CCMP

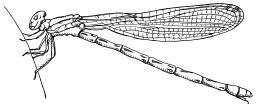
Check-up

A Status Report
on Implementation Progress

San Francisco Estuary Project
October 2007

COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN 2005 - 2007

INTRODUCTION & SUMMARY



Recent radio advertisements lure prospective homebuyers to "Bay-side living," singing the praises of the birds, gorgeous views, and easy access to the San Francisco Bay Trail a new housing development offers. The issue of housing so near the Bay aside, the ads represent a sea change in attitudes toward and appreciation of the Bay and the Estuary. Just four decades ago, trash was being dumped into the Bay, thought of as out-of-sight, out of mind. At night, the Bay could frequently be seen on fire, from garbage that had been dumped and set ablaze. Many cities planned to expand by filling the Bay, as did developers, private businesses, and industry. But the fight to save the Bay begun by Kaye Kerr, Sylvia McLaughlin, and Esther Gulick 46 years ago galvanized generations of people to take action, and today, filling the Bay is no longer an option. Instead, energies are focused on acquiring and restoring wetlands and creeks, and tackling new problems. The Delta is in crisis. Pelagic organisms—Delta smelt, young striped bass, longfin smelt, and threadfin shad—have declined, endangered species are still at risk, and lawsuits over freshwater inflows continue.

In addition to the crisis in the Delta, planners and resource managers face the specters of global climate change and sea—and Bay—level rise and are trying to predict their impacts on the Estuary. Other challenges include improving water quality in the Estuary and the streams that feed into it, encouraging greener development, particularly as California's population continues to grow, creating more habitat for wildlife and fish, and dealing with the Estuary and its rivers and streams holistically, as a watershed. To that end, flood protection, water supply, habitat preservation and restoration, and wastewater recycling are starting to be recognized and dealt with as interrelated issues. As participants in the 2007 CCMP update process realized, the Estuary's problems are like pieces of a puzzle: In order to see the big picture, we need to understand how the pieces connect. At the August 3, 2007 CCMP "report card" session, participants stressed the need to deal with the Bay and the Delta as connected bodies of water, including ensuring that there is enough freshwater flowing into the Delta to keep the Estuary a true estuary—where saltwater from the ocean meets freshwater from our rivers.

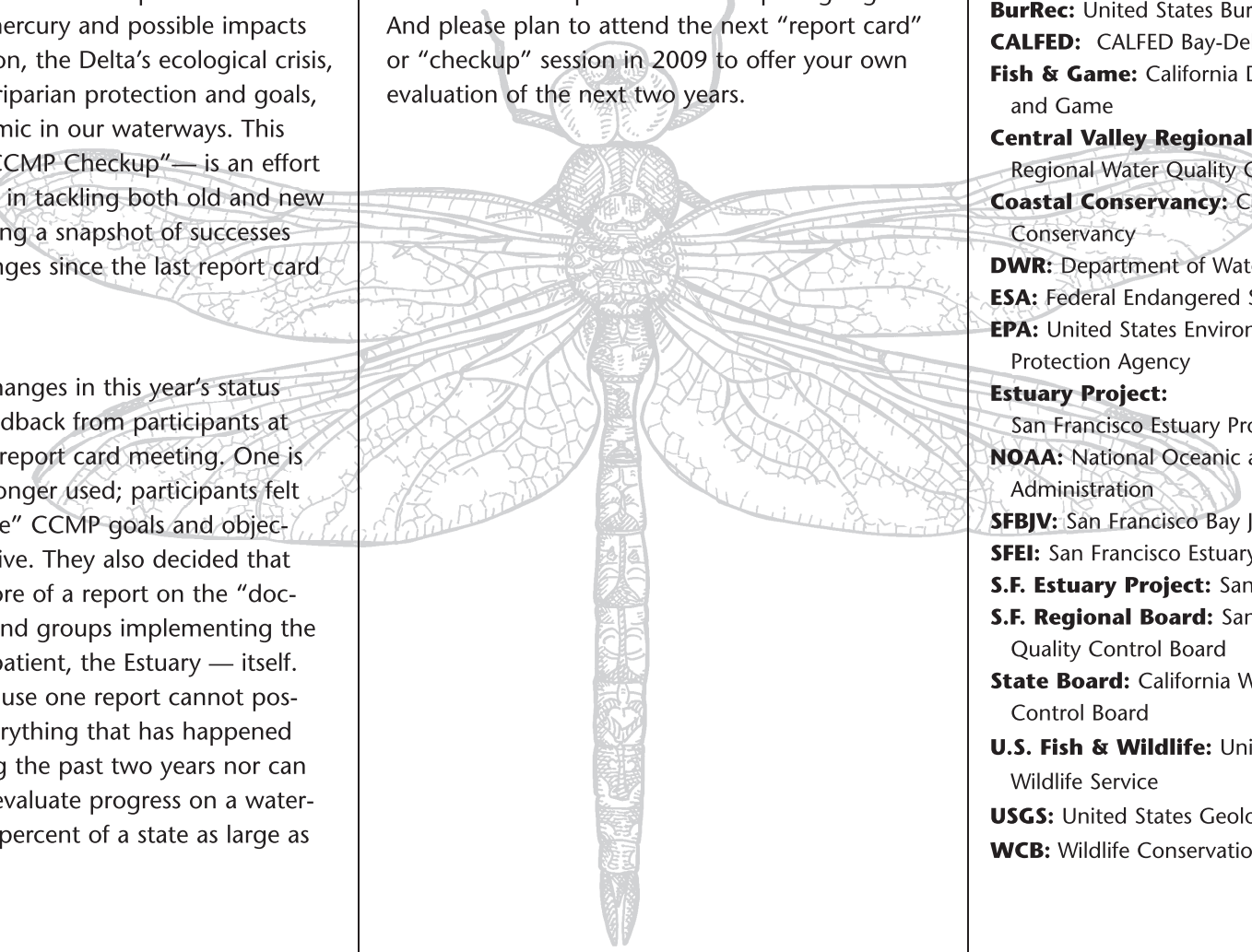
In this context, exactly what is it that environmental managers and concerned organizations and communities should be doing to protect and restore the Estuary? The first "To Do" list came out in 1993 in the form of the Comprehensive Conservation and Management Plan for the Bay and Delta. The CCMP, as coordinated by the San Francisco Estuary Project (SFEP), brought together environmentalists, regulators, fishers, industries, developers, and politicians, among others, to develop an action plan for saving fish, conserving water, protecting wetlands, reducing pollution, and facilitating environmentally sound land-use planning related to the Bay. The first Report Card, mandated by the U.S. EPA, tallied progress on the original list of 145 actions, the second evaluated ten top priorities, and the third, fourth, and fifth examined eight priorities (covering over 30 CCMP actions) as revised during CCMP planning sessions. This report continues to examine progress on the eight priorities decided upon at the August 2005 report card session by a wide array of interested parties.

At that meeting, participants recommended to the SFEP Implementation Committee that task forces be convened to review and evaluate each of the CCMP program areas. Task forces were formed, and for the past year and a half, over 80 representatives from the environmental, regulatory, water agency, and business communities, plus other interested parties worked to update the 1993 CCMP. The task forces made updates to seven program areas: aquatic resources management, wildlife, wetlands management, water use, pollution prevention and reduction, dredging and waterway modification, and land use/watershed management. They revised 70 of the 1993 actions and wrote over 60 new ones. The new document celebrates achievements since 1993, such as greater public awareness of the Estuary (in part due to increased public access), a shift to a watershed approach in dealing with the Estuary's problems, a huge increase in volunteer activities, from adopting local creeks and growing native plants

to cleaning up the coast, and achieving large-scale land acquisition and restoration goals. But it also reflects pressing issues that have surfaced since the original document was drawn up: climate change and sea level rise, emerging contaminants like PPCPs (pharmaceuticals and personal care products), methyl mercury and possible impacts to wetland restoration, the Delta's ecological crisis, the need for better riparian protection and goals, and the trash epidemic in our waterways. This document — the "CCMP Checkup"— is an effort to evaluate progress in tackling both old and new problems by providing a snapshot of successes and ongoing challenges since the last report card in 2005.

There are a few changes in this year's status report, based on feedback from participants at the August 3, 2007 report card meeting. One is that grades are no longer used; participants felt that efforts to "grade" CCMP goals and objectives are too subjective. They also decided that this document is more of a report on the "doctor" — the people and groups implementing the CCMP — than the patient, the Estuary — itself. It is a snapshot because one report cannot possibly encompass everything that has happened in the Estuary during the past two years nor can it comprehensively evaluate progress on a watershed that drains 40 percent of a state as large as California.

This report discusses wetlands progress in general. For detailed and comprehensive tracking efforts, please see the San Francisco Estuary Institute's on-line wetlands tracker (www.wetlandtracker.org) and Wetlands and Water Resources' database and maps at www.swampthing.org. And please plan to attend the next "report card" or "checkup" session in 2009 to offer your own evaluation of the next two years.



ABBREVIATIONS

ABAG: Association of Bay Area Governments
Army Corps: United States Army Corps of Engineers
BCDC: San Francisco Bay Conservation and Development Commission
BurRec: United States Bureau of Reclamation
CALFED: CALFED Bay-Delta Program
Fish & Game: California Department of Fish and Game
Central Valley Regional Board: Central Valley Regional Water Quality Control Board
Coastal Conservancy: California State Coastal Conservancy
DWR: Department of Water Resources
ESA: Federal Endangered Species Act
EPA: United States Environmental Protection Agency
Estuary Project: San Francisco Estuary Project
NOAA: National Oceanic and Atmospheric Administration
SFBJV: San Francisco Bay Joint Venture
SFEI: 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. Fish & Wildlife: United States Fish and Wildlife Service
USGS: United States Geological Survey
WCB: Wildlife Conservation Board

PRIORITY 1.

Expand, restore, and protect Bay and Delta Wetlands and contiguous habitat.
Reduce the impact of invasive species on the estuary through prevention, control, eradication and education.

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).	• Under the direction of the Coastal Conservancy, Fish & Game, and the U.S. Fish & Wildlife Service, the South Bay Salt Ponds Restoration Project released a Draft EIS/EIR in early March 2007 and is aiming to release a Final EIS/EIR in early fall 2007. The Project expects to begin implementing the first phase of restoration in 2008. The Project also published reports on Urban Levee Flood Management Requirements, Levee Assessment Report, and Hydrodynamic Modeling. See www.southbayrestoration.org • NOAA, BCDC, the Estuary Project and the Coastal Conservancy continue to lead the San Francisco Bay Subtidal Habitat Goals Project, a collaborative effort to establish a comprehensive and long-term management vision for protection, enhancement and restoration of the subtidal habitats of the San Francisco Bay. The Project plans to produce a report in 2008. • Over the past 9 years, the S.F. Bay Joint Venture has focused much of its attention on protecting wetlands. As a result, almost 50% of overall acquisition goals, and more than 60% of the SFBJV's tidal wetlands acquisition goals have been reached. The priority has now shifted to restoration, enhancement, monitoring, and assessment. To help design projects that meet restoration goals, the SFBJV is planning to reinstate a design review program modeled after the Wetlands Restoration Program process. The Coastal Conservancy has funded the program.	• Nearly 67,000 acres of wetlands, including 16,000 acres of South Bay salt ponds, have been acquired and are being restored. • Working with the SFBJV, Ducks Unlimited staff have created a comprehensive, yet user-friendly habitat project tracking system that will help the SFBJV with their facilitation role and help the partnership track regional progress towards the goals defined in Restoring the Estuary, the SFBJV Implementation Strategy: see http://cjvp.ducks.org/cajv/CAJVLogin.cfm. This database holds information on habitat acquisition, restoration, enhancement, and associated education and outreach projects. Partners can map projects, perform queries and generate .jpg maps to save for use in reports, presentations, etc. Request a username and password from Sandy Scoggin at sscoggin@sfbayjv.org. • In March 2006, as part of the initial stewardship plan for the South Bay salt ponds, ponds A19, 20, and 21 (479 acres) were returned to tidal action. Part of the Eden Landing Ecological Reserve — approximately 350 acres — was restored to tidal action in October 2006. • In December 2006, levees were breached and tidal action restored to 100 acres of pasture land on San Antonio Creek just north of Novato. The site, which was saved from development by Marin Audubon, will bolster the state Petaluma Marsh Wildlife Area; Marin Audubon plans to deed the property to Fish & Game. • Tidal restoration of 2,900 acres of Napa River Salt Marsh, the salt ponds on the western side of the Napa River managed by Fish & Game, occurred in 2006. The three former salt ponds along the Napa River were restored by Ducks Unlimited using funds provided by the WCB and CALFED. In addition, Fish & Game's ability to manage three salt ponds (1,700 acres adjacent to Hwy 37) for migratory birds was improved by the addition of new water control structures and levee repairs, as well as public access features. Ducks Unlimited led this construction effort in 2007, using WCB funds. The work conducted was a major step towards implementation of a restoration plan developed by the Coastal Conservancy, Army Corps, and Fish & Game for the nearly 10,000 acres of ponds and adjacent habitat.	• Wetland restoration could increase production of methyl mercury. • Long-term sedimentation processes are uncertain and estimates of accretion or erosion of salt ponds or mudflats may be incorrect, meaning that it may be difficult to achieve the desiered elevations. • There is still no overall Regional Wetland Management Plan. • Planning and implementing tidal flood management measures is necessary prior to restoring tidal wetlands at some sites, necessitating partnerships with local flood agencies and the Army Corps, funding for implementation of flood management measures, and analysis of the effects of sea level rise on tidal flooding. • Uncertainties regarding sea level rise are requiring additional analysis before implementation of tidal restoration projects to ensure that sediment accretion and marsh evolution can keep up with sea level. • The fate of the Delta islands could have large impacts on the sedimentation rates and hydrodynamics in San Francisco Bay, impacting existing and restored wetlands and mudflats. • $400 million worth of wetland restoration projects are ready to go now, but funding is needed. 	• The Coastal Conservancy will continue to lead the long-term management of the salt pond restoration project and will work with Fish & Game and U.S. Fish & Wildlife to fund implementation, adaptive management, and applied studies, and to continue the public stakeholder process. • In 2005, the Army Corps, the Santa Clara Valley Water District and the Coastal Conservancy began the South San Francisco Bay Shoreline Study, which will provide further planning information for future South Bay Salt Pond projects and enable the Corps to participate in implementing these future phases. • A study of mercury processes is underway in the Alviso Slough area; information from this study will inform future salt pond restoration phases. Recent research shows that tidal wetlands can either import or export methyl mercury, and that there may be ways of designing wetlands to remove mercury (see "March-Mercury Mingle," ESTUARY, February 2007). • SFEI may be developing a Regional Management Plan for Wetland Restoration. • Restoring tidal salt marshes is an effective way to sequester carbon and can help mitigate climate change.

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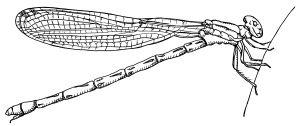
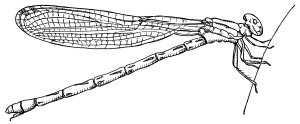
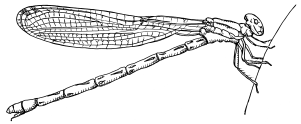
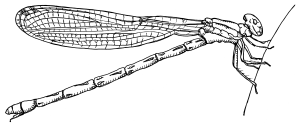
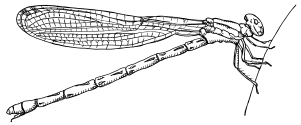
WETLANDS MANAGEMENT 2.1.3 Establish an implementation program to achieve wetlands protection policies.	• Both the State Water Resources Control Board and the S.F. Regional Board have proposed adopting wetland and riparian protection policies in recognition of the fact that protection has been insufficient in the past. The policies are going through the public review process.	• BCDC has completed a number of projects related to Estuary and wetlands protection: (1) a recreation policy update that addressed habitat issues in shoreline parks; (2) a salt pond policy update; and (3) a desalination policy. BCDC is currently working on a number of other projects related to Estuary and wetlands protection: (1) with NOAA, the Coastal Conservancy and the Estuary Project, a San Francisco Bay Subtidal Habitat Goals project; and (2) a managed wetland policy update. • BCDC is also studying the impacts of projected sea level rise on wetlands with its Climate Change Planning Project, the goals of which are to (1) identify and report on the impacts of climate change on San Francisco Bay; (2) identify strategies for adapting to climate change; (3) develop a regional task force to inform and coordinate local governments, stakeholders, and land use planning bodies in the Bay Area regarding the potential Bay-related impacts of and approaches for adapting to global climate change; (4) identify the findings and policies in the San Francisco Bay Plan pertaining to climate change, such as the findings and policies on sea level rise, and update other relevant Bay Plan policies to incorporate new information about the impacts of climate change.	• Developers and homebuilders' associations often oppose better protection for wetlands and riparian areas since protecting those areas means avoiding them and giving them enough room to function properly and developers often want to build the maximum footprint possible.	• Better design can allow developers to avoid wetlands and to create the greener developments with open space and wildlife habitat that many people are looking for. • More wetland acquisition can lead to more restoration.











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Action

WILDLIFE ACTION 2.2:

Enhance the biodiversity within all publicly owned or managed wetlands and other wildlife habitats as appropriate.

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- A science advisor was hired to help implement the Suisun Marsh Plan. A restoration and monitoring plan has been developed for Hill Slough West, a 200-acre parcel of diked wetlands owned by Fish & Game in the Hill Slough Wildlife area. In December 2005, DWR purchased Meins Landing, a 660-acre duck club on Montezuma Slough, and plans to restore it to tidal action within two to three years. The Suisun Marsh Charter Group is preparing a Programmatic EIR/EIS for the Habitat Management, Preservation, and Restoration Plan for Suisun Marsh. CALFED provided funding to the Suisun Resource Conservation District to update the existing management plans for the many duck clubs within the Suisun Marsh. This activity is expected to benefit the marsh's wetland and wildlife habitat; these plans will be certified by BCDC in fall 2007.
- The Central Valley Joint Venture has recently updated its Implementation Plan to include conservation objectives for 6 bird groups. Strategies outlined in the plan will guide activities of the Joint Venture's 20 public and private partners for the next 5 years, with one of the highest priority areas being the Delta. See the 2006 Implementation Plan at www.cvjv.org.
- NOAA has been coordinating a coalition of environmental and other groups working on restoring native oysters/habitat to the Bay. A group meets quarterly to share information. NOAA is working on a "Citizens' Guide to Oyster Restoration," to be published in 2008.
- The South Bay Salt Pond project is planning diverse habitat.

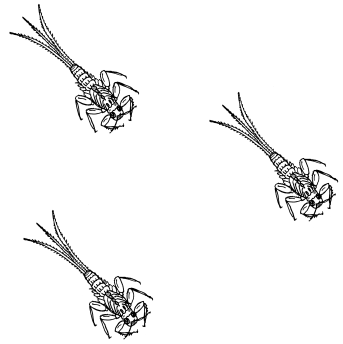
On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- In October 2006, a levee was breached in Suisun Marsh—and Little Honker Bay began inundating the former Blacklock Ranch. Over the next few years, the ponds and seasonal wetlands on the site will return to tidal marsh.
- A pair of endangered least Bell's vireos nested for the first time in decades in San Joaquin County at the San Joaquin River National Wildlife Refuge, thanks to an 800-acre restoration projected conducted by River Partners, PRBO, U.S. Fish & Wildlife, and the Endangered Species Recovery Program. With recommendations from PRBO, River Partners planted a diverse herbaceous understory to benefit songbirds. This same type of restoration work is paying off on the Sacramento River, where 4,000 acres of former farmland have been restored to riparian habitat over the past 15 years. Eleven of 20 songbird species surveyed by PRBO have increased in number along the river over the past decade.
- About 20,000 acres have been purchased by government agencies and conservancy groups along the Sacramento River, including 10,000 acres that make up the Sacramento River National Wildlife Refuge (established in 1989). The refuge plans more acquisitions.
- Save the Bay is monitoring six sites in 2007 for oyster presence/absence.
- The North Richmond Shoreline Academy is working on a native oyster restoration project at Point Pinole. The project will test appropriate substrates and use those results to design a larger second phase project. The NRSA is a collaboration among the Natural Heritage Institute, Community Health Initiative, Golden Gate Audubon Society, Parchester Village Neighborhood Council, Urban Creeks Council, and West County Toxics Coalition.
- The East Bay Regional Park District sponsors volunteer days for removing invasive wetland plants and restoring black rail habitat at Point Pinole.
- Save the Bay is monitoring eelgrass bed restoration sites in the Bay using scuba and snorkeling surveys to estimate seedling and vegetative shoot densities. With funding from the Coastal Conservancy, the eelgrass team—S.F. State, NOAA, and Save the Bay—held a workshop on November 3, 2006 with speakers from other regions who shared information on eelgrass restoration science. Approximately 50 resource managers, regulators, and academics attended; a proceedings is being developed.

Current Gaps & Roadblocks

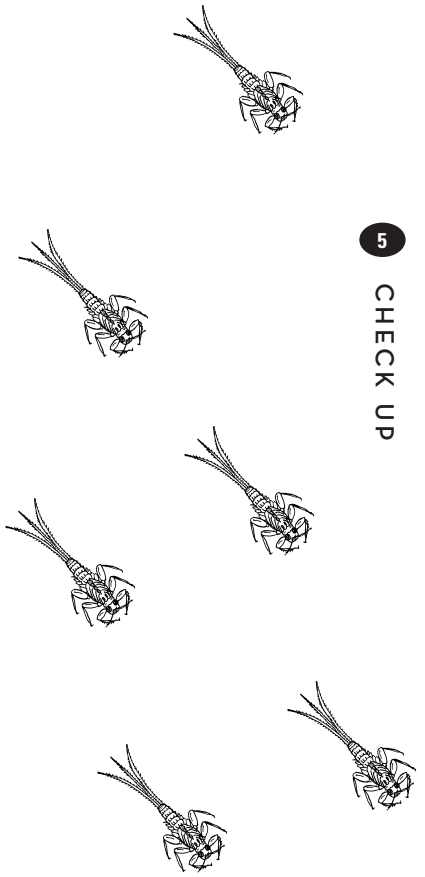
- Gaps in oyster restoration knowledge include: the best substrate for recruitment—depth, size, material, conformation; limiting factors for native oysters; oyster genetics; how to measure a successful oyster restoration project; ecosystem services provided by native oysters; whether there are subtidal oyster populations; historical oyster beds; public education about oysters. (www.savesfbay.org)
- In 2007, on the Sacramento River, 3,000 feet of riverbank habitat purchased by the Nature Conservancy and given to Fish & Game in 2004 to become part of the Sacramento River Wildlife Area was denuded of vegetation and riprapped by DWR and the Army Corps, destroying habitat for the threatened bank swallow. The Corps and local flood control agencies continue to remove habitat, including trees that help shade the river and lower water temperatures for fish, as part of levee maintenance work.
- The spread of *Spartina Alterniflora* continues to be a challenge; it can be spread by wetland restoraton and mitigation projects.
- The Army Corps has proposed new rules for levees that would destroy miles of wildlife habitat.



- In March 2006, U.S. Fish & Wildlife, in partnership with the Santa Clara Valley Water District, breached the levees at three former salt evaporator ponds located at the mouth of Coyote Creek (the "Island Ponds"). Within a week of the breaching, fish-eating birds and shorebirds were using the site; in 3 months birds numbered in the thousands.

Ideas & Opportunities for Further Progress

- We need to give more priority to uplands, preserving them instead of allowing development up to the edges of wetlands. The same is true of riparian areas.
- The Invasive *Spartina* Project and its partners have proposed "Best Management" practices that will help stop the spread of *S. Alterniflora*.



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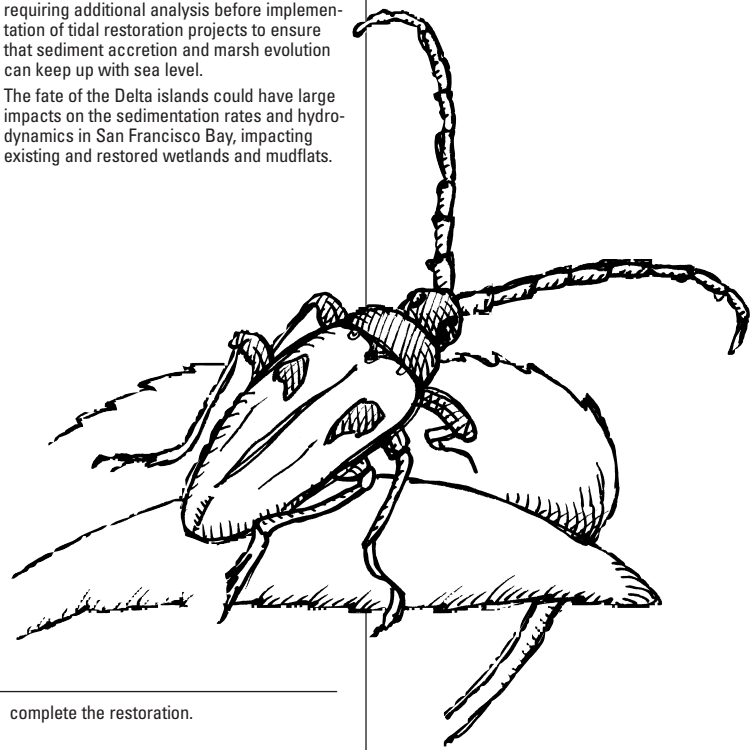
WETLANDS MANAGEMENT ACTION 4.1: Identify and convert/restore non-wetland areas to wetland or riparian-oriented wildlife habitat. Purchase non-wetland areas to create wetlands.	• River Partners, Fish & Game, the U.S. Fish & Wildlife Service, DWR, and the State Reclamation Board worked together to come up with a safe harbor agreement that would allow the planting of elderberry bushes—habitat for the endangered valley elderberry longhorn beetle—on a 230-acre site known as O'Connor Lakes on Fish & Game property on the Feather River. The agreement allows "take" of elderberries if maintenance becomes necessary to prevent flood damages. • On the Mokelumne River, the East Bay Municipal Utility District, the San Joaquin County RCD, CALFED, and private landowners partnered together to come up with a watershed stewardship plan, and to conduct restoration projects on private property, restoring former floodplain long planted in vineyards back to floodplain. • The 1,166-acre Dutch Slough restoration project in Contra Costa County, which will convert ranch land to tidal marsh—is in the planning stages. Models showing different restoration alternatives have been prepared.	• For a comprehensive list of wetland acquisitions, please see the North Bay and Central/South Bay Wetlands Restoration and Enhancement projects maps and CDs at www.swampthing.org. The SFBJV's GIS-based tracker shows progress of the approximately 300 projects that it has been involved with or is supporting. See: www.sfbayjv.org. • Major purchases since August 2001 include the 16,500 acres of mostly former salt ponds in the South Bay (the Cargill property) and North Bay; and the Bahia wetlands in the North Bay (400-600 acres). • Construction on restoring the 3,000-acre Bair Island begins in summer 2007. Over the past four years, Save the Bay volunteers have been visiting the island once each month, pulling ice-plant and re-planting with native marsh gumplant, alkali heath, and salt grass. Workers have begun building up parts of the subsided inner island with dredge spoils from the port of Redwood City. • In March 2006, U.S. Fish & Wildlife, in partnership with the Santa Clara Valley Water District, breached the levees at three former salt evaporator ponds located in the mouth of Coyote Creek (the "Island Ponds"). Within a week of the breaching, fish-eating birds and shorebirds had returned to the ponds. Bird populations had increased by thousands by early July. • With help from a CALFED grant and other Mokelumne River partners, vintner Brad Lange restored seven acres of former floodplain back to floodplain habitat, winning a 2006 Governor's Environmental Award in the process. Another farmer has hired River Partners to design and implement a restoration project on his property. • With a WCB grant, River Partners worked with Fish & Game to plant new riparian habitat—including 1,300 elderberry bushes—on 225 acres on the Feather River. • At Hamilton, the Army Corps is finalizing plans for the remaining levee construction that should occur in summer 2007. The first sediment to be placed will be from maintenance dredging at the Bel Marin Keys community, due north of the site. That dredging project will continue till the middle of summer and will help fill in low areas on the Airfield, delivering about 140,000 cubic yards of sediment. The Corps will also be working on several internal berms during this time frame. Placement of dredged sediment from Oakland is expected to take 18 months to 2 years and will provide between 2.1 and 3 million cubic yards, or about 1/2 to 1/3 of the sediment needed to complete the restoration.	• The Coastal Conservancy has identified the opening of new tidal wetland projects in proximity to hybrid Atlantic *Spartina* as a likely primary vector for the spread of this major invasive. The Conservancy is working with the South Bay Salt Pond Management Team, including U.S. Fish & Wildlife and Fish & Game, to develop a list of "best practices" for restorations relative to invasive *Spartina*, and has asked that restoration projects in the vicinity of hybrid *Spartina* delay tidal connection until the plants have been eradicated. • Planning and implementing tidal flood management measures is necessary prior to restoring tidal wetlands at some sites, necessitating partnerships with local flood agencies and the Army Corps, funding for implementation of flood management measures, and analysis of the effects of sea level rise on tidal flooding. • Uncertainties regarding sea level rise are requiring additional analysis before implementation of tidal restoration projects to ensure that sediment accretion and marsh evolution can keep up with sea level. • The fate of the Delta islands could have large impacts on the sedimentation rates and hydrodynamics in San Francisco Bay, impacting existing and restored wetlands and mudflats.	• The Army Corps could amend its regulations so that it can partner with other federal agencies (in addition to non-federal partners) such as U.S. Fish & Wildlife to enable more progress on restoration acquisitions and projects. • There are opportunities for the maritime industry to collaborate with wetland restorationists.



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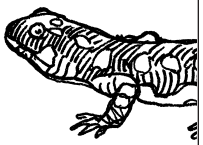
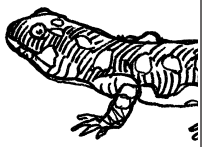
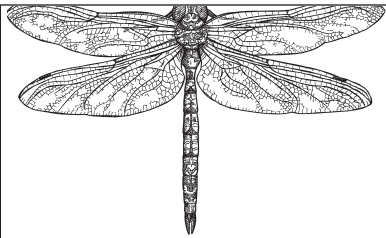
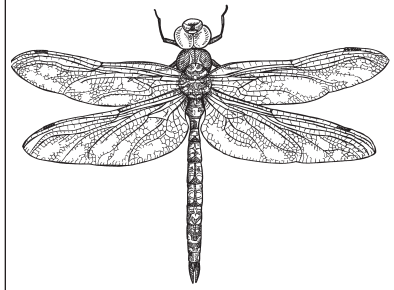
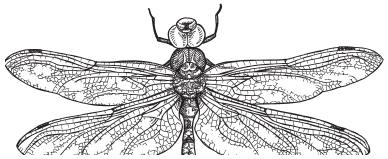
AQUATIC RESOURCES 2.1 Develop, implement and enforce stringent regulations to control the discharge of ship ballast water within the Estuary and adjacent waters.	• The Marine Invasive Species Act of 2003 was revised and expanded to more effectively address the nonindigenous species (NIS) threat. The State Lands Commission (SLC) is charged with oversight of the state's program to prevent or minimize the introduction of NIS from commercial vessels. • The West Coast Ballast Outreach Project works with commercial shipping lines and others in maritime academies to share methods for reducing new invasives and to educate about new ballast regulations.	• SLC completed several legislative reports during the past two and a half years. These reports offered policymaking guidance on commercial vessel NIS issues including: Report on Commercial Vessel Fouling in California, Analysis, Evaluation, and Recommendations to Reduce Nonindigenous Species Release from the Non-Ballast Water Vector (2006); Report on Performance Standards for Ballast Water Discharges in California Waters (2006); and Report on the California Marine Invasive Species Program (2005). These efforts have resulted in the development of regulations to stem the transport of NIS in the ballast water of vessels operating within the Pacific Coast Region and legislation directing SLC to adopt regulations on performance standards for ballast water discharges.	• Exotic aquatic species continued to be introduced.	
AQUATIC RESOURCES 2.2 Prohibit the intentional introduction of aquatic exotic species into the Estuary and its watershed		• SLC has entered into an agreement with the Smithsonian Environmental Research Center to test the application of Ballast Water Exchange verification methodology on vessel traffic arriving in ports along western North America. This work is also being supported under agreements between the US Coast Guard and several foreign nations. • In 2005, SLC allocated funds to support the shipboard installation and evaluation of an experimental technology onboard an Integrated Tug/Barge, the Moku Pahu operated by Matson Navigation Inc. Partial funds were provided to install and evaluate a chlorine dioxide treatment system. SLC has also allocated funds for another new technology installation and evaluation onboard an American Presidential Line vessel in 2007. This experimental technology treats ballast water through de-oxygenation, and uses low-sulfur inert gas to displace oxygen thereby creating a hypoxic (low oxygen concentration) environment that significantly decreases the survival of NIS.		• In the coming years SLC will be: (1) developing regulations that implement recommended performance standards; (2) resetting the fee for the Marine Invasive Species Control Fund (Fee) to reflect the needs of the expanding Program; (3) developing protocols for the independent review and evaluation of ballast water treatment technologies; and (4) reviewing existing treatment technologies as they relate to the performance standards. • With funding from the SLC, the Aquatic Bioinvasion Research and Policy Institute is conducting a study to examine the potential for invasions to California through fouling vectors. • AB740 is a bill in the California Senate that will regulate fouled hulls as an invasive vector.

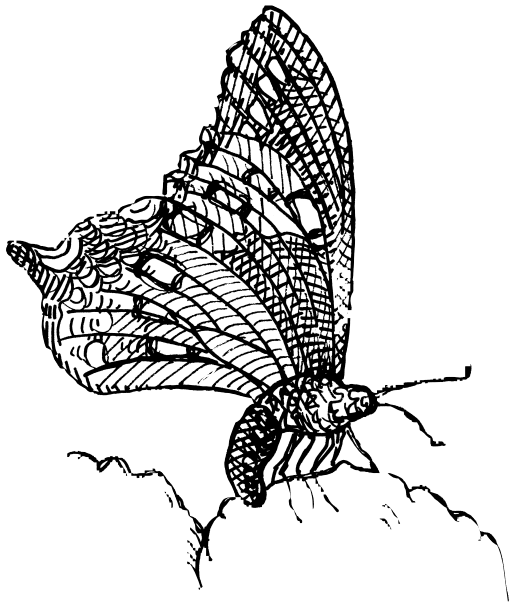
PRIORITY 1.

Expand, restore, and protect Bay and Delta Wetlands and contiguous habitat.
Reduce the impact of invasive species on the estuary through prevention, control, eradication and education.

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	• With funding from CALFED and the WCB, the Coastal Conservancy's Invasive *Spartina* Project (ISP) has coordinated treatment of *Spartina alterniflora* within the Estuary for the last 3 years. • In 2006, a population of a large exotic oyster, *Crassostrea gigas*, was discovered in south San Francisco Bay. SFEI is spearheading an effort to survey and remove the oysters by hand, organizing volunteers on boats, with crews provided by Fish & Wildlife and USGS.	• Partners of the Invasive *Spartina* Project implemented extensive regional *Spartina* control activities in 2005 and 2006. In 2006, approximately 1,450 gross acres of *Spartina* were treated (94% of the population), with efficacy ranging from 60 to 90 percent. Based on current results and assuming no new major vector sites are established (i.e., new tidal restoration projects in the vicinity of hybrid *Spartina*), the *Spartina* Project expects to achieve eradication of all known populations of non-native *Spartina* by 2011.		• The Invasive *Spartina* Project /Coastal Conservancy are working with the South Bay Salt Pond Team to develop a list of "best practices" for restoration. These practices may become part of permit conditions.
AQUATIC RESOURCES 2.4 Develop programs to educate the public about problems with exotic species and their incidental transport or introduction	• The Estuary Project's bi-monthly newsletter, ESTUARY, publishes regular articles about problem species such as water hyacinth, mitten crabs, giant reed, and others that have invaded the Bay-Delta. The SFEI has published an on-line guide to exotics, see: www.exotics-guide.org • The Estuary Project is a member of the Aquatic Nuisance Species (ANS) National Task Force and its Western Regional Panel (WRP) and participated on several ANS Task Force committees: Public Education, Mitten Crab, Ballast Water Management Standards and Caulerpa Management. • The West Coast Ballast Outreach Project holds seminars and workshops on invasive aquatic species for groups including the California Maritime Academy students, California Senate staffers, and the commercial maritime sector.	• Many non-profit groups—like Save the Bay, The Watershed Project, and the Urban Creeks Council (to name just a few)—publish information about the benefits of planting native species and the hazards of planting invasives that can escape into local waterways. • The San Francisquito Watershed Council hosts regular volunteer workdays to remove invasive species and plant natives (grown at its own nursery) at more than 20 sites around the watershed. *Arundo donax* and French broom have been targeted. Similar activities are being undertaken by the many friends of creek groups around the Bay.	• Some commercial nurseries still sell invasive plants, even those that are known to cause a lot of trouble. Currently, there are no laws prohibiting their sale: what is invasive in one area may not be in another.	• In the aquatic invasive species world, scientists instruct maritime personnel on how to reduce invasions (i.e., emptying ballast tanks in the open ocean, not ballasting at night, etc.) But little information exchange occurs in the other direction, from the maritime personnel to researchers and ecologists. The West Coast Ballast Outreach Project would like to find an appropriate conference to host a session on the realities that affect the practicality of potential ballast water treatment technologies, as well as approaches for determining compliance with discharge standards.
WILDLIFE 3.1 Implement predator control programs in areas where introduced predators are a constraint to maintenance and restoration of native populations.		• Control of red fox and other predators in select areas of the South Bay over the past several years may be benefiting clapper rails, particularly at Arrowhead Marsh, where their numbers have increased.	• There are no active fox control programs in the North Bay, where rail numbers are down. • Other urban predators—feral cats, crows, skunks, and rats—may be having an increased impact on endangered species as well. • The European green crab is now established in every significant bay and estuary between Monterey, California, and Gray's Harbor, Washington. • The Chinese mitten crab reached a peak in numbers in 1998 and 2001. No adult mitten crabs were found in Suisun Marsh in 2004, and only four public reports of sightings were made to the toll-free reporting line. Since then, numbers have remained low.	• No one seems to know for certain how problematic the red fox is for clapper rails in the North Bay; however, since coyotes have made a comeback, fox numbers may be down. • While eradication of the green crab is not possible at this point, the National Green Crab Management Plan has several recommendations for local population control, including early warning for new range expansions, prevention against new introductions, and coordinated monitoring of population trends, new outbreaks, and losses to fisheries. 

PRIORITY 2. Protect and restore watersheds, including promoting creek restoration, 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 stream environments and reduce pollutants in runoff.	• Many General Plans throughout the S.F. Bay-Delta watershed contain good language about protecting wetlands and streams, as well as about reducing urban runoff. • At the request of local cities, the county, and non-governmental stakeholders, the Santa Clara Valley Water District created a Water Resources Protection Collaborative that has been looking at a wide range of resource protection measures. Among these are standards to guide development along streams. The standards include slope stability triggers that dictate when an engineering study is needed to determine whether a structure can be built near a stream and how close it can safely be built. The standards have been officially adopted by the Santa Clara Valley Water District Board of Directors and the governing boards of most of the local cities, and the county of Santa Clara. The few local agencies that have not officially adopted the standards have plans to adopt them by the end of calendar year 2007.	• Actual implementation of this protective language is weak.	• Exemptions from stream setbacks are often granted to developers and private property owners. In Berkeley, private property owners fought a stream ordinance; although the ordinance is still in place, thanks to creek activists' efforts, it is not as strong as it was when originally written. Cities claim they do not have the funds to implement innovative stormwater treatment and trash reduction systems. • Engineering studies are sometimes skewed in favor of development vs. protecting streams and their functions.	• The state and the regional water boards are in the process of adopting new, stronger, stream and wetlands protection policies. The state could require communities to adopt more stringent setback requirements. • BCDC could be given greater jurisdiction so that it could prevent or restrict development on upland buffers next to wetlands. • U.S. EPA could give grants for innovative stormwater projects. • General Plans should be required to adopt a water element (right now it is optional).



PRIORITY 2. Protect and restore watersheds, including promoting creek restoration, throughout the Estuary.

Action

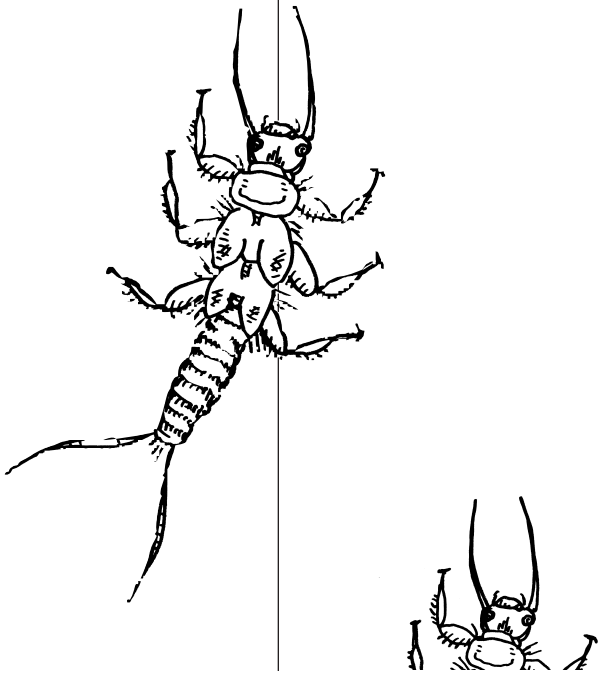
LAND USE 3.1

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

- Now in its seventh year of implementation, the Water Forum, in conjunction with BurRec, U.S. Fish & Wildlife, and other agencies, is working toward an updated and improved Flow Management Standard for the Lower American River, to be presented to the State Board in early 2008.
- The Contra Costa County RCD and the NRCS received a special federal funding allocation sponsored by Congresswoman Ellen Tauscher (D-10) and Congressman George Miller (D-7) to conduct key watershed inventories in Contra Costa County.
- The Santa Clara Valley Water District developed stewardship plans for four watersheds within the district's jurisdiction—the Coyote, West Valley, Guadalupe, and Lower Peninsula Watershed Areas. The plans highlight the connection between tidal areas and stewardship of uplands and recognize the need for partnerships toward a shared vision.



On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- Watershed management plans and/or watershed councils are in the works and active in most Bay Area streams now and throughout the Bay-Delta watershed. Many Bay Area watersheds have watershed plans now: Pinole Creek, Alhambra Creek, Alameda Creek, and Wildcat-San Pablo Creeks, to name just a few.
- Since the last report card, large-scale restoration has taken place on Codornices Creek in Berkeley, Wildcat Creek in Richmond, Baxter Creek in El Cerrito and Richmond, and there has been a new large-scale community effort in North Richmond, led by the Natural Heritage Institute through a CALFED grant, to conserve and restore Rheem Creek and Breuner Marsh. Other partners in North Richmond/Breuner Marsh include the Urban Creeks Council, Sierra Club, Golden Gate Audubon, Merritt College, and citizen activists.
- In January 2007, the Urban Creeks Council released its final monitoring report for the Codornices Creek Watershed Restoration Action Plan, Phase 2, produced by the State Board under a grant. The report includes the results of fish surveys, habitat and water quality monitoring, and recommendations for restoration.
- With funding from CALFED and the State Board, the Mount Diablo Creek Watershed Management Planning Process produced a draft community-consensus-based watershed plan using the California Coordinated Resource Management and Planning (CCRMP) process.
- 2006 Contra Costa County watershed studies included completion of the Mount Diablo Creek Watershed Inventory and an expansion of the Muir Heritage Land Trust's survey work in the Rodeo Creek Watershed. During the 2005-2006 wet season, SFEI worked with the Contra Costa RCD, NRCS, and EBMUD to complete an assessment of the Pavon Creeks sub-basin, a tributary to Pinole Creek. Field data showed that the Pavon Creeks sub-basin is currently very geomorphically active and is contributing large volumes of fine grained-sediment to Pinole Creek. This finding will be used to improve conditions for steelhead trout.

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Current Gaps & Roadblocks

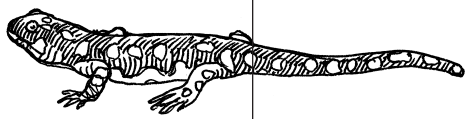
- There are not enough stream restoration professionals to meet demand, and there aren't enough apprenticeship programs to pass along the skills.
- Information sharing among stream restoration professionals is lacking in regard to restoration experiences and practices. There is sometimes a split between those who study watersheds and those who actually practice restoration. A wide range of restoration methods is in practice now that can be combined in different ways to address different environmental needs, but these have not been systematically shared through the restoration community.
- More funding is needed to do watershed planning and assessment, such as studying individual watersheds in detail and prioritizing restoration activities.
- The permitting process should be streamlined to make it easier for restoration projects to move forward.
- Funding for the SWAMP monitoring program is vulnerable.
- Finding consistent, sustainable funding for watershed groups is an ongoing challenge.
- We need to better integrate agricultural users into efforts to protect and restore the Estuary.

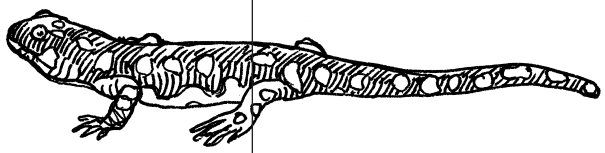
Ideas & Opportunities for Further Progress

- On the American River, the Water Forum Successor Effort (WFSE) was created to implement the Water Forum Agreement signed in 2000. Focus of the implementation is on the 7 elements of the Water Forum Agreement that will be implemented in concert over the next 30 years. The 7 elements are increased surface water diversions, actions to meet customers' needs while reducing diversion impacts in drier years, an improved pattern of fishery flow releases from Folsom Reservoir, Lower American River Habitat Management Element, water conservation, groundwater management, and the Water Forum Successor Effort.
- Watershed management plans should take flood damage reduction into consideration.
- We need a regional project focused on restoring streams/watersheds in the same way that the S.F. Bay Habitat Goals Project has provided a regional focus and guidance for restoring tidal systems. For the streams and watersheds of the Bay Area, this project should review historic conditions and existing conditions and outline a vision for the future. It could also identify the types of habitats needed most and where they could be created, and identify watersheds in which special status species could be restored. Opportunities for pursuing large scale watershed and stream restoration projects along with tidal wetlands restoration projects should also be identified.

PRIORITY 2. Protect and restore watersheds, including promoting creek restoration, throughout the Estuary.

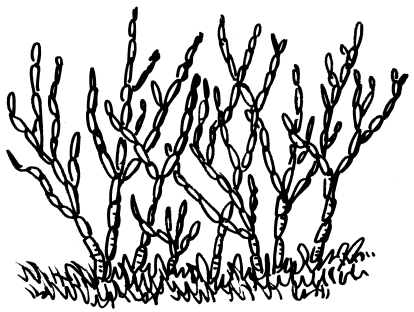
Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
CONTINUED **LAND USE 3.1** Prepare 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.		• The Santa Clara Basin Watershed Initiative (WMI) continues to advocate the implementation of its consensus-based Watershed Action Plan. Recent successes have included: 1). Providing stakeholder forum to promote WMI vision including conducting outreach and education to planning and land-use decisions-makers on impacts of development on or adjacent to streams; 2). Enhancing grassroots community capacity for stream stewardship and protection; 3). Supporting and undertaking stream restoration and protection actions; 4) Supporting water use efficiency programs; 5). Developing pilot watershed health indicators; and 6). Providing other tools and training to planners to help them better protect and steward streams and their resources. • The S.F. Regional Board's SWAMP Program (see Aquatic Resources Management 1.1) is tracking contaminants in watersheds throughout the Bay Area, with the goal of assisting local watershed groups.		

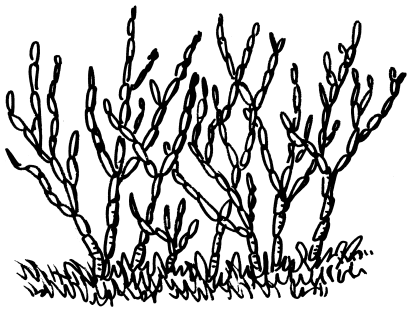




PRIORITY 3. Create incentives that motivate governments, landowners, businesses, and communities to protect and restore the Estuary.

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 ACTION 1.3 Integrate protection of the Estuary with other state land use-related initiatives.	• In 2002, voters passed Proposition 50, a $3.4 billion bond that, among other things, provided for upgrading water quality and management. It also created IRWMP — the Integrated Regional Water Management Program. IRWMP was intended to be a forum and process (facilitated by DWR) under which groups of stakeholders throughout the state could develop water management plans that would integrate water supply and quality, land use planning, and watershed management, and address water-related conflicts within a region. Eligible groups could receive funding for water planning grants and partial funding for implementing protects identified as priorities in the integrated regional water plans.	• An IRWMP grant was given to the Plumas County IRWMP, a diverse group of six partners that included a national forest, a flood control district, and two non-profits, for 7 projects ranging from creek restoration to capping off abandoned wells. • The San Francisco Bay Area (as defined by S.F. Regional Board boundaries) completed an Integrated Regional Water Management Plan (IRWMP) with funding from Proposition 50 in December 2006. The plan is based on activities of four "functional areas": water supply and water quality, flood protection and stormwater management, wastewater and recycled water, and watershed management and habitat protection and restoration. The plan includes a priority list of projects for funding. The Bay Area received $12.5 million for water supply projects in the first round of funding under Proposition 50, and has applied for another $12.5 million under the second round, with a focus on flood management and habitat restoration projects. • FOCUS is a new program of the Joint Policy Committee — BCDC, ABAG, MTC, and the Bay Area Air Quality Management District — that allows local governments to nominate "priority areas" for focusing development around existing infrastructure, and preserving important natural areas.	• Not all stakeholders have felt welcome at the Bay Area IRWMP table; some feel the process has been dominated by water agencies and that the process favors large agencies with lots of money to spend on plans and environmental documents.	• DWR wants to improve the IRWMP process; it says it is looking for more collaboration, integration, and development of new projects (rather than old ones.) Another round of funding is set to begin: Prop 50 money will be followed with Prop 84 funds—another bond voters approved in the fall of 2006. It dedicates $5.4 billion for water quality improvement, flood control, and waterway and natural resource protection, among other things. • Regional agencies are attempting to tie land use practices to Prop. 84. • Cities and municipalities could be required to include a water element in their general plans (currently, it is optional). • City councils could be asked to adopt the CCMP. • DWR is currently preparing its California Water Plan 2009, and is coordinating with agency and other stakeholders around the state through local and regional forums. DWR expects to integrate water planning at the state level with the IRWM plans that are being developed throughout the various hydrologic regions in California. DWR recognizes the need for integrated watershed planning as part of the IRWMPs. Guiding principles include promoting sustainable resource management and promoting coordination and collaboration among local agencies and governments. DWR held the first of many regional workshops in Oakland on June 25, 2007. One of the themes to come out of this workshop was the need to integrate land use planning with water supply, flood management, and other water-related issues.

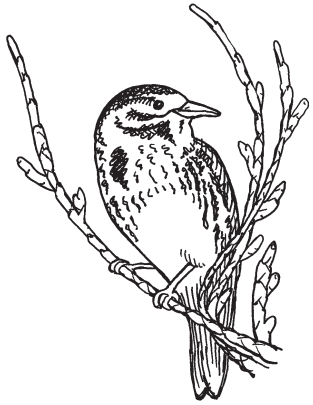




PRIORITY 3. Create incentives that motivate governments, landowners, businesses, and communities to protect and restore the Estuary.

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 ACTION 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.	• See Land Use 1.3. • The Joint Policy Committee—made up of ABAG, the Metropolitan Transportation Commission, and the Bay Area Air Quality Management District—has several initiatives that focus on smart growth, regional sustainability, and climate change (www.abag.org/jointpolicy). • With 3 million new people predicted to move to the San Joaquin Valley over the next 20-some years, Governor Schwarzenegger created the California Partnership—eight cabinet secretaries, eight civic sector appointees, and eight local county reps—to come up with a strategic action plan with recommendations for land use and transportation, to begin to prepare the Central Valley for the development that will inevitably occur. A key partner in this effort is the non-partisan, non-profit Great Valley Center, which is advocating for more sustainable development and environmental preservation.	• See Land Use 1.3. • In 2007, the Joint Policy Committee voted to add BCDC to the group, making the JPC the closest to comprehensive regional planning there is in the Bay Area.	• See Land Use 1.3. • Legislation must be passed for BCDC to be a voting member of the JPC.	
LAND USE ACTION 5.1 Create economic incentives that encourage local governments to take action to protect and restore the Estuary.				• Legislation is needed to create such incentives and to provide grants to local governments and industry. • More opportunities may arise via Prop. 84, which has funding for flood and stormwater management. • State and local agencies should provide funds and assistance to local governments to implement California's Nonpoint Source Pollution Plan.
LAND USE ACTION 5.2: Develop new funding mechanisms to pay for plans, physical improvements and program administration to protect the resources of the Estuary.	• See LU 1.3 re IRWMP.	• See LU 1.3 re IRWMP.	• Other than bond measures, there are few sustainable, long term funding mechanisms for plans, physical improvements, and project administration to protect the Estuary's resources. • See LU 1.3 re IRWMP.	• See LU 1.3 re IRWMP. • The California Watershed Coalition is trying to pass a bill that would place a royalty extraction fee—similar to the fees paid by petroleum companies to states for extraction and use of their resources—on bottled water companies. The bill would establish a state program to be administered through 10 or 11 regional cooperative conservation partnerships that would oversee planning of watershed-protection projects.

PRIORITY 3. Create incentives that motivate governments, landowners, businesses, and communities to protect and restore the Estuary.

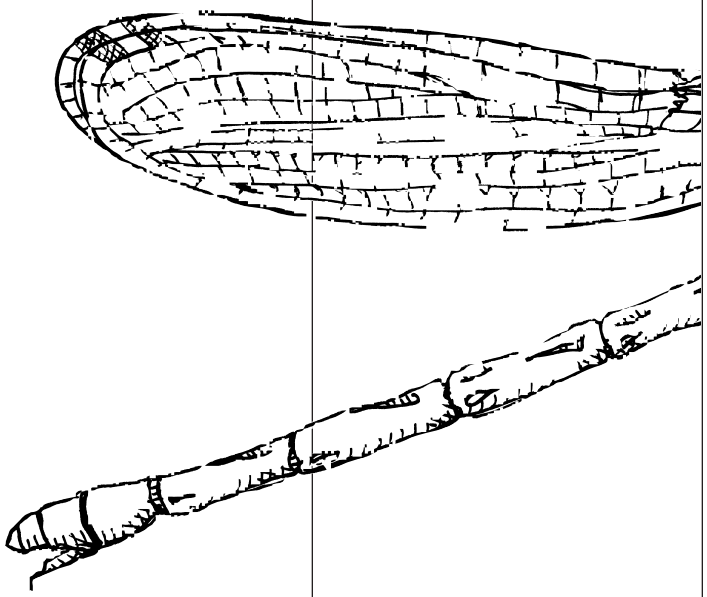
Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
LAND USE 5.3: Investigate and create market-based incentives that promote active participation by the private sector in cooperative efforts to implement goals for protection and restoration of the Estuary.	• The Conservation Reserve Program and Wildlife Habitat Incentive Program of the Farm Bill are meant to encourage private landowners to manage their property for wetlands and wildlife instead of selling it or destroying habitat. • Fish & Wildlife recently funded 7 projects through its Private Stewardship Grant Program, and 9 through its Partners for Fish & Wildlife Program (compared to about 24 such projects spanning the 10 years prior).	• The Santa Clara Valley Water District continues to offer its Watershed Stewardship Grant Program to fund community-based, nonprofit organizations in their watershed stewardship efforts. The Program awards $300,000 in each cycle of grant funding. In 2003, the Santa Clara Valley Water District initiated a trail and open space grant program to assist in providing increased public access opportunities to the community. The grant program is allotted approximately $900,000 a year through a special tax and is carried out on biennial cycle. In 2005, the Santa Clara Valley Water District initiated an environmental enhancements grant program to create and restore tidal and riparian habitat through District projects and community partnerships. The grant program is allotted approximately $2.1 million a year through a special tax and is carried out on a biennial cycle.		• The Farm Bill has increased the caps for the Wetlands Reserve and Environmental Quality Incentive programs.

PRIORITY 4. Minimize or eliminate pollution of the Estuary from all sources.

Action

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.



Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The Central Valley Regional Water Quality Control Board has approved TMDLS for diazinon and chlorpyifos in the Delta and nutrients in Clear Lake; they are awaiting State Board approval.
- The SF Regional Board, the Bay Area Clean Water Agencies, and the Bay Area Stormwater Management Agencies Association have formed the Clean Estuary Partnership under a formal MOU to collaborate on developing and implementing TMDLs for SF Bay.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- The Central Valley Regional Water Quality Control Board has approved TMDLs for selenium in the San Joaquin River and Grassland Marshes, salinity and boron in the lower San Joaquin River, dissolved oxygen in the Stockton Deep Water Ship Channel, diazinon in the Sacramento and Feather Rivers, diazinon and chlorpyrifos in the San Joaquin River and Delta, diazinon and chlorpyrifos in Sacramento urban creeks, mercury and nutrients in Clear Lake and Cache Creek and heavy metals in the Sacramento River. TMDLs are being developed for mercury in the Delta, salinity and boron in the upstream reaches of the San Joaquin River, pesticides throughout the Central Valley, and pathogens and dissolved oxygen in Stockton urban creeks.
- The SF Regional Board has adopted TMDLs as of January 2007 for mercury in all SF Bay segments, diazinon and pesticides-caused toxicity in all Bay Area urban creeks, pathogens and sediment in the Napa River, and pathogens in Sonoma Creek.
- Additional TMDLs scheduled for completion include PCBs in all SF Bay segments, pathogens in Richardson Bay, mercury in the Guadalupe River watershed, nutrients in the Napa River, and nutrients and sediment in Sonoma Creek.
- Other TMDLs under development and scheduled for completion in 2010 include selenium in north SF Bay segments, legacy pesticides (DDT, dieldrin, and chlordane) in all SF Bay segments, and dioxins/furans in all SF Bay segments.
- Other active projects include sediment TMDLs for Lagunitas Creek, San Francisquito Creek, Sonoma Creek and Walker Creek; and nutrient TMDLs for Sonoma Creek and Napa River.
- PBDEs — flame retardants that bioaccumulate — have been phased out.
- Diesel emissions at ports are being reduced.

Current Gaps & Roadblocks

- We have limited understanding of the fate of pollutants (e.g., mercury, PCBs, selenium, legacy pesticides) in SF Bay sediments and their effect on recovery of the Bay and attainment of beneficial uses.
- TMDLs only regulate external loadings of pollutants so they may not be the solution for legacy pollutants or effective at controlling pollutants that bioaccumulate.
- If control measures are put in place now, it will still take the Bay decades over 100 years to recover from past discharges of PCBs and mercury.
- Urban runoff is one of the largest sources of pollutants impairing the Bay (e.g., mercury and PCBs); however, significant funding increases are needed for effective source and treatment controls.
- PPCPs (pharmaceuticals and personal care products) are ubiquitous in the environment, and scientists do not yet understand their full impacts. It used to be thought that "dilution was the solution," but that may not be true for PPCPS.
- The mothball fleet continues to pollute the Bay water and bottom.

Ideas & Opportunities for Further Progress

- The Clean Estuary Partnership is striving to reinvent itself. The Partnership has and will continue to provide technical and stakeholder participation support to the SF Regional Board for development of water quality objectives and TMDLs. Recent or nearly completed projects (support efforts) include: Cyanide water quality objective for all SF Bay segments; copper water quality objective for SF Bay segments north of the Dumbarton Bridge; SF Bay PCBs; TMDL Impairment Assessment and Conceptual Model Report on PBDEs in SF Bay. An active overarching project is a strategy to reduce/manage risk to consumers of Bay fish. Emerging projects include a dioxin water quality attainment strategy/TMDL for SF Bay; selenium water quality attainment strategy/TMDL for the north SF Bay segments; and a legacy pesticides (DDT, chlordane, dieldrin) water quality attainment strategy/TMDL for SF Bay.

PRIORITY 4. Minimize or eliminate pollution of 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
POLLUTION PREVENTION AND REDUCTION 2.4 Improve the management and control of urban runoff from public and private sources.	• In February 2007, the California Ocean Protection Council signed a resolution with 13 priority actions for reducing plastic debris; it set up a steering committee that will come up with plans to implement the solutions and to coordinate a regional effort. One resolution is to support more volunteer coastal cleanup days. • The partnership among the Coastal Commission, Contra Costa County Public Works Dept., and the Dept. of Boating and Waterways to educate boaters about better boating practices and ways to prevent pollution in the Delta continues and is expanding. Contra Costa was awarded a $1.6 million grant (Prop 40) by the State Board to expand its "Keep the Delta Clean" program. • Many environmental non-profits around the Bay are working to prevent pollution and clean up existing pollution. • The Brake Pad Partnership is a collaborative effort to understand and address the automobile brake pad wear debris as a source of copper to surface waters. The Partnership—brake pad manufacturers, stormwater managers, water quality regulators, and environmental groups—has conducted a series of interlinked environmental transport and fate studies, with funding support from the State Board (Proposition 13) and Caltrans. Based on the results, the Partnership has concluded that copper from automobile brake pad wear debris is an important source of copper in stormwater runoff, particularly in highly urbanized watersheds. As a result, brake pad manufacturers intend to carry out their commitment to introduce reformulated products to their customers (the automobile companies) within five years. • The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) implements the Watershed Watch Campaign (Campaign), which is a multi-year outreach effort designed to increase the public's awareness of watersheds and urban runoff issues including pollution prevention and pollutants of concern (e.g., pesticides, mercury, heavy metals and trash).	• In 2006 volunteers removed over 770,000 pounds of trash and over 103,000 pounds of recyclables from the state's shorelines, including the Estuary's shoreline and waterways, on Coastal Cleanup Day. • Keep the Delta Clean has distributed 10,000 environmentally-friendly boating kits, constructed three hazardous waste dropoff/recycling centers, and administered a survey to over 2,000 boaters to determine their needs on the Delta. • The Emerging Contaminants Work Group and BAPPG (Bay Area Pollution Prevention Group) have sponsored several pharmaceutical take-back days, collecting unused or unwanted medicines that might otherwise have been flushed and ended up in the Bay and other waterways or in groundwater. EBMUD and the City of Emeryville also sponsored a take-back day in Spring 2007. A number of new locations have agreed to accept pharmaceutical waste. (See http://www.baywise.info/disposaldays/.) BAPPG has been working with the Drug Enforcement Administration to develop a more sustainable pharmaceutical collection program. • The Emerging Contaminants Workgroup of the Regional Monitoring Program has teamed with Axys Analytical to conduct a screening of pharmaceuticals in the South Bay. Two wastewater treatment plants were sampled and 10 locations within the South Bay. A technical paper summarizing the results will be completed in 2007. • The U.S. Fish & Wildlife Service and the American Pharmacists Association have joined forces to educate consumers about the hazards of improper disposal of PPCPs. • As part of the Surface Water Ambient Monitoring Program (SWAMP), the S.F. Regional Board monitored trash in Bay streams from 2002 to 2005, to assess the extent and severity of the trash problem as well as begin efforts to link trash with impairments to beneficial uses of waters like threats to aquatic life and human health as well as impacts to recreational areas. On 30-some sites around the Bay, in different demographic areas, the SWAMP team visited a 100-foot section of stream, along which they enumerate and categorized trash, then picked it up and removed it. From there, they assigned assessment scores and revisited the same sites a few months later to estimate trash accumulation rates. They also tried to gauge CONTINUED	• PPCPS are ubiquitous in the environment and have now been found not only in treated wastewater but also in biosolids applied to agricultural fields. • Federal restrictions on controlled substances are preventing fully effective pharmacy take back programs. U.S. Postal Sevice and U.S. DEA approvals are needed to add controlled substances to take back programs. • Trash of all kinds — plastic debris, paper, organic matter, Styrofoam, and construction debris — is an ongoing problem in the Bay and the creeks that flow into it. Much of the trash entering tributaries and the Bay originates in urban areas. However, municipalities claim that they do not have the resources to combat this issue, and that they are constrained by the requirement under Prop. 218 to get a 2/3 vote to increase stormwater fees. • With a few exceptions, the Bay Area lacks creativity when it comes to treating stormwater.	• San Mateo County has implemented a large scale pharmaceutical take-back program that accepts all medicines, including contolled substances. • SB966 proposes a pharmacy take-back program. • Prop. 84 may have funds for innovative stormwater treatment. • There is a need for more structural solutions (a variety of trash capture devices) to mechanically remove trash from stormdrains. • Portland, Seattle, and many European cities are leading the way in treating stormwater and urban runoff with natural "green" methods —swales, rain gardens, and green roofs. The Bay Area could use their projects as models — Portland has experimented to see what works and what doesn't, with the attitude of "let's just try it once and see if it works; if it doesn't, we don't have to repeat it." We need this type of "just try it once" attitude in the Bay Area to get stormwater projects going. • The EPA — or local governments — could sponsor stormwater treatment contests and give grants to the winners to implement them.

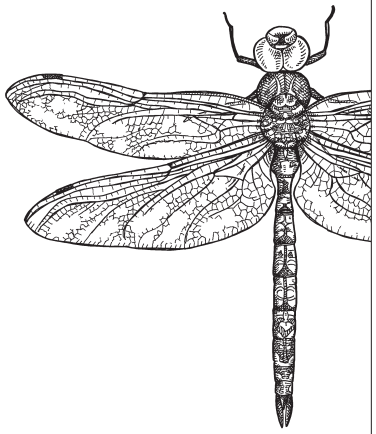
PRIORITY 4. Minimize or eliminate pollution of the Estuary from all sources.

Action

CONTINUED

POLLUTION PREVENTION AND REDUCTION 2.4

Improve the management and control of urban runoff from public and private sources.



Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The Watershed Watch Campaign conducts outreach through media advertising, the Watershed Watch web site, newsletter articles, sponsoring educational assemblies at schools, participation in community events and an information hot line. The Campaign follows a "partnership" approach for outreach and coordinates its outreach with media, businesses and community organizations. These organizations help augment Campaign messages through their newsletters, websites, distribution of educational brochures and fliers, and by offering giveaways and incentives to people practicing the desired pollution prevention behavior.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

CONTINUED FROM PREVIOUS PAGE

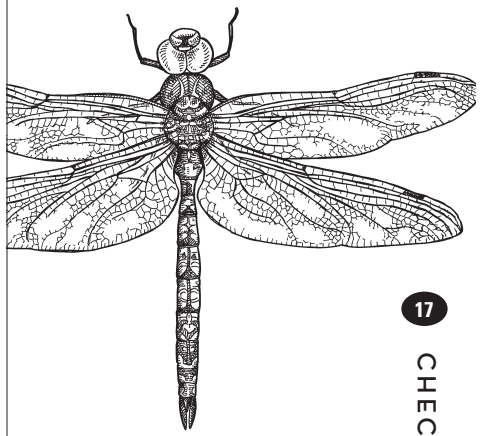
whether the seasons or different types of public access are having an impact on the amount and type of trash they found. The team's data collection has been synthesized in a report that came out in April (2007). These data will likely form the basis for a number of Clean Water Act section 303(d) listings for trash when the 2008 impaired waters list is prepared. The S.F. Regional Board is required to address these impaired waters using a variety of regulatory authorities ranging from permits to TMDLs.

- San Francisco is beginning to tackle stormwater and urban runoff by looking at ways to create "green streets." The SF PUC sent an employee to do a "stormwater survey" around the world and look at innovative stormwater treatment methods.
- The Coastal Commission sponsors Coastal Cleanup Days, which are very effective, but we need more of them. Save the Bay is also sponsoring trash cleanup days around the Bay.
- The Creek Connection Action Group sponsored two creek clean-ups: Coastal Cleanup Day on September 16, 2006 and National River Cleanup Day on May 19, 2007. Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) provided financial support for one of the events (National River Cleanup Day). A total of 1,631 volunteers participated in cleaning 44 sites and removed approximately 67,461 pounds of trash from the creeks during the two events.
- The South Bay — San Francisquito Watershed Council — has installed two stormwater demo projects.
- In December 2006, the Bay Area Pollution Prevention Program (BAPPG) and the California Water Environment Association organized a very successful one-day workshop entitled "Creating a Dental Amalgam Program." The workshop was well attended by 88 people who represented 45 agencies and businesses in Northern California; 60% of the BAPPG agencies were represented at the workshop. Attendees received a workbook, including a CD that contained a comprehensive literature review of dental programs locally and nationally, the most complete reference material put together to date nationally on this subject.
- In May-July 2007, the BAPPG, a subcommittee of the Bay Area Clean Water Agencies, coordinated a regional collection campaign for residential mercury fever thermometers, as well as some other mercury-containing household devices such as thermostats. Twenty agencies and organizations collected 4,264 thermometers, 21 thermostats and approximately 7.25 kg of bottled elemental mercury at 30 one-day and ongoing events—a total of about 9.4 kg of mercury, over half the Maximum Daily Load allocation to wastewater treatment plants discharging to the Bay. As a result of working collaboratively, agencies that previously did not have experience in conducting thermometer exchanges are now continuing to do them their own.
- In May 2006, BAPPG piloted a first-of-its-kind regional collection event for residential pharmaceutical waste that complies with the Drug Enforcement Administration's (DEA) regulations on controlled substances. Throughout the Bay Area, more than 1,500 residents disposed of 3,634 pounds of pharmaceutical waster at 39 locations. BAPPG coordinated this pilot with 17 agencies.
- In 2006, the Emerging Contaminants Workgroup of the Regional Monitoring Program, collected samples from the Bay and two wastewater treatment plants for 39 pharmaceutical compounds. This was part of a pilot and special study under the Regional Monitoring program for Water Quality in San Francisco Bay (RMP). This study is the first of its kind in the region to analyze pharmaceuticals, which are considered pollutants of emerging concern, in wastewater and San Francisco Estuary.

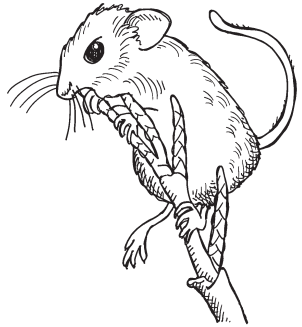
Current Gaps & Roadblocks

Ideas & Opportunities for Further Progress

- The city of San Francisco has banned Styrofoam for takeout food, and plastic bags at chain stores.



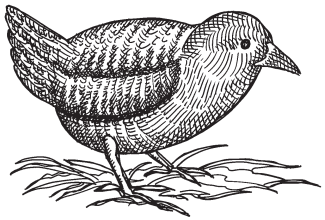
PRIORITY 4. Minimize or eliminate pollution of the Estuary from all sources.

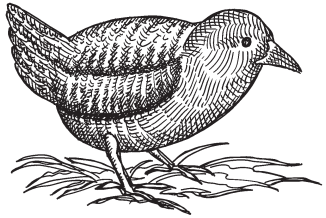
Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
PUBLIC INVOLVEMENT AND EDUCATION 2.5 Increase long-term educational programs designed to prevent pollution of the Estuary's ecosystem.	• Restore the Delta is a new non-profit that began in 2006. Its goals are to create a swimmable, fishable, drinkable, and farmable Delta. Based in Stockton, Restore the Delta is working to educate the public to recognize the Delta's unique economic, tourism, cultural, recreational, farming, and wildlife resources. • Save the Bay has an aggressive new campaign designed to educate the public about the impacts of throwing trash in storm drains.	• In 2006, Restore the Delta sponsored two stakeholder meetings in Stockton to discuss the future of the Delta. The group decided upon an agenda of improving water quality and quantity to meet Clean Water Act standards and to protect native species; to reduce water exports from the Delta to a sustainable level; to support levee repairs to protect urban areas and farmland while supporting comprehensive flood planning; to market the Delta as an ecotourist destination; to promote the establishment of a Delta Conservancy; to protect the Delta's economic base; and to mobilize grassroots activism to further these goals. • Save the Bay has placed eye-catching ads in BART and MUNI.	* Consistent funding is needed to support these efforts.	
POLLUTION PREVENTION AND REDUCTION 2.6 Improve the management and control of agricultural sources of toxic substances.	• See PP&R2.1re Central Valley TMDLs. • Funding for the Contra Costa County RCD/ NRCS' Irrigated Agricultural Lands Program was provided for through an Agricultural Water Quality Grant program via CALFED/ State Board.	• See PP&R2.1re Central Valley TMDLs. • The Contra Costa County RCD partnered with NRCS to replace furrow irrigation with surface drip irrigation systems as a beneficial management practice (BMP) on five tomato-processing fields in east Contra Costa County in summer 2006. Growers reported positive results: an increase in uniformity of applied irrigation water with higher yields and higher percentages of soluble solids of fruit. Water quality benefits included reduced tailwater and sediment discharged. Cost savings included a reduction in volume of water applied to the land; a reduction in labor required for weeding, and a reduction in maintenance of irrigation ditches and tailwater pits.	• Water quality may suffer if farmers remove buffers, wetlands, and wildlife habitat out of concern over "clean farming", i.e., in response to a scare over tainted spinach. • The federal government might transfer ownership of the San Luis Reservoir and require San Joaquin Valley farmers to oversee the costly cleanup of toxic agricultural drain water. While some might see this as an opportunity, many environmental groups think it may be a case of the fox guarding the hen house and that selenium problems will only get worse.	• Retire selenium-contaminated lands in the San Joaquin Valley. • The Community Alliance with Family Farmers and the Central Coast Regional Water Quality Control Board are working to educate farmers and legislators about the real causes (usually livestock) of *e. coli* contamination and encouraging them to continue healthy water quality (and wildlife habitat) practices. • Two additional tomato fields are slated to be part of the Contra Costa County RCD/NRCS' Irrigated Agricultural Lands Program in 2007.

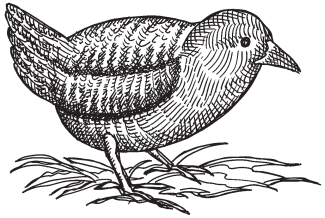
PRIORITY 5.

Increase public interaction with the Estuary's natural resources while encouraging stewardship, promoting the values of ecological processes, and educating the public about the effects of human activities on 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
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.	• At each biennial State of the Estuary conference, the Estuary Project gives out CCMP Implementation awards for outstanding projects that achieve at least one of the goals of the CCMP; the Estuary Project also honors individual activists working to implement those goals, with the Jean Auer award. • ESTUARY newsletter is sent out bi-monthly to over 3,000 decision-makers, citizens, non-profits, and private businesses, ecology centers, and libraries. • Creek Keepers, a joint effort of Friends of the Estuary, Natural Heritage Institute, Earth Team, Urban Creeks Council, and others, is in its 10th year working with students from Richmond High on restoration and environmental ed projects. • A huge number of non-profits—Save the Bay, Urban Creeks Council, the Watershed Project—to name just a few, are building support for the CCMP's goals and actions. Many grassroots citizens' groups are doing so too, probably without realizing they are helping implement the CCMP. • Save the Bay partners with local, state, and federal resources agencies in six sites in S.F. Bay involving 5,000 community volunteers in wetland restoration projects. The projects involve schools, community and religious groups, corporations, and Bay Area residents.	• In May 2006, the SFBJV took legislators, politicians, and other interested parties on a tour of North Bay restoration projects (Napa Sonoma Marshes); in December 2006, the SFBJV hosted a tour of NAWCA (North American Wetlands Conservation Act)-funded projects. • The South Bay Salt Pond Project has given tours of the salt ponds to members of the public and interested politicians and legislators. • See Public Involvement and Education 1.2 and 1.3, 1.5, and 4.1. • There is a groundswell of citizen participation in restoration and environmental ed projects centered around the Estuary and its watershed. Save the Bay works with citizen volunteers in its native plant nursery, growing, propagating, and planing more than 20,000 wetland plants each year. The Friends of Sausal Creek, now in its 10th year, also has a native plant nursery and an active volunteer contingent, as do a myriad of other creek groups around the Bay. Many local creek groups are coming up on their 10th anniversaries. • The Stevens and Permanente Creeks Watershed Council has at least 80 full-time volunteers engaged in watershed stewardship, including water quality monitoring. In 2005, 1,460 volunteers cleaned up 46 miles of creeks in Santa Clara County, removing 40,000 pounds of trash. • At the S.F. Bay National Wildlife Refuge, volunteers represent the equivalent of 19 full-time staff people, a dollar value of $470,000. Fifteen active docents regularly take the public on guided walking tours. • The Alameda Creek Alliance, now 10 years old, has built a coalition of stakeholders—water agencies, utilities, Alameda County, and citizens—that are working to remove obstacles to fish migration. Volunteers regularly help move steelhead over barriers and conduct restoration and outreach activities. • At the other end of the East Bay, the Friends of Alhambra Creek and the Alhambra Creek Watershed Council are also actively conducting restoration and public outreach projects, partnering with the Contra Costa County RCD and public works agencies. These two watershed groups are representative of the activities of many others throughout the Estuary watershed. • The Bay Institute completed a 2005 Ecological Scorecard. • www.yourwetalnds.org offers podcasts about the Estuary.	• Consistent funding for non-profits and grassroots groups would greatly help these efforts. • There is no one central clearinghouse for sharing resources about the Estuary. • A new visitor's center was built at Rush Ranch. • In the past 2 years the Oakland Museum has produced watershed maps for the South Bay, San Francisco and the Richmond area.	• Pier 39 may become a Bay-side aquarium operated in part by The Bay Institute. • Friends of the Estuary could partner with other environmental groups to produce outreach materials. * We still need to do better outreach with disadvantaged communities.



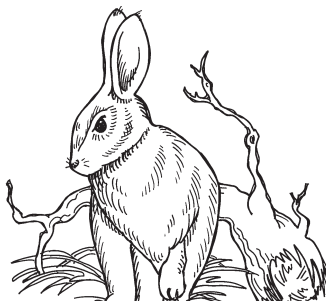




PRIORITY 5.

Increase public interaction with the Estuary's natural resources while encouraging stewardship, promoting the values of ecological processes, and educating the public about the effects of human activities on 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
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.	• Until recently, the Estuary Project has continued to offer a small grants program through an allocation from the U.S. EPA, under which local governments, citizens, and non-profits could apply for projects that work to restore the Estuary and surrounding habitat. However, see "Roadblocks." • For the past year and a half the broad Estuary community has been meeting to update the 1993 CCMP. Representatives from the Delta area, from CALFED, from all regions around the Bay, from environmental groups and regulatory agencies have participated. Invitations and meeting dates have been posted regularly in ESTUARY newsletter.	• In 2005-2006, the Estuary Project awarded $107,878 to 16 community and other groups for projects that enhanced the Estuary, and awarded $90,000 toward 17 projects in 2006-2007. • An updated CCMP will be presented at the October 2007 State of the Estuary conference.	• The Estuary Project's budget was cut by $100,000, so the Small Grants Program was cut for 2007.	• Funding looks better for 2008. • The Coastal Conservancy released the first of two RFPs for hands-on, community based habitat restoration efforts and will be funding approximately 15-30 projects over the next five years using Prop 84 dollars.
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.	• The SFBJV website (www.sfbayjv.org) has a "Project Planning Tools" page, a "Grants Available" page, and a project database page that lists habitat projects by subregion 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 and the public. This website also provides links to online guidebooks and manuals about watershed assessment, invasive weed control, building local partnerships, and identifying the costs of habitat restoration projects. • A significant amount of information about the Estuary can be found at the Regional Monitoring Program web site (www.sfei.org/rmp) and the Clean Estuary Partnership Web site, (www.cleanestuary.org).	• The bi-monthly 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. The newsletter is also published on-line. ESTUARY newsletter is mailed bi-monthly to more than 3,000 decision-makers, scientists, and interested members of the public. • The biennial State of the Estuary Conference 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 in October 2007. • The 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. • A central 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. See: www.abag.ca.gov/bayarea/sfep/sfed.html • S.F. Estuary Institute's Wetlands Tracker can be updated by any user; maps of wetlands projects are available, see: www.wetlandtracker.org.	• Consistent and adequate funding for some of these programs is lacking; the U.S. EPA recently cut the budget for the National Estuary Program.	



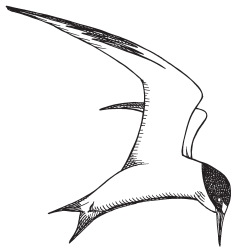
PRIORITY 5.

Increase public interaction with the Estuary's natural resources while encouraging stewardship, promoting the values of ecological processes, and educating the public about the effects of human activities on the Estuary.

Action

LAND USE 4.1.

Educate the public about how human actions affect the Estuary.



Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- Many non-profits—Save the Bay, The Bay Institute's STRAW program, the Watershed Project, Urban Creeks Council, Kids for the Bay, and Friends of the Estuary, through Creek Keepers—are working hands on with the public, guiding people in environmental restoration programs that also teach them how their actions affect the Estuary and its water quality. These non-profits—and citizens' "friends of" creek groups—are increasingly partnering with local governments in watershed planning and restoration projects.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

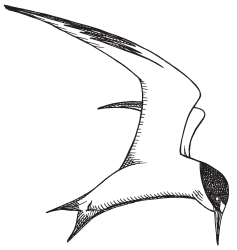
- Save the Bay has a new ad campaign to educate Bay residents about pollution from their homes, cars, and neighborhoods. The ads feature different species of wildlife polluting human environments (i.e., a leopard shark dumping motor oil into an office water cooler), with the theme of "they don't do it to you."
- Over the past two years, ESTUARY newsletter has covered topics including climate change, water diversions, restoration, politics and planning, legacy and emerging pollutants, invasive species, and land use. In 2006, Friends of the Estuary published special inserts on two very different watersheds, Alameda Creek and Alhambra Creek, featuring the work being done and the challenges faced by local groups in restoring their watersheds.
- In October 2005, the Estuary Project sponsored the 2005 State of the Estuary conference; a 92-page report, "State of the San Francisco Bay-Delta Estuary 2006: Science & Stewardship" was published in the summer of 2006.
- Bay Nature educates the general public about the natural history of the Estuary and its watershed, and many non-profits and most "friends of" creek groups also publish regular newsletters with the goal of educating the public about how their actions affect the Bay.
- The Contra Costa County RCD has partnered with the Natural Heritage Institute and the Delta Science Center since 2004 to conduct education and outreach in the rapidly urbanizing Marsh Creek Watershed (Brentwood/Oakley area). Highlights include (1) Conducting educational creek walks to count spawning Chinook salmon in Marsh Creek. (These walks also build support for the future installation of a fish ladder to help the salmon migrate farther up the creek.) (2) Rallying over 500 residents to turn out for the annual Marsh Creek Clean-up event. (3) Initiating and supporting a Friends of Marsh Creek Watershed group that is active in watershed education, planning and monitoring.
- The Contra Costa County RCD also took watershed education to the schools. A pilot project of curriculum materials tailored for the Marsh Creek Watershed was conducted with two third-grade classes. Each class had a "field site" nearby where they could experience hands-on learning about the riparian corridor or the Delta wetlands. Lessons included class visits and field expeditions with local experts from East Bay Regional Parks District, UC Berkeley and their city's Clean Water Program Managers. The project culminated in each class writing a booklet on the ecosystem they studied, with tips for pollution prevention. Approximately 300 booklets were printed and distributed to schools, libraries, the school boards, city councils, and the community.
- SFBJV has podcasts and audio tours at www.yourwetlands.org. Recent podcasts launched in June 2007 received 17,000 hits.
- Between 2005 and 2007, the Santa Clara Basin Watershed Management Initiative Land Use Subgroup has led three sessions educating planners, developers, and other interested parties from the South Bay on the effects development has on creeks, and best practices for stormwater management in development projects. The trainings included presentations on creek geomorphology, historical and aquatic ecology, green community design, and walking tours of a healthy riparian area along Coyote Creek, the Guadalupe River in downtown San Jose, and baylands in Don Edwards Wildlife Refuge in Alviso. The trainings were designed to enable the development community to understand firsthand the wide range of natural communities affected by development projects and urban stormwater runoff.

Current Gaps & Roadblocks

- Many non-profits doing environmental education and restoration work around the Bay have no secure source of long-term funding for operating support.
- Local creek and watershed groups need consistent, ongoing funding to help them get organized, stay organized, and conduct workdays and restoration events.

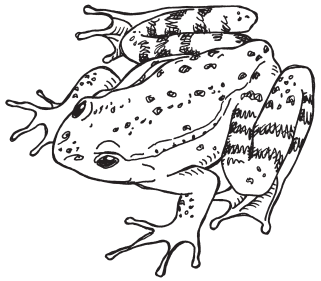
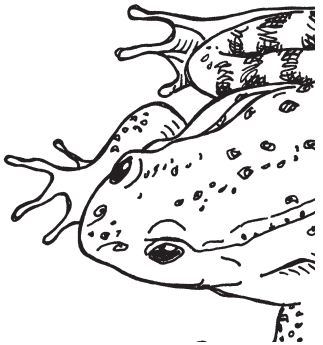
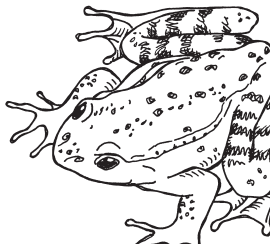
Ideas & Opportunities for Further Progress

- Increasingly, the public is learning about the Estuary while experiencing it via the Bay Trail—or some other hands-on activity.
- BCDC has completed three public access documents aimed at enhancing shoreline access while providing for the protection of Bay resources, regional livability and local economic prosperity. The set of design guidelines includes "Shoreline Spaces: Public Access Design Guidelines for the San Francisco Bay;" "Shoreline Signs: Public Access Signage Guidelines," and "Shoreline Plants: A Landscape Guide for the San Francisco Bay." BCDC also completed an update to the San Francisco Bay Plan recreation policies.
- Ongoing public access projects include: 1) The Bay Area Water Trail planning effort; 2) collaboration with the Coastal Conservancy and resource agencies to develop the public access component of the South Bay Salt Ponds Project and 3) exploration of ways to protect existing and proposed public access from potential impacts from sea level rise.
- A new documentary on how the Bay was "saved" is in the works.



PRIORITY 6.

Continue, sustain and expand the regional monitoring program to address all key CCMP issues including pollution, wetlands (including mitigation measures), watersheds, dredging and sediment transport, biological resources, and land use and flows, and integrate scientific monitoring results 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.	• The Regional Monitoring Program (RMP) continues to be the primary source of information used to evaluate chemical contamination in the Bay. It is a collaborative effort between SFEI, the S.F. Regional Board, and the regulated discharger community. In the RMP, financial resources (currently $3 million per year) from the discharger community are pooled and applied toward understanding contaminant impacts on beneficial uses of the Bay. • The Wetlands Regional Monitoring Program (WRMP) released its program plan in 2002. The plan presents a scientific framework and draft monitoring protocols for the WRMP, which aims to provide the scientific understanding necessary to protect, create, restore, and enhance wetlands of the S.F. Bay region through objective and cost-effective monitoring, research, and communication.	• The RMP has just been selected to be a pilot project for the National Water Quality Monitoring Network by EPA, NOAA, and USGS. RMP's two recent outreach workshops on mercury and polynuclear aromatic hydrocarbons were both attended by about 80 area managers and scientists working on adaptive management strategies to address these contaminants. • Participants in the S.F. Bay Area Wetlands Restoration Program's Wetlands Monitoring Group have been involved in the following regional monitoring efforts: - The National Wetlands Inventory (NWI), a nationwide wetlands mapping effort, has linked up with the California Resources Agency Legacy Project, and a statewide wetlands mapping effort is now underway. SFEI is the Bay Area regional partner for the effort. Quad sheets for Napa, Marin, and the South Bay have been digitized, and the remainder of the inventory will be completed in mid-2008. - The California Rapid Assessment Method for wetlands (CRAM) has been developed and tested at 100 sites in the Bay Area to assess the status and trends of wetlands ecosystems and their stressors, measure the progress and effects of wetland projects, assess the efficacy of management actions, and otherwise account for the public investment in wetlands. Detailed assessments of using biosentinels to track wetland contamination status will also be assessed in 2007.		 

PRIORITY 6.

Continue, sustain and expand the regional monitoring program to address all key CCMP issues including pollution, wetlands (including mitigation measures), watersheds, dredging and sediment transport, biological resources, and land use and flows, and integrate scientific monitoring results into management and regulatory actions.

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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.		• The S.F. Bay Regional Board's Surface Water Ambient Monitoring Program (SWAMP) has monitored bioaccumulation in fish from 10 reservoirs, and published a report of the findings. Along with the Office of Environmental Health Hazard Assessment (OEHHA) and East Bay Municipal Utility District (EBMUD), they developed advisories for those reservoirs and created signs and information to give to people on how to consume fish safely from those reservoirs; the reservoirs with contaminated fish were listed on the 303(d) list in 2006. • Starting in 2000, SWAMP has monitored water quality in 38 watersheds in the Bay Area as well as trash (see Pollution Prevention and Reduction section). Two reports on the first three years of sampling were published in June 2007. See www.waterboards.ca.gov/sanfranciscobay/monitoring.html	• Funding is an ongoing challenge, and the state has miles of coastline and streams, and over 9,000 lakes that need monitoring. Funding fluctuates from year to year, making it difficult to run a monitoring program.	• SWAMP is trying to develop a watershed monitoring coalition with stormwater agencies—SWAMP is probably going to be responsible for monitoring long-term trend sites, reference sites. and impacted sites, and sites with special significance like salmonid creeks. Other agencies can compare their data against the SWAMP data. • National and international experts reviewed the program and recommended that SWAMP put more money into a statewide program. The goal is to develop statewide monitoring to evaluate aquatic life in streams and to measure fish contamination in lakes. • Stormwater permits will be updated to require permittees to have SWAMP-comparable quality assurance, data formats, and methodology; this will hopefully encourage a collaborative process. • In 2007, SWAMP began a statewide program to measure contaminants in fish. Approximately 250 lakes will be sampled in 2007-08.

PRIORITY 7. Promulgate baseline inflow standards for San Francisco, San Pablo, and Suisun Bays to protect and restore the Estuary.

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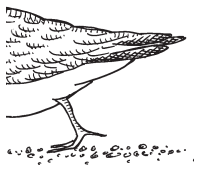
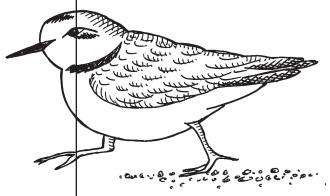
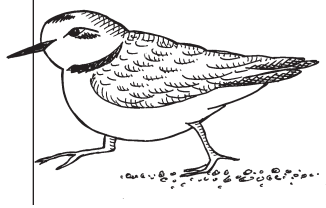
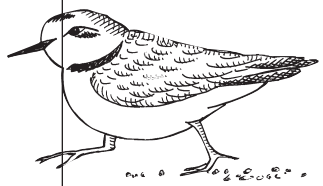
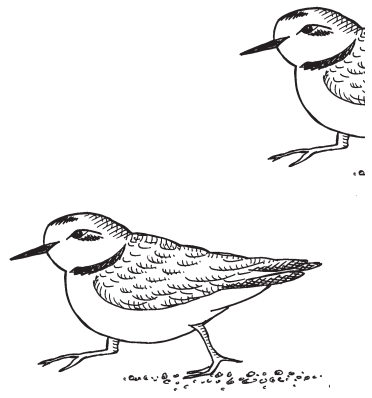
AQUATIC RESOURCES MANAGEMENT 4.1 Adopt water quality and flow standards and operational requirements designed to halt and reverse the decline of indigenous and desirable non-indigenous estuarine biota.	• In March, 2007, an Alameda County Superior Court judge told DWR to shut down its pumps within 60 days unless it could find a way to stop killing endangered species like the Delta smelt. See *On-the-Ground*, fourth bullet.	• Bipartisan legislation was introduced in early 2007 that would restore flows to the San Joaquin River below Friant Dam. The "San Joaquin River Restoration Settlement Act" is currently stalled over new congressional budget rules.	• There has been no progress on the Bay inflow standard. According to The Bay Institute, baseline flows have not been met in all years. • There has been a long-term decline in the Delta food web, a short-term decline in pelagic organisms, and an increased take of endangered species.	• Some experts suggest allowing the Delta to become more brackish, which might help control invasives.

PRIORITY 7. Promulgate baseline inflow standards for San Francisco, San Pablo, and Suisun Bays to protect and restore the Estuary.

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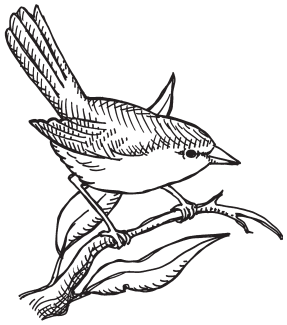
AQUATIC RESOURCES MANAGEMENT 5.1 Identify alternative long-term water quality and flow standards, water management measures, operational changes, habitat improvements and facilities as needed to manage estuarine aquatic resources (including water) for optimum benefit.	• The Environmental Water Account (EWA) is one of CALFED's water management tools for protecting and restoring at-risk native fish species of the Delta. The EWA is based on the concept that flexible water management can achieve fish and ecosystem benefits. To date, it has been used mostly to reduce the impact of State Water Project (SWP) and Central Valley Project (CVP) operations in the Delta on Central Valley spring-run Chinook salmon, steelhead trout, Delta smelt, and Sacramento winter-run Chinook salmon. • The EWA is intended to reduce the conflict between fishery management and water supply. It began implementation in December 2000, and allows fisheries agencies to call for reductions in SWP/CVP pumping in order to contribute to the protection, restoration, and recovery of fish. The EWA buys water from willing sellers or diverts surplus water (operational asset) at times when fish are at lesser risk, and uses that water to replace project water supplies interrupted by export reductions undertaken to protect fish. • BurRec sponsors an informal group of professionals from various federal, state, local, and private sector agencies called the American River Operations Group (AROG). AROG's goals are to manage: (1) Folsom Reservoir and water storage, (2) the Folsom Reservoir coldwater pool and (3) the temperature control shutters on the Folsom Dam.	• In the past 6 years, the EWA has helped to reduce the direct adverse effects of water exports on Delta fish and to maintain SWP and CVP water supply reliability. The EWA has provided approximately 1.5 million acre-feet (AF) of water (purchased and operational assets) for fish protection measures without reducing water deliveries to SWP/CVP users. • Since the EWA Program's inception, the EWA Implementing Agencies have worked collaboratively together to modify EWA's operations in response to real-time conditions, but still remain consistent with the CALFED ROD's concept of functional equivalency. According to the CALFED ROD, the EWA was expected to acquire (via purchased and operational [variable] assets) an average of 380,000 AF of water each year. However, the actual total combined amount of water obtained annually from purchases and operational changes varies considerably from year to year depending on hydrology and fish behavior. Over the past 6 years, the EWA Implementing Agencies have obtained a total average annual amount of approximately 260,000 AF of water for fish protection purposes with total yearly assets ranging from 70,000 AF in 2006 to nearly 370,000 AF in 2001. (In 2006, the EWA Agencies did not take many actions due to unusually wet hydrology, and water assets that were under contract were not needed, and thus were not called.) EWA's operation is not static, but rather very dynamic due to ever changing hydrologic conditions and fish behavioral patterns. • In March 2007, Alameda County Superior Court Judge Frank Roesch gave state water managers 60 days to find a way to stop killing endangered fish in the Delta pumps. The ruling was made in response to a 2006 lawsuit brought by the California Sportfishing Protection Alliance against the California Resources Agency, which oversees DWR and the State Water Project, alleging that the way the pumps are being operated is violating the California Endangered Species Act and state Fish & Game codes. Although DWR had contended that it was immune from those laws due to agreements it had made with Fish & Game, the judge disagreed, stating that the agreements did not constitute a permit to kill salmon and smelt. DWR appealed, and is now working on updating a biological opinion that will become the basis for new permits.	• The pelagic organism decline continues. • According to the 2006 EWA Technical Review Panel's (Panel) Report (January 2007), over the past 6 years the EWA has consistently achieved its water supply reliability benefits, but the program's benefits to at-risk native fish species remain unquantified. Furthermore, the Panel questioned whether EWA's fish protective actions have targeted the most critical life stages and whether SWP/CVP pumping was reduced sufficiently in magnitude and duration to produce a detectable effect. For example, recent actions intended to protect the Delta smelt have not resulted in detectable population-level effects. • Intensive research is going on to try to determine the causes behind the recent decline in pelagic organisms in the upper Estuary of the Delta and has focused on three broad potential causes: a) the amount and timing of water exports, b) toxics (from both point and non-point sources), and c) invasive species (e.g., fish, invertebrates and aquatic plants such as Egeria). Preliminary results from this research are expected in early 2008. 	• The Delta Vision process is an attempt to balance water supply needs with fixing the ecosystem. • In 2007, new scientific information is being applied by using EWA assets to manage flow velocities in Delta channels to reduce the entrainment of Delta smelt at the pumps. • In the past couple of years the Water Forum Successor Effort has worked on developing improved flow standards for fisheries in the Lower American River. The new standards are expected to be submitted to the State Board in early 2008. As part of finalizing the flow management standard, BurRec and other agencies will establish a river management process for the Folsom Reservoir and Lower American River operations and monitor, evaluate, and report on the resulting hydrological and biological conditions. • An updated flow standard for the Lower American River is being developed and a draft may be available in late 2007. Hydrologic models have been run and meetings with stakeholders continue to take place. • The Alameda Creek Fisheries Restoration Workgroup, a multi-agency stakeholder group that formed in 1999, has recently signed a Memorandum of Understanding that outlines the process for conducting flow studies to estimate the range, magnitude, timing, duration, frequency and location of flows necessary to restore steelhead (while also considering other native fishes and riparian communities) in the Alameda Creek watershed while minimizing the potential impacts to water supply. The first phase of the flow studies is expected to be finalized by September 2007 and will result in a detailed collaborative plan for the work necessary to estimate instream flow needs to support steelhead and recommend additional data necessary to characterize existing conditions in the watershed. The second phase is implementation of this study plan, and the third and final phase includes the development and analysis of specific alternatives to restore and support steelhead.

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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.				
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.	• Implementation is contingent upon completion of a plan, environmental compliance, and a decision to proceed.			
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.		• In August 2004, federal judge Lawrence Karlton had ruled that BurRec's operation of Friant Dam violated state and federal laws protecting fisheries—more than 95 percent of the river's flow is diverted for irrigation in the San Joaquin Valley. In September, after some water users complained they had been left out of the settlement—and threatened to derail it—Sen. Dianne Feinstein (D-Calif.) reconvened negotiations in Washington, D.C., and managed to reach a bipartisan agreement. Before restoration can begin, Congress will be asked to sign legislation authorizing the work, at a cost estimated between $600 million to $700 million. In early 2007, Representative George Radanovich and Senator Feinstein introduced a San Joaquin River bill authorizing $250 million from Congress for channel improvements to the river before flows are restored.	• Global climate change may raise temperatures in Central Valley streams, making them inhospitable or even lethal to salmon and steelhead. Warmer temperatures may cause predators to be more successful; small streams could dry up altogether. With more intense storms, redds could be scoured and destroyed; and heavier storms could affect smolt migration and sediment processes in streams. Warmer weather could also delay spawning. • With the state's population predicted to increase by 11 million new residents by 2030—close to a third of whom will likely live in the San Joaquin Valley—fish will be competing with humans for water, especially if the most heavily irrigated "crop" in the United States—lawns—replaces farm land.	

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AQUATIC RESOURCES MANAGEMENT 6.2 Implement the Upper Sacramento River Management Plan.	• The Upper Sacramento River Fisheries and Riparian Habitat Management Plan (SB1086) has largely been incorporated into the plans and actions of major programs and agencies. Through CVPIA, CALFED, and other programs, U.S. Fish & Wildlife and Fish & Game have successfully completed or are in the process of implementing virtually every fishery restoration element of the SB1086 Plan. The more difficult part of the Plan, which deals with long-term sustainability of the river's riparian ecosystem, continues to develop and evolve. • The Sacramento River Conservation Area Handbook is the glue that holds the current Sacramento River Program together. The conceptual foundation of Sacramento River restoration embodied in the Handbook is to treat the River and its tributaries as both a natural and cultural system. The Handbook has gone through numerous updates and revisions since the early 1990's. The latest version (2003) www.sacramentoriver.ca.gov/publications/handbook/handbook.html can be found on the Sacramento River Conservation Areas Forum website www.sacramentoriver.ca.gov/index.html.	• A recent significant milestone obtained by the Forum was the approval and adoption of a Good Neighbor Policy. This policy document, developed over a decade of discussions and negotiations, describes the concerns of both landowners and agencies over the coexistence and perceived incompatibilities of farming and habitat conservation on adjacent properties and outlines the process to address each of their concerns. • The Hamilton City Flood Damage Reduction and Ecosystem Restoration Feasibility Study, which is moving forward with an alternative that combines flood damage reduction and ecosystem restoration near the small town of Hamilton City on the Sacramento River, is now in the design phase. The project will entail removing the existing levee that runs along the river's edge and constructing a new 6.5 mile levee up to 1,500' away from the river's edge. About 1,500 acres of land between the new levee and the river, purchased from farmers and other land owners, will be restored to fish and wildlife habitat. Levee construction is planned for 2008, and restoration will take place in 2008 and 2009.	• There is a perception on the part of some members of the public that setback levees and restoration will take away private property and make it public property.	• DWR is reintroducing some of its setback levee projects as part of a "plan for flood protection," which seems to go over better with some people who are worried about private property rights. This is leading to projects like the Bear River setback levee and habitat restoration.
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.	See On the Ground 	• The San Joaquin River below Friant Dam may soon be a better place for fish as a result of the settlement of an 18-year old lawsuit by enviros seeking better flows. In August 2004, federal judge Lawrence Karlton had ruled that BurRec's operation of Friant Dam violated state and federal laws protecting fisheries—more than 95 percent of the river's flow is diverted for irrigation in the San Joaquin Valley. In September, after some water users complained they had been left out of the settlement—and threatened to derail it—Sen. Dianne Feinstein (D-Calif.) reconvened negotiations in Washington, D.C., and managed to reach a bipartisan agreement. Before restoration can begin, Congress will be asked to sign legislation authorizing the work, at a cost estimated between $600 million to $700 million. In early 2007, Representative George Radanovich and Senator Feinstein introduced a San Joaquin River bill authorizing $250 million from Congress for channel improvements to the river before flows are restored. The bill is stalled due to congressional budget issues. • Additional water would begin flowing in the fall of 2009 and salmon introduced by December 31, 2012 under the plan.	• Finding adequate funding is a challenge. • Farmers are worried that the river restoration will take too much of their water, which they estimate could cause them to lose $159 million annually. They also claim that groundwater levels could fall, pumping prices could rise, and hydroelectric power production could drop. They estimate in a 2005 study made public in 2007 that 51,300 acres could be taken out of agricultural production.	• The farmers' study does not fully account for the environmental and other benefits of a living river. If and when water begins flowing back into the river, and spring-run Chinook once again maneuver through its pools and riffles, the fish will likely be declared an "experimental population," in order to reassure private landowners along the river that their land will not suddenly be designated critical habitat. The salmon would join the "experimental" ranks of the California condor, Yellowstone area gray wolf, and Florida whooping crane. With an experimental designation for the fish, fishing, boating, farming, water supply, and hydroelectric projects would not be liable for accidental "take."

Check Up Team

Project Management
San Francisco Estuary Project
Marcia Brockbank

Editing
Lisa Owens Viani

Design
Darren Campeau
www.dcampeau.com

Illustration
Lisa Krieshok
www. krieshok.com

San Francisco Estuary Project
1515 Clay Street, #1400
Oakland, CA 94612