BAY–DELTA ENVIRONMENTAL REPORT CARD

San Francisco Estuary Project

CCMP Workbook

September 2001

COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN IMPLEMENTATION PROGRESS 1999 - 2001

BAY-DELTA ENVIRONMENTAL REPORT CARD 1999-2001

INTRODUCTION

The waters of the San Francisco Bay Delta Estuary are used by millions of Californians everyday. In homes, people flush toilets, wash cars, fill their glasses and garden hoses from the tap. In cities, industries and municipalities use water to cool and clean, and then collect, recycle, treat and discharge wastewater and runoff. In ports, shippers arrive from foreign lands, bringing cargoes, ballast water and exotic species. In the country, farmers irrigate crops and water livestock. In the hills and mountains, big dams block rivers and collect water, and big pumps and canals convey it to homes and businesses throughout the state. In some years, droughts steal supplies, in others, storms overwhelm levees and flood homes. But no matter the weather, there never seems to be enough water to keep the fish healthy, the marshes wet and the thirst of millions slaked. And everywhere the water moves across the land it collects particles, pesticides and other pollutants and carries them to our creeks, rivers and bay.

A host of government bodies manages and regulates all these activities. One mans the export pumps and controls reservoir releases; another protects endangered frogs and birds; another issues health warnings to consumers of Bay fish. Some decide how much pollution must be removed from an industry's wastewater before it can stream into rivers and the Bay. Some decide how many acres of wetlands or feet of streamside must be bought or built to offset losses to development. Environmental and community groups, meanwhile, champion more flows, more wetlands, more freeflowing creeks and fewer chemicals for the sake of the environment.

In this context, what is it than environmental managers and concerned organizations and communities should be doing to protect and restore the Estuary? That "To Do" list came out in 1993 in the form of the *Comprehensive Conservation and Management Plan for the Bay and Delta*.

The plan lists 145 actions to save fish, conserve water, protect wetlands, reduce pollution, and facilitate environmentally sound land use decisionmaking. It was developed by the San Francisco Estuary Project, a cooperative federal-state partnership organized through the U.S. Environmental Protection Agency's National Estuary Program. The project brought together 100 private, government and community interests to develop a consensus plan, which was then signed by the Governor and the U.S. EPA Administrator in 1993.

The CCMP serves as a perfect litmus test for a report card on how successful we've been in balancing environmental protection and beneficial use of the Estuary's resources. This is the third such report card the Estuary Project has released since 1993. The first totaled up progress on all 145 CCMP actions, the second on ten top priorities, and this third one on eight revised priorities (encompassing 35 CCMP actions) chosen as in special need of attention and action. The scope of any such accounting in an area draining 40% of California remains near impossible, but a fair share of the major efforts appear in these pages.

In August 2001, the S.F. Estuary Project brought together its stakeholders to revisit the top eight priorities. The group refined and reworded the priorities for the coming years. The new priorities are: 1) Expand, restore and protect Bay and Delta wetlands; 2) Reduce the impact of invasive species on the Estuary through prevention, control, eradication and education; 3) Protect and restore watersheds throughout the Estuary; 4) Create incentives that encourage governments, landowners and communities to protect and restore the Estuary; 5) Minimize or eliminate pollution of the Estuary from all sources; 6) Increase public awareness of the Estuary's natural resources and the impacts of human activity on them; 7) Expand the regional monitoring program to address all key CCMP issues, including pollution, wetlands, watersheds, dredging, biological resources, land use and flows, and integrate the results of scientific monitoring into management and regulatory actions; and 8) Promulgate baseline inflow standards for San Francisco, San Pablo and Suisun Bays to protect and restore the Estuary ecosystem. Also in August 2001, stakeholders and lead agencies decided to begin a review of the CCMP's Implementation Structure and examine what, if any, changes need to be made to address shifting priorities, resources, and mandates.

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AGENCY ABBREVIATIONS

Army Corps: United States Army Corps of Engineers
Bay Commission: San Francisco Bay Conservation and Development Commission
BurRec: United States Bureau of Reclamation
CALFED: CALFED Bay-Delta Program
Cal Fish & Game: California Department of Fish and Game
Central Valley Regional Board: Central Valley Regional Water Quality Control Board
Dept. of Water Resources: Department of Water Resources
IEP: Interagency Ecological Program
S.F. Estuary Institute: San Francisco Estuary Institute
S.F. Estuary Project: San Francisco Estuary Project
S.F. Regional Board: San Francisco Bay Regional Water Quality Control Board
State Board: California Water Resources Control Board
U.S. EPA: United States Environmental Protection Agency
U.S. Fish & Wildlife: United States Fish and Wildlife Service

REPORT CARD

	FULL	SUBSTANTIVE	MODERATE	SOME	NEGLIGIBLE	UNKNOWN
WETLANDS		WM 4.1 Restore and acquire non-wetland areas to wetlands.	WM 1.1 Prepare regional wetlands management plans. WM 2.1.3 Establish implementation program wetland policies. WM 2.4 Expand landowner assistance.	WL 2.2 Enhance biodiversity.		
EXOTIC SPECIES		AR 2.1 Implement ballast water regulations.	AR 2.3 Control problem exotics.	AR 2.2 Prohibit exotic species introduction. AR 2.4 Educate the public about exotics. WL 3.1 Implement predator control programs.		
WATERSHED MANAGEMENT			LU 3.1 Prepare and implement watershed management plans.	LU 1.1 Incorporate watershed protection in Local General Plans.		
ECONOMIC INCENTIVES				LU 2.1 Consistent local government policies.	LU 1.3 State land use integration.	LU 5.1 Create economic incentives for local government. LU 5.2 Develop new funding mechanisms. LU 5.3 Create market-based incentives.
RUNOFF			PP 2.1 Pursue a mass emissions strategy. PP 2.5 Control measures for transportation pollution. PP 2.6 Control agricultural sources of toxics.	PP 2.4 Improve urban runoff management. PP 2.5 Long-term pollution prevention education.		
ESTUARY EDUCATION	PI 1.5 Provide a central clearinghouse for Estuary information.	LU 4.1 Educate the public about human effects.	PI 1.1 Build CCMP awareness.	PI 1.2 & 1.3 Opportunities for citizen involvement.		
REGIONAL MONITORING			AR 1.1 Coordinate existing monitoring programs.	RM 2.1 Develop regional monitoring strategy.		
INFLOW STANDARDS		AR 5.1 Identify long-term water quality and flow standards and measures. AR 5.2 Develop EIS/EIR on flow and management alternatives.	AR 4.1 Adopt water quality and flow standards. AR 6.1 Provide instream flows and temperatures for Central Valley salmon.	AR 5.3 Implement flow and management alternatives. AR 6.2 Develop San Joaquin River plan.		AR 6.2 Implement upper Sacramento River plan.

Rating Notes

UNKNOWN Unknown (research incomplete) or no longer applicable.
NEGLIGIBLE No or negligible or peripheral progress.
SOME Minimal progress (up to 25%).
MODERATE Fair level of progress, clear strides ahead (25-50%).
SUBSTANTIVE Major progress (50-75%).
FULL Full implementation completed or on the horizon (75-100%).

The ratings given to each action in this summary and in the Report Card were added as a rough, ballpark evaluation of the level of implementation progress.

SUMMARY

Wetlands, saving and restoring them, continue to be the top priority of those championing the CCMP's vision. Only 3-4 % of the Bay-Delta's historic wetlands remain. Acquisitions of fields, creekbanks, islands, floodplains and other former, current and future wetlands have tripled since the last three-year reporting period, with at least 33,042 acres secured and protected since April 1999 (10,183 acres in 1996-1999). Restoration and enhancement work continued at a steady pace, meanwhile, with 11,420 acres and 1,320 linear feet of completed projects since 1999. Plans for 19 wetland and riparian habitat projects will improve an additional 25,502 acres and 36,020 linear feet. The amount of wetlands lost during this same period remained small, although the extent of Delta losses is not known. In the Bay region, 122 acres of wetlands were filled and 204 acres gained as a result of 401 certification waivers and development mitigation projects since 1999 (see Appendix A for details).

Over the past three years, regional interests have also steamed ahead with plans, partnerships and fundraising to implement the *Baylands Ecosystem Habitat Goals* (a 1999 report providing a scientific rationale for what kinds of wetlands and where are needed to restore the Bay ecosystem). Though no resulting regulatory-based regional wetlands management plan has been developed, in 2001 26 agencies, organizations and private companies signed on to the S.F. Bay Joint Venture's implementation strategy called *Restoring the Estuary*, which is based on the Goals. CALFED, meanwhile, continued to pour hundreds of millions into restoration projects and ecosystem planning and processes. Other points of progress in regional wetlands planning include the updating of the wetlands and wildlife section of the Bay Commission's *Bay Plan*, the launching of a regional wetlands monitoring program, and the creation of a Joint Aquatic Resource Permit Application Center by the S.F. Estuary Project, ABAG and local agencies. Its purpose is to provide improved wetland protection and regional coordination while streamlining the permitting process for wetland related projects. Funding and technical assistance to individual landowners has also increased since 1999, as has access to clearinghouses, web sites, databases and other informational resources on wetlands and restoration work.

Exotic species control also got a big boost over the last three years, with enactment of a new state law in 1999 (AB 703) requiring mid-ocean ballast water exchange for all ships coming into California from more than 200 miles offshore. Since January 2000, 90% of vessels entering California ports have complied, spurred on by a successful program of inspections and enforcement by the State Lands Commission. More research is being done on on-board ballast treatment technologies, and active invasive species control programs, including eradication efforts, are underway for Atlantic cordgrass, purple loosestrife, water hyacinth, giant reed and Chinese mitten crabs.

In terms of other CCMP priorities, watershed management activities – aimed at reducing runoff and protecting stream environments and wetlands – grew in San Jose (sustainable city guidelines and riparian restoration project), the Santa Clara Basin (flood protection and watershed planning), Oakland (protection of 15 creeks), Sacramento (MOU on lower American River), and through priorities on watershed planning established by CALFED and the S.F. Bay Joint Venture, among others. The extent of work to create economic incentives to encourage local governments, landowners and communities to protect the Estuary is not known. But programs to reduce pollution from urban and agricultural runoff burgeoned, with TMDLs (regional mass emissions strategies) in place or in progress on copper, nickel, mercury and PCBs for the Bay region, and for selenium, mercury, pesticides, boron and other contaminants in the Central Valley.

In the Bay region, the S.F. Regional Board began working on tougher new and redevelopment requirements to prevent runoff and erosion in 2001, the Brake Pad partnership focused on reducing copper in brake pads, California's Zero Emissions Vehicle Program put several thousand electric vehicles on Bay Area highways – helping reduce pollution from energy and transportation systems – and the Estuary Project organized 10-12 erosion control workshops per year and distributed 82,000 maps to boaters encouraging use of shoreline sewage pump outs. In the Central Valley, the Regional Board began re-evaluating a ten year old waiver exempting irrigation return flows and runoff from waste discharge requirements and shepherded one of the first discharge requirements ever imposed on agriculture (Grasslands Bypass Channel project to reduce selenium-tainted runoff) into a second major phase. Also on the agricultural runoff front, U.S. EPA began implementing agreements with manufacturers of diazinon and chlorpyrifos, two pesticides known to cause Bay-Delta aquatic toxicity, to reduce their use.

On the education front, the years since 1999 have sustained an increasing number of programs educating teachers, students, the public, decisionmakers and others about the Estuary's natural resources. Conferences, newsletters, fact sheets, workshops and hands-on restoration and clean up work all featured in this education push. On the science front, fostering coordination among the myriad research and monitoring efforts continued be an uphill battle, but all programs continued to work at it through CALFED, SFEI, IEP and a newly founded Bay Delta Science Consortium, which 20 agencies and research institutions pledged to support via an MOU in 2001.

Last but not least, the CCMP priority aimed at promulgating baseline inflow standards to restore the Estuary moved significantly ahead with CALFED's Record of Decision in 2000, which included requirements for a maximum allowable ratio of export rates to water inflow rates, and requirements for the location and duration of the "x2" salinity standard. Likewise, the San Joaquin River Agreement of 2000 is experimenting with inflow and export rates to optimize flows for needy fish while serving water users. Other flows for fish and the environment are now coming from the CVPIA's "B2" water (800,000 acre feet per year) and CALFED's fledgling Environmental Water Account. Many flow decisions are being better integrated across the Bay-Delta Estuary through the frameworks of CALFED and the CVPIA.

PRIORITY 1. Expand, restore and protect Bay-Delta wetlands.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
WETLANDS MANAGEMENT 1.1 Prepare Regional Wetlands Management Plan(s). 99-01 MODERATE 96-99 MODERATE	• A San Francisco *Baylands Ecosystem Habitat Goals* report was completed in March 1999 to provide a scientific foundation for a regional wetlands management plan, as well as guidance for wetland restoration and mitigation projects. The Goals report has no regulatory authority, but identifies the quantity, type and location of wetlands the Bay needs to function as a healthy ecosystem. In 2001, the Ecosystem Goals Project released the *Baylands Ecosystem Species and Community Profiles*, which outlines the life histories and environmental requirements of key plants, fish and wildlife. • With the Goals complete, local agencies and wetlands interests decided that rather than creating the regional wetlands management plan called for in the CCMP, what was needed was a process for efficient and effective coordination of implementation of the Goals. Since 1999, the U.S.EPA and the S.F. Regional Board have worked to map out this Goals implementation program. The proposed structure includes an executive council, a restoration project design review group, a management group of senior agency staff, and a regional wetlands monitoring program. Project proponents held a public workshop in June 2000, but since then progress has been slow (see also Wetlands Management 2.1.3). • CALFED's latest draft *Ecosystem Restoration Program Plan*, released in 2001, provides regional restoration planning targets and guidance for many different ecosystem components and habitats, including wetlands.		• Funding for restoration and/or mitigation projects is limited. • Restoration projects could have unanticipated consequences for sediment balance in the Estuary. The relationship between individual projects and big picture processes needs to be studied in more detail. • The relationship between wetland restoration and the bioavailability of mercury in the Estuary requires more study. • There has been little monitoring of restoration projects or follow-up testing of assumptions regarding the functioning of restored wetlands.	• Improve management and monitoring of existing restoration sites, including tests of planning assumptions regarding ecosystem process values. • The San Pablo Bay Watershed Restoration Program established in 2000 provides a central regional switchboard for North Bay restoration efforts. The Program was organized by the Army Corps, the California Coastal Conservancy, and The Bay Institute. The program's web site documents existing ecological resources on San Pablo Bay, describes restoration opportunities, lists resources for funding and technical support with permits, provides links to other activities and programs, and offers over 300 references. (http://www.spn.usace.army.mil/sanpablobay)

PRIORITY 1. Expand, restore and protect Bay-Delta wetlands.

Action

WETLANDS MANAGEMENT 2.1.3

Establish an implementation program to achieve wetlands protection policies.

99-01

MODERATE

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The Bay Commission's *San Francisco Bay Plan* is undergoing a comprehensive update of its marsh, mudflat, and fish and wildlife findings and policies in an effort to 1) better reflect current scientific understanding of the Bay as interconnected habitats that form an ecological whole, and 2) incorporate many of the recommendations of the Goals report into the *Bay Plan*. The Bay Commission will consider proposed amendments to the *Bay Plan* in fall 2001.
- The Bay Area Wetlands Planning Group launched a Wetlands Recovery Project, aimed at developing a supportive structure for implementing the Ecosystem Goals. The project seeks to help wetlands project planners design better projects and navigate the permitting process. A Joint Aquatic Resource Permit Application Center was developed in 2000 by the S.F. Estuary Project, Association of Bay Area Governments (ABAG) and the Bay Area Wetlands Planning Group. Its purpose is to provide improved wetland protection and coordination while streamlining the permit process for wetland-related projects. In 1999, Project participants developed a single permit application form and instructions that consolidate federal, state and local permits for applicants proposing construction, fill placement, public access impingement and development activities in or near aquatic environments or wetlands. They also conducted outreach to local governments, the private sector and resource conservation districts about how to use it. In 2000, the S.F. Estuary Project and ABAG established the Permit Center as an ombudsman for applicants involved in aquatic permitting which provides a clearinghouse for information, coordinates agency site visits, maintains a web site and provides training for applicants.
- The Army Corps, the California Coastal Conservancy and the Bay Institute are developing a Program Plan that will allow San Pablo Bay Watershed Restoration Program projects to receive funding under the Water Resources Development Act.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- In 2001, 26 agencies, organizations and private companies signed on to the San Francisco Bay Joint Venture's implementation strategy for restoring the Estuary. Entitled *Restoring the Estuary*, the plan seeks to protect, restore or enhance 260,000 acres of baylands and creeks by 2020 — 75% of the 50-year scientific blueprint for biological health laid out in the San Francisco *Baylands Ecosystem Habitat Goals* report (released in March 1999). The strategy includes specific acreage goals for each of five sub-regions, and identifies partners and actions necessary to achieve the goals.
- Wetlands restoration is a significant part of the CALFED Ecosystem Restoration Plan. As of November 1999, CALFED had dedicated $254 million to 240 restoration projects, of which habitat restoration accounted for 41.3%. For FY 2000, the CALFED Policy group recommended spending additional $14.5 million on 23 projects.
- See also Appendix A

Current Gaps & Roadblocks

Ideas & Opportunities for Further Progress

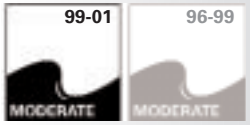
- The Wetlands Regional Monitoring Program is an interagency initiative launched in 2000 by S.F. Estuary Institute, the California Coastal Conservancy, and U.S. EPA Region 9 to assess the performance and effects of wetlands restoration projects through coordinated and standardized procedures for data collection, analysis and interpretation. The WRMP has developed a program plan that matches indicators of wetland conditions to specific management questions in the context of conceptual models of how wetlands work. The plan also includes protocols for data collection for key indicators. The WRMP intends to assess ambient conditions of the wetlands ecosystem, track the progress of major restoration projects and the implementation of the Wetland Habitat Goals.
- Inspired by the Goals Report, the National Audubon Society has established a Bay Restoration Program in cooperation with Bay Area chapters to educate the public about the value of Bay resources and to secure permanent funding to acquire and restore baylands.
- The Marin Audubon Society and Marin Baylands Advocates have launched the "Save Marin Baylands Campaign" to acquire and permanently protect tidal wetlands and diked baylands that are in private ownership.
- U.S. Fish & Wildlife has begun a process to study the establishment of a Marin Baylands National Wildlife Refuge. This would broaden the opportunities to acquire and protect threatened baylands and associated uplands.

PRIORITY 1. Expand, restore and protect Bay-Delta wetlands.

Action

WETLANDS MANAGEMENT 2.4

Expand existing private, state and federal financial and technical assistance programs to individual landowners.



Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- Dept. of Water Resources has increased grant funding for its Urban Streams Restoration Program (http://wwwdpla.water.ca.gov/environment/habitat/stream/usrp.html). Private parties, non-profit organizations, and other government agencies may apply for funding to improve flood protection and habitat values in their watersheds. These projects are cataloged in UC Davis' Natural Resource Projects Inventory database (http://endeavor.des.ucdavis.edu/nrpi/).
- North American Wetlands Conservation Act funding for public and private initiatives for wetlands protection and enhancement has increased from $15 million to $40 million in FY 2001.
- One of the major objectives of CALFED's Watershed Program is to provide financial and technical assistance for local watershed stewardship programs.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- The North Bay Wetlands and Agriculture Protection Program, a partnership between the Bay Commission, four cities and four counties in the North Bay, has succeeded in developing and transferring new tools to local governments to better ensure the protection, restoration and enhancement of wetlands. A background report on polluted runoff in the North Bay Planning Area was developed for the program in April 1999, and local governments have used many of the report's recommendations to reduce or prevent polluted runoff and to protect wetlands.
- The Alameda County Resource Conservation District is working with the county planning department and Tri-Valley Vision 2010 to help landowners improve the economic viability of agricultural operations as a means of preserving open space. The effort has resulted in several workshops designed to educate farmers and ranchers about tools such as conservation easements and habitat mitigation banks that can help them to realize revenues from their property in non-agricultural ways.

Current Gaps & Roadblocks

- SB 709, which went into effect in January 2000, severely restricted the ability of Regional Boards to use Supplemental Environmental Programs in lieu of fines for water quality violations.

Ideas & Opportunities for Further Progress

- UC Davis' Information Center for the Environment maintains the Natural Resource Projects Inventory (NRPI) database, which catalogs habitat restoration/enhancement projects throughout the state. Completed CCMP-associated habitat improvement projects should be added to the NRPI database. The database may also act as an excellent reference for future CCMP actions. (http://endeavor.des.ucdavis.edu/nrpi/)
- As part of the effort to help landowners improve the economic viability of their property while preserving open space, the Alameda RCD and others are exploring the idea of a pooled bank of conservation easements that could be used to mitigate for development elsewhere in the region.

PRIORITY 1. Expand, restore and protect Bay-Delta wetlands.

Action

WETLANDS MANAGEMENT 4.1

Identify and convert/restore non-wetland areas to wetland or riparian-oriented wildlife habitat. Purchase non-wetland areas to create wetlands.

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- Over 3,000 acres of Skagg's Island in the North Bay has the potential to be restored from diked baylands to a mix of tidal marsh and seasonal wetlands. U.S. Fish & Wildlife is negotiating the potential transfer of Skagg's Island from the U.S. Navy to the San Pablo Bay National Wildlife Refuge. Initial planning for the restoration has taken place as part of the San Francisco Airport Runway Mitigation Study.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- In the Bay-Delta, at least 33,042 acres of wetlands and riparian areas have been acquired and protected since April 1999, more than triple the amount acquired in the last three year reporting period. Also since April 1999, 11,420 acres and 1,320 linear feet have been restored or enhanced. Plans for 19 projects now on the books or in progress will restore or enhance up to an additional 25,502 acres and 36,020 linear feet of wetland and riparian habitat. In the Bay region, 122 acres of wetlands were filled and 204 acres gained as a result of 401 certification waivers and development mitigation projects since 1999. See Appendix A.
- Nearly 10,000 acres of former salt ponds and remnant sloughs and marshes in Napa and Sonoma counties are part of a feasibility study undertaken by the Army Corps, the California Coastal Conservancy, and Cal Fish and Game. After salinity reduction of the salt ponds, the ponds will be restored to a mosaic of wildlife habitats.
- Construction on a re-created 18-acre tidal salt marsh at the new Crissy Field waterfront park in San Francisco's Presidio was completed in late 1999.
- Over the past several years the Santa Clara Valley Water District has purchased several properties that had been subjected to repeated flooding along Coyote Creek in San Jose. The houses on the properties were leveled and the site is presently being replanted and regraded to allow for better functioning of Coyote Creek. The project will be completed in October of 2001.
- U.S. Fish & Wildlife and the California Wildlife Conservation Board completed the acquisition of 1,600 acres of former wetlands at Bair Island and began plans for tidal restoration.
- At Tolay Creek in the San Pablo Bay National Wildlife Refuge, a partnership between U.S. Fish & Wildlife, Cal Fish & Game, Save the Bay and others, breached a levee to restore 435 acres of diked historic wetlands to tidal salt marsh in December 1998. Since then, bird and fish use, plant colonization, tidal action, and sediment accretion have all improved. Wave damage to adjoining levees caused some seepage to nearby farmlands, creating a need for on-going repairs, but overall the project has been successful.
- The U.S. Army Corps, the California Coastal Conservancy, and the Bay Commission have undertaken the restoration of 900 acres of tidal and seasonal wetlands at the former Hamilton Army Airfield in Marin. The California Coastal Conservancy has also acquired the adjacent 1,613 acre Bel Marin Keys property in January of 2001, and is working with the Army Corps on a restoration plan for the property.

Current Gaps & Roadblocks

- Disagreements over land prices and property clean-up are stalling some wetlands acquisition and restoration projects.
- Trade-offs between different habitat values and restoration objectives have not yet been resolved.
- Assumptions about habitat values resulting from restoration have not been adequately tested.

Ideas & Opportunities for Further Progress

- U.S. Fish & Wildlife and the California Wildlife Conservation Board are in negotiations with Cargill, Inc, over the acquisition of nearly 19,000 acres of salt ponds for wetlands restoration. If successful, the deal would pave the way for the largest restoration effort ever attempted in the West. Cargill has agreed to remove bittern, a toxic liquid, from 270 acres near Redwood City, a process that could take up to 12 years.
- In 2001 the Silicon Valley Toxics Coalition and CLEAN South Bay asked the city councils of Mountain View and Sunnyvale to pass a resolution calling for the cleanup and restoration of Moffett Naval Air Field Site 25 to tidal marsh. Mountain View's city council adopted the resolution on July 31. Remediation of Site 25 is anticipated in 2002.

PRIORITY 1. Expand, restore and protect Bay-Delta wetlands.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
WILDLIFE 2.2 Enhance the biodiversity within all publicly owned or managed wetlands and other wildlife habitats as appropriate. 99-01: SOME 96-99: SOME	• In 2000, the Delta In-channel Island Work Group received CALFED funding to construct biotechnical erosion control measures on three small, tidal islands in the central Delta. Delta in-channel islands provide important habitat for anadromous fish and various at-risk plants, mammals, birds and reptiles, but are rapidly eroding from boat wakes, wind-driven waves and out-of-balance hydrodynamics in the system. Actual construction will begin in Fall 2001. • The Bay Area Stream Fishes Project website presents fish survey data collected by the U.S. EPA during the years 1992 to 1998. It includes the most comprehensive data set to date describing native and introduced fishes in Bay Area streams. A total of 37 species observed at 263 stations on 79 streams are presented through the interactive website. The website should be available to the public in the fall of 2001. The next version of the site, projected for winter 2001, will incorporate the first unit of the new high-resolution National Hydrography Database, currently being developed by USGS and SFEI.	• CALFED's Ecosystem Restoration Program has funded a large number of projects designed to enhance habitat values for species. • In 1999, managers at Antioch Dunes National Wildlife Refuge adopted the use of controlled burns as a means of enhancing biodiversity at the refuge. Analysis of data gathered since 1997 indicated that three consecutive years of controlled burns is a very effective means of keeping down non-native species such as star thistle and encouraging the growth of native plants such as the endangered Antioch Dunes evening primrose, deer weed and bush lupine. In 2000, the refuge began working with the California Native Plant Society to identify and protect rare — but not state or federally listed — plants present at the refuge. • See also Appendix A and Aquatic Resources 2.3.	• Habitat management often focuses on specific threatened or endangered species rather than on biodiversity.	• The Dept. of Water Resources is considering funding a feasibility study of the removal of Searsville Dam on San Francisquito Creek, which currently blocks access to 40% of the creek's steelhead habitat.

PRIORITY 1: WETLANDS SUMMARY

AVERAGE IMPLEMENTATION LEVEL: 1996-99: 25-50%

25-50%

PRIORITY 2. Prevent the introduction of exotic organisms, plants and animals into the Estuary from all sources.

Action

AQUATIC RESOURCES 2.1

Develop, implement and enforce stringent regulations to control the discharge of ship ballast water within the Estuary and adjacent waters.

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The Coast Guard is in the process of developing standards for the treatment of water discharged from ships' ballast tanks to reduce the threat of introducing foreign organisms to U.S. waters.
- The S.F. Regional Board has developed a work-plan entitled "Prevention of Exotic Species Introductions to the San Francisco Bay Estuary: A Total Maximum Daily Load," designed to prevent the introduction of non-natives through ballast water.
- See also Aquatic Resources 2.4.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- State law passed in 1999 (AB 703) requires mid-ocean ballast water exchange, or alternative treatment that is at least as effective, in vessels carrying ballast water into state waters after operating outside of the U.S. Exclusive Economic Zone (i.e. after operating more than 200 miles off shore), with certain exceptions, until January 1, 2004. During this period, the State Board is to submit to the legislature an evaluation of alternative approaches for managing ballast water to eliminate the discharge of exotic species. During the term of this law, state agencies are prohibited from imposing other requirements on ballast discharges that may be available under state law. Since the new law went into effect in January 2000, 90% of vessels entering California ports have complied. According to an annual review, ships discharged at total of 7.8 million metric tons of ballast water in California ports in 2000. North coast inspectors discovered a total of 83 violations out of 330 inspections, 71 of which were paperwork related and 12 of which were exchange violations. The Bay-Delta level of compliance ranged from highs of 90% in Stockton and 89% in Richmond to a low of 72% in Redwood City.
- An ordinance requiring mid-ocean ballast water exchange for vessels calling at the Port of Oakland went into effect in the summer of 1999. Monitoring indicates that 10-15% of ships calling at the port in 2000 discharged ballast water taken on in foreign ports, and 8% discharged water picked up on the West Coast.

Current Gaps & Roadblocks

- Regulatory agencies rely almost entirely on the ship's statement on a ballast water report form to determine whether or not a mid-ocean exchange has been attempted and whether or not it has been conducted effectively. Effective regulation will require either the implementation of more effective monitoring methods for ballast water exchange, or the mandating of other approaches, such as the treatment of ballast discharges, which may be easier to monitor. However, at present, there are no effective treatment technologies.
- Cruise lines travelling between Mexico and California do not travel far enough offshore to conduct a mid-ocean exchange (200 miles out). An alternative exchange site, possibly just 60 miles out near Baja, is still being developed.

Ideas & Opportunities for Further Progress

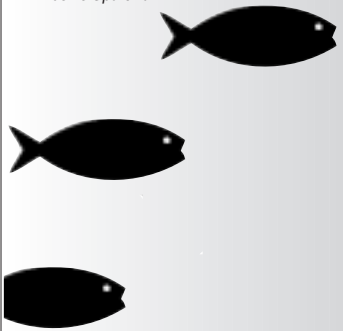
- The Coast Guard is working with the Smithsonian Environmental Research Center to develop effective tools for verifying ballast water exchange. The International Maritime Organization is also exploring the establishment of treatment standards at the international level.
- The California legislature authorized the State Lands Commission to charge fees of up to $1,000 per vessel voyage. Fees were to be used to implement the law, including monitoring. The SLC is currently charging fees of only $400 per vessel voyage.
- There are several existing federal laws that appear to allow or require agencies to regulate the discharge of exotic organisms in ballast water. The most compelling and comprehensive of these are laws intended to regulate the discharge of pollutants, especially the federal Clean Water Act, which prohibits the discharge of any pollutant by a point source into the navigable waters of the United States without a discharge permit, with both statute and case law indicating that exotic organisms fit the definition of a pollutant. These laws provide penalties for violating restrictions on the discharge of pollutants (e.g. up to $25,000 per day under the federal Clean Water Act, up to $25,000 per day and up to a year in jail under the federal Rivers and Harbors Act). Government agencies have generally failed to apply these laws to ballast discharges, although in some cases the law may not just allow them but require them to do so. Government agencies could create a considerably greater incentive to comply with existing ballast water law by announcing their intention to apply these laws and penalties to violations of the law, and by doing so when the occasion arises. Similarly, there are several existing state laws that could be applied or are apparently required to be applied to ballast discharges, once the temporary prohibition on applying them expires on January 1, 2004.
- Ballast water exchange may become mandatory when Congress reauthorizes the National Invasive Species Act in 2002.
- Uniform standards for the entire West Coast would make things easier for shipping lines. At the moment, ballast water management is only mandatory in Washington and California. Oregon issued a draft aquatic nuisance species management plan in April 2001.

PRIORITY 2. Prevent the introduction of exotic organisms, plants and animals into the Estuary from all sources.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
AQUATIC RESOURCES 2.2 Prohibit the intentional introduction of aquatic exotic species into the Estuary and its watershed. 99-01: SOME 96-99: SOME	• Various federal laws (Clean Water Act) or state laws (Porter-Cologne Water Quality Control Act, Cal Fish and Game Code §5650 and §6400) prohibit the release of exotic organisms into California waters without a permit. • CALFED has finalized its Non-Native Invasive Species Strategic Plan. The Plan's goals are: 1) preventing new introductions and establishment of non-natives into the ecosystems of the San Francisco Bay-Delta, the Sacramento/San Joaquin Rivers and their watersheds; 2) limiting the spread or, when possible and appropriate, eliminating populations of non-natives through management; and 3) reducing the harmful ecological, economic, social and public health impacts resulting from infestation of non-natives through appropriate management. CALFED is now funding projects pursuant to the Strategic Plan.		• Federal law and state law prohibit the importation into the U.S. or into California of a small number of particular exotic aquatic organisms. These laws thus make use of a "dirty list" approach, in which organisms not on the list may be imported unless they are demonstrated to be harmful. Many regulators, resource managers and scientists have recommended the use of a "clean list" approach, in which organisms not on the list may not be imported unless they are demonstrated to be safe.	
AQUATIC RESOURCES 2.4 Develop programs to educate the public about problems with exotic species and their incidental transport or introduction. 99-01: SOME 96-99: MODERATE	• The S.F. Estuary Institute is working with CALFED and other interests to produce online guidelines for local control of key invasive plant species of shallow water habitats. The intended audience for the guidelines includes marina operators and local landowners with riverfront, lakeshore or bayshore properties. • Since 1999, the S.F. Estuary Project's *ESTUARY* newsletter has done invasive species articles on Atlantic cordgrass, purple loosestrife, Chinese mitten crabs, giant reed and common waterweed. • The West Coast Ballast Outreach Project was formed in 1999 to provide public education on ballast water issues and information exchange between industry, researchers and regulators. The Project has since published newsletters and reports, created a web site offering up to date news and links to other projects, and held several major conferences and workshops, most recently a California conference on *Developing Ballast Water Solutions for the Pacific Coast Maritime Industry* and workshops in London on international treatment standards. (ballast-outreach-ucsgep.ucdavis.edu) • Many groups, including the S.F. Estuary Project, are developing and distributing brochures and other educational materials on aspects of the exotics problem.	• Both the California Coastal Conservancy's Spartina alterniflora eradication project and Team Arundo Del Norte's *Arundo donax* efforts (see AR 2.3) include public education components.		

PRIORITY 2. Prevent the introduction of exotic organisms, plants and animals into the Estuary from all sources.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
AQUATIC RESOURCES 2.3 Control problem aquatic species already in the Estuary. 99-01 MODERATE 96-99 MODERATE	• In early 2000, the California Coastal Conservancy began coordinating an eradication project to prevent the spread of Atlantic cordgrass (*Spartina alterniflora*) into the North Bay, the Delta and newly restored tidal marshes. The project has completed its mapping efforts and is drafting a management plan, which is expected by winter 2002 together with a draft EIR/EIS. However, there are a number of difficult conservation issues to be addressed in deciding whether to proceed with an eradication effort, and in developing and effectively implementing the plan if it is decided to attempt it. Getting there will require a much greater involvement by regulatory and resource management agencies, environmental organizations and the general public.	• Team Arundo Del Norte, a coalition of government managers, scientists and environmentalists, has been battling giant reed (*Arundo donax*) since 1996. The team has conducted eradication efforts on the Russian River and other areas, including Contra Costa County. In 2000, CALFED provided Team Arundo del Norte with $818,000 to coordinate and oversee regional Arundo eradication projects. Several projects are located in the S.F. Bay region and are sponsored by local watershed groups. Project information will be web-based including GIS integration (http://ceres.ca.gov/tadn/eradproject/). • California State University, Chico, received a grant from CALFED to identify areas infested by *Arundo donax* in Upper Sacramento River tributaries, implement an outreach and education program for landowners whose riparian habitats are affected, and assist them in eradication efforts. • U.S. Fish & Wildlife is developing a monitoring program for the Chinese mitten crab (*Eriocheir sinensis*), including a reporting system for mitten crab collections and sightings. Since 1998, when an exploding mitten crab population clogged fish salvage facilities and engineers began working on an enormous new screen called "crabzilla," the numbers of these invaders have decreased dramatically. Though fish facilities are still trapping mitten crabs, the crabs current primary impact seems to be stealing bait from sport anglers. (http://www.delta.dfg.ca.gov/mittencrab/sighting). • A three year project to survey and extinguish the aquatic pest plant purple loosestrife (*Lythrum salicaria*) began in 2000. To date, surveys reveal that the "purple plague" invasion is still controllable. Since then, the California Department of Food and Agriculture has been developing action plans for eradication and education programs for the public.	• Public agencies still manage exotic species such as striped bass for sport fishing purposes. • Often "problem" species are only identified after they begin to affect the food web. • The practice of spraying waterways with pesticides to reduce clogging by water hyacinths was challenged by DeltaKeeper in 2000, who sued the Department of Boating and Waterways, saying they needed a permit to spray. Since then, the department, water quality regulators and environmentalists have been negotiating how and whether to incorporate additional regulatory hoops and monitoring of potential aquatic ecosystem impacts into the spraying program.	• Experience from Willapa Bay (Washington) on *Spartina* control suggests multi-agency cooperation, deployment of amphibious mowing machines, biological controls (*Prokalisia marginalia* is a natural predator of *Spartina*), and strategies to prevent *Spartina* infestations (prevention of "seed set") show promise to check and possibly reverse the progress of *Spartina* in western Pacific estuaries. Remote sensing and "on-the-ground" monitoring, combined with GIS-supported strategic planning efforts also hold promise for increasing the effectiveness of eradication campaigns. • To protect water quality and species diversity, the Silicon Valley Toxics Coalition promotes Integrated Pest Management approaches, especially monitoring, preventive measures, and mechanical removal (mowing), to control of invasive *Spartina*.
WILDLIFE 3.1 Implement predator control programs in areas where introduced predators are a constraint to maintenance and restoration of native populations. 99-01 SOME		• U.S. Fish & Wildlife and other agencies are continuing predator management activities in the South Bay to protect endangered species and migratory birds from the non-native red fox, which first appeared in the Bay Area in the 1980s.		

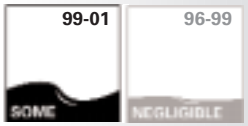
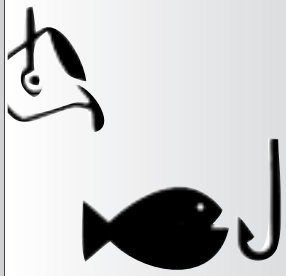


PRIORITY 2: EXOTIC SPECIES SUMMARY

AVERAGE IMPLEMENTATION LEVEL: 1996-99: 19-44%

15-40%

PRIORITY 3. Promote watershed management throughout the Estuary.

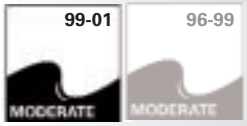
Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
LAND USE 1.1 Local General Plans should incorporate watershed protection plans to protect wetlands and stream environments and reduce pollutants in runoff.  	• The City of San Jose's General Plan has included a Sustainable Cities Major Policy Strategy since the 1980s. The policy defines a "sustainable city" as one designed, constructed, and operated to minimize waste, efficiently use its natural resources and to manage and conserve them for the use of present and future generations. The policy commits San Jose to encourage and participate in cooperative/regional efforts intended to improve the quality of air and water and to conserve land, soil, water, energy and ecosystems such as the Bay, forests, riparian corridors, fisheries and grasslands. • In the aftermath of 1998's severe flooding, five agencies (San Mateo County Flood Control, Santa Clara Valley Water District, and the cities of Palo Alto, East Palo Alto and Menlo Park) formed the San Francisquito Creek Joint Powers Authority to preserve and protect 14 miles of the creek and 45 square miles of its watershed. • See also Pollution Prevention 2.4. 	• The City of Oakland has made environmental protection of its 15 creeks a priority, by implementing a Watershed Improvement Program, which consists of educational, outreach, and volunteer programs, restoration and enhancement projects on their creeks, and a creek protection ordinance. 		• Napa County is scheduled to develop a Programmatic Environmental Impact Report as part of its proposed revisions to the hillside protection ordinance, with potentially far-reaching measures for riparian corridor protection, erosion and sedimentation reductions from agricultural land use practices, and habitat preservation. • Several Bay Area cities and counties have passed local growth management policies in recent years, which may help protect watersheds from development. Meanwhile, the Bay Area Alliance for Sustainable Development, and the five-agency Bay Area Smart Growth Strategy, are also working on integrating economy, environment and equity into regional and local land use management.

PRIORITY 3. Promote watershed management throughout the Estuary.

Action

LAND USE 3.1

Prepare and implement Watershed Management Plans that include the following complementary elements: 1) wetlands protection; 2) stream environment protection; and 3) reduction of pollutants in runoff.



Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- S.F. Bay Joint Venture and its partners are encouraging all Bay Area counties to pass resolutions endorsing the goals and objectives contained in its implementation strategy, *Restoring the Estuary* (see Wetlands 2.1.3). The City and County of San Francisco did so in October 2000, and Marin and Sonoma counties have indicated that they will as well. Municipalities will then be solicited for their endorsements of the strategy.
- The Sacramento Water Forum developed a Memorandum of Understanding and an EIR on a plan to protect the Lower American River watershed while providing a reliable and safe water supply for the region's economic health and planned development. The result of six years of cooperative research and negotiation on the part of Sacramento area business, environmental, agricultural, public government and water interests, the plan details how the region will deal with key issues such as groundwater management, water diversions, dry year water supplies, water conservation, and protection of the Lower American River.
- CALFED's Watershed Program supports local and regional activities that improve the ability of the watershed to function as a contributor to the health of the entire Bay-Delta system. In November 1999, the CALFED Policy Group recommended funding eight watershed planning projects, including the Colusa Basin, Lower Mokulemne, Clear Creek, Yuba River, American River and Napa River Watersheds.
- The Watershed Resources Assessment Center received funding to assist grassroots organizations in developing scientifically valid monitoring and assessment programs to help them achieve their watershed goals and to create partnerships with local and state agencies.
- $2.5 million in federal Water Resources Development Act funding has been approved for the San Pablo Bay Watershed and the Napa River Watershed planning and restoration projects.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- The City of San Jose completed a Riparian Restoration Pilot Project (RRPP) in March 2001 funded through a State Water Resources Control Board 319 (h) grant. The project was conducted on a targeted riparian habitat to test and refine the draft City of San Jose's Riparian Restoration Action Plan (RRAP). The RRAP was developed with widespread community input and approved by City Council in January 2001. The segment chosen for restoration is located on Coyote Creek, directly adjacent to the proposed William Street Park, in an urban neighborhood of San Jose. The project met the goal of native plant re-vegetation and community outreach. The City envisions that the final RRAP will be a transferable blueprint for urban riparian restoration and watershed management planning efforts to help improve the entire San Francisco Bay/Delta system.
- The Santa Clara Basin Watershed Management Initiative published a *Watershed Characteristics Report* in 2000 and is currently preparing an assessment focused on three sub-basin watersheds, and developing action items for the SCBWM Plan, due in 2004.
- The Alameda County Resource Conservation District is managing several watershed management programs, including the Southern Alameda Creek Project and the San Lorenzo Creek Watershed Project.
- In Contra Costa County, the Alhambra Creek Watershed Planning Group published the *Alhambra Creek Watershed Management Plan — A User's Manual* and its accompanying appendices in April 2001. The plan includes a general description of the watershed, detailed goals and objectives, technical background material, and guidance for landowners who wish to implement resource conservation. The Planning Group included a diversity of watershed stakeholders, including ranchers, farmers, East Bay Regional Park District staff, National Park Service staff, the Cattlemen's Association, Environmental Alliance, Urban Creeks Council, Martinez Chamber of Commerce, the Contra Costa Resource Conservation District, teachers, and many other participants listed in the plan.

Current Gaps & Roadblocks

- State funding for watershed assessments is limited.

Ideas & Opportunities for Further Progress

- The S.F. Estuary Institute has developed field reconnaissance techniques in eight small watersheds that will enable managers to identify the most promising on- and off-site restoration activities.
- The S.F. Estuary Institute has pioneered the application of Historical Ecology projects in wetland and watershed goal-setting by involving community members at the local level in helping compile historical records and interpret rigorously documented material with regard to landscape features and associated habitats.
- Construction permits and stream protection requirements could be better coordinated.

PRIORITY 3: WATERSHED MANAGEMENT SUMMARY

AVERAGE IMPLEMENTATION LEVEL: 1996-99: 25-42%

12-37%

PRIORITY 4. Create incentives that encourage local government, landowners and communities to protect and restore the Estuary.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
LAND USE 1.3 Integrate protection of the Estuary with other state land use-related initiatives. 99-01 NEGLIGIBLE	• The state's Delta Protection Commission has worked successfully in recent years to integrate CCMP spawned efforts to restore Delta in-channel islands (see Wildlife 2.2) into newer planning processes including CALFED's Ecosystem Restoration Program. It has also been encouraging Cal Fish & Game to undertake in-channel island restoration work onto some state-owned properties. • The Resource Agency's California Continuing Resource Investment Strategy Project, launched in 2000, aims to identify and prioritize large areas, such as river basins, that support any of five key conservation values: aquatic and terrestrial biodiversity, working landscapes (crop, forest or range lands), watershed values, lands for recreation and educational facilities in natural areas and urban open space. The project is developing maps, data sets and decision-making tools to help make the case for where state investment in conservation should be made, as well as help local stakeholders decide which on-the-ground projects or land acquisitions make the most sense in light of statewide conservation priorities.			• SB 221, which would prohibit a city or county from approving a subdivision of 200 units or more unless the developer can prove that there will be adequate water to supply the tract for at least 20 years, has passed the state Senate and is under consideration in the Assembly. • Bay-Delta agencies could learn lessons from the Los Angeles TREES project, kicked off by the environmental group Treepeople in 1997 and continuing to grow. Trans-Agency Resources for Environmental and Economic Sustainability seeks to overcome often fragmented agency-by-agency approach to environmental problems and simultaneously address stormwater runoff, water conservation, groundwater, flood control, air quality, urban forestry and energy conservation. The project has since developed a series of Best Management Practices (BMPs) for industrial sites, commercial buildings, schools, apartments and single family homes, published them in a *Planbook*, drafted an *Implementation Plan* that proposes public policy and financial strategies that can facilitate the widespread use of the BMPs, and created an interactive computer Cost Benefit Model for policymakers. (www.treepeople.org/trees/index.htm)
LAND USE 2.1 Regional agencies should assist in identifying and developing consistent policies that provide an integrated framework for local governments to protect the resources of the Estuary. 99-01 SOME	• The Santa Clara Valley Water District's "Ends Policies" guide all of the district's activities. The policies state that the "ends" of all district activities should have the intended result of a healthy and safe environment for residents and visitors and an enhanced quality of life in Santa Clara County including a reliable supply of clean drinking water and reduced potential for flood damages. The policies also state that watersheds, streams and the natural resources therein should be protected (and when appropriate enhanced or restored) and that there should be additional open space, trails and parks along creeks and in the watersheds "when reasonable and appropriate." • The S.F. Bay Commission has completed its two-year Public Access and Wildlife Compatibility Policy Development Project. The project resulted in revisions to the S.F. Bay Commission's Bay Plan public access findings and policies. The revisions better reflect current knowledge on the interactions of public access and wildlife, and provide more detailed guidance on how to provide for maximum feasible public access to and along the Bay while protecting wildlife. • The City of San Jose's Riparian Corridor Policy directs that, wherever feasible, all development have a 100 foot riparian buffer area. Its Riparian Restoration Action Plan was developed to help developers protect, restore or mitigate riparian areas impacted by planned development.	• The Guadalupe Collaborative was a multiparty stakeholder process to design a downtown San Jose flood control project that was more environmentally friendly. • The Fisheries and Aquatic Habitat Collaborative Effort is a multiparty stakeholder effort coordinating the Santa Clara Valley Water District's operations to support cold water fisheries on Stevens Creek, Coyote Creek and the Guadalupe River.	• San Francisco International Airport has proposed construction of new runways which could fill up to 900 acres of the Bay, with potential direct (fill and borrow) impacts and regional impacts resulting from changes in Bay circulation patterns.	

PRIORITY 4. Create incentives that encourage local government, landowners and communities to protect and restore the Estuary.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
LAND USE 5.1 Create economic incentives that encourage local governments to take action to implement measures to protect and restore the Estuary. 99-01 UNKNOWN 96-99 MODERATE				• SF Bay Joint Venture and members of its Creeks Committee are exploring legislation to create a regional network of watershed/riparian stations through the community college system and via a formal partnership of the State Board and the State Department of Education. • Sediment TMDLs are generating incentives for local government and private entities to apply watershed assessment techniques in evaluating the best options for sediment reductions to impaired water bodies.
LAND USE 5.2 Develop new funding mechanisms to pay for plans, physical improvements and program administration to protect the resources of the Estuary. 99-01 UNKNOWN	• Congressional authorization of funds under the Water Resources Development Act is enabling the U.S. Army Corps to become a federal partner with local entities in preparing watershed management plans and implementing restoration priorities. • CALFED is providing substantial new funding for Bay-Delta restoration and protection.			• AB 104, which authorizes a motor vehicle registration fee to fund restoration projects that mitigate for the adverse water quality impacts of motor vehicles and streets and highways, is pending before the state legislature.
LAND USE 5.3 Investigate and create market-based incentives that promote active participation by the private sector in cooperative efforts to implement goals for protection and restoration of the Estuary. 99-01 UNKNOWN	• As part of the effort to help landowners improve the economic viability of their property while preserving open space, the Alameda RCD and others are exploring the idea of a pooled bank of conservation easements that could be used to mitigate for development elsewhere in the region.		• The use of mitigation banks is highly controversial.	

PRIORITY 4: ECONOMIC INCENTIVES SUMMARY

AVERAGE IMPLEMENTATION LEVEL: 1996-99: 12-25%

0-5%

PRIORITY 5. Reduce pollution of the Estuary from urban and agricultural runoff and other non-point sources.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
POLLUTION PREVENTION AND REDUCTION 2.1 Pursue a mass emissions strategy (TMDLs) to reduce pollutant discharges into the Estuary from point and non-point sources and to address the accumulation of pollutants in estuarine organisms and sediments. 99-01 MODERATE; 96-99 SOME	• The Central Valley Regional Board is developing TMDLs for all 303(d) listed water bodies for mercury, pesticides, boron, selenium, salinity and dissolved oxygen. The plans are expected to be complete by the end of 2002. • The S.F. Regional Board is developing TMDLs for pollutants for all 303(d) listed water bodies, and has developed a draft TMDL for mercury. • The S.F. Regional Board, S.F. Estuary Institute and the other partners involved in the Regional Monitoring Program for Trace Substances are contributing to the scientific foundation of TMDL development through the design of a loadings monitoring component, impairment assessment, and evaluation of additional pollution control measures.	• The RMP partners are developing a surveillance program to proactively identify substances of potential concern. • The Santa Clara Basin Watershed Management Initiative resolved the copper and nickel TMDL for the San Francisco Bay south of the Dumbarton Bridge with the adoption of pollution prevention action plans, site-specific objectives and a monitoring plan. The S.F. Regional Board amended South Bay NPDES permits to incorporate copper and nickel TMDL stakeholder outcomes. • The Watershed Management Initiative is currently developing a Mercury TMDL for the Guadalupe River and its affected tributaries. The Santa Clara Valley Water District has funded the initial studies to develop the workplans. • The Watershed Management Initiative is currently developing a plan for pre-TMDL sediment studies on San Francisquito Creek.	• Some problems may relate to channel configuration rather than loading; TMDLs do not allow water quality problems to be solved using non-loading methods.	
POLLUTION PREVENTION AND REDUCTION 2.4 Improve the management and control of urban runoff from public and private sources. 99-01 SOME; 96-99 MODERATE	• The S.F. Bay Commission, working closely with the S.F. Bay Regional Board and other local, state and federal agencies with water quality authority and expertise, in accordance with a directive from the Resources Agency, has analyzed the S.F. Bay Commission's existing polluted runoff controls and developed a draft five-year plan for controlling polluted runoff in the Bay.	• The S.F. Regional Board began promoting new and redevelopment requirements in 2001, as part of the reissuance of Santa Clara County's five year stormwater discharge permit (NPDES) and a recent statewide mandate to strengthen stormwater management through SUSMPs (standardized urban stormwater mitigation plans). The new requirements get more specific about how much runoff must be captured, filtered (through soils, vegetation or actual fabric filters) or treated on a project site before it can flow into creeks, bays and ultimately the ocean. They raise the bar for performance and compliance with stormwater permits, and force municipalities to integrate stormwater management more fully into city infrastructure and procedures. Several other Bay Area counties, including Alameda, will become subject to the new provisions when their NPDES permits come up for renewal in the coming years. See also Public Involvement and Education 2.5. • State and regional urban runoff management efforts begun before 1999 continue to be in effect.		

PRIORITY 5. Reduce pollution of the Estuary from urban and agricultural runoff and other non-point sources.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
POLLUTION PREVENTION AND REDUCTION 2.5 Develop control measures to reduce pollutant loadings from energy and transportation systems. 99-01: MODERATE 96-99: SOME	• The Brake Pad Partnership, a cooperative effort involving international vehicle brake manufacturers, government agencies, and environmental groups, is working to understand and minimize the impacts of vehicle brakes on surface waters, focusing first on copper, using South San Francisco Bay as a model. Under the Partnership, manufacturers have initiated an annual report of copper use and have used a new standard method for generation of brake wear debris to provide material that has been physically and chemically characterized. The Partnership is now developing an Action Plan to create methods to evaluate the fate, transport, and environmental importance of pollutants in brake wear debris. • Caltrans District 4 is funding the S.F. Estuary Project's development of a manual that provides concrete design examples of how highway landscaping and drainage design can be coordinated to develop facilities that treat highway runoff.	• California's Zero Emissions Vehicle Program, supplemented by the efforts of the Bay Area Air Quality Management District and many San Francisco Bay area local governments, put several thousand electric vehicles on Bay Area highways in 1999 and 2000. As substitutes for gasoline or diesel vehicles, electric vehicles reduce releases of water pollutants from operations (tailpipe emissions are eliminated, reducing air emissions of water pollutants by 90% or more) and from maintenance (electric motors do not use motor oil).	• Although the Brake Pad Partnership has informed all brake manufacturers about environmental concerns in brake design and manufacturers have initiated development of low-copper brake pad formulations, copper use in original equipment brake pads went up 40% between 1998 and 1999 (2000 results will be available in October 2001). • The lack of regional or local control over pollutants released from consumer products like vehicles and vehicle components is a very significant barrier to preventing pollutant releases from vehicles.	• The state legislature is currently considering AB 104, which authorizes a motor vehicle registration fee to fund restoration projects that mitigate for the adverse water quality impacts of motor vehicles and streets and highways.
PUBLIC INVOLVEMENT AND EDUCATION 2.5 Increase long-term educational programs designed to prevent pollution of the Estuary's ecosystem. 99-01: SOME 96-99: MODERATE		• The S.F. Estuary Project has organized 10-12 erosion workshops per year for developers, builders and local governments since 1999 whose purpose is to educate participants about construction site planning BMPs that can help them prevent erosion and sediment problems and improve water quality. The workshops are a cooperative project with the S.F. Regional Board and Friends of the Estuary. The project has also produced videos (Spanish and English), how to manuals and a certification program for those attending workshops. • The S.F. Estuary Project has expanded its work with the state Dept. of Boating and Waterways to prevent pollution by building environmental awareness among recreational boaters and encouraging their use of sewage pump out stations. Since 1999, the boater education program has printed 82,000 maps of Bay and Delta shoreline pump out and recycling facilities and distributed them to the boating community via boat shows, marinas and boat supply stores. • The Santa Clara Valley Urban Runoff Pollution Prevention Program is funding a Watershed Education and Outreach Program. That effort is designed to educate the public on the Watershed and encourage behavior to protect it. • Many municipalities, organizations, and wastewater dischargers continue to expand pollution awareness programs. • See Land Use 4.1.		

PRIORITY 5. Reduce pollution of the Estuary from urban and agricultural runoff and other non-point sources.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
POLLUTION PREVENTION AND REDUCTION 2.6 Improve the management and control of agricultural sources of toxic substances. 99-01 MODERATE	• The Ninth District Court of Appeals required non-agricultural dischargers of pesticides to apply for NPDES permits under Section 402 of the CWA. The State Board is currently developing a state-wide permit and associated monitoring, assessment, and reporting requirements. This may result in steps to prevent pesticides used in the control of aquatic nuisance species, vector abatement, and other applications from impacting non-target aquatic species. • The Central Valley Regional Board directed its staff in 2001 to continue to re-evaluate a 1982 waiver exempting irrigation return flows and stormwater runoff from waste discharge requirements under water quality law. Environmental groups including DeltaKeeper petitioned the Board to immediately revoke the waiver in late 2000, claiming that irrigation return waters and stormwater from irrigated lands contain pesticides, nutrients and sediments that adversely impact beneficial uses of the state's waters. Though the Board denied their petition in 2001, it directed staff to extend water quality monitoring efforts to better assess impacts and further evaluate waiver conditions in preparation for making a recommendation about whether the waiver should be renewed when it sunsets in 2003. • In 2001, the Central Valley Regional Board approved waste discharge requirements for Phase II of a 1996 project using the Grasslands Bypass Channel (part of the San Luis Drain) to transport selenium-laced agricultural drainage from 97, 400 acres of farmland in the Grasslands watershed around area wetlands and toward the San Joaquin River. In order to use the channel through 2009, local water and irrigation districts must meet monthly and annual load limits on their selenium discharges, and undertake control measures to reduce loads. This is one of the first waste discharge requirements ever imposed on agricultural drainage in California. Based on the drainers' basic compliance with these load limits and requirements during Phase I of the Project, and on an EIR for long-term use of the bypass completed in 2001, the Board recently approved Phase II of the project which will extend through 2009. Phase II involves continued load limits and selenium reduction efforts. • In 2001, the Central Valley Regional Board completed a Selenium Total Maximum Daily Load for the Lower San Joaquin River and submitted it to the U.S. EPA for consideration of approval.	• U.S. EPA has begun implementation of agreements with manufacturers of diazinon and chlorpyrifos that will reduce use of these two pesticides in agriculture. It is unknown whether the agreements will reduce use enough to eliminate the toxicity in the Sacramento River and the Delta associated with the agricultural uses of these two pesticides. • *Horse Keeping: A Guide to Land Management for Clean Water* is a manual of Best Management Practices being produced by the Council of Bay Area Resource Conservation Districts. The focus is on conservation practices that can be used at horse facilities for site improvement and manure management. In addition, the brochure *Horse Owners Guide to Water Quality Protection* and Fact Sheets have been developed. • The Council of Bay Area Resource Conservation Districts, working with local Resource Conservation Districts in Alameda, Contra Costa, San Mateo, Marin and Sonoma, have demonstration sites that showcase horse facility improvements for erosion control and manure management. Primary focus is outreach and education to the horse community on conservation practices at horse facilities to improve water quality. • The Veale and Byron Tract Working Group is investigating ways to reduce ag and stormwater drainage from the two tracts and the Knightsen area.		• Pesticide formulations that minimize runoff should be developed and used preferentially. Contained formulations, like baits and blocks, are widely available for certain applications. Formulations could be developed to use "sticker" and other formulating agents that reduce runoff of pesticides; such pesticides could replace formulations like the popular wettable powders that have significant potential runoff in rain water. • CALFED's 2000 Record of Decision includes support for research into sources of pesticides and trace metals and best management practices to reduce their entry into the watershed via both urban and agricultural runoff.

PRIORITY 5: WATERSHED MANAGEMENT SUMMARY

AVERAGE IMPLEMENTATION LEVEL: 1996-99: 12-37%

15-40%

PRIORITY 6. Strengthen public awareness about the Estuary's natural resources.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
PUBLIC INVOLVEMENT AND EDUCATION 1.1 Build awareness, interest and support in the general public and among decision-makers for the CCMP's goals and action plans. 99-01: MODERATE 96-99: SOME	• Educating local, state and national decision makers about CCMP implementation, the value of estuaries and the need to protect them is one goal of the Association of National Estuary Program's Citizen Action Committee, in which the S.F. Estuary Project and Friends of the Estuary participate.	• The S.F. Estuary Institute has designed the EcoAtlas Information System as a way for the public and all other interests to access peer-reviewed scientific data and maps about ecological conditions in the Bay Area. The EAIS features map-based and text-based search engines for validated information about restoration projects, water and sediment quality, and wildlife. A demonstration of the EAIS will be completed by mid-summer 2001. • The State of the Estuary Conference, organized every two to three years, educates the public, interest groups, agencies and the media about the health of the Estuary and provides up-to-date information about CCMP implementation. The next conference is planned for October 2001. • *ESTUARY* newsletter is mailed bi-monthly to more than 3,000 decision-makers, scientists and interested members of the public. • S.F. Estuary Project and Friends of the Estuary co-sponsor and regularly participate in fairs, festivals and other events to distribute information and educate the public about CCMP implementation. • S.F. Estuary Project regularly supplies the media with background information on the CCMP, its goals and implementation activities. • A public workshop was held on August 3, 2001 to evaluate CCMP progress and priority actions.		
PUBLIC INVOLVEMENT AND EDUCATION 1.2 AND 1.3 Provide and encourage opportunities for direct citizen involvement in following and implementing the CCMP and making any necessary revisions to it. 99-01: SOME 96-99: SOME		• Dozens of community groups, including Friends of Sausal Creek and Friends of San Leandro Creek, have launched ambitious grassroots restoration and outreach projects that provide opportunities for direct citizen involvement in protecting and restoring the Estuary. • The S.F. Estuary Institute has designed the EcoAtlas Information System as a way for the public and all other interests to access peer-reviewed scientific data and maps about ecological conditions in the Bay Area. (See 1.1 above) • Ongoing meetings and activities of Friends of the S.F. Estuary, a non-profit, citizen-based organization dedicated to promoting and monitoring implementation of the CCMP. • Geographic subcommittees of the CCMP Implementation Committee hold regular meetings open to the public.		

PRIORITY 6. Strengthen public awareness about the Estuary's natural resources.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
PUBLIC INVOLVEMENT AND EDUCATION 1.5 Ensure provisions for a central collection and distribution point (clearinghouse) for communication and coordination of all information concerning CCMP issues and the Estuary. 99-01 FULL; 96-99 FULL	• The S.F. Bay Joint Venture website (www.sfbayjv.org) has a "Project Planning Tools" page, a "Grants Available" page and a project database page that lists habitat projects by sub-region and placement on the map of habitat projects, as well as a project description, acreage and contact person. The habitat projects map and database provide outreach tools to more than 200 partners.	• *ESTUARY* newsletter solicits stories from and covers the activities of more than 100 different agencies, interest groups, scientific and technical research programs and community groups. • A central S.F. Estuary Project public outreach office writes and distributes thousands of fact sheets, newsletters, brochures, maps and how-to-materials. This information is also available on the Estuary Project's Web site.		

PRIORITY 6. Strengthen public awareness about the Estuary's natural resources.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
LAND USE 4.1 Educate the public about how human actions affect the Estuary. 99-01 SUBSTANTIVE 96-99 SUBSTANTIVE		• Friends of the Estuary offers custom-designed education programs to Bay Area schools. Projects include classroom and field lessons, teacher training and curriculum development. Seven schools participated in these programs between 1999-2001. • The Water Education Foundation continues to produce fact sheets, maps, water facility tours and a newsletter about California and Central Valley water issues. • The Aquatic Institute's Kids in Creek, Kids in Marshes, Kids in Gardens, and Watching Our Watersheds programs train teachers, and through them students and the general public, about the Estuary's natural resources and nonpoint source pollution. More than 1,000 educators have participated in these programs and more than 50,000 students have participated in creek exploration and restoration programs. *Exploring the Estuary*, a computer-based program on the Bay and Delta, runs on permanent exhibit in five museums and visitors centers around the Bay, and is used by several hundred educators to teach about Bay-Delta ecology. • The City of San Jose is piloting a Watershed Grant Program which provides grant funding for projects that protect the environment and/or educate about the environment. They also have grants for participation in the SCVWMI and a program whereby teachers can get small grants for classroom programs. Recipients to date include the Silicon Valley Toxics Coalition, the San Francisco Bay Bird Observatory, and several school programs. • The S.F. Estuary Institute is providing technical transfer to local agencies, community groups and Resource Conservation Districts with emphasis on watershed assessment methodologies to increase basic understanding of watershed processes and application of this knowledge in identifying restoration opportunities. • The Santa Clara County Pollution Prevention Urban Runoff Management Program offers Watershed Grants to programs that educate or improve the watershed. Recipients include the Don Edwards Refuge's Alviso Education Center. • San Francisco Bay Savers, a program conducted by the Alameda County Resource Conservation District with funding from the Alameda Countywide Clean Water Program, educates 4th graders about protecting watersheds, creeks and the Bay. The program is currently offered in many county classrooms each year. • The Santa Clara Valley Water District initiated a pilot program in 2001 to provide grants of up to $25,000 to community-based organizations to support watershed stewardship. • Numerous Bay Area ports, marinas, cities and counties have initiated projects to educate the public about how human actions affect the Estuary.	• Friends of the Estuary has no secure source of long-term funding for operating support.	• The Environmental Justice Coalition for water convened an advisory body to guide preparation of an environmental justice blueprint for CALFED in 2001. CALFED's environmental justice workgroup will be formed in 2002.

PRIORITY 6: ESTUARY EDUCATION SUMMARY

AVERAGE IMPLEMENTATION LEVEL: 1996-99: 50-75%

37-62%

REGIONAL MONITORING

PRIORITY 7.

Expand the regional monitoring program to address all key CCMP issues, including pollution, wetlands, watersheds, dredging, biological resources, land use and flows. Integrate the results of scientific monitoring into management and regulatory actions.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
RESEARCH AND MONITORING 2.1 Develop and implement the Regional Monitoring Strategy, which will integrate and expand on existing efforts, and eventually be part of a comprehensive Regional Monitoring Program. 99-01 SOME / 96-99 MODERATE	• The S.F. Estuary Institute, the California Coastal Conservancy and U.S. EPA Region 9 have initiated the Wetlands Regional Monitoring Program (see Wetlands Management 2.1.3). • The S.F. Estuary Institute created the Bay Area Watershed Science Approach that calls for a network of local "Observation Watersheds" and community-based "Watershed Stations" to monitor conditions in representative watersheds, develop watershed assessment tools, calibrate and validate simulation models, train monitoring personnel, and engage the public in watershed management through volunteer monitoring. The WSA includes innovative methods to assess long-term effects of people and nature on watershed conditions based upon a short-series of empirical observations of water supply and sediment sources. The S.F. Estuary Institute worked with the Contra Costa Clean Water Program to conduct a field test of these methods for Wildcat Creek, and has begun to work with other partners to apply the methods to other watersheds in the Bay Area. Much of the WSA is reflected in the Regional Monitoring Assessment Strategy of the S.F. Board and the methods of the WSA are being used in sediment TMDL studies in North Bay.		• There has been no formal funding commitment for a regional monitoring strategy.	
AQUATIC RESOURCES MANAGEMENT 1.1 Refine and coordinate existing monitoring programs to 1) better evaluate ecosystem responses to immediate, phased, and long-term water quality and flow standards; 2) more fully characterize ecosystem processes and properties; and 3) enhance predictive capabilities of ecosystem models. 99-01 MODERATE / 96-99 MODERATE	• The Bay-Delta Science Consortium was launched via Memorandums of Understanding signed by 20 different agencies and research institutions in 2001. The purpose of the consortium is to provide a switchboard for all Bay-Delta science, and web links between the myriad data collection and research programs serving CALFED and its member agencies. The consortium is part of CALFED's new effort to create an interdisciplinary, multi-agency approach to science and monitoring. Initial tasks for the consortium include hiring an executive director; describing all existing research institutions, facilities and equipment; identifying barriers to the sharing of these resources; developing master contracts between institutions to facilitate coordination; and creating Post-doc CALFED fellowships to facilitate analysis of existing data sets.	• S.F. Estuary Institute continues to play a central role in coordination of monitoring programs in the Bay Area. Most recently, S.F. Estuary Institute has accepted technical and/or advisory roles in the U.S. EPA EMAP program for S.F. Bay; the state Surface Waters Ambient Monitoring Program; the CALFED Science Consortium; the Bay-Delta Information System; three U.S. EPA Star Projects to develop estuarine wetlands health indicators, advise Bay Area wetlands monitoring designs, and to study Bay Area ecological goods and services. S.F. Estuary Institute has also undertaken a redesign of the Regional Monitoring Program for Trace Substances to adapt it to new management needs. Efforts are underway to better integrate the variety of monitoring programs related to the areas of concern identified in the CCMP.		

PRIORITY 7: REGIONAL MONITORING SUMMARY

AVERAGE IMPLEMENTATION LEVEL: 1996-99: 25-50%

12-37%

INFLOW STANDARDS

PRIORITY 8. Promulgate baseline inflow standards for San Francisco, San Pablo and Suisun Bays to protect and restore the Estuary.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
AQUATIC RESOURCES MANAGEMENT 4.1 Adopt water quality and flow standards and operational requirements designed to halt and reverse the decline of indigenous and desirable non-indigenous estuarine biota. 99-01 MODERATE	• The "baseline" regulatory standards adopted as part of the CALFED Record of Decision in August 2000 include requirements for maximum allowable ratio of export rates to water inflow rates, requirements for location and duration of location of "X2", and agricultural water quality standards. The standards were originally developed by the S.F. Estuary Project and then incorporated in the Bay Delta Accord and the Water Quality Control Plan. • In spring 2001 the Cal Fish & Game and the National Marine Fisheries Service adopted stream flow and stream diversion guidelines to protect anadromous fisheries.	• The Putah Creek settlement calls for enhanced stream flows to provide better temperature and flow conditions for native fishes.	• The Water Rights Division of the State Board has no authority to assess and enforce instream flow needs.	
AQUATIC RESOURCES MANAGEMENT 5.1 Identify alternative long-term water quality and flow standards, water management measures, operational changes, habitat improvements and facilities as needed to manage estuarine aquatic resources (including water) for optimum benefit. 99-01 SUBSTANTIVE	• The San Joaquin River Agreement was officially launched in 2000 (although some related water releases to the river took place prior to that). The Agreement includes the *Vernalis Adaptive Management Plan*, a 12-year experimental manipulation of San Joaquin River inflow and export rates for the purpose of 1) providing what are thought to be somewhat beneficial conditions for outmigrating San Joaquin basin salmon smolts, and 2) quantifying the relationship between inflow, export rates and outmigrant salmon survival. Under the agreement, 110,000 af of water is provided by water users to augment spring flows, while another 12,500 af is dedicated to augmenting fall attraction flows, and an additional 15,000 af is available for environmental uses at any time throughout the year.	• CALFED'S 2000 Record of Decision, and Ecosystem Restoration Program, includes an ambitious package of long term water management measures, habitat improvements and facilities changes which, if fully implemented, may improve management of estuarine resources and processes. • CALFED is exploring alternative operation of the Delta Cross Channel for water quality and environmental impact benefits, including fish passage improvements. • In 2000, the City of San Jose's Coyote Creek Streamflow Augmentation Pilot Project, which will test the use of recycled water to augment streamflows during dry periods, obtained an NPDES permit to discharge recycled water. The project is in its third year of baseline monitoring.	• Energy costs and groundwater issues have slowed the Coyote Creek Streamflow Augmentation Pilot Project and there is currently no date set to begin actual discharges of recycled water.	
AQUATIC RESOURCES MANAGEMENT 5.2 Develop an EIS/EIR to display the alternatives and tradeoffs identified in Action AR 5.1 and to initiate the selection of a preferred alternative. 99-01 SUBSTANTIVE	• The Programmatic Environmental Impact Statement for the Central Valley Project Improvement Act, which allocates 800,000 af of CVP yield to environmental purposes, was finalized in fall 2000. (See AR 5.3.) • The EIS/EIR for the CALFED program, which includes the Environmental Water Account and the Environmental Water Program, was released in August 2000. (See AR 5.3)			

PRIORITY 8. Promulgate baseline inflow standards for San Francisco, San Pablo and Suisun Bays to protect and restore the Estuary.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
AQUATIC RESOURCES MANAGEMENT 5.3 Implement the alternative from Action AR 5.2 (including the adoption of long-term water quality and flow standards and operational requirements) that best optimizes conditions for aquatic resources, efficiently conserves scarce water resources and restores an equitable balance to the estuarine ecosystem. 99-01 SOME	• After years of lawsuits (which continue), in mid-1999 BurRec issued a decision on an accounting method for the 800,000 af of water allocated to environmental purposes by the Central Valley Project Improvement Act. BurRec began implementing the so-called b(2) water program, using the new accounting method shortly thereafter. The purpose of the b(2) program is to improve habitat conditions for anadromous fish by enhancing stream flows and reducing export rates during sensitive periods. • CALFED's Ecosystem Restoration Program includes the Environmental Water Account, which began implementation in the winter of 2001. EWA allows fisheries agencies to reduce water project diversions from the Delta during fish migration periods, replacing curtailed diversions with water from the account. EWA includes provisions for manipulating project operations, such as using Joint Point of Diversion.			• CALFED's Ecosystem Restoration Program also includes the Environmental Water Program. EWP, which is still being planned, is designed to enhance Delta inflows during critical periods (e.g., spring).
AQUATIC RESOURCES MANAGEMENT 6.1 Provide necessary instream flows and temperatures to benefit salmon and steelhead in the Central Valley to support the implementation of the state and federal mandates to double the natural production of anadromous fishes. 99-01 MODERATE		• Both the Central Valley Project Improvement Act (b)(2) program and (to a substantially lesser extent) CALFED's Environmental Water Account have been implemented to provide enhanced instream flows. • The Vernalis Adaptive Management Plan includes some temperature control measures on the lower mainstem San Joaquin River.		
AQUATIC RESOURCES MANAGEMENT 6.2 Implement the Upper Sacramento River Management Plan. 99-01 UNKNOWN				

PRIORITY 8. Promulgate baseline inflow standards for San Francisco, San Pablo and Suisun Bays to protect and restore the Estuary.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
AQUATIC RESOURCES MANAGEMENT 6.3 Develop and implement the San Joaquin River Management Plan to identify reservoir operational changes, habitat improvement measures, and other action items to improve habitat and health of the aquatic ecosystem in the San Joaquin River watershed. 99-01 SOME	• The Sacramento and San Joaquin River Basins Comprehensive Study was launched in the wake of severe flooding in 1997 to develop a system-wide, comprehensive flood management plan for the Central Valley to reduce flood damages and integrate ecosystem restoration. Work is underway on concept plans that address specific targets for flood protection and ecosytem restoration and specific strategies for combining potential measures.	• The San Joaquin River Riparian Program, a cooperative effort between environmental groups and the Friant Water Users, sent 35,000 acre-feet of water flowing between Friant Dam and Mendota pool in the summer of 1999. The pilot project continued in 2000 and 2001, although because these were drier years, less water was released. In addition, the parties are developing a long-term plan to restore the San Joaquin; a proposed project is expected in early 2002 and will be followed by an EIS/EIR.		

PRIORITY 8: INFLOW STANDARDS SUMMARY

AVERAGE IMPLEMENTATION LEVEL:

21-43%

APPENDIX A

Wetlands and Riparian Habitat Acquired and Restored in the S.F. Bay-Delta Estuary* Between April 1999 and September 2001

MAJOR WETLAND AND RIPARIAN ACQUISITIONS
33,042 acres

(of current wetland areas or areas to be restored; note some overlap with restoration projects list)

NORTH BAY

- Atherton Avenue, Marin County, 80 acres (grassland & associated wetlands), Marin Audubon Society
- Bel Marin Keys, Marin County, 1,613 acres (planned for restoration), California Coastal Conservancy
- Ghisletta Property, Napa County, 82 acres (planned for restoration to tidal marsh), The Land Trust of Napa County
- Kirker Creek, Contra Costa County, 4 acres (wetlands), City of Pittsburg
- South Napa River, Napa County, 463 acres acquired plus 50-acre donation (planned for tidal marsh restoration), City of American Canyon
- Triangle Marsh, Marin County, 33 acres (wetlands), California Coastal Conservancy & Marin Audubon Society

DELTA/SUISUN

- Cowell Property, San Joaquin County, 329 acres (planned for conversion to organic rice pasture), Cosumnes River Preserve
- Liberty Island, Solano & Yolo Counties, 4,750 acres, Trust for Public Land
- Lower Joice Island, Solano County, 1,300 acres (300 acres tidal wetlands; 1,000 acres managed wetlands & associated uplands), Suisun RCD
- McCormack-Williamson Tract, Sacramento County, 1,600 acres (planned for future restoration), The Nature Conservancy
- Silverado, Sacramento County, 122 acres (planned for restoration to floodplain habitat), Bureau of Land Management
- Staten Island, San Joaquin County, 9,200 acres (seasonally flooded farmland), The Nature Conservancy
- Stone Lakes National Wildlife Refuge, Sacramento County, 658 acres, U.S. Fish & Wildlife
- Yolo Basin Wildlife Area, Expansions 3 & 4, Yolo County, 12,808 acres, Wildlife Conservation Board & Cal Fish & Game

PLANNED OR IN-PROGRESS RESTORATION AND ENHANCEMENT PROJECTS
25,302 – 25,502 acres and 36,020 linear feet

NORTH BAY

- Burn Unit, Napa County, 70 acres (seasonal wetlands enhancement), Ducks Unlimited, Cal Fish & Game, California Coastal Conservancy & Wildlife Conservation Board
- Camp 2, Sonoma County, 608 acres (seasonal wetlands enhancement), Ducks Unlimited, Cal Fish & Game, California Coastal Conservancy & Wildlife Conservation Board
- Carriger Creek, Sonoma County, 800 feet (riparian restoration), Southern Sonoma County RCD
- Champlin Creek, Sonoma County, 5,900 feet (riparian restoration), Southern Sonoma County RCD
- Hamilton Wetlands Restoration, Marin County, 900 acres, Bay Commission & California Coastal Conservancy
- Huichica Creek (Napa Marsh Wildlife Area), Napa & Sonoma Counties, 30 acres (native grassland restoration), Ducks Unlimited, Cal Fish & Game & Wildlife Conservation Board
- Nathenson Creek, Sonoma County, 200 feet (riparian restoration), Southern Sonoma County RCD
- North Parcel/Leonard Ranch, Sonoma County, 472 acres (seasonal wetlands restoration), Sonoma Land Trust
- Oakland Middle Harbor Enhancement Area, Alameda County, 5 acres (intertidal wetlands), Port of Oakland & Army Corps
- Pond 8, Napa County, 102 acres (tidal wetlands enhancement), Ducks Unlimited & Cal Fish & Game
- Ringstrom Bay, Napa County, 313 acres (seasonal wetlands enhancement) Ducks Unlimited, Cal Fish & Game & Wildlife Conservation Board
- Simmons Slough Wildlife Corridor, Marin County, 140 acres (diked baylands habitat enhancement), Marin Audubon Society
- Tubbs Island Levee Setback, Sonoma County, 72 acres (tidal wetlands restoration), Ducks Unlimited & U.S. Fish & Wildlife

SOUTH BAY

- Eden Landing, Santa Clara County, 945 acres (wetlands -- 600 acres restoration, 345 enhancement), Cal Fish & Game

DELTA/SUISUN

- Canal Ranch, San Joaquin County, 3,000 acres (planned for restoration & wildlife-friendly farming), Cal Fish & Game
- East Delta Habitat Corridor (Georgiana Slough), 8,000 linear feet of bank protection (4,000 linear feet complete; 4,000 linear feet in progress), Habitat Assessment & Restoration Team
- Franks Tract Restoration, Contra Costa County, 45 acres, CA Dept. of Parks & Recreation, Dept. of Water Resources & Moffat & Nichol Engineers
- Jepson Prairie, Solano County, 1 mile (riparian restoration) & 600 acres (grassland restoration), Solano County Farmlands Open Space Foundation
- Joice Island Wildlife Area (Suisun Marsh), Solano County, 1,800 acres (semi-permanent & seasonal wetlands enhancement), Wildlife Conservation Board & Cal Fish & Game

MITIGATION RELATED PROJECTS CONTINUED

- Runway 11-29 Rehabilitation, Alameda County, 0.5 acre (seasonal wetlands creation) & 7 acres (seasonal wetlands enhancement/preservation at Damon Slough), Port of Oakland
- Ryland Homes Storm Drain Project, Contra Costa County, 0.5 acre (conservation easement), Sycamore Associates LLC
- San Ramon Boulevard Improvement Project, Contra Costa County, 0.18 acre (riparian), City of San Ramon
- Sonoma Valley Oaks Subdivision, Sonoma County, 0.2 acre (purchase of mitigation credits for wetlands at Burdell Ranch Wetland Conservation Bank), Stephen Kyle
- St. Isidore Church, Contra Costa County, 0.5 acre (conservation easement), St. Isidore Church
- State Route 101 Approach Lane Project, Marin County, 0.13 acre (seasonal wetlands), CalTrans
- State Route 4 Gap Project, Contra Costa County, 4 acres (seasonal wetlands), 0.6 hectacre (red-legged frog breeding pools) & 1 hectacre (riparian), CalTrans
- Sunset Meadows Subdivision, Napa County, 0.72 acre (seasonal marsh wetlands), City of American Canyon
- Thiessen Office Building Project, Contra Costa County, 0.5 acre (conservation easement), Sycamore Associates LLC
- Walkaway Bridge Replacement, Contra Costa County, 0.77 acre (wetlands), Kenneth Chainey

SOUTH BAY

- Alviso Property/Cisco Systems, Santa Clara County, 0.77 acre (wetlands), Cisco Systems
- Boulder Ridge Golf Club, Santa Clara County, 0.34 acre (emergent wetlands), GlenRock Development
- Cooley Landing, San Mateo County, 10 acres (wetlands creation) & 115 acres (wetlands enhancement), Phone-Poulenc
- Fairmont Estates, San Mateo County, 0.65 acre (seasonal freshwater wetlands), Wetlands Research Associates
- Mariner Island, San Mateo County, 0.6 acre (wetlands creation at adjacent State Lands parcel), Pacific Bay Homes LLC
- Montague Expressway Widening Project, Santa Clara County, 0.94 acre (erosion control along 200 linear feet of channel bank immediately upstream of project site), Focus Realty Services
- Outer Bair Island, San Mateo County, 37.5 acres (tidal seasonal wetlands creation) & 140 acres (enhancement of existing diked salt marsh wetlands), California Wildlife Foundation
- Oyster Point Hook Ramps, San Mateo County, 1.1 acres (wetlands creation) & 0.72 acre (wetlands enhancement), City of South San Francisco Dept. of Public Works
- Pacific Ridge Development at Half Moon Bay, San Mateo County, 2.61 acres, Ailanto Properties
- Pacific Shores Project, San Mateo County, 22 acres (tidal marsh), Pacific Shores Center
- Piedmont 237 LLC Development Project, Santa Clara County, 0.5 acre (riparian), Piedmont 237 LLC
- Preston Office & Warehouse, Santa Clara County, 0.48 acre (wetlands & grassy swales), Michael Preston

COMPLETED RESTORATION AND ENHANCEMENT PROJECTS
11,420 acres, 1,320 linear feet and 3,500 square feet

(Which, if any, of these projects include a mitigation component is not known.)

NORTH BAY

- Baxter Creek, Contra Costa County, 6 acres (creek/riparian restoration), UCC & City of Richmond
- Buchli Station Pond, Napa County, 4 acres (permanent wetlands restoration), Ducks Unlimited & Cal Fish & Game
- Codornices & Cerritos Creeks, Alameda County, 11 acres (creek/riparian restoration), Friends of 5 Creeks
- Corte Madera Creek, Marin County, 1 acre (creek/riparian restoration), Friends of Corte Madera Creek Watershed
- Crissy Field, San Francisco County, 20 acres (wetlands restoration), National Park Service
- Elkhorn Creek, Contra Costa County, 2 acres (creek/riparian restoration), Carquinez Regional Environmental Education Center
- Huichica Pond, Napa County, 4 acres (seasonal wetlands restoration), Ducks Unlimited & Cal Fish & Game
- Novato, Miller & Manor Creeks, Marin County, <1 acre (creek/riparian restoration), Marin County Stormwater Pollution Prevention Program
- Oro Loma Marsh (NE), Alameda County, 18 acres (wetlands restoration), Port of Oakland
- Pier 98, San Francisco County, 14 acres (wetlands enhancement), Port of San Francisco
- Pond 1, Solano County, 882 acres (tidal wetlands enhancement), Ducks Unlimited & Cal Fish & Game
- Plummer Creek, Alameda County, 11.4 acres (seasonal wetlands), Wildlands
- San Ramon Creek, Contra Costa County, 1 acre (creek/riparian restoration), Urban Creeks Council
- Shell Marsh, Contra Costa County, 200 acres (wetlands restoration), Contra Costa Mosquito & Vector Control District
- Sonoma Creek, Sonoma County, <1 acre (creek/riparian restoration), Sonoma Ecology Center
- Tehan Creek, Alameda County, 50 acres (creek/riparian restoration), Friends of the Estuary
- Temescal Creek, Alameda County, 1 acre (creek/riparian enhancement), Friends of Temescal Creek
- Wildcat Creek (lower reach), Contra Costa County, 1.5 acres (creek/riparian restoration), Waterways Restoration Institute
- Wildcat Creek, Contra Costa County, 1/4 mile (creek/riparian enhancement), Friends of the Estuary & East Bay Regional Parks District

SOUTH BAY

- Arastradero Creek, Santa Clara County, 3,500 square feet (riparian restoration, bullfrog eradication), Bay Area Action
- Bair Island, San Mateo County, 155 acres (tidal marsh), Peninsula Open Space Trust & U.S. Fish & Wildlife
- Sinkhole, Alameda County, 36.5 acres (tidal wetlands enhancement), Ducks Unlimited & U.S. Fish & Wildlife
- Triangle Marsh, Alameda County, 10 acres (tidal wetlands restoration), Ducks Unlimited & U.S. Fish & Wildlife

DELTA/SUISUN

- Marsh Creek/Cowell Ranch, Contra Costa County, <1 acre (creek/riparian restoration), City of Brentwood
- Suisun Marsh, Solano County, 10,000 acres (managed wetlands enhancement), Ducks Unlimited & Suisun RCD

MITIGATION-RELATED RESTORATION PROJECTS COMPLETED OR PLANNED AND FUNDED**
Net gain in Bay region: 204 wetland acres

NORTH BAY

- Bailey Ranch, Alameda County, 0.81 acres (wetlands), Keenan Land Co.
- Bayside Business Park Phase II, Alameda County, 30 acres, King & Lyons
- Crystal Ranch Drive, Contra Costa County, 2.06 acres (seasonal wetlands), Braddock & Logan Group
- Double Eagle Tract 8162, Contra Costa County, 0.25 acre (mixed wetland/riparian habitat), Paramount Homes LLC
- Elm Crest Subdivision, Marin County, 0.16 acre (seasonal wetlands & adjacent uplands), Noyer Group
- Galvin Property Wetland Fill, Napa County, 3.84 acres (seasonal wetlands), Dickerson, Peatman & Fogerty
- Garin Heights Estates Tract 4609, Alameda County, 0.1 acre (wetlands), Gibson & Skordal
- Ghisletta Project, Napa County, 0.35 acre (wetlands), Simeon Residential Properties
- Hercules Village Project, Contra Costa County, 0.06 acre (creation/enhancement of onsite pond) & 4,000 linear feet (enhancement of Central Channel on site), Bixby Company LLC
- Highlands Ranch Project, Contra Costa County, 0.02 acre (purchase at Oak Hills Blast Zone Mitigation Area) & 170 linear feet (enhancement of stream at Clayton Ranch), West Coast Home Builders
- Hogg Residence, Marin County, 0.16 acre (flooded tidal wetland on Corte Madera Ecological Reserve), Huffman & Associates
- Holly Creek Estates, Contra Costa County, 0.91 acre, DeNova Homes
- Jenmar Gas Station, Alameda County, 0.29 acre (seasonal wetlands creation) & .12 acre (seasonal wetlands enhancement), Jenmar Land Corp.
- Laird Drive Subdivision, Contra Costa County, 0.36 acre (seasonal wetlands), Batavia Land Co.
- Lincoln Stevenson Development, Alameda County, 1.4 acre (onsite emergent freshwater wetlands), H.T. Harvey & Associates
- The Lodge at Sonoma, Sonoma County, 2.31 acres (seasonal wetlands), Sonoma Resort LLC
- Main Street Roadway & Greenway Improvement, Alameda County, 0.25 acre (wetlands), City of Alameda Public Works Department
- Mallard Slough Pump Station Project, Contra Costa County, 0.53 acre (brackish marsh), EDAW
- Marin Business Center Project, Marin County, 0.04 acre (seasonal wetlands), Wood Hollow LLC
- Mission Bay Channel Improvement Project, San Francisco County, 0.18 acre (vegetated wetlands), Catellus Development Corp.
- Napa-Sonoma Marshes Wildlife Area, Huichica Creek Unit, Napa County, 5.5 acres, Cal Fish & Game
- Oak Hills 5 South Project, Contra Costa County, 0.1 acre (onsite riparian enhancement) & 38 acres (purchase of land owned by East Bay Regional Parks District for enhancement), West Coast Home Builders
- Oak Knoll Estates, Contra Costa County, 2.92 acres (seasonal wetlands), Sycamore Associates LLC
- Oakland International Airport Development Program, Alameda County, 11.81 (seasonal wetlands), Oakland Airport, Port of Oakland & City of Oakland
- Park Ridge, Alameda County, 0.6 acre (offsite seasonal wetlands at Plummer Creek Mitigation Bank), Sycamore Associates LLC
- Parkview Subdivision, Contra Costa County, 6.47 acres (0.47 acre of onsite native riparian enhancement & purchase of 6 acres of offsite mitigation at Silva Ranch), Focus Realty Services
- Ranch on Silver Creek, Santa Clara County, 0.75 acre (wetlands), Presley Homes
- Route 87 Freeway Project, Santa Clara County, 10.53 acres (wetland & riparian habitat along the Guadalupe River), David J. Powers & Associates
- San Pedro Creek Flood Control Project, San Mateo County, 3.1 acres, City of Pacifica
- Santa Clara County Field Sports Park, Santa Clara County, 0.35 acre (wetlands), Sycamore Associates LLC

DELTA/SUISUN

- Fieldcrest Residential Development Project, Solano County, 2.32 acres (seasonal wetlands), A.D. Seeno Construction Co.
- Grizzly Island Bridge Replacement, Solano County, 0.3 acre (wetlands), Solano County Transportation Dept.
- Guadalcanal Village Mitigation Site, Solano County, 1.4 acres (wetlands), CalTrans
- Horseshoe Lake Estates, Solano County, 1.5 acre (seasonal wetlands), William Lyon Homes
- Sears Point/SR 37 & California Meadows Sanitary Sewer Rerouting Project, Solano County, 1.4 acres (tidal wetlands creation in Guadalcanal Village Mitigation Site), Vallejo Sanitation & Flood Control District
- Solano County Health Facility, Solano County, 2.6 acres (seasonal wetlands), Solano County
- Travis Air Force Base Military Housing, Solano County, 2 acres (vernal pools & swales; Air Force also to contribute $70,000 to mitigation bank), U.S. Air Force
- Union Pacific Railroad, Port of Benicia Storage Tracks Project, Solano County, 0.1 acre (emergent wetland), Union Pacific Railroad Co.

PERMITS ISSUED AS WASTE DISCHARGE REQUIREMENTS/401 CERTIFICATIONS BY S.F. REGIONAL BOARD

- Dixon Landing Road Interchange, 31 acres (seasonal wetlands, vernal pools)
- Middle Harbor, Alameda County, 180 acres (subtidal and intertidal, eelgrass, tidal marsh), Army Corps. and Port of Oakland
- Montezuma, Solano County, 1,800 acres (tidal, seasonal, fluvial systems), Levine-Fricke & Montezuma LLC
- Napa Flood Control Project, Napa County, 217 acres (wetlands creation), 389 acres (wetlands enhancement) & 72 acres (contiguous uplands), Army Corps. & Napa County Flood Control & Water District
- Pacific Commons, Alameda County, 77 acres (onsite wetlands creation), 60 acres (onsite wetlands enhancement), total acres preserved = 444 on/near site & 840 offsite, Catellus Corp. & City of Fremont

BAY REGION 401 CERTIFICATIONS OR WAIVERS SINCE 1999

Acres Impacted: 122 wetland acres filled

Acres Gained: 204 wetland acres gained

Linear Feet Impacted: 12,884 feet

SELECTED BAY REGION WASTE DISCHARGE REQUIREMENTS PROJECTS SINCE 1999

Acres Impacted: 921 wetland acres filled

Acres Gained: 2,305 wetland acres (and associated habitat types)

Acreage amounts supplied by S.F. Regional Board and may change pending further review.

continued over

APPENDIX A

Wetlands and Riparian Habitat Acquired and Restored in the S.F. Bay-Delta Estuary* Between April 1999 and September 2001

WETLAND CONSERVATION EASEMENTS

4,992 acres

SOUTH BAY

- Purisima Creek (Purisima Farms), San Mateo County, 3 acres, California Coastal Conservancy

DELTA/SUISUN

- Allen Property Easement, Sacramento County, 323 acres (farmland & riparian forest), Cosumnes River Preserve
- Ben Brown Property Easement, Sacramento County, 370 acres (vernal pool grasslands), Cosumnes River Preserve
- George Dairy Easement, Sacramento County, 607 acres (farmland, with 100 acres planned for creekside restoration), Cosumnes River Preserve
- Fred Denier Property , Sacramento County, 475 acres (half farmed; half planned for restoration to active floodplain & riparian habitat), Cosumnes River Preserve
- Frank Machado Property Easement, Sacramento County, 438 acres (farmland buffer to core preserve), Cosumnes River Preserve
- Mehrton Property Easement, Sacramento County, 747 acres (vernal pool grasslands), Cosumnes River Preserve
- Pellandini Property Easement, Sacramento County, 647 acres (farmland), Cosumnes River Preserve
- Ragsdale Property Easement, Sacramento County, 48 acres (farmland), Cosumnes River Preserve
- Schneider Property Easement, Sacramento County, 1,137 acres (vernal pool grasslands), Cosumnes River Preserve
- Van Steyn Property Easement, Sacramento County, 197 acres (farmland), Cosumnes River Preserve

SOURCES

Bay Commission
CALFED
Central Valley Joint Venture
Ducks Unlimited
The Nature Conservancy, Cosumnes River Preserve
S.F. Joint Venture
S.F. Regional Board
S.F. Estuary Project
Wildlife Conservation Board

*Nine Bay counties and three Delta counties: Sacramento, San Joaquin and Yolo

**Acreage amounts for mitigation-related projects supplied by S.F. Regional Board and may change pending further review.

If you have additions, changes or corrections to this list, please email them to Kathryn Ankrum at kathank@earthlink.net.

This list will be posted to the S.F. Estuary Project Web site (http://www.abag.ca.gov/bayarea/sfep) no later than Oct. 31, 2001.

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