Sonoma Creek.



- **Sustainable Streets for Improved Stormwater Quality and Water Reuse (San Mateo C/CAG).** This project focuses on the improvement of water quality and quantity from stormwater runoff in San Mateo County. By reducing stormwater runoff, this project will also reduce pollutant loading from stormwater, including nickel, copper, and mercury. These efforts will result in improved benefits to TMDL thresholds in the San Francisco Bay.
- **Upper Guadalupe River Project (Reaches 6 and 12) (SCVWD).** The project will improve the existing stream habitat by diverting flood flows with erosive velocities into a new bypass channel. Since mercury has a tendency to bind strongly to particles, and loads transported by streams are closely correlated with sediment transport, this project will address the mercury TMDL for the Guadalupe River by reducing bank erosion and sediment-related impacts. In addition, mercury loading from the Guadalupe River Watershed is a major source of mercury in the San Francisco Bay. Therefore, by reducing mercury loading in the Guadalupe River, this project also indirectly benefits the San Francisco Bay TMDL for mercury.

L.4 RWQCB Water Management Initiatives

Using a comprehensive watershed management approach, the SWRCB and the RWQCBs developed and adopted the Water Management Initiative (WMI) to establish water quality protection strategies. These strategies consider NPS pollution, point-source pollution, ground and surface water interactions, and water quality. Each of the nine RWQCBs identified watershed management strategies that consider local conditions and pollution sources for their priority watersheds. The RWQCB Region 2 WMI chapter prioritized water quality issues within the region and developed water management strategies to address those issues. These water quality priorities are listed in Table L-2.

Table L-2: RWQCB Region 2's Water Management Initiative Chapter – Water Quality Priorities⁴

Water Quality Priorities	
1.	Municipal Stormwater/Urban Runoff – priorities include proposed development of a single regional municipal stormwater permit to replace six existing Phase I permits; compliance oversight of municipal stormwater permits, construction, Caltrans, and industrial stormwater permits; implementation of Phase II stormwater permits for smaller municipalities; review of new development post-construction stormwater controls; and actions to control pollutants of concern (copper, mercury, PCBs, pesticides, toxicity, and trash). Converting all stormwater reports from paper reports to web-based submittals to track permit compliance, evaluate BMPs effectiveness, and pollutant loads reduction is a high priority.
2.	Total Maximum Daily Loads (TMDLs) – Priority TMDLs include: <ul style="list-style-type: none"> • San Francisco Bay Legacy Mercury, PBDEs and PCBs • Regionwide Urban Creeks Diazinon / Pesticide Toxicity • Guadalupe River Watershed Mercury • Tomales Bay and Lagunitas Creek Pathogens • Walker Creek Mercury and Sediment • Lagunitas Creek Sediment • Napa River Nutrients, Pathogens, and Sediment • Sonoma Creek Nutrients, Pathogens, and Sediment • San Francisquito Creek Sediment • Pescadero and Butano Creeks Sediment
3.	Wetlands and Stream Protection – priorities include Basin Plan amendments to include a stream protection policy and additional beneficial uses for stream and wetland protection; permitting and technical oversight of several large wetland restoration and enhancement projects in San Francisco Bay and coastal areas, including the North and South Bay Salt Ponds; mitigation tracking and monitoring for wetland projects; permitting of stream and wetland fill projects through 401 certifications and Waste Discharge Requirements; and outreach and education to municipalities, consultants, and non-profit groups on application of sound stream and river protection principles to hydromodification projects.

⁴ San Francisco Bay RWQCB. Water Management Initiative Integrated Plan Chapter. October 2004. Table 2-1, Pages 2-1 through 2-3.



Water Quality Priorities	
4.	Rural NPS Pollution – priorities include permitting and oversight of confined animal facilities (dairies, horse boarding, and other); application of sound management principles to vineyards and other agricultural land conversion activities; and oversight of existing Rural Wastewater and non-Chapter 15 WDRs.
5.	Watershed Management – priorities include continuing to work with watershed stakeholders in areas including Tomales Bay, Contra Costa, Alameda Creek watershed, and the Santa Clara Basin, while expanding and improving watershed partnerships in other key watersheds, particularly those with listed waterbodies where TMDLs are in process; developing capacity building and outreach for grant solicitations; and developing more cooperative working relationships with CALFED and other agency efforts. Internal priorities include increased coordination between surface and groundwater programs and making the nexus between these programs and the development and implementation of TMDLs.
6.	Watershed Monitoring and Assessment – priorities include the Surface Water Ambient Monitoring Program, Regional Monitoring Program, and coordination with other Federal, State and local monitoring efforts.
7.	Groundwater Protection and Toxics Cleanup – priorities are to protect and restore groundwater quality for drinking water supply and other beneficial uses, through supporting local agencies, overseeing key contaminated MTBE sites using spills, leaks, investigations and cleanup (SLIC) databases of site cleanups, supporting Brownfield cleanups, facilitating cleanup and timely transfer of DOD/DOE sites, and regulating landfills.
8.	NPDES Surface Water Protection – priorities include reducing sanitary sewer overflows and beach closures; source control/pollution prevention; wastewater reuse; and permit compliance and reissuance.
9.	Planning Activities – priorities include development of stream protection policy (see above); development of site-specific objectives for copper, nickel, and cyanide; and updating Basin Plan surface water/groundwater maps and waterbody beneficial use listings.

Since TMDLs are one of the San Francisco Bay RWQCB's Watershed Management Initiative priorities, all projects described in Section L.3: *Total Maximum Daily Loads (TMDLs)* and listed below address the Watershed Management Initiative priority of implementing TMDLs.

- Antioch Recycled Water Implementation (DDSD)
- Bay Area Regional Water Conservation Program (SCVWD)
- Bay Water Desalination Plant (MMWD)
- Benicia Water Reuse Project (City of Benicia)
- ConocoPhillips High-Purity Recycled Water Project (EBMUD)
- CreekWise Creek Care Education Program (San Mateo STOPPP)
- Developing and Implementing Options for Mitigating Risks of Public Health Impacts of Eating Fish (Clean Estuary Partnership)
- East Bayshore Recycled Water Project – Phase 1B (EBMUD)
- Groundwater Recharge Opportunities (Sonoma CWA)
- Guadalupe River Watershed Habitat Enhancement (SCVWD)
- Guadalupe Watershed Modeling Towards Mercury Management to Achieve TMDL Goals (San Francisco Estuary Institute)
- Jack London Lake Restoration and Sedimentation Reduction (California State Parks)
- Milpitas Transit Area Recycled Water Project (City of San Jose)
- Mirant Cooling Recycled Water Project (DDSD)
- Mountain View / Moffett Area Water Recycling Project (City of Palo Alto/City of
- PG&E Contra Costa Power Plant #8 Recycled Cooling Water (DDSD)
- Pittsburg Recycled Water Implementation (DDSD)
- Recycled Water Conveyance Pipeline (Novato Sanitary District)
- Recycled Water Program for North Marin WD & Novato Sanitary District – Phase 1 (North Marin Water District)
- Reducing Women and Children's Exposure to Mercury in the Bay and Delta Region (Ma'at Youth Academy)
- Redwood City Recycled Water Project (City of Redwood City)
- Richmond Advanced Recycled Expansion (RARE) Water Project (EBMUD)
- Robert Louis Stevenson State Park Erosion Control: Table Rock Trail Re-route (California State Parks)
- San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration (San Francisquito Creek JPA)
- San Leandro Water Reclamation Facility Expansion Project (EBMUD)
- San Ramon Valley Recycled Water Program - Phase 2 and Future Phases (DSRSD-EBMUD Recycled Water Authority)
- Satellite Recycled Water Treatment Plant Project (EBMUD)
- SBWR Recycled Water Phase 2 Extensions-- Santa Clara (City of San Jose)



- Mountain View)
 - Nathanson Creek Preserve Restoration Project (Sonoma Ecology Center)
 - Palo Alto Recycling Project (City of Palo Alto)
 - Palo Alto Regional Water Quality Control Plant Water Recycling Program - Phase 3 Expansion (City of Palo Alto)
 - PCBs Investigation at the Pulgas Creek Pump Station Watershed, San Carlos, California (San Mateo C/CAG)
 - Peacock Gap Recycled Water Extension (MMWD)
 - South Bay Advanced Recycled Water Treatment Facility Project (SCVWD)
 - Stanford Central Energy Facility Cooling Tower Recycled Water System (Stanford University)
 - Sugarloaf Ridge State Park Erosion Control: Goodspeed Trail Rehabilitation (California State Parks)
 - Sustainable Streets for Improved Stormwater Quality and Water Reuse (San Mateo C/CAG)
 - Upper Guadalupe River Project (Reaches 6 and 12) (SCVWD)

In addition to addressing TMDLs, many IRWMP projects implement other priorities of the San Francisco Bay RWQCB's Watershed Management Initiative including Municipal Stormwater/Urban Runoff, Wetlands and Stream Protection, Watershed Management, and NPDES Surface Water Protection through wastewater reuse. Bay Area IRWMP near-term priority projects implement other San Francisco Bay RWQCB Watershed Management Initiative priorities are as follows:

- **Adobe Creek Upper Reach 5 Restoration (SCVWD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1 and 3. The project focuses on creek restoration and bank stabilization on Adobe Creek, while avoiding a hard engineering approach to flood protection. This will assist with stormwater runoff and management and pollutant load reduction.
- **Alameda County Partnership for Land Conservation and Stewardship (Alameda County RCD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3, 5, 6, and 9. This project focuses on a comprehensive strategy for watershed management and protection through easements, acquisition and other strategies. It will assist with wetland and stream protection, as well as watershed monitoring and assessment.
- **Alhambra Creek Restoration and Environmental Education Collaborative (ACREEC): John Swett Campus (Muir Heritage Land Trust).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1, 3, and 5. The project is meant to establish and monitor the BMP strategy of a vegetated swale. It will assist with urban stormwater management, increase groundwater infiltration, reduce stormwater velocities and trap mobilized sediment. Based at the John Swett Elementary School in Martinez, it is meant to be a demonstration project for the entire watershed.
- **Alhambra Valley Creek Coalition Restoration Project (Urban Creeks Council).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3, 5, and 7. The project will address erosion and sedimentation on a 1-mile reach of the headwaters of Alhambra Creek, which drains into Carquinez Straight, and then into San Francisco Bay. Furthermore, it will prevent leachfields and their associated water quality contaminants from being released to the creek. Consequently, the project addresses both surface waters and groundwater.
- **Annadel State Park Erosion Control: Geary Ranch Road to Trail Conversion (California State Parks).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1, 3, 5, and 7. The project will restore two miles of a steep, degraded fire road to reduce erosion and sedimentation on a watershed management basis. Stormwater runoff will be improved, and BMPs will be installed. In addition, it will improve non-point source pollution levels.
- **Bair Island Restoration and Management Plan (Don Edwards San Francisco Bay National Wildlife Refuge).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1, 3, 5, and 6. The project focuses on the restoration of a tidal salt marsh and wetland for habitat, education, and flood control. It will improve stormwater and urban runoff and address the



coordination between surface and groundwater. It will include monitoring of the success of the restoration effort.

- **Beaver Pond Habitat Enhancement Project at the Dow Wetland Preserve (Contra Costa RCD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3 and 5. The project is an extension of the Kirker Creek Watershed Management Plan and continues the community-based, consensus-oriented stakeholder approach to the wetland restoration effort. It will improve infiltration and decrease erosion, as well as address the balance of surface and groundwater hydrologic needs of the planted plugs of wetland and emergent species.
- **Calabazas Creek, Miller Avenue to Wardell Road (SCVWD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3 and 5. This project focuses on flood protection through stream restoration. The project will repair eroded channel banks with biotechnology strategies, remove accumulated sediment and improve fish passage. A watershed management approach will be used to design and implement this project.
- **Candlestick Point State Recreation Area Yosemite Slough Restoration Project (California State Parks).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1, 3, and 5. This project increases the tidally influenced area of the Slough from nine to twenty acres. It will address the soil contaminants of the site, improve stormwater management and address urban runoff impairment of San Francisco Bay.
- **Codornices Creek, Kains to San Pablo (Friends of Five Creeks).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3 and 5. The project focuses on stream protection and restoration to improve water quality and fish passage for freshwater and anadromous fish. It will be a demonstration project for the neighborhood, and the assist with watershed-based outreach that is currently being conducted.
- **Corte Madera Creek Watershed Infiltration and Storage Assessment (Friends of Corte Madera Creek Watershed).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1, 3, 5, and 7. This project will assist with stormwater and watershed management, and will reduce urban runoff by assessing and increasing the areas available for surface water infiltration. This analysis will incorporate the linkage between surface waters and ground waters and assess the protection of groundwater resources. Furthermore, the project will address the feasibility of diverting runoff into temporary storage facilities and BMPs. In particular, it will assess and highlight the potential improvements that can be achieved in complimentary and alternative approaches to traditional engineered flood control channel infrastructure improvements.
- **Corte Madera Creek Watershed Models (Friends of Corte Madera Creek Watershed).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1 and 5. This project takes a watershed management approach to develop three computer models of the watershed. These models will provide a comprehensive quantitative assessment of the rainfall-runoff dynamics of the landscape and assist in determining the likely ramifications of land use change and restoration efforts.
- **Corte Madera Creek Watershed Plan (Friends of Corte Madera Creek Watershed).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #5 and 6. This project will assess the Corte Madera Creek watershed and develop a comprehensive framework for managing water resources within the watershed. Pollutant loading and the overall water quality of Corte Madera Creek will be considered in this assessment. Since Corte Madera Creek drains to the San Francisco Bay, reducing pollutant loading to this creek will in turn reduce pollutant loading to the Bay.
- **Defining Summer Low Flow Volumes (SCC).** This project addresses RWQCB Region 2's WMI Water Quality Priority #3. This project will define the summer low flow needs in stream



reaches used or potentially used by steelhead. This project incorporates a watershed management approach to evaluate the need for future stream restoration and protection. In addition, by defining summer low flows, sediment dynamics and seasonal sediment mobility will be better understood and managed.

- **Development of Regional GIS for Watershed Planning (San Mateo C/CAG).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1, 5, and 6. This integrated approach bundles several related regional projects together to standardize and enhance digital information about creeks, creek facilities, floodplains and watersheds. These projects, which will be coordinated through a central technical committee, will enhance watershed planning and hydrologic modeling for all participating municipalities within the Bay Area to provide a foundation for understanding the factors involved in improving flood protection, ecosystem health, and natural waterway processes.
- **Fisheries and Aquatic Habitat Collaborative Effort (SCVWD).** This project addresses RWQCB Region 2's WMI Water Quality Priority #3. This project implements the San Francisco RWQCB's priorities of stream protection and watershed management and assessment to balance water supply operations and habitat needs for salmonid fisheries in Stevens Creek, Coyote Creek and Guadalupe River. The project will improve fish passage by removing barriers and restoring riparian habitat.
- **Groundwater Optimization Project (MWSD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #6 and 7. This project would develop a local groundwater monitoring program to characterize its groundwater resources and evaluate their suitability for potable water uses. Water quality data obtained would extend the regional groundwater assessment work already conducted by San Mateo County.
- **Kirker Creek Watershed Greenway Park Plan (Contra Costa RCD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #5, 6, and 9. This project will create a plan that balances human land use with preservation, enhancement and restoration of the streamcourse and floodplain. This will be a community-based planning document that establishes the vision for a healthy watershed.
- **Kirker Creek Watershed Nursery (Contra Costa RCD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #5 and 9. This project implements watershed management and planning by enhancing opportunities for community members participate in activities to protect and enhance watershed health. Volunteers will propagate native plants for planting at schools, city landscaping, and at a local wetland restoration site. The goal of hands-on involvement is to instill a sense of stewardship in students and other community volunteers who participate. The purpose of restoration in the watershed is to provide wildlife habitat and improve water quality through increased infiltration and decreased erosion in an urbanized and industrialized area.
- **Lake Merritt and Lake Merritt Channel Improvements (City of Oakland).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3, 5, and 6. The project will create restore intertidal wetlands and upland habitats within Lake Merritt and the Lake Merritt Channel. The project will improve water quality by reducing contaminants and increasing circulation. The waterway protection and water quality improvements will integrate outreach and education efforts. The project will promote continued work with watershed stakeholders and include monitoring and assessment.
- **Ledson Marsh Restoration: Annadel State Park (California State Parks).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3 and 5. This project will focus on the restoration of the marsh through the stabilization and restoration of the associated dam. The site includes 30 acres of wetlands that support the California Red Legged Frog. It addresses



subsurface seepage from the dam, preservation of seasonal water levels and avoidance of excessive sediment discharge to Sonoma Creek.

- **Lomita Canal / Cupid Row Canal Upgrades (San Francisco International Airport).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1 and 3. The Lomita Canal conveys stormwater runoff from the City of Millbrae through San Francisco International Airport's West of Bayshore property. This project will improve habitat for the California Red-Legged Frog and San Francisco Garter Snake as well as improve stormwater run-off flow from Millbrae in the Lomita Canal.
- **Lower Silver Creek, Reaches 4-6 (SCVWD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3 and 5. This project restores 2.2 miles of tributary waters to Coyote Creek, which drains to the Bay. The project improves stream management and habitat, flood control and water quality.
- **Marin County Benthic Macroinvertebrate Sampling Program (Marin County STOPPP).** This project addresses RWQCB Region 2's WMI Water Quality Priority #6. This project improves data collection for 30 sites across four major watersheds that drain to various locations in San Francisco Bay. Its goal is to use water quality indicators to identify potential stressors to local waterways and their native aquatic species.
- **Martinez Adult Education Campus Creek Project Enhancement (Muir Heritage Land Trust).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1, 3, and 5. This project will build upon a successful restoration project to enhance the riparian area and flood plains of Alhambra Creek. It incorporates stormwater management and BMP improvements, as well as urban runoff reduction and infiltration. The assessment will include a watershed approach as defined in the Alhambra Creek Watershed Management Plan.
- **Monitoring Well Construction and Water Quality Monitoring Program (ACWD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #5 and 6. This project will enhance groundwater protection by replacing privately owned wells in the critical areas of the Niles Cone Groundwater Basin with dedicated monitoring wells to allow for monitoring of groundwater levels and quality, and identify any potential seawater intrusion.
- **Mt. Diablo Creek Watershed Coordinated Steelhead Passage Project (Natural Heritage Institute).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3 and 5. The goal of this project is to support steelhead repopulation by addressing fish passage around two dams and a culvert. It provides stream protection by restoring access to 15 miles of stream habitat through a watershed assessment approach.
- **Mt. Diablo State Park: Comprehensive Stock Pond Evaluation and Sedimentation Remediation (California State Parks).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3, 5, and 6. The project will take a watershed-based approach to improve the hydrologic function in the Mount Diablo State Park. It will enhance wetlands, and provide erosion control and sediment reduction.
- **Mt. Diablo State Park: Mitchell Creek Riparian Restoration (California State Parks).** This project addresses RWQCB Region 2's WMI Water Quality Priority #3. This project will restore the natural riparian corridor of Mitchell Creek, thereby improving habitat for both resident and anadromous fish.
- **Napa Plant Site Restoration Project (DFG).** This project addresses RWQCB Region 2's WMI Water Quality Priority #3. This project would restore 1,460 acres of former salt ponds in the floodplain of the Napa River. The project will improve tidal marsh habitat and filtration capacity, improving the water quality reaching San Pablo Bay and increasing the flood storage capacity during time of high runoff.



- **Napa Salt Marsh Restoration Project (Sonoma Valley County Sanitation District).** This project addresses RWQCB Region 2's WMI Water Quality Priority #3. This project will restore salt ponds in the Napa-Sonoma Marsh Wildlife Area. Restoration of North and South Bay Salt Ponds is an explicit priority of the WMI. The project will incorporate both wetland restoration and wastewater reuse by using recycled water to dilute bittern in the ponds in order to facilitate restoration of important salt marsh habitat.
- **Permanente Creek Flood Protection (SCVWD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1 and 3. The project will focus on stream restoration and flood protection by removing thousands of feet of concrete channels and restoring the streams back to partial riparian channels. Furthermore, it will assist in reducing urban runoff peak flows, improving stormwater runoff water quality parameters through natural retention and uptake.
- **Phase 2 – Niles Cone Groundwater Recharge and Fish Passage Program (ACWD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3, 5, and 7. This project would promote stream restoration and groundwater protection by modifying existing flood control channel facilities to provide fish passage in the Alameda Creek Flood Control Channel. It would provide access for anadromous fishery to 700 square-miles in Alameda Creek Watershed, while ensuring ability to manage Niles Cone Groundwater Basin for local water supplies and to prevent seawater intrusion.
- **Pilarcitos Creek Integrated Watershed Management Plan Development and Implementation (SFPUC).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #5, 6, and 7. The goal of this project is to determine an effective management strategy for the competing uses derived from environmental, agricultural, public health and economic interests. It includes assessment and protection of groundwater wells, as well as watershed management.
- **Pinole Creek Restoration and Greenway Park (CCC FC&WCD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1 and 3. The project seeks to restore an existing engineered earth flood control channel to its natural stream function. It will improve and protect streams, and increase flood conveyance capacity. Located in downtown Pinole, it will assist with stormwater management, and reduce urban runoff.
- **Protection from Tidal Flooding (City of Burlingame).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1, 3, 5, and 6. This project will address multiple aspects of the near-shore environment of the San Francisco Bay. It will likely include restoration of tidal mudflats and wetlands. This will assist with stormwater management, urban runoff and water quality indicators in and around the Bay. It will include wide-spread watershed management and monitoring effort.
- **R10-2 Arroyo de la Laguna (ADLL) Improvement Project 2 (Zone 7).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1 and 5. This project will improve stormwater management and urban runoff by replacing concrete drainage outfalls and improving bio-stabilization techniques. Furthermore, it will add a vegetated bank terrace and improve stream protection.
- **R10-5 Arroyo de la Laguna Improvement Project 5 (Zone 7).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1 and 5. This project will improve stormwater management and urban runoff by protecting stream corridors, remove log jams, stabilizing bank channels and conducting vegetation management.
- **Regional BMPs, Field Manual and Training for Stream Maintenance Activities (Marin County STOPPP).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #5 and 9. This project will create an integrated set of regional BMPs, a standardized field manual and consistent training for stream maintenance activities. This integrated, watershed-based



approach to implementing BMPs, will improve management of the watershed and streams and will assist with stormwater management, urban runoff, and water quality improvements.

- **Regional Flood Agencies Forum (SCVWD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #5, 6, and 9. This project will accelerate the transition of region-wide flood control agency practices from a traditional single-objective approach to a more integrated approach including floodplain management, habitat protection and enhancement, fisheries enhancement and multi-objective flood management projects. This project would facilitate planning, design and execution of projects that incorporate watershed analysis, flood mapping and forecasting, floodplain management, urban planning, stormwater management, fish habitat enhancement, stream channel restoration, streambank stabilization, riparian restoration, and water quality protection.
- **Rheem Creek Restoration and Watershed Council Project (Natural Heritage Institute).** This project addresses RWQCB Region 2's WMI Water Quality Priority #3. This project will improve riparian habitat and water quality along 1,900 feet of Rheem Creek, and provide stewardship and educational opportunities to the community.
- **Richmond Bayshore Stewards (The Watershed Project).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3 and 7. The project focuses on the restoration of West Stege Marsh and upland terrace prairie habitat. This will depend on an assessment of surface water and groundwater. Contaminated sediments will be removed from the site, which will improve groundwater quality.
- **Rollingwood Neighborhood Creek Restoration Project (Urban Creeks Council).** This project addresses RWQCB Region 2's WMI Water Quality Priority #3. The project will recontour, revegetate, and restore 1,700 feet of the Rheem Creek channel to achieve natural flood control.
- **San Leandro Tributaries at South Hills (City of Oakland).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3 and 5. This project will protect 250 acres of privately held open space that is currently at risk of development. This would assist with the stream protection and water quality parameters. Furthermore, erosion and sediment loading would be minimized through the latter phases of restoration.
- **Sears Point Restoration Project (Sonoma Land Trust).** This project addresses RWQCB Region 2's WMI Water Quality Priority #3. The project will restore 1,400 acres of diked baylands to a mix of tidal and non-tidal marsh. Enhancement of approximately 900 acres of uplands will include riparian restoration, native grassland management, erosion control, trash clean up, and enhancement of vernal pools and plunge pools.
- **Sky Valley-Sulphur Springs Watershed Management Plan (City of Benicia).** This project addresses RWQCB Region 2's WMI Water Quality Priority #5. The City of Benicia is designing an outreach approach to ensure citizen participation in the development of a watershed management plan.
- **South Bay Salt Pond Restoration Project & South San Francisco Bay Shoreline Study: Early Implementation Activities (SCC).** This project addresses RWQCB Region 2's WMI Water Quality Priority #3. This project will restore approximately 15,100 acres of salt ponds in South San Francisco Bay to support wildlife and protect and improve water quality. It will reduce the amount of sediment reaching the Bay and improve the quality of stormwater runoff from uphill contributions.
- **Stevens Creek Restoration at Blackberry Farm, Cupertino (SCVWD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1 and 3. This project will restore Stevens Creek to a more natural functioning state. Currently, it is deeply incised and contains barriers to fish passage. The increase in natural function will improve stormwater management and urban runoff, as well as groundwater infiltration and percolation.



- **Thompson Creek Stream Stabilization (SCVWD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1 and 3. This project will stabilize and protect 1.2 miles of Thompson Creek. This riparian habitat restoration and erosion protection effort will improve stormwater management and the water quality of the waters draining into South San Francisco Bay.
- **Urban Creek Trash Reduction Program (SCVWD).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #3, 5, and 9. This project will establish an urban trash management program for creeks and flood control channels. This project provides for water quality protection, increased flood protection by minimizing blockages, ecosystem enhancement and good neighbor relations by improving the aesthetic quality of creeks and waterways.
- **Watershed Habitat and Project Mapping Program (San Francisco Estuary Institute).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1, 3, 5, and 6. Using a watershed management and monitoring approach, this project will provide extensive planning and assessment efforts for channels, water impoundments, riparian habitats, and wetlands. The information will support wetland and stream protection and improve stormwater management and urban runoff.
- **Wetland and Creek Restoration at Big Lagoon, Muir Beach (National Parks Service-GGNRA).** This project addresses RWQCB Region 2's WMI Water Quality Priorities #1 and 3. This project will restore the natural function of the 35 acres of channel, riparian habitat and wetlands in Big Lagoon. It will assist with stormwater runoff and groundwater infiltration, as well as improve wetlands and stream protection.
- **Wildcat Creek Restoration (CCC FC&WCD).** This project addresses RWQCB Region 2's WMI Water Quality Priority #3. The project will improve the natural stream course of Wildcat Creek through restoration and protection. Increasing the riparian corridor, stabilizing the existing sediment basin, and increasing the natural meander of the stream will provide multiple benefits. These benefits include improved stormwater management, water quality, groundwater infiltration, and flood capacity storage.

L.5 SWRCB NPS Pollution Plan

According to the State of California NPS Program Five-Year Implementation Plan for 2003-2008⁵, the vision of the State's NPS Program is to "...reduce and prevent NPS pollution so that the waters of California support a diversity of biological, educational, recreational, and other beneficial uses."

The four main objectives of the current NPS Five-Year Implementation plan include the following:

1. Promoting the implementation of management measures (MMs) and related practices by all levels of water quality managers (Federal, State, watershed groups, and other stakeholders).
2. Preserving water quality in water bodies that are currently meeting California water quality standards and protecting them from future degradation from the impacts of non-point source pollution.
3. Promoting the implementation of MMs and use of management practices (MPs) for the NPS component of TMDLs or in CWA Section 303(d) listed water bodies in order to improve water quality.
4. Promoting better leverage of inter-agency and private entity resources for NPS Programs.

⁵ State of California Nonpoint Source Program Five-Year Implementation Plan - July 2003 through June 2008. December 2003. Prepared by: SWRCB and the California Coastal Commission, in cooperation with the Nonpoint Source Interagency Coordinating Committee. <http://www.waterboards.ca.gov/nps/5yrplan.html>. Accessed August 25, 2006.



The key management measures that were identified in the current NPS Five-Year Implementation plan are listed in Table L-3.

Table L-3: NPS Five-Year Implementation Plan Management Measures⁵

Land Use Category	Management Measures
Agriculture	Erosion and Sediment Control, Nutrient Management, Pesticide Management, Grazing Management, Irrigation Water Management, Education/Outreach, and Agricultural Used Oil/Waste Management.
Forestry	Pre-Harvest Planning, Streamside Management Areas, Road Construction/Reconstruction, Road Management, Timber Harvesting, Site Preparation and Forest Regeneration, Fire Management, Re-vegetation of Disturbed Areas, Forest Chemical Management, Wetlands Forest Management, and Education/Outreach.
Urban	Runoff from Developing Areas, Runoff from Construction Sites, Runoff from Existing Development, On-site Disposal Systems, Transportation Development (Roads, Highways, and Bridges), and Education/Outreach.
Marinas and Recreational Boating	Assessment, Siting and Design, Operation and Maintenance, and Education/Outreach.
Hydromodification	Channelization/Channel Modification, Dams, Streambank and Shoreline Erosion, and Education/Outreach.
Wetlands	Riparian Areas Protection, Riparian Areas Restoration, Vegetated Treatment Systems, and Education/Outreach.
Other	Abandoned Mines, Marine Native Plant Restoration, and Marine invasive Species Eradication.

Bay Area IRWMP near-term priority projects which implement the SWRCB's NPS Pollution Plan are as follows:

- **Alameda County Partnership for Land Conservation and Stewardship (Alameda County RCD).** This project will protect watershed lands, preventing additional development of impervious surfaces which would lead to increased stormwater runoff. As part of protecting these watershed lands, riparian areas will also be protected directly addressing the strategies of the NPS Pollution Plan.
- **Alhambra Creek Restoration and Environmental Education Collaborative (ACREEC): John Swett Campus (Muir Heritage Land Trust).** By establishing and monitoring the BMP strategy of a vegetated swale, this project will reduce NPS pollution from urban runoff and promote improvements in urban stormwater management.
- **Alhambra Valley Creek Coalition Restoration Project (Urban Creeks Council).** The project will address erosion and sedimentation on a 1-mile reach of the headwaters of Alhambra Creek, which drains into Carquinez Straight, and then into San Francisco Bay. Furthermore, it will prevent leachfields and their associated water quality contaminants from being released to the creek, reducing NPS pollution.
- **Annadel State Park Erosion Control: Geary Ranch Road to Trail Conversion (California State Parks).** This project will restore approximately two miles of extremely steep, degraded fire road where severe environmental damage is occurring in the form of accelerated erosion, creek sedimentation and deep down cutting, and replace it with a properly designed trail, reducing NPS pollution.



- **Bay Area Regional Water Conservation Program (SCVWD).** This project will promote the value of water and increase awareness of the need for additional conservation. Increased conservation will reduce urban runoff, a major source of NPS pollution.
- **Beaver Pond Habitat Enhancement Project at the Dow Wetland Preserve (Contra Costa RCD).** The project will protect riparian areas and improve infiltration, thereby reducing NPS pollution from runoff.
- **Canal Encasement Phases II and III (CCWD).** This project will reduce NPS pollution by hydraulically isolating the Canal from the surrounding high saline groundwater.
- **Candlestick Point State Recreation Area Yosemite Slough Restoration Project (California State Parks).** This project will restore riparian areas by increasing the tidally influenced area of the Slough from nine to twenty acres. This restoration project would improve stormwater management and therefore will address NPS pollution.
- **Codornices Creek, Kains to San Pablo (Friends of Five Creeks).** This project will protect and restore riparian areas and restore natural functioning to Codornices Creek.
- **Corte Madera Creek Watershed Plan (Friends of Corte Madera Creek Watershed).** This project will develop a comprehensive framework for managing water resources within the Corte Madera Creek watershed. It will recommend and prioritize actions to protect and improve water quality, flood management, invasive species management, habitat restoration, and land use planning, which will in turn address NPS pollution.
- **CreekWise Creek Care Education Program (San Mateo STOPPP).** This project will educate creek side landowners and educational institutions about proper creek care, erosion prevention, planting guidance, pollution prevention and professional service referrals. By undergoing this education and outreach effort, this project will also promote the protection and restoration of riparian areas, which help to control NPS pollution.
- **Groundwater Recharge Opportunities (Sonoma CWA).** This project will increase open space buffering and create seasonal wetlands, which in turn increases the uptake of NPS pollutants before reaching the Bay.
- **Guadalupe Watershed Modeling Towards Mercury Management to Achieve TMDL Goals (San Francisco Estuary Institute).** This project will compile existing data and provide a comprehensive analysis in order to determine a cost effective method to reduce channel mercury loading in the Guadalupe River.
- **Jack London Lake Restoration and Sedimentation Reduction (California State Parks).** This project will assist in NPS pollution control by restoring Jack London Lake thereby reducing erosion and nutrient loading.
- **Lake Merritt and Lake Merritt Channel Improvements (City of Oakland).** This project will expand the tidal exchange to Lake Merritt by removing culverts at 12th and 10th streets. Allowing larger volumes to flush in and out of the lake will improve water quality by increasing oxygen levels and enhancing opportunities for successful establishment of proposed wetland areas. The project provides multiple benefits by reducing pollutants, merging water quality and habitat objectives, and strengthening outreach and awareness.
- **Lomita Canal / Cupid Row Canal Upgrades (San Francisco International Airport).** The Lomita Canal conveys stormwater runoff from the City of Millbrae through San Francisco International Airport's West of Bayshore property. This project will reduce NPS pollution by modifying the channel to realign, widen, deepen and create pockets of open water in Lomita Canal.
- **Martinez Adult Education Campus Creek Project Enhancement (Muir Heritage Land Trust).** This project will build upon a successful restoration project to enhance the riparian area



and flood plains of Alhambra Creek. It incorporates stormwater management and BMP improvements, as well as urban runoff reduction (a major source of NPS pollution) and infiltration.

- **Mt. Diablo State Park: Comprehensive Stock Pond Evaluation and Sedimentation Remediation (California State Parks).** The project will apply a watershed-based approach to improve the hydrologic function in the Mount Diablo State Park. It will assist in NPS pollution control by assessing and characterizing 15 to 20 stock ponds and their long-term stability, source of sedimentation and potential for dam and pond failure. It will also implement improvements that enhance wetlands, provide erosion control, and reduce sediment.
- **Mt. Diablo State Park: Mitchell Creek Riparian Restoration (California State Parks).** This project will restore the natural riparian corridor of Mitchell Creek, which eventually drains into Suisun Bay. It will assist with reducing NPS pollution levels and support in-stream habitat for resident and anadromous fish.
- **Napa Salt Marsh Restoration Project (Sonoma CWA).** This project implements NPS prevention measures by reusing treated effluent that is normally discharged to a creek. The creek flows into the San Pablo Bay, an impaired water body for mercury and other contaminants. Stormwater, which is a primary source of NPS pollution, is captured and treated prior to discharge into the creek. By reusing the treated water, pollutants associated with stormwater will not be discharged to San Pablo Bay during the discharge season, thus reducing NPS pollution in the Bay.
- **Nathanson Creek Preserve Restoration Project (Sonoma Ecology Center).** The project will include planning and implementation of restorative channel modifications to expand the scope of weed eradication and revegetation, to help accommodate stormwater flows during peak flood events, to reduce rates of bank erosion, and to increase aquatic habitat quality and quantity.
- **PCBs Investigation at the Pulgas Creek Pump Station Watershed, San Carlos, California (San Mateo C/CAG).** This project will address the NPS pollutant PCB in the Pulgas Creek drainage before it drains to San Francisco Bay. It will support abatement of sources of PCBs and PCB-laden sediments, and develop methods that would assist other Bay Area agencies in addressing PCBs in stormwater runoff.
- **Permanente Creek Flood Protection (SCVWD).** The project will focus on stream restoration and flood protection by replacing thousands of feet of concrete channels with partial riparian channels. Furthermore, it will assist in reducing urban runoff peak flows, and improving stormwater runoff water quality parameters through natural retention and uptake.
- **Pilarcitos Creek Integrated Watershed Management Plan Development and Implementation (SFPUC).** The goal of this project is to determine an effective management strategy for the competing uses derived from environmental, agricultural, public health and economic interests. The assessment will consider the protection and restoration of riparian areas since restoring riparian habitat and flows in Pilarcitos Creek and its lagoon would benefit threatened aquatic and terrestrial species.
- **Pinole Creek Restoration and Greenway Park (CCC FC&WCD).** The project will restore natural stream function to an engineered earth flood control channel. It will thereby improve and protect streams, and increase flood conveyance capacity. Located in downtown Pinole, it will assist with stormwater management and will reduce urban runoff, a major source of NPS pollution.
- **R10-2 Arroyo de la Laguna (ADLL) Improvement Project 2 (Zone 7).** This project will improve stormwater management and urban runoff by replacing concrete drainage outfalls and improving bio-stabilization techniques. Furthermore, it will add a vegetated bank terrace and improve stream protection.



- **Reducing Women and Children’s Exposure to Mercury in the Bay and Delta Region (Ma’at Youth Academy).** This program will reduce women and children’s exposure to methylmercury in high-risk areas of the Bay and Delta region by raising public awareness, training youth to be community monitors and advocates, collaborating with community health professionals, and maximizing resources for nutritional guidance and education. In addition, this project will partner with public officials and work with existing mercury abatement efforts to help combat the root source of toxic fish.
- **Richmond Bayshore Stewards (The Watershed Project).** The project focuses on the restoration of West Stege Marsh and upland terrace prairie habitat. Contaminated sediments will be removed from the site, which will improve groundwater quality and reduce pollutant runoff.
- **Robert Louis Stevenson State Park Erosion Control: Table Rock Trail Re-route (California State Parks).** The project will improve the trail conditions and long-term stability of the Table Rock Trail. These trail improvements will reduce erosion and sediment mobilization.
- **San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration (San Francisquito Creek JPA).** The San Francisquito Creek watershed is listed as impaired by sediment under Section 303(d) of the Clean Water Act and requires the establishment of a TMDL. The project will address the altered sediment regime of the watershed and sediment deposition at the Searsville Dam.
- **South Bay Salt Pond Restoration Project & South San Francisco Bay Shoreline Study: Early Implementation Activities (SCC).** This project will restore approximately 15,100 acres of salt ponds in South San Francisco Bay to support wildlife and protect and improve water quality. It will reduce the amount of sediment reaching the Bay and improve the quality of stormwater runoff from uphill contributions.
- **Sugarloaf Ridge State Park Erosion Control: Goodspeed Trail Rehabilitation (California State Parks).** The project will improve the trail conditions and long-term stability of the Goodspeed Trail. These improvements will minimize the mobilization of sediments due to excessive erosion.
- **Sustainable Streets for Improved Stormwater Quality and Water Reuse (San Mateo C/CAG).** This project focuses on the improvement of water quality and quantity from stormwater runoff in San Mateo County. By reducing stormwater runoff, this project will also reduce pollutant loading from stormwater. These efforts will result in a reduction in NPS pollution entering the San Francisco Bay.
- **Urban Creek Trash Reduction Program (SCVWD).** This project will establish an urban trash management program for creeks and flood control channels. This project would emphasize source reduction and watershed management of non-point source pollutants.
- **Wetland and Creek Restoration at Big Lagoon, Muir Beach (National Park Service-GGNRA).** This project will restore the natural function the 35 acres of channel, riparian habitat and wetlands of Big Lagoon. It will assist with stormwater runoff and groundwater infiltration, as well as improve wetlands and stream protection.

L.6 Delta Water Quality Objectives

Two-thirds of all Californians rely on the Delta for their primary water supply. Over 30% of the Bay Area water supply comes from the Delta. ACWD, BAWSCA Members, CCWD, MMWD, City of Napa, SCVWD, Solano CWA, and Zone 7 all rely on Delta supplies as part of their water supply portfolio. Thus, the agencies are committed to protecting and improving Delta water quality. In addition, the Bay Area region consist of the nine counties immediately surrounding the San Francisco Bay, further increasing the region’s awareness of the need for protection of this resource.



The CALFED Water Quality Program has established several water quality objectives for the Delta; these were reported in the CALFED Water Quality Program Plan (WQPP) of July 2000⁶. These objectives, as well as the specific page references from the WQPP, are listed in Table L-4.

Table L-4: Delta Water Quality Objectives

Delta Water Quality Objectives ^a	WQPP Page #
Low Dissolved Oxygen Concentration and Oxygen-Depleting Substances: The objective is to correct the causes of oxygen depletion in affected areas, to reduce incidences of low DO, and to reduce the impairment of beneficial uses.	2-1 – 2-13
<p>Drinking Water: The CALFED drinking water quality objective is to continuously improve source water quality that allows for municipal water suppliers to deliver safe, reliable, and affordable drinking water that meets and, where feasible, is better than applicable drinking water standards. This objective promotes improved water management through source control and prevention projects, exchanges, blending, purchases of high-quality water, wastewater recycling, groundwater use, and alternative approaches to drinking water treatment. Of primary importance is the reduction and maintenance of pathogen loadings in source waters to required levels, and the reduction of TOC and bromide levels to avoid production of harmful levels of DBPs. Reduction of TDS will facilitate improved water management.</p> <p><u>Bay Delta Region:</u> Manage restoration projects to minimize adverse impacts and maximize benefits for drinking water quality; Implement agricultural drainage control actions; reduce wastewater and stormwater sources of drinking water constituents of concern; support development of new advanced treatment technologies; identify problems and solutions to urban runoff; reduce loading of TDS to San Joaquin River and the Delta;</p> <p><u>North Bay Aqueduct:</u> Implement a watershed management program to control drinking water contaminants in the Barker Slough watershed; study the feasibility of relocating the NBA intake.</p> <p><u>South Bay Aqueduct:</u> Implement a watershed management program; implement management programs for Lake Del Valle and the Lake Del Valle watershed.</p> <p><u>Clifton Court Forebay and Bethany Reservoir:</u> Implement a watershed management program to address nutrients and pathogens; evaluate the impacts of new wastewater discharges to the Delta, control algae in the Clifton Court Forebay.</p> <p><u>Contra Costa Water District Intakes:</u> Relocate, reduce, or eliminate agricultural drainage into Rock Slough;</p> <p><u>Delta-Mendota Canal at the City of Tracy Intake:</u> Evaluate the water quality impacts of wastewater discharge near the City of Tracy's drinking water intake.</p> <p><u>San Joaquin River:</u> Establish a watershed management program (similar in scope to Sacramento River Watershed Program); Address drainage problems to improve downstream water quality.</p> <p><u>California Aqueduct:</u> Reduce stormwater drainage into the aqueduct; implement a watershed management program to minimize drainage impacts.</p>	3-1 – 3-55
Mercury: The objective is to reduce mercury in water and sediment to levels that do not adversely affect aquatic organisms, wildlife, or human health.	4-1 – 4-20
Pesticides: The objective is to manage pesticides through existing regulatory agencies and voluntary cooperation of pesticide users such that the beneficial uses of the waters of the Bay-Delta and its tributaries are not impaired by toxicity originating from pesticide use.	5-1 – 5-14

⁶ Source: CALFED Bay-Delta Program - Water Quality Program Plan. July 2000. <http://calwater.ca.gov/Programs/DrinkingWater/ProgramPlan/306.pdf>. Accessed: August 22, 2006.



Delta Water Quality Objectives ^a	WQPP Page #
Organochlorine (OC) Pesticides: The objective is to reduce concentrations of OC pesticides in biota in the San Joaquin and Sacramento Rivers and the Delta, which will require reducing the transport of OC pesticides from agricultural lands to the rivers. The measure of success will be lower levels of OC pesticides in biota as determined from monitoring. PCB, dioxin, and dioxin-like compound concentrations and environmental (including public health) impacts will be monitored and solutions devised, if feasible.	6-1 – 6-9
Salinity: The primary objective is to reduce or manage salinity in the San Joaquin River and in the Delta Region to meet water quality objectives and protect beneficial uses by such means as relocating points of drainage discharge, improving flow patterns using flow barriers, reducing and managing drainage water, reducing salts discharged to these water bodies, real-time management, and using the assimilative capacity of the river through the DMC circulation.	7-1 – 7-26
Selenium: The objective is to reduce the impairment of environmental beneficial uses in the Delta Region and in the lower San Joaquin River that is associated with selenium concentrations and loadings.	8-1 – 8-18
Trace Metals: The objective is to reduce metal loading of the Bay-Delta and its tributaries to levels that do not adversely affect aquatic habitat, other beneficial uses of Bay-Delta estuary waters, or species dependent on the estuary.	9-1 – 9-7
Turbidity and Sedimentation: The objective is to reduce sediment in areas to the degree that sediment does not cause negative impacts on beneficial uses of surface water, which includes ecosystem benefits and municipal uses. (Please note: A balance exists between the amount of sediment needed in Delta water and an amount that is harmful to the ecosystem and troublesome for drinking water treatment.)	10-1 – 10-6
Toxicity of Unknown Origin: The objective is to further identify parameters of concern in the water and sediment in the Delta, Bay, Sacramento River, and San Joaquin River Regions and to implement actions in order to reduce the toxicity of identified parameters to aquatic organisms. The methodology used to control unknown toxicity is a staged procedure.	11-1 – 11-7

a. Source: CALFED Bay-Delta Program - Water Quality Program Plan. July 2000. <http://calwater.ca.gov/Programs/DrinkingWater/ProgramPlan/306.pdf>. Accessed: August 22, 2006.

All projects described in Section L.3: *Total Maximum Daily Loads (TMDLs)* and in Section L.5: *SWRCB NPS Pollution Plan* will also address Delta Water Quality Objectives by reducing pollutant loading to the Bay-Delta. These projects are as follows:

- Alameda County Partnership for Land Conservation and Stewardship (Alameda County RCD)
- Alhambra Creek Restoration and Environmental Education Collaborative (ACREEC): John Swett Campus (Muir Heritage Land Trust)
- Alhambra Valley Creek Coalition Restoration Project (Urban Creeks Council)
- Annadel State Park Erosion Control: Geary Ranch Road to Trail Conversion (California State Parks)
- Antioch Recycled Water Implementation (DDSD)
- Bay Area Regional Water Conservation Program (SCVWD)
- Bay Water Desalination Plant (MMWD)
- Beaver Pond Habitat Enhancement Project at the Dow Wetland Preserve (Contra Costa RCD)
- Palo Alto Recycling Project (City of Palo Alto)
- Palo Alto Regional Water Quality Control Plant Water Recycling Program - Phase 3 Expansion (City of Palo Alto)
- PCBs Investigation at the Pulgas Creek Pump Station Watershed, San Carlos, California (San Mateo C/CAG)
- Peacock Gap Recycled Water Extension (MMWD)
- Permanente Creek Flood Protection (SCVWD)
- PG&E Contra Costa Power Plant #8 Recycled Cooling Water (DDSD)
- Pilarcitos Creek Integrated Watershed Management Plan Development and Implementation (SFPUC)
- Pinole Creek Restoration and Greenway Park (CCC FC&WCD)
- Pittsburg Recycled Water Implementation (DDSD)



- Benicia Water Reuse Project (City of Benicia)
- Canal Encasement Phases II and III (CCWD)
- Candlestick Point State Recreation Area Yosemite Slough Restoration Project (California State Parks)
- Codornices Creek, Kains to San Pablo (Friends of Five Creeks)
- ConocoPhillips High-Purity Recycled Water Project (EBMUD)
- Corte Madera Creek Watershed Plan (Friends of Corte Madera Creek Watershed)
- CreekWise Creek Care Education Program (San Mateo STOPPP)
- Developing and Implementing Options for Mitigating Risks of Public Health Impacts of Eating Fish (Clean Estuary Partnership)
- East Bayshore Recycled Water Project – Phase 1B (EBMUD)
- Groundwater Recharge Opportunities (Sonoma CWA)
- Guadalupe River Watershed Habitat Enhancement (SCVWD)
- Guadalupe Watershed Modeling Towards Mercury Management to Achieve TMDL Goals (San Francisco Estuary Institute)
- Jack London Lake Restoration and Sedimentation Reduction (California State Parks)
- Lake Merritt and Lake Merritt Channel Improvements (City of Oakland)
- Lomita Canal / Cupid Row Canal Upgrades (San Francisco International Airport)
- Martinez Adult Education Campus Creek Project Enhancement (Muir Heritage Land Trust)
- Milpitas Transit Area Recycled Water Project (City of San Jose)
- Mirant Cooling Recycled Water Project (DDSD)
- Mountain View / Moffett Area Water Recycling Project (City of Palo Alto/City of Mountain View)
- Mt. Diablo State Park: Comprehensive Stock Pond Evaluation and Sedimentation Remediation (California State Parks)
- Mt. Diablo State Park: Mitchell Creek Riparian Restoration (California State Parks)
- Napa Salt Marsh Restoration Project (SCC)
- Nathanson Creek Preserve Restoration Project (Sonoma Ecology Center)
- R10-2 Arroyo de la Laguna (ADLL) Improvement Project 2 (Zone 7)
- Recycled Water Conveyance Pipeline (Novato Sanitary District)
- Recycled Water Program for North Marin WD & Novato Sanitary District – Phase 1 (North Marin Water District)
- Reducing Women and Children’s Exposure to Mercury in the Bay and Delta Region (Ma’at Youth Academy)
- Redwood City Recycled Water Project (City of Redwood City)
- Rheem Creek Restoration and Watershed Council Project (Natural Heritage Institute)
- Richmond Advanced Recycled Expansion (RARE) Water Project (EBMUD)
- Richmond Bayshore Stewards (The Watershed Project)
- Robert Louis Stevenson State Park Erosion Control: Table Rock Trail Re-route (California State Parks)
- San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration (San Francisquito Creek JPA)
- San Leandro Water Reclamation Facility Expansion Project (EBMUD)
- San Ramon Valley Recycled Water Program - Phase 2 and Future Phases (DSRSD-EBMUD Recycled Water Authority)
- Satellite Recycled Water Treatment Plant Project (EBMUD)
- SBWR Recycled Water Phase 2 Extensions-- Santa Clara (City of San Jose)
- Sears Point Restoration Project (Sonoma Land Trust)
- South Bay Advanced Recycled Water Treatment Facility Project (SCVWD)
- South Bay Salt Pond Restoration Project & South San Francisco Bay Shoreline Study: Early Implementation Activities (SCC)
- Stanford Central Energy Facility Cooling Tower Recycled Water System (Stanford University)
- Sugarloaf Ridge State Park Erosion Control: Goodspeed Trail Rehabilitation (California State Parks)
- Sustainable Streets for Improved Stormwater Quality and Water Reuse (San Mateo C/CAG)
- Upper Guadalupe River Project (Reaches 6 and 12) (SCVWD)
- Urban Creek Trash Reduction Program (SCVWD)
- Wetland and Creek Restoration at Big Lagoon, Muir Beach (National Parks Service-GGNRA)



Additional Bay Area IRWMP near-term priority projects that assist in meeting Delta water quality objectives are as follows:

- **Canal Encasement Phases II and III (CCWD).** This project will address the Delta drinking water quality objective by encasing the canal to improve water quality and enable restoration projects. Encasing the canal will reduce agricultural and non-point source contamination through surface water runoff and groundwater seepage. Implementation of the Canal Improvement Project is critical to balanced implementation of near-term CALFED projects as called for in the Delta Improvement Program and in the UOP Statement of Principles.
- **Kirker Creek Watershed Greenway Park Plan (Contra Costa RCD).** The project will create a plan that balances human land use with preservation, enhancement and restoration of streams and the floodplain. As such, it will improve the quality of the water that enters the Delta.
- **Ironhouse Sanitary District Wastewater Conveyance to San Francisco Region (Ironhouse Sanitary District).** This project will address Delta water quality objectives by improving the water quality of wastewater discharges and agricultural runoff. Project implementation would allow ISD to provide a higher level of treatment for the wastewater that is discharged onto agricultural lands and into surface waters, including the Delta.
- **Protection from Tidal Flooding (City of Burlingame).** This project will address multiple aspects of the near-shore environment of the San Francisco Bay. It will likely include restoration of tidal mudflats and wetlands and will focus on the South Bay and the Salt Pond Restoration Project. This will address Delta Water Quality Objectives by reducing sediment transport into the Bay.
- **Removal of NDMA, EDCs, and PPCPs in South Delta Water (CCWD).** This project will evaluate the effectiveness of augmented conventional treatment trains and membrane-based treatment trains to remove contaminants of emerging concern (n-nitrosodimethylamine [NDMA], endocrine disrupting compounds [EDCs] and pharmaceuticals and personal care products [PPCPs]) in south Delta waters based on tests conducted at pilot scale.

L.7 Task Force Recommendations

The State has initiated a number of focused efforts to investigate key water management issues and opportunities including: floodplain management, desalination, water recycling, and species recovery. Key recommendations of each of these task forces and descriptions of how Bay Area IRWMP near-term priority projects implement those recommendations are included in the following sections.

L.7.1 Floodplain Management Task Force

The Floodplain Management Task Force was formed in 2002 under the recommendation of Assembly Bill 1147 which states: “The Legislature finds and declares that the impacts of flooding can be reduced through better coordination of floodplain management decisions. It is the intent of the Legislature that the Governor establish a floodplain management task force with broad membership from the local, state, and federal government and stakeholders with interest in flood control. If the task force is established, it is the intent of the Legislature that it examine specific issues related to state and local floodplain management, including, but not limited to, features that substantially reduce potential flood damages, and make recommendations for more effective statewide floodplain management policies.” In response the Floodplain Management Task Force recommended floodplain management strategies designed to reduce flood losses and maximize the benefits of floodplains, including the following:



- Develop a Better Understanding of and Reduce Risks from Reasonably Foreseeable Flooding. Consider the risk to life and property from reasonably foreseeable floods when making their land use and floodplain management decisions.
- Implement Multi-objective Management Approach for Floodplains. Implement multi-objective management for floodplains on a watershed basis. Where feasible, projects should provide adequate protection for natural, recreational, residential, business, economic, agricultural, and cultural resources, and should protect water quality and supply.

Bay Area IRWMP near-term priority projects which implement the recommendations of the Floodplain Management Task Force include:

- **Adobe Bridge Culvert Removal Project (City of Pacifica).** This project would remove a box culvert and replace it with a freestanding bridge in order to improve fish passage and enhance flood protection. The existing box culvert is 8-feet wide by 8-feet. When creek flows reach 700 to 1200 cfs the culvert is subjected to immense pressure and back flooding occurs. When the flows exceed culvert capacity, the creek over tops it banks and floods approximately 15 to 20 acres of surrounding neighborhood before making its way back to the creek. Removing this flow obstacle will open up the channel to the area downstream of the Adobe Bridge which can handle the 100-year flood.
- **Adobe Creek Upper Reach 5 Restoration (SCVWD).** This project focuses on creek restoration and bank stabilization on Adobe Creek, while avoiding a hard engineering approach to flood protection. Adobe Creek has a long history of flooding, with flood damages occurring in 1952, 1955, 1983, 1986, 1995, and 1998. The creek has problems such as localized flooding, bank erosion, failing channel stabilization structures, sedimentation, barriers to fish passage, and insufficient maintenance access. This project will restore the creek by repairing the eroded channel, stabilizing banks, removing accumulated sediment, improving conveyance capacity in the channel while continuing to allow for overland flows during flood events, and providing environmental benefits to the creek ecosystem. The project provides flood protection for the 50-year flood, based on community desires to not construct a 1% conveyance project. The project will reduce the extent and quantity of overland flooding on the site.
- **Bay Area Levee Certification (SCVWD).** This project addresses the certification of all levees, (both tidal and riverine) in the Bay Area to meet FEMA standards. Project work will include documenting and mapping for areas that lack the 1% floodplain designation. The project will certify and/or scope the certification process for levees that have not been previously certified to FEMA standards. In addition, the project will identify the level of effort that would be required to improve levees to meet FEMA standards if they do not already meet the certification requirements.
- **Calabazas Creek, Miller Avenue to Wardell Road (SCVWD).** This project takes a watershed management approach to flood protection with the objectives of providing flood protection for all flows up to the 1% flood, protecting the channel from erosion, and restoring Calabazas Creek between Miller Avenue and Comer Drive. This project would protect 2,483 homes, businesses, and schools from the 1% flood, saving potential flood damages in excess of \$30.9 million. The project would also improve the health of the stream by stabilizing the channel invert, repairing the bank erosions, removing accumulated sediment, and improving fish passage.
- **Canal Encasement Phases II and III (CCWD).** This project will reduce the risk of foreseeable flooding by replacing four miles of tidally influenced open canal that is not currently protected by flood control levees with a buried pipeline.
- **Corte Madera Creek Watershed Models (Friends of Corte Madera Creek Watershed).** Limited streamflow and rainfall information is available for the Corte Madera Creek watershed.



Although some hydraulic models have been developed for small isolated reaches, no comprehensive model of the entire watershed has been constructed. This project would take a watershed management approach to develop three computer models of the watershed: a rainfall-runoff model, a steady-flow hydraulic (HEC-RAS) model, and a water quality model based on an unsteady-flow HEC-RAS model. The purpose of these models is to provide quantitative tools for water quality protection and enhancement, floodplain management, and land use planning. Without these models, the local governments and residents of the watershed would continue to lack an accurate understanding of rainfall/runoff relationships and the hydraulics of streams and stormwater in order to evaluate floodplain and stormwater management from a regional perspective.

- **Corte Madera Creek Watershed Plan (Friends of Corte Madera Creek Watershed).** This project will assess the Corte Madera Creek watershed and develop a comprehensive framework for managing water resources within the watershed. The project will recommend and prioritize actions to protect and improve water quality, flood management, invasive species management, habitat restoration, and land use planning.
- **Groundwater Recharge Opportunities (Sonoma CWA).** This project will increase open space buffering and create seasonal wetlands which will in turn reduce peak flows and reduce runoff, providing enhanced flood protection. This basin-wide effort will improve stormwater management, attenuate urban runoff and improve groundwater supply and quality.
- **Kirker Creek Watershed Greenway Park Plan (Contra Costa RCD).** This project will create a plan that balances human land use with preservation, enhancement, and restoration of the streamcourse and floodplain. This will be a community-based planning document that establishes a vision for a healthy watershed. The plan will identify projects with multiple benefits (including flood-control, water quality, and wildlife habitat, among others). This project will meet the objectives of this task force by characterizing the flood protection needs of the watershed and identifying multi-objective flood protection projects.
- **Lower Silver Creek, Reaches 4-6 (SCVWD).** This project improves stream management and habitat, flood control and water quality by restoring 2.2 miles of Lower Silver Creek, a tributary to Coyote Creek. Over the past 50 years, Lower Silver Creek has experienced severe flooding that resulted in damage to residential, commercial and industrial properties. This project will protect the surrounding area from the 100-year flood event, improve stream habitat values, improve fisheries potential, and provide recreational access to the public.
- **Permanente Creek Flood Protection (SCVWD).** The project will focus on stream restoration and flood protection by removing thousands of feet of currently concrete channels and restoring the streams back to partial riparian channels. Furthermore, it will assist in reducing urban runoff peak flows, improving stormwater runoff water quality parameters through natural retention and uptake.
- **Pinole Creek Restoration and Greenway Park (CCC FC&WCD).** This project seeks to restore natural stream function to an existing engineered earth flood control channel. It will improve and protect streams, and increase flood conveyance capacity. In addition, it will assist with stormwater management, reduce urban runoff, and integrate multiple benefits beyond its existing purpose.
- **Protection from Tidal Flooding (City of Burlingame).** This project will address multiple aspects of the near-shore environment of the San Francisco Bay. It will likely include restoration of tidal mudflats and wetlands and will focus on the South Bay and the Salt Pond Restoration Project. This will assist with stormwater management, urban runoff, water quality indicators, and TMDL thresholds in and around the Bay. It will include a widespread watershed management and monitoring effort.



- **R10-2 Arroyo de la Laguna (ADLL) Improvement Project 2 (Zone 7).** The project will improve stormwater management and urban runoff by replacing concrete drainage outfalls and improving bio-stabilization techniques. Furthermore, it will add a vegetated bank terrace and improve stream protection.
- **R10-5 Arroyo de la Laguna Improvement Project 5 (Zone 7).** This project will improve stormwater management and urban runoff by protecting stream corridors, remove log jams, stabilizing bank channels and conducting vegetation management.
- **Regional BMPs, Field Manual and Training for Stream Maintenance Activities (Marin County STOPPP).** This project will create an integrated set of regional BMPs, a standardized field manual, and consistent training for stream maintenance activities. This will provide an integrated, watershed-based approach for implementing BMPs. The improved management of the watershed and streams will assist with stormwater management, urban runoff, and water quality improvements.
- **Regional Flood Agencies Forum (SCVWD).** This project will accelerate the transition of region-wide flood control agency practices from a traditional single-objective approach to a more integrated approach including floodplain management, habitat protection and enhancement, fisheries enhancement and multi-objective flood management projects. This project would facilitate planning, design and execution of projects that incorporate watershed analysis, flood mapping and forecasting, floodplain management, urban planning, stormwater management, fish habitat enhancement, stream channel restoration, streambank stabilization, riparian restoration, and water quality protection.
- **Rollingwood Neighborhood Creek Restoration Project (Urban Creeks Council).** The lowland, predominately Latino Rollingwood neighborhood suffers chronic flooding due to blockages of stream flow during storm events. Currently, the channel is blocked by instream vegetation, especially cattails, and excessive desposition of sediment in culverts. The project will recontour, revegetate, and restore 1,700 feet of the Rheem Creek channel to accommodate stormwater flows and transport sediment.
- **San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration (San Francisquito Creek JPA).** San Francisquito Creek has overflowed eleven times since 1910 with peak floods in 1955, 1958, 1967, 1982, and 1998. In 1998, water overflowed creekbanks at 15 locations flooding over 11,000 acres and 2,000 homes. The purpose of this study is to perform a mulit-jurisdictional, feasibility-level investigation to identify and evaluate potential improvements plans to help alleviate flooding problems, as well as address environmental degradation of the watershed.
- **South Bay Salt Pond Restoration Project & South San Francisco Bay Shoreline Study: Early Implementation Activities (SCC).** This project will restore approximately 15,100 acres of salt ponds in South San Francisco Bay to improve flood protection, protect wildlife, and improve water quality. Where feasible, flood capacities of local creeks, flood control channels, and rivers will be increased by widening the mouths of the waterways and reestablishing connections to historical flood plains by removing levees that separate salt ponds from waterways. These former salt ponds will then be serving a dual purpose as tidal marsh habitat for wildlife and as a floodplain to increase conveyance.
- **Upper Guadalupe River Project (Reaches 6 and 12) (SCVWD).** This project will improve the existing stream habitat and provide flood protection by diverting flood flows with erosive velocities into a new bypass channel. This area is subjected to frequent flooding and within the last 20 years damaging flood events occurred in 1982, 1983, 1986, 1995, and 1998. Highway 87, a major thorough fare to the Silicon Valley, and a parallel light-rail line were closed by floods twice in 1995 and again in 1998. This project will increase flood protection to prevent future flooding. In addition, this project will improve existing stream habitat since the new bypass



channel will allow the existing channel to be planted with new, supplementary native riparian vegetation to shade the river and improve fishery habitat. By restoring this channel and creating large areas of riparian, wetlands and open water habitat, the natural functioning of the stream will be restored, improving overall water quality.

- **Wetland and Creek Restoration at Big Lagoon, Muir Beach (National Parks Service-GGNRA).** This project will restore the natural function of 35 acres of channel, riparian habitat and wetlands of Big Lagoon, improving the attenuation of flood waters. In addition, this project will assist with stormwater runoff, increase groundwater infiltration, and improve wetlands and stream protection.
- **Wildcat Creek Restoration (CCC FC&WCD).** The project will improve the natural stream course of Wildcat Creek through restoration and protection. Increasing the riparian corridor, stabilizing the existing sediment basin, and increasing the natural meander of the stream will provide multiple benefits. These benefits will include improved stormwater management, groundwater infiltration, and flood protection capacity.

L.7.2 Desalination Task Force

The Desalination Task Force's goal was to identify potential opportunities for the use of seawater and brackish water desalination in California, impediments to the use of desalination technology, and what role, if any, the State should play in furthering the use of desalination technology. The Desalination Task Force found that economically and environmentally acceptable desalination should be considered as part of a balanced water portfolio to help meet California's existing and future water supply and environmental needs. In addition, the task force recommended that the State should give high priority to those desalination projects that provide the greatest public benefits, such as

- serving areas implementing all conservation and recycling programs to the maximum extent practicable;
- demonstrating long-term environmental benefits;
- avoiding or reducing environmental impacts to the extent possible;
- reducing health risks by improving water quality;
- ensuring equitable access to benefits from desalination projects and including feasible mitigation for any environmental justice impacts.

Bay Area IRWMP near-term priority projects which implement the recommendations of the Desalination Task Force include the following:

- **Bay Water Desalination Plant (MMWD).** This project will help implement the recommendations of this task force by directly desalting San Francisco Bay water. A 10-mgd desalination facility will be constructed in the first phase. If needed, the plant will be expanded by 5mgd in following phase. In addition, this project will filter out particulate matter from Bay water effectively leaving the Bay cleaner than it was prior to the desalination project.
- **LEAD at Crockett (EBMUD).** This project will direct a portion of the water that is currently used as cooling water at a food processing plant to a desalination plant to supplement potable water supply. The food processing plant currently uses 23 mgd of Carquinez Strait water for spray condensers. Following its use in the plant's existing spray condensers, up to 3.0 mgd of that cooling water would be directed as the feedwater to the desalting plant. The 3.0 mgd cooling water supplied to the desalination plant will produce 1.5 mgd of potable quality water for use by the food processor, thus off-setting 1.5 mgd of potable water usage for EBMUD customers. A



next phase larger capacity project is being considered at this site for supplying potable water to other EBMUD customers.

- **Livermore-Amador Valley Mocho Groundwater Demineralization Project (Zone 7).** This project is designed to increase groundwater management flexibility. The project entails construction of demineralization facilities employing reverse osmosis technology. Groundwater demineralization will remove 95% of the TDS from the groundwater and produce 6.1 mgd of virtually salt-free water. The demineralized water will be blended with additional groundwater pumping to produce about 11 mgd of 300 mg/l TDS water for delivery to municipal and industrial customers. Approximately 6,000 tons of salt per year will be removed and exported. In addition to stabilizing the salt loading of the groundwater basin, the project will permit increased conjunctive use almost indefinitely without significantly increasing the present TDS and hardness of delivered water. Furthermore, the project is the cornerstone of Zone 7's Regional Board-approved Salt Management Plan and is integral to the increased use of recycled water for irrigation over the Main Groundwater Basin.
- **Peralta Tyson Groundwater Treatment Facility (ACWD).** This project will reduce conflict over groundwater by providing advanced treatment (reverse osmosis) of water extracted at ACWD's well fields. The treated water will be blended with groundwater and treated surface water to serve potable water demands and improve water quality.
- **Regional Desalination Feasibility Study (EBMUD).** EBMUD, SFPUC, CCWD, and SCVWD are jointly exploring developing regional desalination facilities that could benefit over 5.4 million bay area residents and businesses. The proposed Bay Area Regional Desalination Project may consist of one or more desalination facilities, with an ultimate total capacity of up to 120 million gallons per day. This project will assess the feasibility of developing and implementing a regional desalination project for the Bay Area and evaluate areas where the facility could be located.

L.7.3 Recycling Task Force

The Recycling Task Force aims to maximize recycled water use by funding reuse/recycling projects and for research including research on treatment, testing and monitoring methods, development of innovative/emerging technologies, study of emerging issues and fundamental scientific principles addressing technology, public and environmental health.

All of the Bay Area IRWMP near-term priority projects that increase the production and use of recycled water implement the recommendations of the Recycling Task Force. As shown in Table L-5, the Bay Area IRWMP near-term priority water recycling projects will develop approximately 42,257 to 51,728 AFY of a drought proof, reliable water supply for the Bay Area; this will contribute to achieving the State's recycled water potential of 1.5 million AF identified by the Recycling Task Force.

Table L-5: Estimated Potable Water Offsets Achieved by Bay Area IRWMP Near-Term Priority Recycled Water Projects

Bay Area IRWMP Near-Term Priority Project	Potable Water Offset ^a
Antioch Recycled Water Implementation (DDSD)	531 AFY
Benicia Water Reuse Project (City of Benicia)	2,240 AFY
ConocoPhillips High-Purity Recycled Water Project (EBMUD)	2,240 AFY
East Bayshore Recycled Water Project – Phase 1B (EBMUD)	1,680 AFY
Milpitas Transit Area Recycled Water Project (City of San Jose)	N/A
Mirant Cooling Recycled Water Project (DDSD)	13,450 AFY
Mountain View / Moffett Area Water Recycling Project (City of Palo Alto/City of Mountain View)	1,370 AFY (near-term) to 5,830 AFY (long-term, 20-year horizon)



Bay Area IRWMP Near-Term Priority Project	Potable Water Offset ^a
Pacifica Recycled Water Project (North Coast County Water District)	171 AFY
Palo Alto Recycling Project (City of Palo Alto)	840 AFY
Palo Alto Regional Water Quality Control Plant Water Recycling Program - Phase 3 Expansion (City of Palo Alto)	1,000 AFY
Peacock Gap Recycled Water Extension (MMWD)	N/A
PG&E Contra Costa Power Plant #8 Recycled Cooling Water (DDSD)	N/A
Pittsburg Recycled Water Implementation (DDSD)	615 AFY
Recycled Water Conveyance Pipeline (Novato Sanitary District)	N/A
Recycled Water Program for North Marin WD & Novato Sanitary District - Phase 1 (North Marin Water District)	260 to 560 AFY
Redwood City Recycled Water Project (City of Redwood City)	900 AFY near-term; 1687 intermediate term; 3238 AFY longer term
Richmond Advanced Recycled Expansion (RARE) Water Project (EBMUD)	3,360 to 4,480 AFY
San Leandro Water Reclamation Facility Expansion Project (EBMUD)	34 AFY
San Ramon Valley Recycled Water Program - Phase 2 and Future Phases (DSRSD-EBMUD Recycled Water Authority)	780 AFY (Phase 2 only)
Satellite Recycled Water Treatment Plant Project (EBMUD)	N/A
SBWR Recycled Water Phase 2 Extensions--Santa Clara (City of San Jose)	1,000 AFY
South Bay Advanced Recycled Water Treatment Facility Project (SCVWD)	400 AFY (intermediate term) to 3,460 AFY (longer term)
Stanford Central Energy Facility Cooling Tower Recycled Water System (Stanford University)	56 AFY
Westside Baseline and Harding Park/Lake Merced Projects (SFPUC)	4590 AFY
Total Estimated Potable Water Offset	31,590 AFY to 42,868 AFY

a. Estimated potable water offsets equivalent to proposed recycled water production.

In addition to the project identified above, the **Napa Salt Marsh Restoration Project (Sonoma Valley County Sanitation District)** project will address the recommendations of the Recycled Water Task force by using recycled water to restore salt ponds in the Napa-Sonoma Marsh Wildlife Area. Upon the completion of the restoration phase of the project, two pipelines would serve to provide agricultural areas with recycled water, furthering the goals of the Recycling Task Force.

L.7.4 State Species Recovery Plan

This plan encourages the habitat protection and restoration to encourage the recovery of threatened and endangered species. Recovery is the process by which the decline of an endangered or threatened species is reversed and threats to its survival are reduced. The goal of this process is to restore the species to the point where it is a secure, self-sustaining part of its ecosystem and to the point that protections under the Endangered Species Act (ESA) are no longer needed. This involves protecting and often restoring the habitat in which the species can thrive. A number of strategies can be implemented to promote the protection and recovery of threatened and endangered species:

- Contribute to listed species conservation efforts
- Flexible management of threatened species
- Safe Harbor Agreements for private landowners
- Grants to states, territories, and private landowners
- Reintroducing species back into their historic range



Bay Area IRWMP near-term priority projects that implement the recommendations of the State Species Recovery Plan include the following:

- **Adobe Bridge Culvert Removal Project (City of Pacifica).** In addition to enhancing flood protection this project will improve access to historic steelhead spawning and rearing habitat and improve conditions for movement by juveniles. Project work will include the removal of the fish passage obstacle at the Adobe Bridge, placement of rock weirs to facilitate fish passage, and qualitative effectiveness monitoring for the project.
- **Alameda County Partnership for Land Conservation and Stewardship (Alameda County RCD).** This project focuses on a comprehensive strategy for watershed management and protection through easements, acquisition and other strategies. It is not a land trust, but a facilitation service to leverage existing programs, agencies, organizations and willing landowners. It will assist with wetland and stream protection, as well as watershed monitoring and assessment. By protecting watershed lands, this project will protect habitat for sensitive species.
- **Alhambra Valley Creek Coalition Restoration Project (Urban Creeks Council).** The project will address erosion and sedimentation in a one mile reach of the headwaters of Alhambra Creek. This restoration effort will enhance riparian habitat by replacing invasive plants with species native to the watershed, improve fish passage and in-stream habitat for native steelhead trout, restore habitat for native species, including the California red-legged frog, reduce flooding by increasing channel capacity, and enhance upper watershed habitat by restoring native plants at two springs. In addition, this project would stabilize severe erosion at a headcut that threatens to undermine a dam in the upper watershed.
- **Bair Island Restoration and Management Plan (Don Edwards San Francisco Bay National Wildlife Refuge).** Approximately 1,400 acres of former commercial salt ponds in Redwood City, San Mateo County will be restored to tidal wetlands to provide habitat for endangered species and other native wildlife as well as enhance the public's appreciation and awareness of these unique resources. Once restored, the area will assist in the recovery of both the California clapper rail and salt marsh harvest mouse. Monitoring and adaptive management will take place as the restoration progresses.
- **Calabazas Creek, Miller Avenue to Wardell Road (SCVWD).** In addition to providing flood protection, this stream restoration project will repair eroded channel banks with biotechnology strategies, remove accumulated sediment and improve fish passage.
- **Defining Summer Low Flow Volumes (SCC).** This project will define the summer low flow needs in stream reaches used or potentially used by steelhead trout. This project incorporates a watershed management approach to evaluate the need for future stream restoration and protection.
- **Fisheries and Aquatic Habitat Collaborative Effort (SCVWD).** This project will balance water supply operations and habitat needs for salmonid fisheries in Stevens Creek, Coyote Creek and Guadalupe River. The project will improve fish passage by removing at least 18 barriers to fish passage and restoring over 6,000 of riparian habitat.
- **Ledson Marsh Restoration: Annadel State Park (California State Parks).** This project will restore Ledson March by stabilizing and restoring the associated dam. The site includes 30 acres of wetlands that support the red-legged frog. It addresses subsurface seepage from the dam, preservation of seasonal water levels, and avoidance of excessive sediment discharge to Sonoma Creek.
- **Napa Salt Marsh Restoration Project (SCC).** This project will restore salt ponds in the Napa-Sonoma Marsh Wildlife Area. The project will use recycled water to dilute the bittern stored in these ponds, enabling this marsh habitat to be restored. This restoration will address the State Species Recovery Plan by restoring important habitat areas. Upon the completion of the



restoration phase of the project, two pipelines would serve to provide agricultural areas with recycled water, furthering the goals of the Recycling Task Force.

- **Phase 2 – Niles Cone Groundwater Recharge and Fish Passage Program (ACWD).** This project would modify existing flood control channel facilities to provide fish passage in the Alameda Creek Flood Control Channel. It would provide access for anadromous fishery to 700 square-miles in Alameda Creek Watershed, while ensuring ability to manage Niles Cone Groundwater Basin for local water supplies and to prevent seawater intrusion.
- **Pilarcitos Creek Integrated Watershed Management Plan Development and Implementation (SFPUC).** Pilarcitos Creek is the principal watercourse draining a coastal watershed of 17,922 acres in north central San Mateo County. The goal of this project is to determine an effective management strategy for the competing uses derived from environmental, agricultural, public health and economic interests. Dams, diversions, loss of habitat due to agricultural operations, channelization, and rural and urban residential and commercial influences have significantly altered Pilarcitos Creek. Many species of wildlife are dependent on this water supply, including the federally-threatened steelhead trout and the threatened California red-legged frog. Past studies have identified loss of riparian habitat, migration barriers, sedimentation of stream channels, proliferation of non-native vegetation, and competition for water between agricultural, domestic and environmental uses as the principal problems in the watershed. The assessment will identify opportunities to protect and restore riparian areas. Restoring riparian habitat and flows in Pilarcitos Creek and its lagoon would benefit threatened aquatic and terrestrial species.
- **San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration (San Francisquito Creek JPA).** San Francisquito Creek is one of the last continuous natural riparian corridors, and is home to one of the last remaining viable steelhead trout runs on the San Francisco Peninsula. The creek system and tidal areas support several special-status species including the salt marsh harvest mouse, California clapper rail, California red-legged frog, and the tiger salamander.
- **Sears Point Restoration Project (Sonoma Land Trust).** The project will preserve and restore a large continuous band of tidal marsh along the bayfront between the Petaluma River and Tolay Creek; ensure a natural transition to uplands throughout and provide an upland buffer outside the Baylands boundary; and establish managed marsh or enhanced seasonal pond habitat on agricultural Baylands that are not restored to tidal marsh. Upland wetlands enhancement will also benefit the floristic diversity of vernal pools and enhance habitat for the endangered California red-legged frog.
- **Sonoma Valley Invasive Weed Control (Sonoma Land Trust).** The project will control and eradicate invasive weed species that threaten native plants and natural habitat on 540 acres. Furthermore, it will assist with outreach to private land owners with existing conservation easements to repatriate native habitat and species.
- **South Bay Salt Pond Restoration Project & South San Francisco Bay Shoreline Study: Early Implementation Activities (SCC).** This project will restore approximately 15,100 acres of salt ponds in South San Francisco Bay to improve flood protection, protect wildlife, and improve water quality. In addition to meeting the objectives of the Floodplain Management Task Force (see Section L.7.1: *Floodplain Management Task Force*), this project will meet the objectives of the State Species Recovery Plan by restoring important tidal marshes, thereby providing important habitat for at-risk species, such as the California clapper rail, the salt marsh harvest mouse, resident and anadromous fish, and other aquatic life.
- **Stevens Creek Restoration at Blackberry Farm, Cupertino (SCVWD).** This project will restore Stevens Creek to a more natural functioning state. Currently, it is deeply incised and



contains barriers to fish passage. This restoration will provide fish passage and wintering habitat through this section of Stevens Creek.

- **Thompson Creek Stream Stabilization (SCVWD).** This project will stabilize and protect 1.2 miles of Thompson Creek. Using riparian habitat restoration and erosion protection, the project will improve habitat and water quality of the flows that support resident and anadromous aquatic species.

L.8 Disadvantaged and Environmental Justice Communities

Environmental justice issues arise from actions that create disproportionate negative impacts on disadvantaged and minority communities. Environmental justice concerns were considered throughout the development of the Bay Area IRWMP both to ensure that disadvantaged communities are not adversely affected by the IRWMP and to identify opportunities to address existing environmental justice issues. In addition to internal consideration of these issues by the participating entities, the development of the Bay Area IRWMP included active outreach to environmental justice organizations and provided an opportunity for disadvantaged communities to participate in the development of the IRWMP through the stakeholder involvement process. This process has identified a number of types of projects that address environmental justice concerns, including projects that incorporate the following elements:

- Opportunities for community involvement
- Education and outreach to environmental justice communities
- Partnerships with local community-based organizations
- Opportunities to increase benefits to environmental justice communities and/or reduce or prevent impacts to these communities
- Flood control projects that address flooding problems in environmental justice communities
- Protections to ensure that they do not add to cumulative impacts in the adjacent neighborhood (especially for projects involving modifications to proposed or existing treatment plants located in environmental justice communities)
- Active involvement of environmental justice communities in project development

Bay Area IRWMP near-term priority projects that address Environmental Justice issues (based on criteria noted above) are listed below. The Bay Area TCC recognizes that addressing the specific needs of disadvantaged and environmental justice communities is a time-consuming process that requires dedicated resources, both for agency outreach and community participation. As this process moves forward, the IRWMP CC and project proponents are committed to working with DA/EJ communities to determine how IRWMP projects could or should benefit these communities.

- **Alhambra Creek Restoration and Environmental Education Collaborative (ACREEC): John Swett Campus (Muir Heritage Land Trust).** The students from the Environmental Studies Academy who will work on this project are from the local alternative high school, and represent a disadvantaged and minority population within this community.
- **Alhambra Valley Creek Coalition Restoration Project (Urban Creeks Council).** This project will involve at-risk youth in a community service activity that also benefits environmental health. Students from the Environmental Studies Academy, part of the Briones School of Independent Study in the Martinez Unified School District, will participate in field days that will include planting, irrigation, mulching, weed removal and vegetation monitoring.



- **Bay Area Levee Certification (SCVWD).** Many disadvantaged communities are located in low-lying, flood-prone areas such as East Palo Alto, Richmond, and Alviso. If these areas are placed into a FEMA-regulated flood zone, not only will residents and businesses be subject to new, costly flood insurance purchase requirements, but improvements and development will be subject to greater regulatory restrictions which may hamper economic growth opportunities. This project will reduce unnecessary mapping of disadvantaged communities into the FEMA-regulated floodplain.
- **Bay Area Regional Water Conservation Program (SCVWD).** This project includes implementation of the High Efficiency Toilet Replacement Program, which includes a component dedicated to multi-family units that is expected to reach economically disadvantaged communities.
- **Candlestick Point State Recreation Area Yosemite Slough Restoration Project (California State Parks).** This project will benefit the Bayview Hunters Point community by expanding open space opportunities, reducing soil contaminants within the park, and increasing economic opportunities resulting from increased visitor use at Candlestick. The project will also provide opportunities for community involvement by working with Bay Youth for the Environment, a unique environmental work program for Bayview Hunters Point teenagers. This program will provide the 10,000 native plants needed for the restoration effort, while providing disadvantaged high school-aged youth in San Francisco's Bayview Hunters Point with valuable horticultural skills and knowledge of wetlands ecosystem ecology.
- **Codornices Creek, Kains to San Pablo (Friends of Five Creeks).** The project will provide needed open space in an urban environment for residents of the adjacent low-income housing project, Creekside Apartments, as well as other apartment and condominium projects being developed along San Pablo Avenue.
- **Community Safe Drinking Water Project (Literacy for Environmental Justice).** A common problem in low-income communities is inadequate drinking water supplies. Although water suppliers must follow strict federal and state water quality guidelines and standards, violations still occur. Random homes are tested for to ensure proper water quality; however, there is still inadequate information about drinking water quality in low-income communities. For this project Literacy for Environmental Justice will work with appropriate agencies, tenants associations, and local communities to test drinking water in neighborhoods in the Bay View Hunters Point District of San Francisco. Youth and others will participate in a training program to be certified as testers according to appropriate state and local regulations. The certified team will educate the community about these important issues, visit homes randomly pre-selected and help to determine which neighborhoods are in violation of water quality guidelines. Following results, steps will be taken to ensure safe drinking water supplies for the community through a collaboration of agencies and local organizations.
- **CreekWise Creek Care Education Program (San Mateo STOPPP).** Disadvantaged communities in the Bay Area are often located in the lower, depositional reaches of creeks. The CreekWise program will take a watershed-based approach to help resolve creek problems in these low-lying areas by offering information and resources to creekside landowners and evaluating upstream activities that may be contributing to downstream problems.
- **Developing and Implementing Options for Mitigating Risks of Public Health Impacts of Eating Fish (Clean Estuary Partnership).** This project seeks to reduce health risk related to fish consumption of fish harvested from the San Francisco Bay by subsistence fishers and their families. The project will identify populations at risk, provide outreach and education to potentially affected groups, and identify appropriate actions to mitigate risk.
- **Kirker Creek Watershed Greenway Park Plan (Contra Costa RCD).** This project will create a Greenway Park Plan to encourage residents, including the environmental justice communities in



the City of Pittsburg, to learn about, enjoy, and become involved in the enhancement of watershed natural resources.

- **Kirker Creek Watershed Nursery (Contra Costa RCD).** This project will provide the community and local students with an opportunity to participate a unique environmental education experience to propagate native plants and plant them at community schools, in city landscaping and at a local wetland restoration site. This project will provide an opportunity to get involved in local watershed activities in an area where few such opportunities exist, especially for ethnically diverse and low-income populations in the area.
- **Lake Merritt and Lake Merritt Channel Improvements (City of Oakland).** Lake Merritt is located in the center of Oakland and is surrounded by low income, minority, and other disadvantaged communities that will directly benefit from the enhanced open space and recreational opportunities provided by this project.
- **Lower Silver Creek, Reaches 4-6 (SCVWD).** Over the past 50 years, Lower Silver Creek has experienced severe flooding that resulted in damage to residential, commercial and industrial properties. This project will protect the surrounding area from the 100-year flood event, improve stream habitat values, improve fisheries potential, and provide recreational access to the public. This will protect environmental justice communities in the project area from flooding and provide the community with increased recreational opportunities.
- **Martinez Adult Education Campus Creek Project Enhancement (Muir Heritage Land Trust).** The primary purpose of this project is to improve flood protection for the Martinez Unified School District's Martinez Adult Education Campus and for the larger community, including environmental justice communities in the area. The project will also provide opportunities for community involvement in the restoration effort.
- **Palo Alto Regional Water Quality Control Plant Water Recycling Program - Phase 3 Expansion (City of Palo Alto).** The RWQCP discharges its effluent into the tip of the south San Francisco Bay at the boundary of the City of East Palo Alto. The community of the City of East Palo Alto, compared to the other cities within the RWQCP service area, is disproportionately lower in income and predominately African American and Hispanic. The USEPA has consistently funded projects in the City of East Palo Alto for environmental justice clause. This project is consistent with EPA's decisions and actions on environmental justice.
- **Pinole Creek Restoration and Greenway Park (CCC FC&WCD).** The Pinole Creek Restoration Project will provide flood protection and recreational opportunities to environmental justice communities in the project area. In addition, the project planning process has been open and democratic.
- **Protection from Tidal Flooding (City of Burlingame).** The low-lying areas adjacent to the San Francisco Bay support many residential communities and light-industrial uses. Many of the environmental justice communities in the Bay Area are found in these low-lying, Bay perimeter areas. As such these communities are susceptible to tidal flooding. This project will identify the potential for tidal flooding throughout the Bay and evaluate flood protection measures, such as levee construction, mudflat, salt flat, tidal channel and wetland restoration, and changes to zoning that will be needed to prevent and avoid this potential flooding.
- **Reducing Women and Children's Exposure to Mercury in the Bay and Delta Region (Ma'at Youth Academy).** Residents of several low-income East Bay communities experience daily dietary health hazards, widening already significant health disparities in the Bay Area. A Department of Health Services study found that 85% of people who fish in the Bay eat their catch, that 50% share the fish with a woman of childbearing age or a young child, and that people of color, especially African-American, Asian and Latinos, are at an increased risk for eating unhealthy levels of contaminated Bay fish. In the Bay Area, these populations are more likely to



live in neighborhoods near toxic pollution and to fish in the more highly contaminated parts of the Bay. These findings concur with the 2005 Delta Angler Survey which found that the vast majority of those who fish in these toxic waters are people of color. This program will reduce women and children's exposure to methylmercury in high-risk areas of the Bay and Delta region by raising public awareness, training youth to be community monitors and advocates, collaborating with community health professionals, and maximizing resources for nutritional guidance and education. In addition, this project will partner with public officials and work with existing mercury abatement efforts to help combat the root source of toxic fish.

- **Rheem Creek Restoration and Watershed Council Project (Natural Heritage Institute).** The watershed is 39% black, 26% Latino, and 16% Asian. The watershed also has 50% less publicly accessible open space than does the rest of Contra Costa County. This lack of access to natural amenities emphasizes the need to create safe, clean, healthy, and bountiful habitats within the urban environment for minority communities.
- **Richmond Bayshore Stewards (The Watershed Project).** The educational programs connected to this restoration project focus involve the local community, primarily the City of Richmond and the West Contra Costa School District. Since there are few opportunities for these students to connect with their natural environment, and budget restrictions in the school district have compounded the difficulties, this project will provide a unique opportunity for students to get involved. The project includes educational class visits, field trips, and service learning opportunities for local schools and youth groups. In addition, this program will provide paid internships to introduce local youth to restoration science and environmental careers.
- **Rollingwood Neighborhood Creek Restoration Project (Urban Creeks Council).** All negative impacts of this flooding situation occur in the lower income, predominately Latino community. The more affluent residents live in the Highlands neighborhood and are not affected by flooding, although they are responsible for creek maintenance. This project will reduce flooding of this lowland community.
- **San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration (San Francisquito Creek JPA).** The City of East Palo Alto, a disadvantaged community, is a founding member of the San Francisquito Creek JPA. Hundreds of citizens and businesses are in the FEMA flood plain zone, with little to no protection from floods. The city has identified 1,600 parcels within the tidal flood area and 2,900 parcels within the creek flood area that are subject to severe inundation from floods. This is considered to be the area with largest threat to human life due to flooding, and is a priority area for the project implementation. Bordering East Palo Alto, earthen levees were constructed in the 1950's that straightened the creek causing it to run directly behind several neighborhoods. Low to moderate income family homes are below water surface elevation behind these old levees; many have only a few feet and a wooden fence separating them from the water. Water seepage and severe erosion have impacted these levees this past season. There are neighborhoods of similar economic status and a business redevelopment zone in the city that sit roughly at water surface elevation with the bay or tidal areas. There are no levees that protect these homes/businesses. In most instances protection is provided through earthen berms generated by railroads or old abandoned business, and by the wetlands themselves. Throughout history, both creek and tidal floods have impacted these areas.
- **Sustainable Streets for Improved Stormwater Quality and Water Reuse (San Mateo C/CAG).** Promoting the use of transit oriented development helps to improve transportation for all residents and is especially beneficial for disadvantage communities that rely more heavily on public transit alternatives for getting to work, shopping, and recreation. By helping to remove contaminants from stormwater runoff, this project will also assist environmental justice communities who rely more on sustenance fishing, by improving overall water quality in the Bay.



- **Urban Creek Trash Reduction Program (SCVWD).** Disadvantaged communities in the San Francisco Bay Area tend to be located in the low-lying areas where creeks discharge into the San Francisco Bay. These are also areas that tend to accumulate debris and trash from upland sources. Countywide efforts to reduce trash loading to creeks may provide a disproportionate benefit to these downstream disadvantaged communities.
- **Wildcat Creek Restoration (CCC FC&WCD).** The project will improve the natural stream course of Wildcat Creek through restoration and protection. Educational opportunities for various community and school groups regarding the creek environment will also be provided as part of this effort, benefiting environmental justice communities in North Richmond.

L.9 CALFED Bay-Delta Program Goals

The Bay Area region includes all or parts of the nine counties surrounding the San Francisco Bay. As such, all of the participating agencies have a critical interest in the health of the San Francisco Bay-Delta. The CALFED Bay-Delta program strives to improve water supplies in California and the health of the San Francisco Bay/Sacramento-San Joaquin River Delta. The four primary goals of the CALFED Bay-Delta Program are Water Supply Reliability, Water Quality, Ecosystem Restoration and Levee System Integrity. Bay Area IRWMP near-term priority projects will meet all four of these goals as described in the following sections. Projects that address more than one of these goals have been listed under the goal they most strongly support.

L.9.1 Water Supply Reliability

CALFED aims to improve water supply reliability by assisting local partners in developing 500,000 to 1 million AF of groundwater storage, pursuing State and Federal planning to expand surface storage capacity by up to 3.5 million AF, optimizing water conveyance facilities to maximize operational flexibility, investing in local projects to boost water use efficiency through water conservation and recycling, and streamlining the water transfer approval process to optimize the water transfer market in order to protect water rights, the environment and local economies.

Bay Area IRWMP near-term priority projects will minimize the gap between the Bay Area's water supply and demand projections (especially during dry and critically dry years) by implementing water conservation, recycling, desalination, groundwater storage, groundwater characterization, and conveyance improvement projects. Implementation of these water management strategies will also allow for diversification of the Bay Area's water supply portfolio.

Bay Area IRWMP near-term priority projects that implement CALFED's goal of Water Supply Reliability include the following:

- Antioch Recycled Water Implementation (DDSD)
- Bay Area Regional Water Conservation Program (SCVWD)
- Bay Water Desalination Plant (MMWD)
- Benicia Water Reuse Project (City of Benicia)
- Canal Encasement Phases II and III (CCWD)
- ConocoPhillips High-Purity Recycled Water Project (EBMUD)
- East Bayshore Recycled Water Project – Phase 1B (EBMUD)
- EBMUD-CCWD Raw Water Intertie (CCWD)
- Palo Alto Regional Water Quality Control Plant Water Recycling Program - Phase 3 Expansion (City of Palo Alto)
- Peacock Gap Recycled Water Extension (MMWD)
- Peralta Tyson Groundwater Treatment Facility (ACWD)
- PG&E Contra Costa Power Plant #8 Recycled Cooling Water (DDSD)
- Pittsburg Recycled Water Implementation (DDSD)
- Recycled Water Conveyance Pipeline (Novato)



- EBMUD-SFPUC/Hayward Emergency Intertie (EBMUD)
- Feasibility Study for Dry-Year Water Supply (City of Napa)
- Groundwater Optimization Project (MWSO)
- Groundwater Recharge Opportunities (Sonoma CWA)
- Infrastructure Reliability Improvements in Santa Clara County (SCVWD)
- Intertie w/ NBA-Solano Project (Solano CWA)
- Jamieson Treatment Plant Improvements (City of Napa)
- LEAD at Crockett (EBMUD)
- Livermore-Amador Valley Mocho Groundwater Demineralization Project (Zone 7)
- Milpitas Transit Area Recycled Water Project (City of San Jose)
- Mirant Cooling Recycled Water Project (DDSD)
- Monitoring Well Construction and Water Quality Monitoring Program (ACWD)
- Mountain View / Moffett Area Water Recycling Project (City of Palo Alto/City of Mountain View)
- North Solano Groundwater Monitoring (Solano CWA)
- Palo Alto Recycling Project (City of Palo Alto)
- San Leandro Water Reclamation Facility Expansion Project (EBMUD)
- Sanitary District)
- Recycled Water Program for North Marin WD & Novato Sanitary District – Phase 1 (North Marin Water District)
- Redwood City Recycled Water Project (City of Redwood City)
- Regional Desalination Feasibility Study (EBMUD)
- Richmond Advanced Recycled Expansion (RARE) Water Project (EBMUD)
- San Ramon Valley Recycled Water Program - Phase 2 and Future Phases (DSRSD-EBMUD Recycled Water Authority)
- Santa Clara Valley Water District Aquifer Storage and Recovery Project (SCVWD)
- Satellite Recycled Water Treatment Plant Project (EBMUD)
- SBWR Recycled Water Phase 2 Extensions-- Santa Clara (City of San Jose)
- Solano CWA Groundwater Banking/Conjunctive Use Program (Solano CWA)
- Sonoma Valley Recycled Water Project (Sonoma CWA)
- South Bay Advanced Recycled Water Treatment Facility Project (SCVWD)
- Stanford Central Energy Facility Cooling Tower Recycled Water System (Stanford University)

L.9.2 Water Quality

CALFED's water quality goal is to "provide good-quality water for all beneficial uses, including drinking water, agricultural uses (both in-Delta and exported), industrial uses, recreational in-Delta uses, and Delta aquatic habitats. CALFED set specific targets for drinking water for bromide and TOC or an ELPH. These water quality goals will be met through source control and drainage management programs, investment in treatment technology, improvements to Delta water quality and water quality science, improvements or maintenance of water and sediment quality, and improvement of DO in the San Joaquin River near the Port of Stockton.

All projects that address the Delta Water Quality Objectives described in Section L.6: *Delta Water Quality Objectives* (which includes projects described in Section L.3: *Total Maximum Daily Loads (TMDLs)* and Section L.5: *SWRCB NPS Pollution Plan*) address the CALFED Water Quality goal, and are listed below.

- Alameda County Partnership for Land Conservation and Stewardship (Alameda County RCD)
- Alhambra Creek Restoration and Environmental Education Collaborative (ACREEC): John Swett Campus (Muir Heritage Land Trust)
- Palo Alto Regional Water Quality Control Plant Water Recycling Program - Phase 3 Expansion (City of Palo Alto)
- PCBs Investigation at the Pulgas Creek Pump Station Watershed, San Carlos, California (San Mateo C/CAG)
- Peacock Gap Recycled Water Extension



- Alhambra Valley Creek Coalition Restoration Project (Urban Creeks Council)
- Annadel State Park Erosion Control: Geary Ranch Road to Trail Conversion (California State Parks)
- Antioch Recycled Water Implementation (DDSD)
- Bay Area Regional Water Conservation Program (SCVWD)
- Bay Water Desalination Plant (MMWD)
- Beaver Pond Habitat Enhancement Project at the Dow Wetland Preserve (Contra Costa RCD)
- Benicia Water Reuse Project (City of Benicia)
- Canal Encasement Phases II and III (CCWD)
- Candlestick Point State Recreation Area Yosemite Slough Restoration Project (California State Parks)
- Codornices Creek, Kains to San Pablo (Friends of Five Creeks)
- ConocoPhillips High-Purity Recycled Water Project (EBMUD)
- Corte Madera Creek Watershed Plan (Friends of Corte Madera Creek Watershed)
- CreekWise Creek Care Education Program (San Mateo STOPPP)
- Developing and Implementing Options for Mitigating Risks of Public Health Impacts of Eating Fish (Clean Estuary Partnership)
- East Bayshore Recycled Water Project – Phase 1B (EBMUD)
- Groundwater Recharge Opportunities (Sonoma CWA)
- Guadalupe River Watershed Habitat Enhancement (SCVWD)
- Guadalupe Watershed Modeling Towards Mercury Management to Achieve TMDL Goals (San Francisco Estuary Institute)
- Ironhouse Sanitary District Wastewater Conveyance to San Francisco Region (Ironhouse Sanitary District)
- Jack London Lake Restoration and Sedimentation Reduction (California State Parks)
- Kirker Creek Watershed Greenway Park Plan (Contra Costa RCD)
- Lake Merritt and Lake Merritt Channel Improvements (City of Oakland)
- Lomita Canal / Cupid Row Canal Upgrades (San Francisco International Airport)
- Martinez Adult Education Campus Creek Project Enhancement (Muir Heritage Land Trust)
- Milpitas Transit Area Recycled Water Project (City of San Jose)
- Mirant Cooling Recycled Water Project (MMWD)
- Permanente Creek Flood Protection (SCVWD)
- PG&E Contra Costa Power Plant #8 Recycled Cooling Water (DDSD)
- Pilarcitos Creek Integrated Watershed Management Plan Development and Implementation (SFPUC)
- Pinole Creek Restoration and Greenway Park (CCC FC&WCD)
- Pittsburg Recycled Water Implementation (DDSD)
- Protection from Tidal Flooding (City of Burlingame)
- R10-2 Arroyo de la Laguna (ADLL) Improvement Project 2 (Zone 7)
- Recycled Water Conveyance Pipeline (Novato Sanitary District)
- Recycled Water Program for North Marin WD & Novato Sanitary District – Phase 1 (North Marin Water District)
- Reducing Women and Children’s Exposure to Mercury in the Bay and Delta Region (Ma’at Youth Academy)
- Redwood City Recycled Water Project (City of Redwood City)
- Rheem Creek Restoration and Watershed Council Project (Natural Heritage Institute)
- Removal of NDMA, EDCs, and PPCPs in South Delta Water (CCWD)
- Richmond Advanced Recycled Expansion (RARE) Water Project (EBMUD)
- Richmond Bayshore Stewards (The Watershed Project)
- Robert Louis Stevenson State Park Erosion Control: Table Rock Trail Re-route (California State Parks)
- San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration (San Francisquito Creek JPA)
- San Leandro Water Reclamation Facility Expansion Project (EBMUD)
- San Ramon Valley Recycled Water Program - Phase 2 (DSRSD-EBMUD Recycled Water Authority)
- Satellite Recycled Water Treatment Plant Project (EBMUD)
- SBWR Recycled Water Phase 2 Extensions-- Santa Clara (City of San Jose)
- Sears Point Restoration Project (Sonoma Land Trust)
- South Bay Advanced Recycled Water Treatment Facility Project (SCVWD)
- South Bay Salt Pond Restoration Project & South San Francisco Bay Shoreline Study: Early Implementation Activities (SCC)



- (DDSD)
- Mountain View / Moffett Area Water Recycling Project (City of Palo Alto/City of Mountain View)
 - Mt. Diablo State Park: Comprehensive Stock Pond Evaluation and Sedimentation Remediation (California State Parks)
 - Mt. Diablo State Park: Mitchell Creek Riparian Restoration (California State Parks)
 - Napa Salt Marsh Restoration Project (Sonoma Valley County Sanitation District)
 - Nathanson Creek Preserve Restoration Project (Sonoma Ecology Center)
 - Palo Alto Recycling Project (City of Palo Alto)
 - Stanford Central Energy Facility Cooling Tower Recycled Water System (Stanford University)
 - Sugarloaf Ridge State Park Erosion Control: Goodspeed Trail Rehabilitation (California State Parks)
 - Sustainable Streets for Improved Stormwater Quality and Water Reuse (San Mateo C/CAG)
 - Upper Guadalupe River Project (Reaches 6 and 12) (SCVWD)
 - Urban Creek Trash Reduction Program (SCVWD)
 - Wetland and Creek Restoration at Big Lagoon, Muir Beach (National Parks Service-GGNRA)

L.9.3 Ecosystem Restoration

CALFED's ecosystem restoration goal is to "improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta system to support sustainable populations of diverse and valuable plant and animal species." CALFED's ecosystem restoration strategies include establishing a grant program to fund local habitat restoration, fish passage, invasive species management and environmental water quality projects, recovering at-risk native species and their habitats, augmenting stream flow in upstream areas, providing assistance to identify and address watershed problems, managing the Environmental Water Account, and developing opportunities for working farms and ranches to contribute to ecosystem restoration objectives.

The Bay Area IRWMP near-term priority projects that will contribute to CALFED's goal of ecosystem restoration are as follows:

- Adobe Bridge Culvert Removal Project (City of Pacifica)
- Adobe Creek Upper Reach 5 Restoration (SCVWD)
- Alameda County Partnership for Land Conservation and Stewardship (Alameda County RCD)
- Alameda Creek Fishery Enhancement Project (SFPUC)
- Alhambra Creek Restoration and Environmental Education Collaborative (ACREEC): John Swett Campus (Muir Heritage Land Trust)
- Alhambra Valley Creek Coalition Restoration Project (Urban Creeks Council)
- Bair Island Restoration and Management Plan (Don Edwards San Francisco Bay National Wildlife Refuge)
- Beaver Pond Habitat Enhancement Project at the Dow Wetland Preserve (Contra Costa RCD)
- Calabazas Creek, Miller Avenue to Wardell Road (SCVWD)
- Candlestick Point State Recreation Area Yosemite Slough Restoration Project
- Mt. Diablo State Park: Comprehensive Stock Pond Evaluation and Sedimentation Remediation (California State Parks)
- Mt. Diablo State Park: Mitchell Creek Riparian Restoration (California State Parks)
- Napa Plant Site Restoration Project (DFG)
- Napa Salt Marsh Restoration Project (SCC)
- Nathanson Creek Preserve Restoration Project (Sonoma Ecology Center)
- Permanente Creek Flood Protection (SCVWD)
- Phase 2 – Niles Cone Groundwater Recharge and Fish Passage Program (ACWD)
- Pilarcitos Creek Integrated Watershed Management Plan Development and Implementation (SFPUC)
- Pinole Creek Restoration and Greenway Park (CCC FC&WCD)
- R10-2 Arroyo de la Laguna (ADLL) Improvement Project 2 (Zone 7)
- R10-5 Arroyo de la Laguna Improvement Project 5 (Zone 7)
- Regional BMPs, Field Manual and Training for Stream Maintenance Activities (Marin County STOPPP)



- (California State Parks)
- Codornices Creek, Kains to San Pablo (Friends of Five Creeks)
- Corte Madera Creek Watershed Infiltration and Storage Assessment (Friends of Corte Madera Creek Watershed)
- Corte Madera Creek Watershed Models (Friends of Corte Madera Creek Watershed)
- Corte Madera Creek Watershed Plan (Friends of Corte Madera Creek Watershed)
- CreekWise Creek Care Education Program (San Mateo STOPPP)
- Defining Summer Low Flow Volumes (SCC)
- Developing and Implementing Options for Mitigating Risks of Public Health Impacts of Eating Fish (Clean Estuary Partnership)
- Fisheries and Aquatic Habitat Collaborative Effort (SCVWD)
- Guadalupe River Watershed Habitat Enhancement (SCVWD)
- Kirker Creek Watershed Greenway Park Plan (Contra Costa RCD)
- Kirker Creek Watershed Nursery (Contra Costa RCD)
- Lake Merritt and Lake Merritt Channel Improvements (City of Oakland)
- Ledson Marsh Restoration: Annadel State Park (California State Parks)
- Lomita Canal / Cupid Row Canal Upgrades (San Francisco International Airport)
- Lower Silver Creek, Reaches 4-6 (SCVWD)
- Martinez Adult Education Campus Creek Project Enhancement (Muir Heritage Land Trust)
- Mt. Diablo Creek Watershed Coordinated Steelhead Passage Project (Natural Heritage Institute)
- Rheem Creek Restoration and Watershed Council Project (Natural Heritage Institute)
- Richmond Bayshore Stewards (The Watershed Project)
- Robert Louis Stevenson State Park Erosion Control: Table Rock Trail Re-route (California State Parks)
- Rollingwood Neighborhood Creek Restoration Project (Urban Creeks Council)
- San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration (San Francisquito Creek JPA)
- San Leandro Tributaries at South Hills (City of Oakland)
- Sears Point Restoration Project (Sonoma Land Trust)
- Sky Valley-Sulphur Springs Watershed Management Plan (City of Benicia)
- Sonoma Valley Invasive Weed Control (Sonoma Land Trust)
- South Bay Salt Pond Restoration Project & South San Francisco Bay Shoreline Study: Early Implementation Activities (SCC)
- Stevens Creek Restoration at Blackberry Farm, Cupertino (SCVWD)
- Sugarloaf Ridge State Park Erosion Control: Goodspeed Trail Rehabilitation (California State Parks)
- Thompson Creek Stream Stabilization (SCVWD)
- Upper Guadalupe River Project (Reaches 6 and 12) (SCVWD)
- Watershed Habitat and Project Mapping Program (San Francisco Estuary Institute)
- Wetland and Creek Restoration at Big Lagoon, Muir Beach (National Parks Service-GGNRA)
- Wildcat Creek Restoration (CCC FC&WCD)

L.9.4 Levee System Integrity

CALFED's goals for levee system integrity include maintaining and strengthening Delta, developing best management practices for beneficial reuse of dredged material, improving the Delta Emergency Management Plan, and developing a Risk Management Strategy to identify and evaluate risks to Delta levees and recommend corrective actions.

According to the CALFED Final Programmatic EIS/EIR⁷, CALFED's levee system integrity goal is to "reduce the risk to land uses and associated agricultural and other economic activities, water supply, infrastructure, and the Bay-Delta ecosystem from catastrophic breaching of Delta levees." There are approximately 1,115 miles of levees protecting 700,000 acres of lowland in the Sacramento-San Joaquin Delta. In the Suisun Marsh, there are approximately 230 miles of levees protecting over 50,000 acres of

⁷ CALFED Bay-Delta Program. Final Programmatic EIS/EIR. July 2000. http://calwater.ca.gov/CALFEDDocuments/Final_EIS_EIR.shtml. Accessed: August 25, 2006.



marsh land.⁸ Global warming and related sea level rise, subsidence, and seismicity all pose significant threats to levee system integrity. A December 2004 report to the CALFED Levee Integrity Subcommittee reported a two-thirds chance that 100-year recurrence interval floods or earthquakes will cause catastrophic flooding or significant changes in the Delta by 2050.⁹ CCWD and EBMUD are dependent on Bay-Delta water supply imports and are therefore vulnerable to a catastrophic levee system failure.

The Delta and San Francisco Bay Area are located within a highly seismic region. A major earthquake in the region could cause extensive damage to the Delta levees and other assets, potentially causing salt water to flow into the Delta from the Bay. Massive damage to the Delta region could have far-reaching consequences. All Delta intakes (NBA, SBA, CCWD) and the EBMUD aqueducts could be affected depending on severity and cause of the damage. Reliability of local supplies and interties will be essential if that situation ever occurs. The two intertie projects included in this IRWMP are emergency preparedness projects that could be very important if there is widespread seawater flooding or levee damage in the Delta:

- **EBMUD-CCWD Raw Water Intertie (CCWD).** This project will provide a 100 mgd emergency connection between CCWD and EBMUD supply systems and will enhance security and emergency preparedness.
- **EBMUD-SFPUC/Hayward Emergency Intertie (EBMUD).** This project would include the construction of an approximately one mile pipeline and pump station to connect EBMUD system to SFPUC-Hayward system, establishing an emergency system interconnection.

In the Bay Area, the most widespread flood damages occur in urbanized, low-gradient lower reaches. Flooding is exacerbated by high tides and storm surges which backup riverine flows. Many disadvantaged communities, including East Palo Alto, North Richmond, Bayview-Hunters Point, and others, are located in low-lying areas adjacent to Bay levees. Flood protection measures, such as levee construction and maintenance, will be needed to prevent and avoid potential flooding in these areas. All levees in the Bay Area, whether protecting from tidal or riverine flooding, must meet FEMA standards.

The Bay Area IRWMP near-term priority projects that will help achieve the CALFED goal for Levee System Integrity include the following:

- **Bay Area Levee Certification (SCVWD).** This project will inventory levees and collect documentation to FEMA standards, and certify levees and/or scope the process of certification for those levees that have not been previously certified to FEMA standards. The project will also scope the level of effort required to improve levees to meet FEMA standards for those levees that might require physical/geotechnical improvements.
- **Protection from Tidal Flooding (City of Burlingame).** The project will contribute to the Army Corps study of tidal flood protection in the South Bay. Assessment, planning, permitting, financing, construction and operation and maintenance of levees and other flood protection facilities will need to be coordinated on a Bay wide scope.

⁸ Delta Risk Management Strategy. Available: <http://www.drms.water.ca.gov/>. Accessed: September 20, 2006.

⁹ Mount, Jeffrey and Robert Twiss. December 2004. Subsidence, Sea Level Rise, Seismicity in the Sacramento-San Joaquin River Delta: Report to the Levee Integrity Subcommittee of the California Bay-Delta Authority Independent Science Board.



In addition, development of local Bay Area water supply resources through water recycling and desalination will indirectly allow agencies to manage a catastrophic levee system failure by reducing dependency on imported Bay-Delta water supplies.