BAY–DELTA ENVIRONMENTAL REPORT CARD

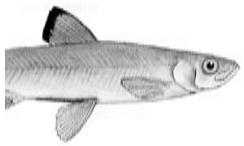
San Francisco Estuary Project

CCMP Workbook

October 2005

COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN IMPLEMENTATION PROGRESS 2003 - 2005

INTRODUCTION & SUMMARY



How does a dynamic ecosystem like the S.F. Bay Delta Estuary—where the state's major rivers merge with the waters of the Pacific Ocean—meet the needs of fish, wildlife, and Bay Area residents and all of their associated activities? Each day around the Bay, millions of people fill their drinking glasses and bathtubs, flush their toilets, wash their cars, and water lawns and gardens with water from the state's rivers. Industries and municipalities use that same river water to cool and clean equipment and facilities, then collect, recycle, treat, and discharge their wastewater into the Bay. Portside, ships arrive from afar carrying cargoes and ballast water—and along with it, exotic species that sometimes invade the Bay. In rural areas, farmers irrigate crops and water their livestock. This water comes to all of us via the big dams that hold back and collect river water, and the pumps and canals that convey it to homes, businesses, and farms throughout the state. Droughts and heavy rain years make managing the system even trickier. For management is what it takes in this day and age—to keep fish populations healthy, marshes wet, and the thirst of millions quenched. Add to those needs other issues like the pesticides and other pollutants that get washed into our creeks, rivers, and Bay, and management becomes even more challenging.

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

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

The CCMP, as coordinated by the San Francisco Estuary Project, 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 tallied progress on the original list of 145 actions, the second evaluated ten top priorities, and the third and fourth examined eight priorities (covering 35 CCMP actions) as revised during CCMP planning sessions. This report continues to examine progress on the eight priorities decided at the August 2003 Report Card session (in which priorities one and two were combined into no. 1), based on participation by a wide array of interested parties at the August 5, 2005 Report Card session sponsored by the Estuary Project, as well as on comments and concerns received by phone and email. Participants at the August 5 meeting agreed to recommend to the Implementation Committee that task forces be convened to review and evaluate each of the CCMP program areas and the priorities discussed at the August 5 meeting before the next Report Card is due in two years. Participants also agreed that the basic structure of the CCMP should remain intact and that the process should build on the existing framework rather than starting from scratch.

Although the Report Card discusses wetlands progress in general, since there are now several comprehensive efforts to track wetlands restoration projects, we refer you (as we did in the last

TABLE OF CONTENTS

report) to the San Francisco Estuary Institute's online wetlands tracker (www.wetlandtracker.org) and Wetlands and Water Resources' database and maps at www.swampthing.org.

For the past several years, CALFED has been a major player in carrying out the goals of the CCMP, funneling millions of dollars into restoration projects and plans. Although we have included some of CALFED's studies and CALFED-funded projects in this Report Card, for a complete list, please see the CALFED Bay-Delta Program Annual Report 2004, CALFED's Work Plan for the San Francisco Bay Region, and/or http://calwater.ca.gov. Also, due to space constraints (our font size is as small as it can get!), this document is primarily restricted to activities and projects that are new since the last Report Card was published in 2003.

Evaluating progress on a watershed that drains 40 percent of a state as large as California is a Herculean task, and one "Report Card" cannot possibly encompass everything that has happened in the last two years. All caveats aside, several accomplishments stand out on these pages. Much land has been acquired around the Bay for wetland restoration (one of the CCMP's main goals), including 16,000 acres of South Bay salt ponds. The watershed movement is burgeoning as you can see from the examples of restoration projects, watershed councils, and creek groups bursting from these pages. Streams and rivers are finally catching up with wetlands in terms of the attention we give them, but more work is needed, including better land use planning, probably the category with the weakest grades. As moderator Larry Kolb of the S.F. Bay Regional Water Quality Control Board put it, our patterns of development—urbanization and suburbanization—are creating "mini-canyons" of our creeks, and we need to prevent ill-conceived development patterns that cause problems instead of trying to fix the damage after it has occurred.

As in our last report, the environmental education and outreach efforts taking place around the Bay are so numerous they are difficult to track—but that in itself is a measure of success. Yet at the August 5 meeting, the general consensus was that we need to do a lot more—including in our schools—to do a better job of making science make sense to the general public. Our strategies for dealing with pollution and urban runoff have also increased, but compared to other areas in the state as well as around the country we are clearly not leading the way in managing stormwater runoff, or even trash. And, as is all too obvious from the recent food web crash in the Delta, we need to deal with the continuing impacts that we — and our water exports — are having on the Bay-Delta Estuary.

Like any grading system, this "Report Card" is necessarily subjective. Use it as a gauge for your own critique and comments, and plan to attend the next "Report Card" session on the Bay in 2007.

ABBREVIATIONS

ABAG: Association of Bay Area Governments
Army Corps: United States Army Corps of Engineers
BACWA: Bay Area Clean Water Agencies
BASMAA: Bay Area Stormwater Management Agencies Association
BCDC: San Francisco Bay Conservation and Development Commission
BurRec: United States Bureau of Reclamation
CALFED: CALFED Bay-Delta Program
Cal Fish & Game: California Department of Fish and Game
Central Valley Regional Board: Central Valley Regional Water Quality Control Board
Coastal Conservancy: California State Coastal Conservancy
DWR: Department of Water Resources
ESA: Federal Endangered Species Act
EPA: United States Environmental Protection Agency
NOAA: National Oceanic and Atmospheric Administration
S.F. Estuary Institute: San Francisco Estuary Institute
S.F. Estuary Project or 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
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

SUBSTANTIVE

WETLANDS MANAGEMENT 1.1

Prepare Regional Wetlands Management Plan(s).

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- Under the direction of the Coastal Conservancy, Dept. of Fish and Game and U.S. Fish and Wildlife Service, the consultant team for the South Bay Salt Ponds Restoration Project published several reports in 2004: Data Summary, Existing Conditions, Opportunities and Constraints, Initial Stewardship Plan, Mercury Technical Memorandum, Preliminary Program Alternatives, 2004 Annual Self-Monitoring Program Report. See: www.southbayrestoration.org
- The Coastal Conservancy published an article in *Bay Nature Magazine* that provides a project overview: South Bay Challenge: Reclaiming the Salt Ponds for People and Nature (December 2004).
- NOAA, BCDC, and the Coastal Conservancy are leading a subtidal goals project that will begin to seek stakeholder involvement to develop science-based goals for the management, enhancement, and restoration of subtidal habitat, including eelgrass and native oyster beds.
- The California Ocean Protection Council and the Coastal Conservancy are developing a native oyster restoration plan for the Bay.
- The Bay Area Regional Water Management Plan is being developed through funding by the Coastal Conservancy and work by ABAG and others and will make the Bay Area eligible for funding under Prop 50.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- For a comprehensive list of wetland restoration projects that have been implemented around the Bay, see the database and maps compiled by Wetlands and Water Resources at www.swampthing.org
- See also www.wetlandtracker.org published by S.F.EI. Major projects include the Cargill salt pond acquistion, Bair Island in the South Bay, Bahia wetlands in the North Bay, and restoration projects on Petaluma Marsh, Triangle Marsh, and Simmons Slough.

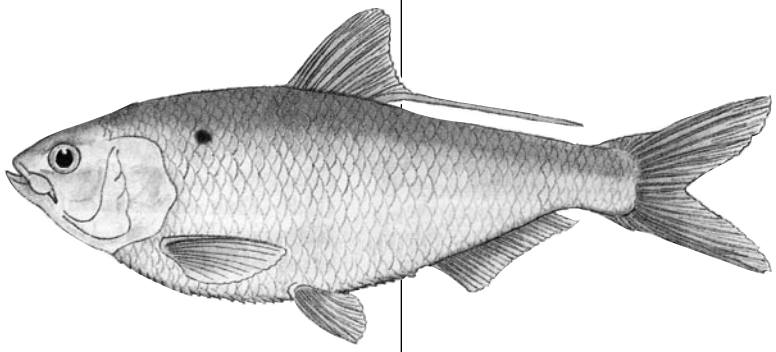
  Another tracker provided by the San Francisco Estuary Institute provides a map of historic wetlands and a more current wetlands map. See: www.sfei.org/ecoatlas The San Francisco Joint Venture's wetlands tracker shows the progress of all the projects it is involved in and lists projects in a GIS-based system. See: www.sfbayjv.org.
- CALFED has completed a regional implementation plan for the Bay region that includes eight restoration priorities. It has funded wetlands restoration projects in the North Bay including Hamilton Air Force Base-Bel Marin Keys, Napa River salt ponds, and Cullinan Ranch, and Cargill salt pond restoration in the South Bay. For more information on CALFED's extensive activities and accomplishments, see the CALFED Bay-Delta Program Annual Report 2003, http://calwater.ca.gov.
- In 2004 the implementing agencies for CALFED's Ecosystem Restoration and Watershed Program completed an assessment of progress towards achieving the program's milestones. Progress was sufficient to allow the agencies to continue coverage of the entire program under the state and federal Endangered Species Acts. CALFED completed Mercury Strategy for the Bay-Delta Ecosystem: A Unifying Framework for Science, Adaptive Management, and Ecological Restoration and invested $30 million in scientific research on mercury and its effects. Also in 2004, CALFED invested about $25 million in 35 new community-based projects to address wetlands restoration, watershed health, non-point pollution sources and drinking water quality.
- The *Design Guidelines for Tidal Wetland Restoration in SF Bay* was produced by the Bay Institute and consultants with funding by the Coastal Conservancy and will evaluate and document restoration results in SF Bay as well as give guidelines for future projects.

Current Gaps & Roadblocks

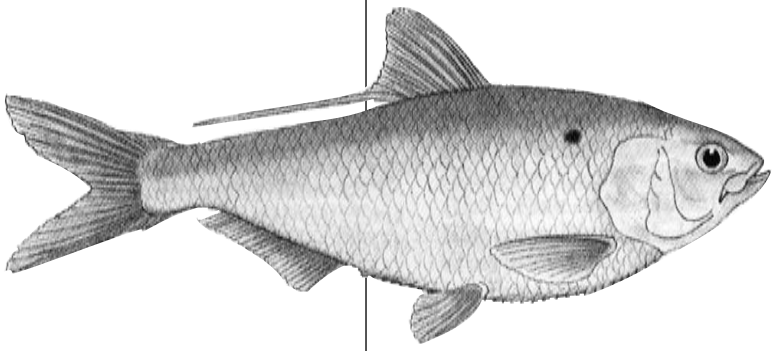
- There are often conflicts among regulatory agencies.
- The Bay may have a sediment deficit, making restoration of subsided ponds tricky.
- There can be a conflict between wetland creation and water supply—carbon and chlorine can combine to create trichloromethanes, a carcinogenic pollutant.
- Researchers for the South Bay Salt Ponds are concerned that mercury deposits may form methyl mercury as the salt ponds are restored. The researchers do not yet understand the conditions that cause mercury to turn into methyl mercury, but as they learn more, they'll revise the salt pond restoration plans.
- Another concern is the spread of invasive species, such as *Spartina alterniflora*, which can take over newly restored sites. However, the Conservancy is leading an eradication effort expected to wipe out this invasion by 2007.
- A number of wetlands restoration programs have been terminated due to funding shortages including: 1) National Audubon Society's Bay Restoration Program, which educated the public and secured funding to acquire and restore baylands. 2) U.S. Fish and Wildlife's Marin Baylands National Wildlife Refuge.
- Preparation of the California Aquatic Invasive Species Management Plan, which SB 1573 required the Cal Fish and Game to prepare and report to the legislature on by January 2004, is on hold.

Ideas & Opportunities for Further Progress

- The Bay Institute is updating its Ecological Scorecard, which will track and evaluate which wetland restoration projects have actually been completed. The Institute is also suggesting ways to improve the wetlands databases that exist.
- The South Bay Salt Pond long-term planning team seeks stakeholder consensus on project alternatives and Phase 1. By December there will be a preliminary monitoring and adaptive management plan for public review.



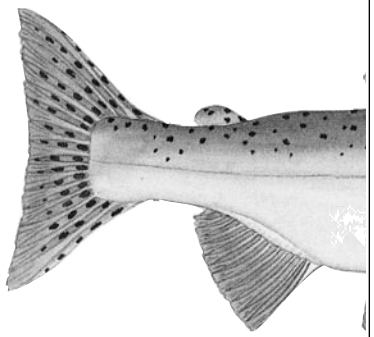
Threadfin shad

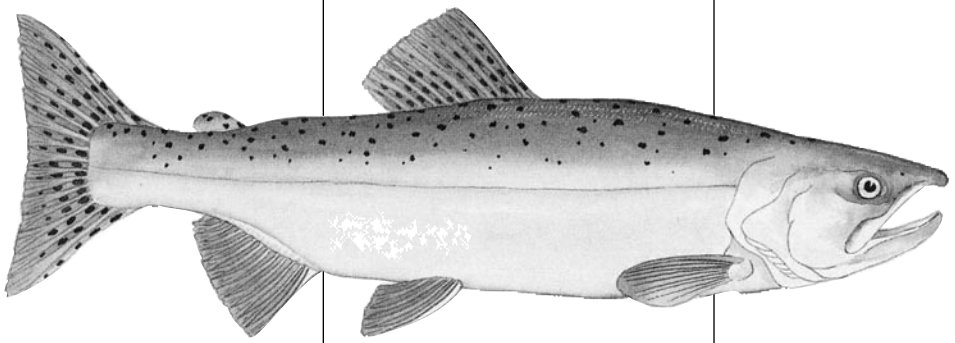


PRIORITY 1.

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
MODERATE **WETLANDS MANAGEMENT 2.1.3** Establish an implementation program to achieve wetlands protection policies.	• The S.F. Joint Venture will probably take over the San Francisco Bay Area Wetlands Restoration Program's functions. Founded in 2002, it is a partnership of public agencies involved in implementing wetlands actions under the CCMP and the broad recommendations in the Habitat Goals report. The program aims to improve interagency communication and coordination; improve projects through early review of design concepts (before they reach permitting); reduce delays and projects costs; and foster greater understanding and accountability through design review and improved monitoring. • The Program's Design Review Group (DRG) reviews proposed restoration and mitigation projects to make sure project proponents have carefully considered all of the issues involved in a successful restoration project. Over the past couple of years, the DRG has reviewed wetlands projects at: Big Lagoon Creek, Napa Plant Site, Bahia Tidal Wetlands, Bahia Lagoon, Coyote Hills, Lake Merritt Marsh, Crissy Field and Breuner Marsh. • The WRP's monitoring group determines how to best monitor individual projects as well as the overall health of Bay wetlands ecosystems. Working with S.F.E.I, the Army Corps, BCDC and other organizations, it is preparing a wetlands tracker that will include a map of mitigation projects. The Monitoring Group also advises on monitoring efforts related to some major projects including North Bay Salt Ponds, Sonoma Baylands and the 70-acre MLK Project at Oakland Airport. In addition, this group is studying wetlands monitoring assessment methods and helping to develop the ecological scorecard for the Bay-Delta area. • BCDC is now working on a number of projects related to estuary and wetlands protection: 1) a Bay Plan Recreation policy update that will address habitat issues in shoreline parks; 2) a salt pond policy update; 3) a report and recommended Bay Plan policy on desalination; and 4) with NOAA Fisheries, a subtidal habitat resources goals project. • The S.F. Bay Joint Venture helps secure funding for habitat projects through the Bay Area, including in watersheds and wetland areas.	• The Marin Audubon Society and Marin Baylands Advocates have launched the "Save Marin Baylands Campaign" to acquire and permanently protect tidal wetlands and diked baylands that are in private ownership.	• New guidelines under the Clean Water Act as set forth by the Bush Administration may mean less protection for wetlands, especially seasonal wetlands and intermittent creeks. • Despite good regulations prohibiting the fill of creeks, we continue to lose streams and their riparian habitat around the Bay to development and construction of housing subdivisions and golf courses. Regulatory agencies have not succeeded in completely stopping the fill, and serious questions remain about whether or not mitigation can every really replace what has been lost. • Funding for the Wetlands Restoration Program is uncertain.	





Pink salmon

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

SOME

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

- For the past 10 years, the Point Reyes Bird Observatory (PRBO) has monitored songbird use of restoration sites on the Sacramento River. For the South Bay Salt Ponds Restoration, PRBO applied a habitat conversion model to see how habitat changes might affect bird species at the ponds including migratory shorebirds, water fowl, and resident species.
- The Central Valley Joint Venture is updating their implementation plan to include objectives to support a variety of bird groups; the plan's focus is the Delta area.
- The Suisun Marsh Working Group, made up of Fish and Game, US Fish and Wildlife, Water Resources, BurRec and the Suisun Resource Conservation District, is preparing a habitat management plan for Suisun Marsh. CALFED provided funding to the Suisun Resource Conservation District to update the management plans for the many duck clubs that use Suisun Marsh. Expected to benefit the marsh's wildlife habitat, these plans will be approved by BCDC in the summer of 2005.
- The Interagency Aquatic Invasives Task Force is preparing a statewide plan.
- The State Lands commission recently adopted regulations to implement legislation to reduce introductions of invasives from ballast water.
- The Coastal Conservancy and SFEP funded SFEI to conduct a rapid assessment survey of exotics in the Bay to identify new invasives so that management can be planned.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

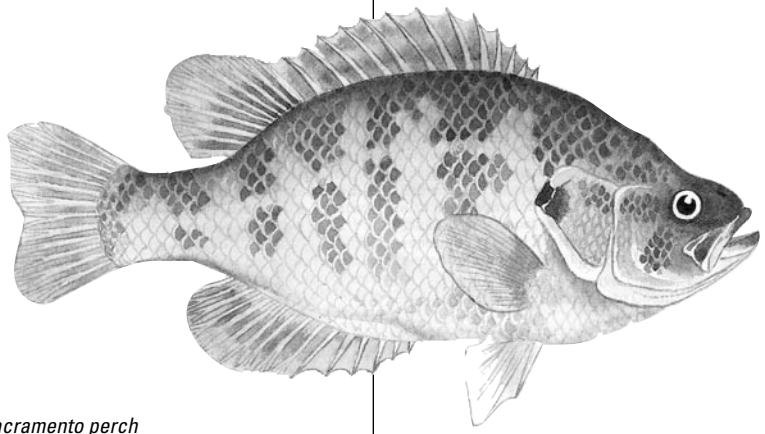
- The Department of Water Resources and the California Department of Fish and Game issued a joint Bulletin 250 on the challenges, opportunities, successes, and problems with fish passage in Central and Northern California watersheds. The document inventories culverts, dams, dredging ponds, and other barriers to anadromous fish. DWR and the Department of Fish and Game will use the bulletin in their on-the-ground efforts to improve fish passage.
- If passed, SB 482, introduced this year by Senator Keuhl, will provide funds to agencies constructing projects on California waterways to make sure the projects do not hinder or prevent fish passage.
- NOAA Fisheries has declared the Bay essential fish habitat, since it supports commercial fisheries populations. As a result, NOAA has initiated several restoration projects, including native oyster restoration in Richardson Bay and eelgrass restoration projects in the Bay. It is reviewing dredging activities and assessing activities at ports and marinas to identify opportunities for reducing adverse impacts on essential fish habitat.
- The Nature Conservancy, River Partners, Bureau of Reclamation, and Fish and Wildlife Service are adapting the way they manage their lands along the river to maximize habitat and species diversity, based on the results of PRBO's monitoring
- The San Francisquito Watershed Council's Steelhead Task Force is improving steelhead trout migration throughout the watershed by developing and implementing projects to modify or remove barriers to fish passage. In Berkeley, the Codornices Creek Watershed Action Plan is in the midst of a similar effort.
- In spring 2004, the USDA imposed a 60-day statewide quarantine on all nurseries that ship plants that are potential hosts for Sudden Oak Death (SOD).
- Ongoing efforts to control and eradicate non-natives like *Arundo donax* will help enhance biodiversity.
- The Coastal Conservancy and Napa County are funding design of restoration of a 4.5 mile stretch of the Napa River, where private landowners in the Rutherford region have led impressive efforts to improve the biodiversity of this riparian area and reconnect the incised channel to its floodplain.

Current Gaps & Roadblocks

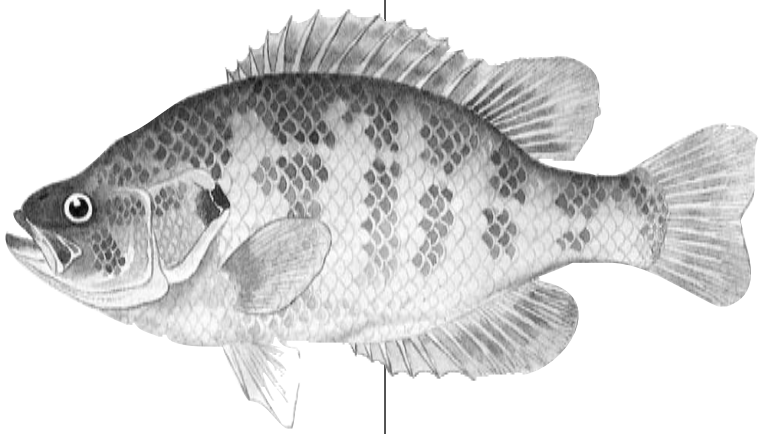
- Dredging is still an issue. There are windows of time that must be taken into account—i.e., when dredging should not occur—to protect endangered species in the Bay.
- Enforcement of certain regulatory programs — such as the Endangered Species Act— is sometimes a problem.
- In 2004, NOAA Fisheries revised critical fish habitat designations, reducing them by 80% compared to what the Clinton Administration had set aside in 2000. These critical areas affect 19 types of West Coast salmon and steelhead.
- The new draft Federal Salmon Plan proposes to protect endangered fish by trucking them around dams and installing fish ladders to help juvenile salmon avoid obstacles on their journeys to the ocean.
- Studies are showing that trucking fish around barriers does not work.
- There is intense pressure to alter the existing fish windows for dredging, which alarms many resource managers.
- Ballast water hull fouling causes serious threats to biodiversity by introducing invasive species.
- Preparation of a comprehensive aquatic invasives management plan has been stalled.

Ideas & Opportunities for Further Progress

- Along with establishing sediment TMDLs (see Priority 4), the S.F. Regional Board is exploring mechanisms for enhancing instream flow, improving canopies, and removing fish migration barriers as additional methods for restoring fisheries.
- The emphasis on trucking needs to be changed.
- Federal legislation introduced by Boxer would further manage ballast water to reduce invasives.
- Careful use of fire could enhance biodiversity in grasslands, etc.



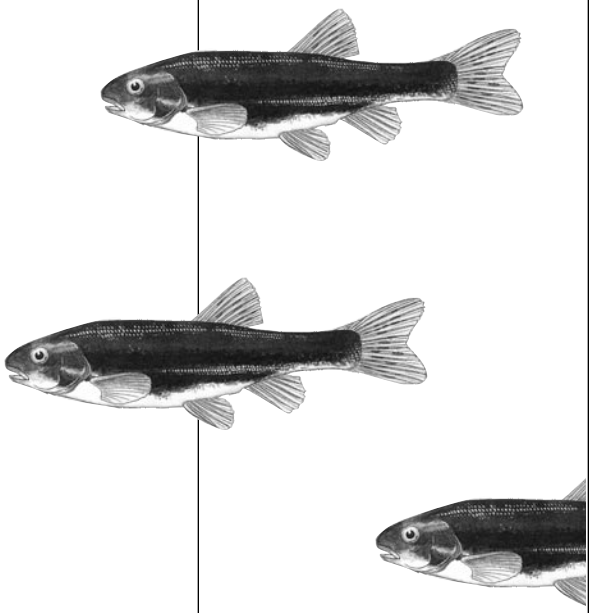
Sacramento perch



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
SUBSTANTIVE **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.	• Several San Jose neighborhood community groups have expressed interest in restoration projects. For example, the West Evergreen neighborhood aims to convert what is now an open drainage ditch to a true segment of Silver Creek using funds from the Strong Neighborhood Initiative. • Restoration and adaptive management planning are being undertaken collaboratively by the Coastal Conservancy, DWR, CALFED, and the Natural Heritage Institute at Dutch Slough in Contra Costa County. See www.dutchslough.org. • California State Parks Foundation is preparing detailed designs and CEQA documents for restoring 34 acres of formal tidal wetlands along Yosemite Creek with funds from Coastal Conservancy. • Marin Audubon received funds from Coastal Conservancy, CalTrans, and BCDC to restore 2 acres of tidal marsh at Triangle Marsh and 102 acres along the Petaluma River.	• 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 San Francisco Bay Joint Venture'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). • About 2,800 acres of former wetlands at Bair Island were acquired by the U.S. Fish & Wildlife and the California Wildlife Conservation Board. About half of this area is wetlands while the remaining half (salt pond) is scheduled to be restored to tidal action in 2006. • With funding from the Trust for Public Land and the San Francisco Bay Fund (San Francisco Foundation), the Contra Costa County Public Works Department purchased a 126-acre parcel at the mouth of Walnut Creek known as the Pacheco Slough/Praxis property. This former tidal marsh was partially filled in 1973 as part of an Army Corps dredging project on Walnut Creek. In 2002, the122-acres surrounding this site, now called Pacheco Marsh, were acquired by Muir Heritage Land Trust, Contra Costa County Flood Control District and the East Bay Regional Park District. Goals for the property are to restore it to its historic tidal wetland flow and maximize wetland and wildlife habitat for a variety of plant and animal species, including 12 special status species. The S.F. Bay Joint Venture is now helping local agencies look for funding for the restoration work. • The tidal wetlands restoration at the mouth of Alhambra Creek in Martinez is completed. Restoration work at the Eastshore State Park, funded by BCDC ($2.5 million), has also been completed. • Caltrans has a restoration project northeast of Benicia (mitigation for Benicia Bridge construction); and Stege Marsh in southwest Richmond is being cleaned up by Zeneca Chemical. CONTINUED NEXT PAGE	• Funding is uncertain due to state and federal budget crises. • There are often conflicts among regulatory agencies. New stormwater regulations and development standards may mean that more wetlands are created. However, new wetlands can create mosquito habitat, which some resource managers fear could contribute to a spread of the West Nile virus. But this should not be a concern as the mosquito species that carry WNV don't live and breed in salty tidal wetlands. Fresh water wetlands are breeding grounds for WNV-carrying mosquito species, however. The solution is to design fresh water wetlands to keep water circulating, as mosquitoes prefer still water to moving water. • The Bay may have a sediment deficit , making restoration of subsided ponds tricky. In 2005, the consultant team for the South Bay Salt Ponds Restoration will complete a study to estimate the amount of sediment available to fill in the subsided salt ponds. See: www.southbayrestoration.org. • There can be a conflict between wetland creation and water supply—carbon and chlorine can combine to create trichloromethanes, a carcinogenic pollutant. Some researchers are concerned about methyl mercury being created when wetlands are restored. • Invasive species, such as *Spartina alterniflora,* can take over newly restored sites. • Federal funding is lacking. • With the downturn in the economy, there has been a decline in funding from private foundations for restoration work. • The 3,300-acre Skaggs Island, formerly a naval base, has not been transferred over to the U.S.Fish and Wildlife Service for wetlands restoration, as the Navy and the Department of the Interior are still struggling to agree on terms. • The 1,600-acre Bel Marin Keys property will be added to the project if Congress amends the project in the Water Resources Development Act (WRDA). Unfortunately, the Senate has not passed a WRDA in the past several years, but project planners are hoping that Congress will act on the bill.	• The East Shore State Park offers the opportunity to preserve large amounts of Bayside habitat in perpetuity as well as the potential to restore many wetlands and mouths of creeks. • The Army Corps could amend its regs 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.



Speckled dace

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.

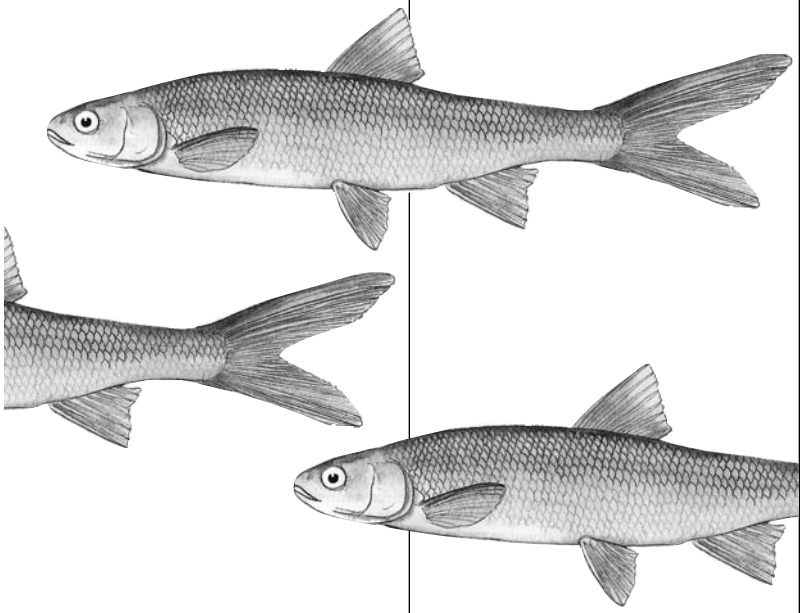
Action

SUBSTANTIVE

CONTINUED

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.



Sacramento splittail

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

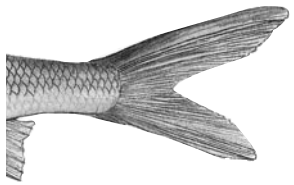
On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- In 2003, state and federal agencies with assistance from several private foundations purchased 1,400 acres of salt ponds in the North Bay and 15,100 acres in the South Bay from Cargill Corporation. Now in the planning phase, the project will restore the ponds to a combination of managed ponds and tidal wetlands with the goals of increasing public access, creating habitat for wildlife, and bolstering flood protection. Phase 1 construction is scheduled to begin in 2008.
- At the Cosumnes River Preserve, approximately 50,000 acres of wetlands are under protection. About 19,000 of these acres were added in the past couple of years. A large scale pump project was started recently to help with future restoration of Staten Island. Proposition 50 funds have been used for preparing the comprehensive management plan for the restoration.
- At the Stone Lakes National Wildlife Refuge just south of Sacramento, over 6,000 acres are under management control and some of them have been restored to wetlands. Planners for the refuge aim to acquire 18,000 additional acres of potential wetlands.
- Located in Novato, the Hamilton - Bel Marin Keys Project is a 2,600-acre wetland restoration project sponsored by the State Coastal Conservancy in partnership with the Army Corps. Site preparation work, including levee construction, is underway on 633 acres and restoration is pending contaminant cleanup. Starting in 2006, dredged sediment will be brought in to elevate the subsided site, then levees will be breached and tidal waters allowed to flow in.
- In 2003, state and local agencies acquired 1,166 acres in the western Sacramento-San Joaquin Delta near Oakley, the first step in the largest wetlands restoration effort in the region—the Dutch Slough Tidal Marsh Restoration Project. The effort will benefit many fish and wildlife species, including at-risk species, and support opportunities for public access, environmental education, scientific research and flood control. Dutch Slough is a critical transition zone between saltwater and freshwater habitats and is important to resident and migratory fish. When restored, the site will provide a key link in a 20-mile wildlife corridor that extends from the Sacramento and San Joaquin rivers to the Suisun Marsh.
- The Sonoma Land Trust acquired 2,327 acres in southern Sonoma County with the North Point and Dickson Ranch properties. To date it has protected 4,000 acres in the Sonoma badlands region. The Land Trust is preparing a preliminary plan to restore at least 1,000 acres of the wetlands and to restore and enhance over 1,000 acres of native uplands: this will restore a complete gradient from 400' above sea level to tidal marsh. The trust is also preparing an interim stewardship plan that will allow oat-hay farming, cattle ranching, and hunting in a way that will promote restoration in an efficient and cost-effective way.
- Fish and Game and the Army Corps are restoring and enhancing the former salt ponds on the western side of the Napa River. Called the Napa Sonoma Marsh Restoration, the project reduces the salinity of most of the ponds and restores 3 ponds totaling 3,000 acres to tidal marsh. Two more ponds may also be restored to tidal marsh after one to two decades as managed ponds. The Coastal Conservancy and others have been working with Congress to ensure authorization of the Napa River Salt Marsh Project in the next Water Resources Development Act. Construction will begin in 2005. An additional 1,400 acres, the Napa Plant Site, were acquired as part of the larger South Bay Salt Ponds purchase of 2003. Cargill Salt is removing the salt from the site as part of the purchase agreement. The planning and environmental approval process is anticipated to take 18 months. Fish and Game expects to begin initial restoration work in the spring or summer of 2007.
- Grant funds to acquire the 1,737-acre Tolay Lake Ranch southeast of Petaluma have been secured from a number of sources including State Parks, the Coastal Conservancy, private foundations, and individuals. Expected to take place in 2005, the acquisition will allow the restoration of Tolay Lake (the largest natural freshwater lake in the county), the Tolay Lake valley, and the surrounding uplands and ridge tops. This acquisition will place 20% of the Tolay Creek watershed under public ownership and protection, including over a mile of the creek channel and will allow protection of a diverse ecosystem including open water lake and ponds, freshwater marshes, seasonal wetlands, riparian and upland habitats, and at least 12 known species of "special status."
- The Army Corps and the Napa County Flood Control District are creating 55 acres of new wetlands and restoring 400 acres of historic wetlands along the Napa River. Called the Napa River Flood Protection Project, the effort has created new tidal and seasonal wetlands. The project should be complete in 2005.
- In 2003, Marin Audubon purchased 632 acres at Bahia Novato, Marin County, with $16.5 million from the Coastal Conservancy, CALFED, the Wildlife Conservation Board, CalTrans, Marin Community Foundation, Marin County Open Space District and others, and is in the process of planning to restore 375 acres of tidal marsh for the endangered clapper rail.
- Fish and Game is working with U.S. Fish and Wildlife and the Navy to acquire Skaggs Island: the project is moving forward.

Current Gaps & Roadblocks

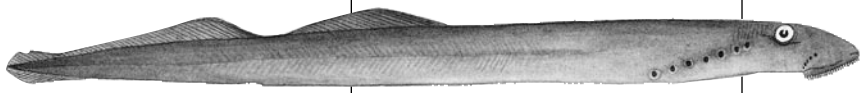
Ideas & Opportunities for Further Progress



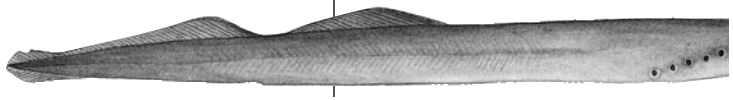
PRIORITY 1.

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
MODERATE **AQUATIC RESOURCES 2.1** Develop, implement and enforce stringent regulations to control the discharge of ship ballast water within the Estuary and adjacent waters.	• In 2004, the U.S. Coast Guard developed a National Ballast Water Management Program, and a new regulation was passed that imposes fines on vessels failing to comply with the Program. • The Marine Invasive Species Act, passed in 2004, requires vessels to exchange ballast water in the open ocean, keep a separate log for each ballast water tank and when coming into port from outside of the Exclusive Economic Zone, report on ballast water activity at each port of call in California. The State Lands Commission administers these requirements and passed regulations in June 2005 to require ballast water exchange in the ocean. In 2005, a federal judge ruled that the EPA must consider inasive plants and animals in ballast water pollutants. • The State Lands Commission conducts regular inspections of 25 percent of the ships entering the Bay. The Commission boards the vessels, reviews their logs, and makes sure the vessel has a ballast water management plan in place. They also conduct some salinity testing.	• The U.S. Coast Guard is working with the Navy and the EPA to evaluate various ballast water treatment programs through the Environmental Technology Verification Program. Late in 2003, the Naval Research Lab dedicated a facility to testing ballast water treatment technology. • The Port of Oakland contracted with the Smithsonian Environmental Resource Center to: 1) evaluate the efficacy of ballast water exchange regulations for container ships, 2) identify the micro-organisms found in container ship ballast water and 3) conduct a pilot study to identify invasive species that "foul hulls"--ride ships' hulls into the Bay. The study was released in 2005.	• Salinity testing is not the best tool for testing ballast water in an estuary. • Funding is needed for a full-scale evaluation of ballast water treatment technologies and for shippers to test and use new ballast water treatment methods. Public dollars have been forthcoming, but industry needs to match them. • Sea exchange is not the answer as not all organisms are removed through this method and not all vessels can conduct sea water exchange. • Preparation of a comprehensive aquatic invasives management plan has been stalled.	• The National Aquatic Invasive Species Act and the Ballast Water Management Act are up for re-authorization. • The best opportunities for accomplishing more are at the international/national levels. However, the Port of Oakland's efforts are exceptional and could be replicated by other ports.
SOME **AQUATIC RESOURCES 2.2** Prohibit the intentional introduction of aquatic exotic species into the Estuary and its watershed	• A Nonnative Species Advisory Council, formed in 2003, oversees, coordinates and sets policies for CALFED invasives programs throughout the Bay-Delta region. The Council is composed of 30 experts from myriad organizations, both governmental and non-governmental, including the Nature Conservancy, Bay Institute, and UC Davis. • The national Aquatic Nuisance Species Task Force and the Western Regional Panel on Aquatic Nuisance Species (created when the National Invasive Species Act was re-authorized in 1996) have developed a 100th Meridian initiative, a collaboration among state and federal agencies, private industries, and citizens working to prevent the westward spread of zebra mussels and other aquatic invaders. The partnership includes the six states that straddle the 100th Meridian (100 degrees longitude), the Canadian province of Manitoba, and most of the western states (including California). • The WRP has recently funded several small projects: 1) development of a prototype early detection booklet for use by local watershed groups; 2) a library of educational materials on all invasive species found in the region; 3) identification of research priorities for invasive aquatic reeds; and 4) pilot project to demonstrate rapid response to new invasions of freshwater aquatic plants.	• In 2004, the S.F. Estuary Institute published a *Summary of data and analyses indicating that exotic species have impaired the beneficial uses of certain California waters.* • The S.F. Estuary Institute's Biological Invasions Program has recently conducted the following studies: assessment of the dynamics and impacts of the invasion of *Spartina alterniflora* on the Pacific Coast; a comprehensive survey of exotic marine organisms in San Francisco Bay (116 were found); investigation of the impacts of the *Spartina alterniflora* invasion on nesting passerine birds in the Bay's salt marshes; assessment of the feasibility of on-shore treatment of ballast water and identification of the most promising approaches using the ports and marine terminals in the Bay/Delta Estuary as a case study; and a risk assessment of zebra mussels invading California. The Invasions Program's website has a list--with pictures and descriptions--of all invasive species found in San Francisco Bay. See: www.exoticsguide.org • The Sacramento River Weed Warriors remove aquatic invasives from the river and its banks. Approximately 50 sites throughout the Sacramento region are targeted for cleanup in 2005. See: www.sacvalleycnps.org/projects/weedFiles/swwhome/weedhome.html		• The Department of Boating and Waterways has lost funding for eradicating water hyacinth, a huge problem in the Delta.



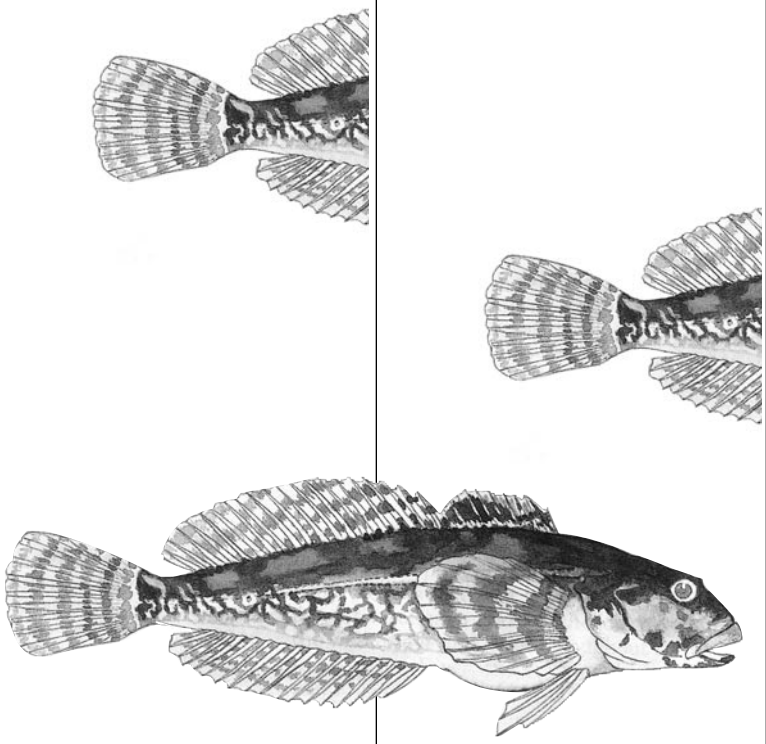
Pacific lamprey



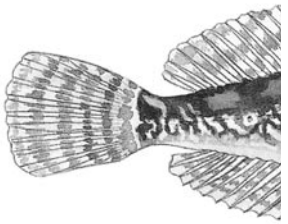
PRIORITY 1.

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
MODERATE **AQUATIC RESOURCES 2.3** Control problem aquatic species already in the Estuary	• In 2005, the Spartina Project, funded by the Coastal Conservancy, WCB, and CALFED, will treat 100% of the remaining *Spartina alterniflora* infestation around the Bay, estimated at between 1,000 and 1,500 acres. It will re-treat these acres in 2006 and most of the infestation is expected to die off as a result. In subsequent years, crews will monitor Bay marshes and treat any small infestations that may spring up. • In November 2004, the Conservancy held a Spartina Science symposium, featuring the latest research findings from experts around the world.	• The Spartina Project treated 435 acres of invasive cordgrass--*Spartina alterniflora*--in 2004. With funding from the State Coastal Conservancy, the Estuary Project began a signage project to educate the public about the need for spartina eradication. • Many grassroots creek groups hold regular work parties to remove invasive species like *Arundo donax* (and others) from creek banks. • The Arundo Donax Eradication and Coordination Program, administered by the Sonoma Ecology Center, coordinates and assists *Arundo donax* eradication projects in the Sacramento/San Joaquin River and Bay-Delta regions. Funded by CALFED, it brings many eradication projects under one umbrella to increase efficiency and pool resources and information. Five partners are participating in Phase 1, which began in April, 2000 and is funded through Spring 2006. They will focus on infested areas along the Napa River, Putah Creek, San Francisquito Creek, Sonoma Creek, and Walnut Creek. Phase 2, scheduled to begin in 2005 and continue through 2008, will add 5 more partners and emphasize monitoring and assessments of the effectiveness of various eradication and re-vegetation techniques. The program's on-line library includes control method information, expert contacts, project information, research literature, and educational materials. See: www.teamarundo.org	• Hand-pulling invasive marsh plants can be labor-intensive and expensive. The physical impacts of chemical control can sometimes be less than from hand-pulling. However, using chemicals (like glyphosate) has the potential to harm endangered and threatened species, sometimes making it difficult for resource managers to obtain permits. With either type of control, it is difficult to implement proper mitigation. • The invasive rattlebush has been showing up recently along rivers and creeks in the Sacramento area. This plant contains a chemical, saponin, that is poisonous to wildlife and humans. • Medical researchers may be responsible for invasive species problems by discarding lab animals into the wild. Examples are the African clawed frogs that have infested Golden Gate Park's Lily Pond and non-native turtles that are thriving in two Marin County reservoirs. Resource managers fear the spread of these species, so removal efforts are underway. • The New Zealand mudsnail, which can blanket a stream quickly and consume most of the invertebrates, has been sighted in the Bay-Delta region in a few spots: Putah Creek, Calaveras River, and Napa River. • No effective and safe mudsnail eradication techniques exist, so control focuses on prevention. Because the snails can spread to new streams by hitchhiking on anglers' waders, public outreach efforts urge anglers to clean their waders. • In 2004, a Rapid Assessment Survey by SFEI uncovered 116 exotic species in the Estuary, including a species of particular concern, the sea squirt, *Didemnum cf. lahillei.* Already a problem on the Atlantic coast, the sea squirt now encrusts the docks at Pier 39 and the Sausalito Marina. Its dense colonies overgrow underwater structures, choking out oysters, mussels, and other shellfish.	• A new herbicide, Imazapyr, which is less toxic than glyphosate and easier to apply on large *Spartina alterniflora* infestations, will likely be approved by the State in 2005. Eradication crews may start to use it as early as July 2005.



Prickly sculpin



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

SUBSTANTIVE

AQUATIC RESOURCES 2.4

Develop programs to educate the public about problems with exotic species and their incidental transport or introduction

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- 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 SF Estuary Institute has just published an on-line guide to exotics, see: www.exoticsguide.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. In February 2004, the Estuary Project organized a two-day workshop to create the Caulerpa National Management Plan, and in November 2004, it helped coordinate the International Spartina Conference held in San Francisco.
- The Estuary Project also provided graphic support for the Ballast Water Outreach and Education Task Force's newsletter (10,000 copies in 2002 and 2003), developed educational brochures and posters on ballast water management, participated on the Technical Advisory Group for California's Marine Invasive Species Act, and provided public outreach about the need for invasive species control by developing, printing, and distributing over 40,000 brochures and developing two tabletop displays to be used at conferences throughout the 17 Western States.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

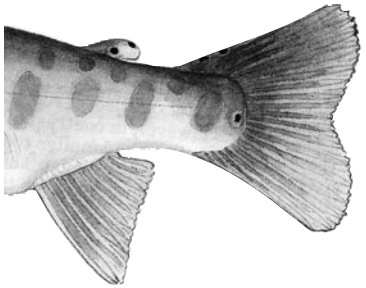
- Many non-profit groups—like Save the Bay, The Watershed Project, and the Urban Creeks Council (to name just a few)—publish information about the benefits of planting native riparian species and the hazards of planting invasives that can escape into local waterways.
- The San Francisquito Watershed 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. Arundo grows on creek banks to heights of over 20 feet and can completely block stream channels. Watershed Council volunteers are now in their fourth year of efforts to remove *arundo donax* from the San Francisquito Creek watershed.
- Similar activities are being undertaken by the many friends of creek groups around the Bay. See www.aoinstitute.org/creekspeak/CreeksSpeak2002-1.pdf for a list of these groups, or email rk@rb2.swrcb.ca.gov.
- In 2004, The Watershed Project published "The Weed Workers Handbook: A Guide to Techniques for Removing Bay Area Invasive Plants," funded by the Coastal Conservancy.

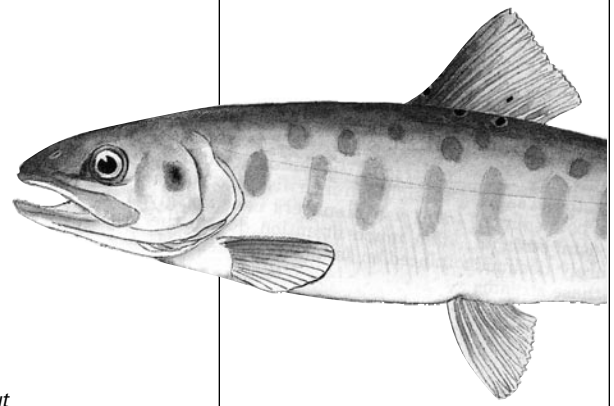
Current Gaps & Roadblocks

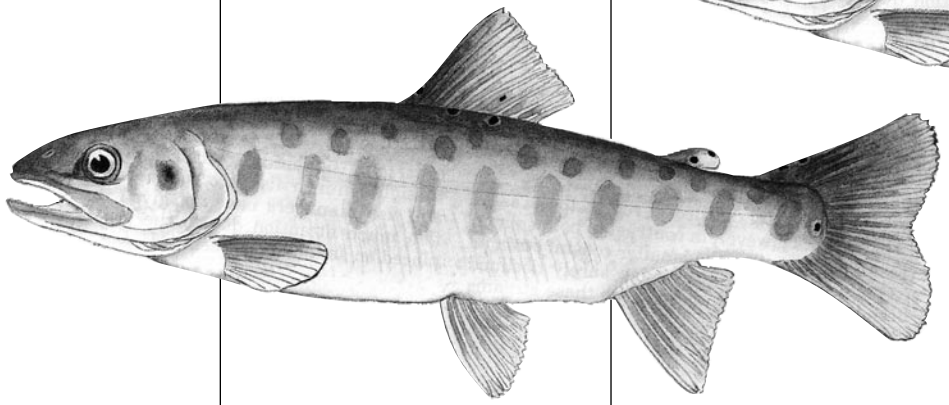
- Some commercial nurseries still sell invasive plants. Currently, there are no laws prohibiting their sale: what is invasive in one area may not be in another.

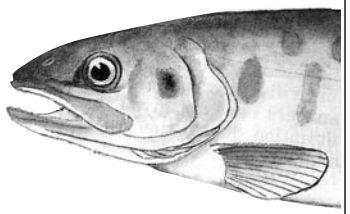
Ideas & Opportunities for Further Progress

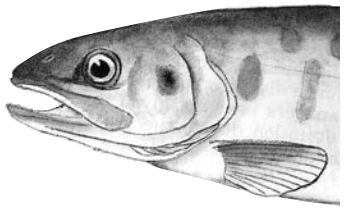
- Regulators and resource managers are currently debating about whether or not a surcharge on the sale of any potentially invasive plants should be assessed.
- Develop an invasive species master plan.
- Secure funding for water hyacinth eradication in the Delta.
- Research other aquatic invasive vegetative species in addition to Spartina.









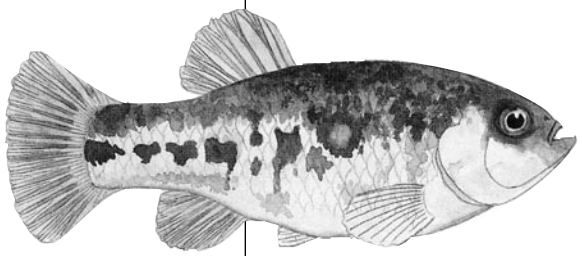


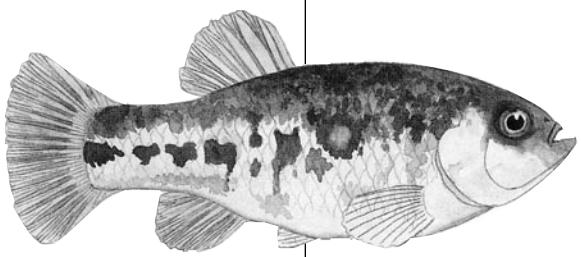
Paiute cutthroat trout

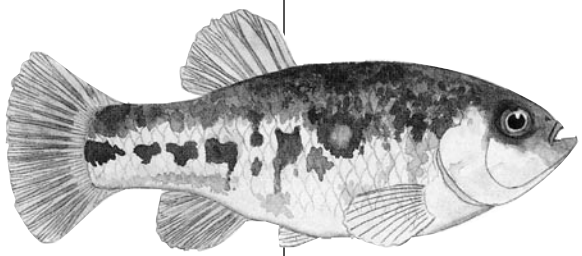
PRIORITY 1.

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
SOME **WILDLIFE 3.1** Implement predator control programs in areas where introduced predators are a constraint to maintenance and restoration of native populations.		• The Northern pike was illegally planted in Lake Davis Reservoir in the early 90s, and in 2000, a steering committee prepared a 13-point management plan for controlling and containing the pike—a strategy that included barrier nets, underwater explosions, electrofishing, and fishing derbies. While numbers of pike in Lake Davis have continued to increase, they have not been found outside the lake. • Control of red fox and other predators in 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. The South Bay rails may, ironically, be benefiting from the invasion of *Spartina alterniflora* at Arrowhead Marsh. • Other urban predators—feral cats, crows, skunks, and rats—may be having an increased impact on endangered species as well. • First appearing in South San Francisco Bay the early 1990s, the European green crab has now spread as far north as the Carquinez Strait. According to recent studies, these crabs can significantly reduce populations of three common invertebrate species and facilitate the invasion of eastern gem clams. • Eradication of the green crab is not possible now, but The National Green Crab Management Plan recommends control strategies such as prevention measures, early warning systems for geographic range expansions and monitoring of population trends. • The invasive Chinese mitten crab population grew rapidly throughout the Bay in the 90's, peaked in 1998 and 2001 and declined in 2002 and 2003. It appears to be following the "boom and bust" cycle typical of some invaders. • Estuary waters are inhabited by 4 species of non-native gobies. Historically, the yellowfin goby has been the most abundant, but in 2002 and 2003, more shokihaze gobies were caught. The shokihaze gobies are primarily found in Suisun Bay and the lower Sacramento River where they likely harm native fish populations through predation and by diminishing the food supply.	• Implement red fox control in the North Bay.



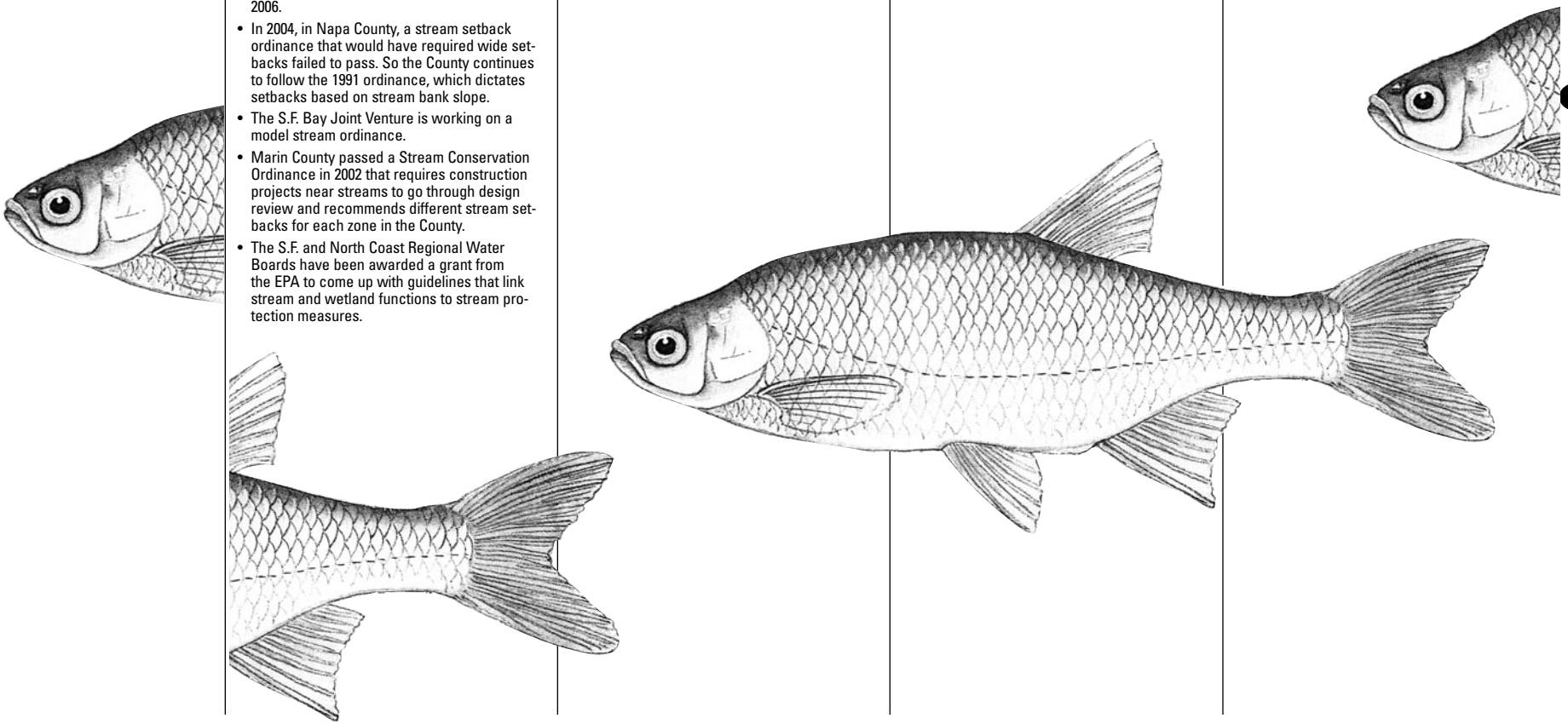




Owens pupfish

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. SOME	• 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. More protective of development than of stream health per se, the standards will be defined by July 2005 and then the Collaborative will bring them before each city's board for adoption in late 2005 or early 2006. • In 2004, in Napa County, a stream setback ordinance that would have required wide setbacks failed to pass. So the County continues to follow the 1991 ordinance, which dictates setbacks based on stream bank slope. • The S.F. Bay Joint Venture is working on a model stream ordinance. • Marin County passed a Stream Conservation Ordinance in 2002 that requires construction projects near streams to go through design review and recommends different stream setbacks for each zone in the County. • The S.F. and North Coast Regional Water Boards have been awarded a grant from the EPA to come up with guidelines that link stream and wetland functions to stream protection measures.	• Marin County passed a Stream Conservation Ordinance in 2002 that requires construction projects near streams to go through design review and recommends different stream setbacks for each zone in the County.	• Attempts at passing stream setback ordinances have failed in many communities because the public perceives that such ordinances place arbitrary restrictions on privately owned land. Successful stream protection measures tend to link standards with public health and safety and require case by case assessments. • Flood control structures and buildings impinge on land that could be floodplain or setbacks. This can even make planting trees to shade the water difficult.	• The S.F. Regional Board recently published *A Primer on Stream and River Protection for the Regulation and Program Manager*. These guidelines could be adopted by cities and counties. • Create maps designating setbacks. • The state could require communities to adopt more stringent setback requirements. • Offer incentives for moving buildings, and re-do old Army Corps projects using Section 1137.



Golden shiner

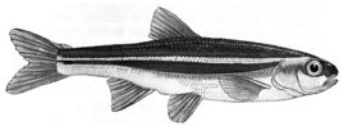
PRIORITY 2. Protect and restore watersheds, including promoting creek restoration, throughout the Estuary.

Action

SUBSTANTIVE

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.



Lahontan redside

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The State Agency Watershed Management Strategic Plan was developed in 2003 by the Resources Agency and the State Water Resources Control Board. Now the two agencies are working on an action plan that will be implemented at the local and regional levels with recommendations from regional stakeholder groups, rather than the state stakeholder group that used to convene annually. A key action item that the agencies will work on over the next year is development of performance measures related to plan objectives.
- The SF Regional Board proposes to revise the Basin Plan to contain site-specific objectives for the Bay for copper, cyanide and nickel; to include its water-quality objectives based on the California Toxics Rule, and its stream protection policies. They inventoried streams and creeks and identified the beneficial uses for each. The Plan includes objectives for groundwater and for the Delta and Suisun Marsh and for the Alameda Creek Watershed.
- The S.F. Regional Board published a report, Chemical Concentrations in Fish Tissues from Selected Reservoirs and Coastal Areas of the S.F. Bay Region. Based on this report, the Board has worked with county health departments to prepare advisories and print fliers and signs in six languages about the risks of consuming fish from various water bodies.
- The Contra Costa County Community Development Department established a countywide watershed forum, at which watershed groups can network, sharing information and resources. The group holds meetings approximately six times per year. Its mission is to identify common principles among parties involved in creek and watershed issues and to promote actions that transform these principles into multi-objective enhancements of creeks and watersheds throughout the county. It has prepared a Watershed Atlas, a large format, full color, 150-page book of maps, statistics, and text focused on the status of the 28 major watersheds in the County. It also identifies volunteer opportunities for people looking to become more involved locally.
- Napa County is conducting an EIR assessment of all of its watersheds. The Napa County Board of Supervisors assembled a joint Board to direct the activities of the Napa River Watershed Conservancy and Napa River Watershed Information Center. The Board, supported by a technical advisory committee, facilitates coordination and funding efforts for restoration and land acquisition projects, as well as the establishment of a long-term resource management program to provide public outreach, monitoring, and assessment coordination and data management.

CONTINUED NEXT PAGE

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- Building on a groundswell of activities at the local level, the S.F. Regional Board is working with local watershed councils to prioritize, facilitate, and enhance restoration activities.
- In 2004, the Estuary Project awarded $98,955 to 13 community groups, cities, and non-profits around the Bay to improve water quality and restore habitat in the Estuary's watersheds.
- The S.F. Regional Board's SWAMP (Surface Water Ambient Monitoring Program) is in its third year of data collection. The program emphasizes contaminants and bioaccumulation in fish and reports on findings for 10 reservoirs, Tomales Bay, and the San Mateo Coast. The Board is now filling in data gaps and will publish a report later this year. They are also reviewing bioaccumulation data statewide and developing recommendations. For the S.F Bay region, they are conducting watershed studies to see where swimming is safe and where aquatic life is protected. Watershed studies will continue to be SWAMP's emphasis because there is a need for this information.
- Hundreds of community groups around the Bay, particularly "Friends of" creek groups and watershed awareness groups, hold regular, monthly work parties and/or implement restoration and revegetation projects, encouraging grassroots citizen involvement in protecting and restoring the Estuary and its watersheds.
- Urban Creeks Council's planned activities for 2005 include completion of the Peralta Creek project, which is in the process of native plant supplementation, and will have its opening ceremony sometime in May. Volunteers from Americorps and the Unity Council have been helping plant on volunteer native planting days. The Alhambra Creek project at the Martinez Adult Education Center was completed last summer and planting has begun. Volunteers planted willow cuttings in the fall to stabilize the bank and deposition is now occurring in the restored reach, whereas prior to construction the channel was scouring its banks. Volunteers from the adult education programs are now planting along the creekside trail. Restoration of Wildcat Creek at Church Lane began in the summer of 2005. The right bank will be set back to allow for greater flood capacity, and the left top of bank will be revegetated to provide bird and wildlife habitat. Volunteers will plant willows at the toe of the slope for stabilization and to improve water quality. The second phase of the

CONTINUED NEXT PAGE

Current Gaps & Roadblocks

- There is sometimes a lack of coordination among state agencies, with incomplete data and lack of accountability as a result. Local agencies are sometimes unclear on their responsibilities versus those of the state.
- There aren't 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 also 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.
- The timeframe for wetland restoration sites to reach maturity has turned out to be much longer than originally thought—closer to 50 years than to five. This new information needs to be better integrated into restoration plans.
- 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.
- Thirty-eight actions of the *Lower American River Corridor Management Plan* are not started or on hold, primarily due to staffing and funding constraints. Additional information about RCMP implementation is available in the Annual Report that can be accessed on the Sacramento Area Flood Control Agency's (SAFCA's) web site (www.safca.org).

Ideas & Opportunities for Further Progress

- Restoration efforts should focus more on habitats that have often been forgotten or neglected, such as upper watershed zones, intertidal mudflats, beaches and salt flats, and adjacent uplands.
- Bay Area agencies could model the North Coast Watershed Assessment Program, a joint Cal EPA and Resources Agency-led effort to work across agency boundaries.
- General fund monies could provide funding for watershed management.
- In 2004, a group of 28 scientists formed a coalition — "Salmon 2100" — with the goal of finding ways to protect and restore salmon runs in California, Oregon, Washington, Idaho, and British Columbia.
- The Coastal Conservancy has applied for funding to further develop the Bay Area Watershed Plan in an integrated plan that includes multiple objectives for water supply, water recycling, and flood control.

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

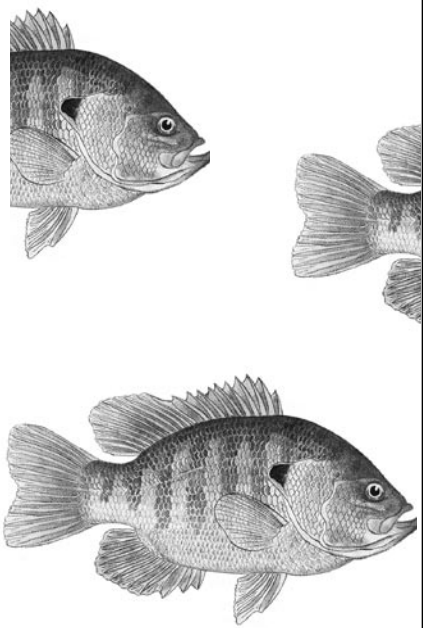
Action

SUBSTANTIVE

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.



Green sunfish

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The North Bay Watershed Association (NBWA) helps 15 local and regional agencies located throughout Marin, Sonoma, and Napa counties work cooperatively on water resources issues that impact areas beyond traditional boundaries; it also promotes stewardship of the North Bay watershed. Its ongoing projects are a study of a satellite water treatment plant, a fluorescent bulb recycling pilot project, and development of the North Bay Watershed Stewardship Plan. It has completed the North Bay Regional Water Recycling Feasibility Study, mercury pollution prevention outreach materials, and the Thompson Creek Stream Restoration Demonstration Project. See www.nbwatershed.org.
- The San Francisquito Watershed Council published an updated watershed management plan in 2005, called A Vision for San Francisquito Watershed.
- Now in its fifth year of implementation, the Water Forum (www.waterforum.org) is a diverse group of business and agricultural leaders, citizens groups, environmentalists, water managers, and local governments in the Sacramento Region that have joined to fulfill two co-equal objectives: 1) Provide a reliable and safe water supply for the region's economic health and planned development to the year 2030; and 2) Preserve the fishery, wildlife, recreational, and aesthetic values of the Lower American River. In 2000, Water Forum members approved a comprehensive Water Forum Agreement, consisting of integrated actions necessary to providing a regional solution to water shortages, environmental damage, groundwater contamination and limited economic prosperity.
- The Lower American River (LAR) Task Force, guided the development of a River Corridor Management Plan (RCMP) to institute a cooperative approach to managing and enhancing the LAR. In January 2002, representatives of more than 40 local, state, federal, community, environmental, flood control, and neighborhood agencies/organizations endorsed the RCMP as the basis for continued collaboration and coordinated resource management for the LAR. The RCMP includes recommended actions in the areas of fisheries and in-stream habitat, vegetation and wildlife management, flood management, and recreation.
- With the help of numerous community groups and environmental organizations, the LAR Task Force is now updating the American River Parkway Plan for the first time since 1985. Due out in the next couple of years, this plan is looking at new land uses for the corridor—locations for recreational facilities and areas that could be restored to provide wildlife habitat.

CONTINUED NEXT PAGE

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

Codornices Creek Watershed Restoration Action Plan began in early 2005. Two fish passage barriers are being reconstructed in the creek, among many other activities.

- The FishNet 4C program is a county-based salmonid protection and restoration program that brings together the six Central California Coastal Counties (4C) of Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, and Monterey. The program recommends undertaking projects such as removing fish passage barriers, repairing roads, and controlling erosion, supporting genetic conservation hatcheries, developing riparian and grading ordinances, implementing bioengineering projects, and developing written maintenance guidelines for public works departments. Steering committee members for the county-based, local government program include county supervisors; planning and public works staff; local, state, and federal agencies; and other key players within the counties, such as water agencies, RCDs, and watershed groups.
- FishNet 4C Guidelines, a manual, was developed in 2004 to help local government agencies and the private sector in protection and restoration efforts.
- The Waterways Restoration Institute has prepared a Restoration Action Plan for the restoration of approximately one-half mile—over 3,000 feet of channel—of lower Codornices Creek at the Albany/Berkeley border, which supports a population of steelhead trout. Restoration of the creek is being integrated with redevelopment of old University housing. The plan is to remove fish barriers and obstacles, and restore water quality by implementing bank stabilization/soil bioengineering projects for eroding banks. Completed in 2004, the first phase restored 1,800' of the creek. The other two phases, planned for summers 2006 and 2007, will entail restoring floodplain and constructing creek meanders, as well as a bike path and some other recreational facilities
- The Yuba Watershed Council is monitoring trends on the Yuba River, such as bacterial contamination.
- The Clear Lake Basin Watershed Management project is working to control nutrients and sediment into Clear Lake, to reduce algae and other aquatic weeds, to eradicate hydrilla, and to eliminate mercury pollution.
- The Santa Clara Basin Watershed Initiative (WMI) is implementing its Watershed Action Plan to protect and enhance the watershed and create a sustainable future. Recent successes of the WMI have included: 1). 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). Continuing to develop watershed health indicators; 5). Providing tools and training to planners to help them better protect and steward streams and their resources.
- The Wildcat and San Pablo Creeks Watershed Restoration Action Plan (WRAP) developed by the Urban Creeks Council has chosen the lower Wildcat Creek area for restoration, and the area is now being surveyed. The WRAP recommends creation of a base map of the creek that identifies eroded areas, water quality, fish habitat, and other indicators, and also development of a conceptual design for about 1,000 linear feet of restoration.
- The Watershed Project in Richmond (formerly the Aquatic Outreach Institute) strives to improve water quality in the Bay by teaching communities to protect their watersheds and creeks. Its programs include over 50 workshops a year for educators and the general public, support for creek protection groups, and a marsh and grassland restoration project. It also publishes Creeks Speak, a newsletter for creek enthusiasts. See: www.thewatershedproject.org Some of the projects and organizations it supports are:

- Restoration of Stege Marsh, a tidal marsh and former toxic hot spot located in Richmond between Point Isabel and the Richmond Marina. Volunteers from community groups and local schools are replanting the marsh with native vegetation.
- Friends of Pinole Creek Watershed, a community organization dedicated to protecting and enhancing Pinole Creek and its watershed. The group is raising public awareness about the creek and restoring in-stream and riparian habitats.
- The San Pablo Watershed Neighbors Education and Restoration (SPAWNERS) Society, an outreach program that aims to educate, inform, and inspire people to protect and enhance water resources, and to educate residents about sources of pollution and how land use relates to water quality.

- Other programs include:

  - Friends of Baxter Creek, which in 2004 received a $492,000 grant from the State Water Resources Control Board for the Baxter Creek Gateway Restoration Project. Provided by the Proposition 13 California Bay Delta Authority Watershed Program, this funding will enable the City of El Cerrito and its watershed partners to transform a neglected area into a community park.

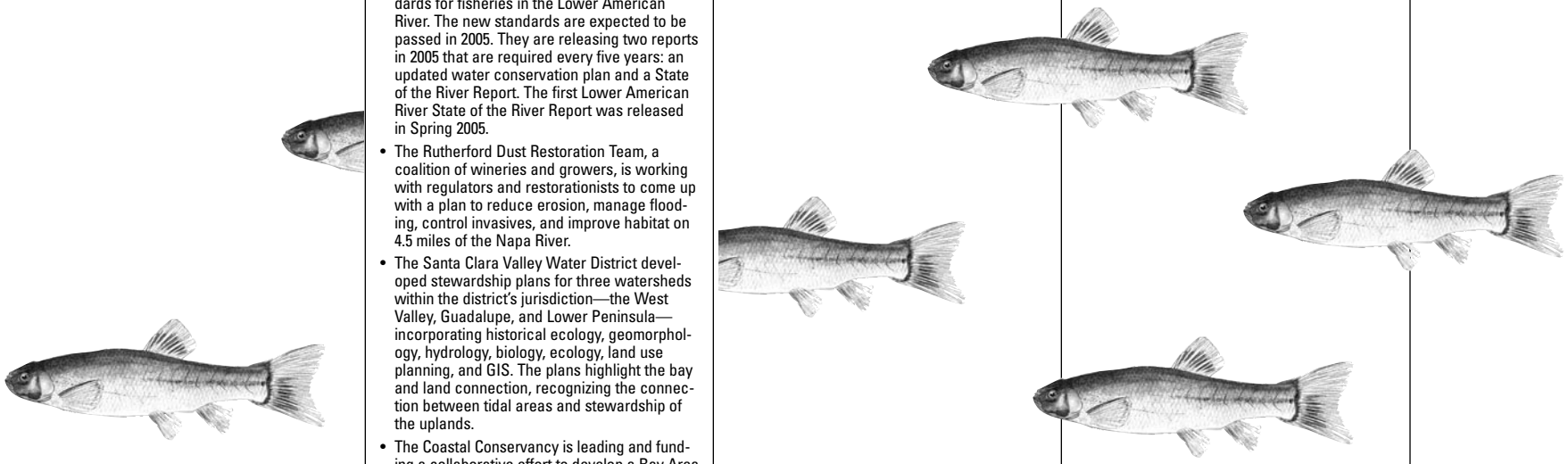
  - The Friends of Temescal Creek (FoTC), a community organization that plans to restore Temescal Creek and provide a recreational and wildlife corridor from the hills to the bay.

- The California Watershed Council's first meeting was attended by aproximately 300 stakeholders.
- The San Francisquito Watershed Council's mission is to improve water quality, preserve and restore wildlife habitat, and reduce flood dangers along San Francisquito Creek and its tributaries. The Council's projects include: 1) recruiting volunteers to remove invasive species, plant natives and perform creek clean-ups; 2) improving passage for steelhead trout and restoring their spawning grounds; 3) sponsoring the Citizen Streamkeepers project for which volunteers adopt stretches of the creeks in the San Francisquito, Matadero, and Adobe–Barron Creek watersheds; 4) implementing the Long-Term Monitoring and Assessment Program that informs the public and decision-makers about the creek's physical, hydrological, chemical, and biological characteristics; 5) educating the community about the watershed; 6) assisting streamside property owners in "watershed-friendly" building and landscape design; and 7) holding monthly public meetings that provide an opportunity for dialogue among individuals, community organizations, local governments, and agency representatives.

  See www.aoinstitute.org/creekspeak/CreeksSpeak2002-1.pdf for a list of similar groups, or email rk@rb2.swrcb.ca.gov
- The Lower American River (LAR) Task Force is focused on implementing the recommended actions of the River Corridor Management Plan (RCMP). Significant progress occurred on RCMP implementation in 2002: of the 112 actions in the three-year action plan, 52 actions are either completed or underway, and 22 actions are in the plan development stage (i.e. designs or studies to implement the action are being conducted).
- The Temperature Reduction Modeling Project, which began in 2003 and is still underway, is assessing the effectiveness of actions that reduce temperatures in the lower American River in order to improve habitat for salmon and steelhead trout.

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

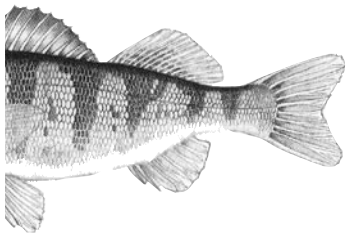
Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
SUBSTANTIVE **CONTINUED** **LAND 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.	• An interactive web site for the Napa River Watershed Information Center, utilizing GIS information and an on-line community framework, is currently being tested and uploaded with watershed data. • The Water Forum Successor Effort (WFSE) was created to implement the Water Forum Agreement. Focus of the implementation is on the seven elements of the Water Forum Agreement that will be implemented in concert over the next 30 years. The seven 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. • In the past couple of years the WFSE has worked on developing improved flow standards for fisheries in the Lower American River. The new standards are expected to be passed in 2005. They are releasing two reports in 2005 that are required every five years: an updated water conservation plan and a State of the River Report. The first Lower American River State of the River Report was released in Spring 2005. • The Rutherford Dust Restoration Team, a coalition of wineries and growers, is working with regulators and restorationists to come up with a plan to reduce erosion, manage flooding, control invasives, and improve habitat on 4.5 miles of the Napa River. • The Santa Clara Valley Water District developed stewardship plans for three watersheds within the district's jurisdiction—the West Valley, Guadalupe, and Lower Peninsula—incorporating historical ecology, geomorphology, hydrology, biology, ecology, land use planning, and GIS. The plans highlight the bay and land connection, recognizing the connection between tidal areas and stewardship of the uplands. • The Coastal Conservancy is leading and funding a collaborative effort to develop a Bay Area Watershed Plan as a stand-along document that addresses regional watershed management, habitat protection, and restoration issues. The Plan will also serve as the watershed habitat component of a Prop 50, Chapter 8 integrated regional water management plan. • Muir Heritage Land Trust received funds from NOAA, WCB, and the Coastal Conservancy to acquire 700 acres and design restoration of upper Rodeo Creek.	• "Conversations about Watersheds" was hosted by the East Bay Watershed Center at Merritt College in January 2005. • The City of Oakland and the Urban Creeks Council, with Coastal Conservancy funding, restored 1,000 feet of Arroyo Viejo Creek. • The Coastal Conservancy provided grants to 16 NGOs to undertake streamside habitat restoration using K-12 students. • The Coastal Conservancy and others provided funds to design fish barrier removal projects on Alameda and San Francisquito Creeks.		

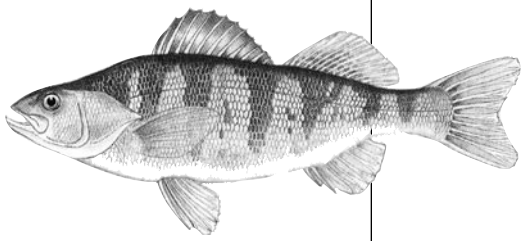


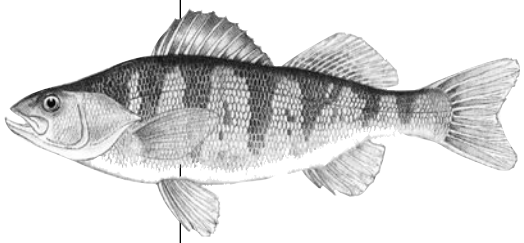
Fathead minnow

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
NEGLIGIBLE **LAND USE ACTION 1.3** Integrate protection of the Estuary with other state land use-related initiatives.	• SB 221--signed into law in 2001--prohibits a city or county from approving a residential subdivision of more than 500 units unless there is written verification from the applicable public water system that a sufficient water supply is available or, in addition, a specified finding is made by the local agency that sufficient water supplies are, or will be, available prior to completion of the project. • In 2004, the Resources Agency's Legacy Project was folded into the Great Places Program, and a digital conservation atlas was integrated into the CERES Program. The atlas brings together in one website more than 40 unique sources of natural resource and conservation data from many different agencies. Presented as GIS data layers, the atlas is updated continuously and it is easy to access and use. In addition to the atlas, the Great Places Program has developed an analytical tool for use by local governments trying to decide how best to spend their wetland and riparian habitat restoration funds. • Under the 1977 Clean Water Act, wetlands are supposed to be protected against development. With the advent of mitigation banking, a developer who wants to develop in a wetlands area can purchase compensatory wetland habitat acreage, or "credits," in an existing wetlands preserve known as a mitigation bank. In 2003, 5 wetlands banks existed in the Bay Area: 1 in Marin County (78 acres), 1 in Alameda County (52 Acres), and 3 in Sonoma County (44 acres total). • The state contributed $72 million to help acquire 26 square miles of South Bay salt ponds.	• BCDC has been working collaboratively with other agencies to establish times during the year when sensitive areas and species in the Bay must be avoided and no dredging can take place. • AB 2476 passed in May 2004 gives the Delta Protection Commission the lead role in a stakeholder process that will examine problems in the Delta's outer zone, including controversial land use issues and levee construction for new development. It also adds new members to the commission to represent the Bay-Delta Authority and who have expertise in wildlife conservation, environmental protection, and marina operations.	• In July 2004, state funding was cut for the Resource Agency's Legacy Project. Currently, there is no program that systematically identifies and prioritizes landscapes that support key conservation values such as biodiversity, working landscapes, watershed values, urban open space, and land for recreational and educational facilities. • Implementation of the Clean Water Act has been weakened during the Bush Administration. • Selenium-impaired lands in the San Joaquin Valley continue to be irrigated, creating toxic drainage that either ends up in the Estuary or harms wildlife at evaporation ponds. • Some private landowners are worried that monitoring data could be used against them.	• Sediment TMDLs are generating incentives for local government and private entities to apply watershed assessment techniques in evaluating the best options for sediment reductions to impaired water bodies. • We need more RCD programs that encourage voluntary acts on the part of dairy farmers and other landowners that will improve water quality; i.e., the Marin and Napa RCDs' cattle-fencing projects.



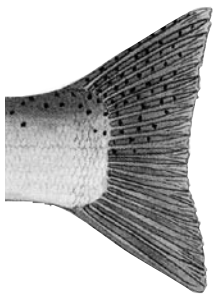




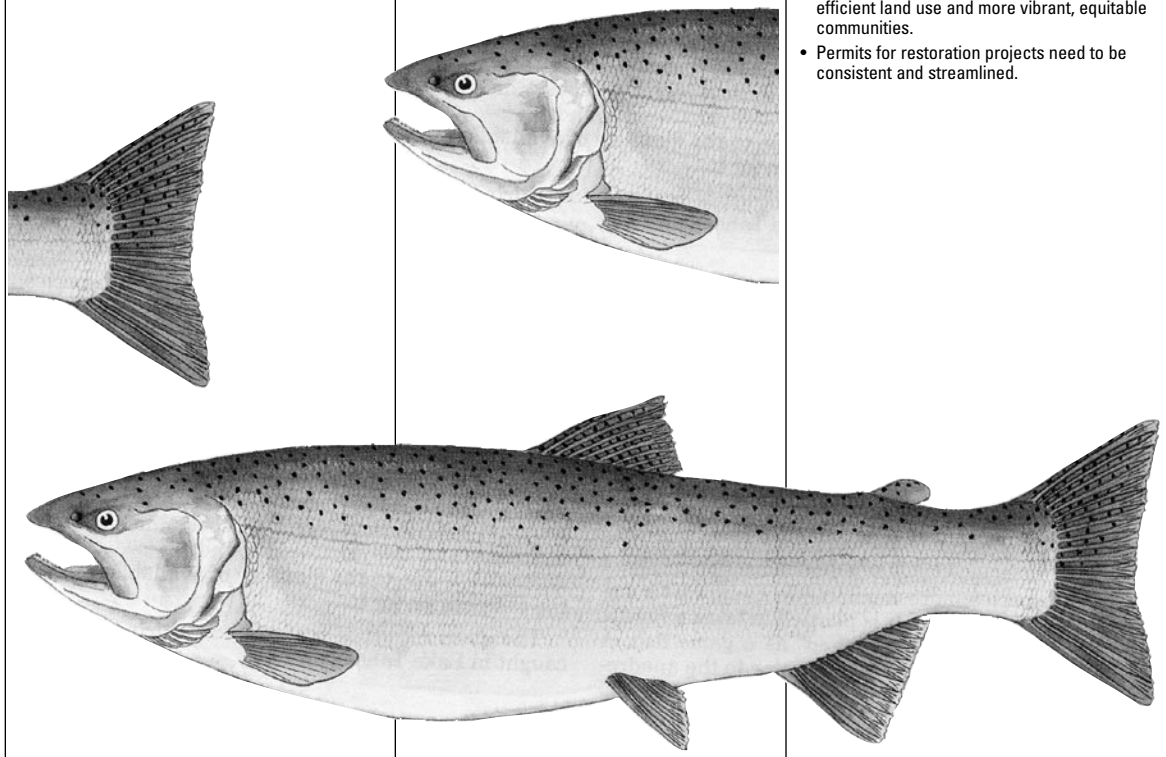
Yellow perch

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

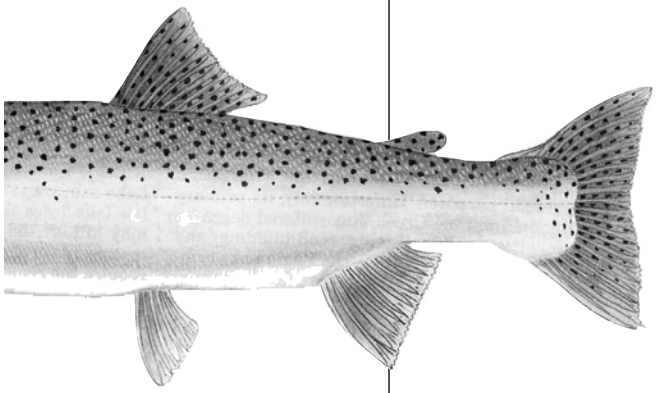
Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
SOME **LAND USE 2.1** Regional agencies should assist in identifying and developing consistent policies that provide an integrated framework for local governments to protect the resources of the Estuary.	• The Santa Clara Valley Water District has developed "Ends Policies" to create a high level of visibility and accountability for programs that protect and restore wetlands and other wildlife habitat. The SF Regional Board has established performance measures and reviews progress toward fulfilling Ends Policy objectives. • The Bay Area Alliance for Sustainable Communities and the five regional agencies (the Association of Bay Area Governments, the Bay Area Air Quality Management District, the Metropolitan Transportation Commission, the S.F. Bay Commission (BCDC), and the S.F. Regional Board) launched the Smart Growth Strategy/Regional Livability Footprint Project, which seeks to 1) create a smart growth land use vision for the Bay Area; 2) identify and obtain regulatory changes and incentives needed to accomplish these objectives; and 3) develop 20-year land use and transportation projections based on the vision. The Smart Growth Strategy/Regional Livability Footprint jointly conducted outreach and workshops among stakeholders and the public and produced the Smart Growth Vision, which promotes growth patterns that accommodate housing and other urban uses in existing urbanized areas while protecting undeveloped lands. • The Vison became the starting point for the development of policy-based economic and demographic projections in 2003 and 2005. These projections, which are used in housing, transportation, air quality, and other planning efforts, reflect anticipated changes in land use, transportation, and other decisions as communities and developers incorporate smart growth principles into their policies, plans, programs, and development projects. • All five Bay Area regional agencies (the Association of Bay Area Governments, the Bay Area Air Quality Management District, the Metropolitan Transportation Commission, the S.F. Bay Commission, and the S.F. Regional Board) are members of the Bay Area Alliance for Sustainable Communities and support the Compact for a Sustainable Bay Area, which calls for protecting and restoring the Bay-Delta Estuary, restoring wetlands, reducing nonpoint source runoff, and promoting watershed management practices. The Bay Area Alliance is distributing the Compact among local and regional governments and the private sector to guide their future activities. CONTINUED NEXT PAGE	• The San Francisquito Watershed Council helps facilitate an integrated watershed approach to management of creek-related issues in the five cities and two counties of the watershed. In the East Bay, the 20-year old Wildcat-San Pablo Creeks Watershed Council does the same thing for the cities in Contra Costa County through which the two creeks flow. Many other, similar, watershed-planning efforts are taking place around the Bay.	• State, local and federal budget shortfalls could hinder progress. • Permits often have inconsistent requirements.	• The Smart Growth Strategy/Regional Livability Footprint Project continues to work with legislators on policy changes and incentives that local governments would need in order to implement the Smart Growth Vision. • The Bay Area Alliance is developing an implementation strategy intended to focus its efforts over the next three years. Its priority will be to promote Smart Growth and work to secure the incentives necessary for local governments and the private sector to implement more efficient land use and more vibrant, equitable communities. • Permits for restoration projects need to be consistent and streamlined.

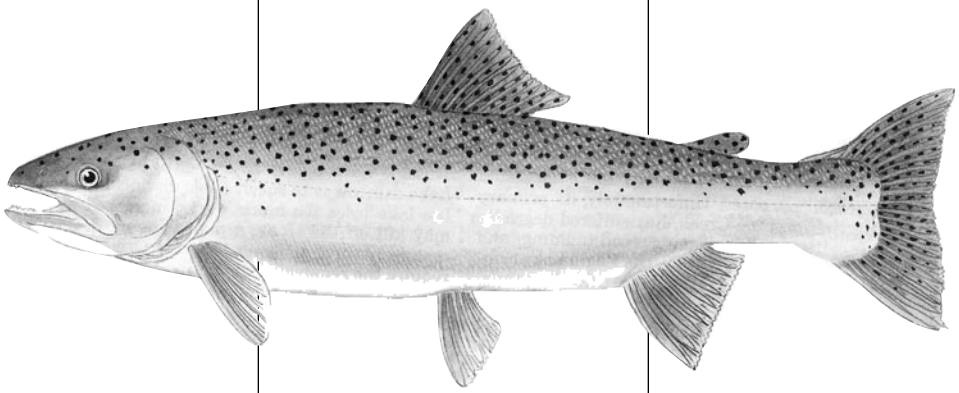


Coho salmon



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
SOME **CONTINUED** **LAND USE 2.1** Regional agencies should assist in identifying and developing consistent policies that provide an integrated framework for local governments to protect the resources of the Estuary.	• The Bay Area Alliance's first "Indicators" report, which includes the ecological health of the Bay, was updated in 2004 to add a new indicator, the Bay Area's Ecological Footprint. The Bay Area Alliance plans to update the report periodically and aims to focus public attention on the issues that the indicators reflect. • Convened by BCDC with the goal of fostering ongoing discussion among scientists, wildlife advocates, regulators, and planners about how to balance the sometimes competing goals of public access and habitat protection, the Public Access and Resource Protection Forum received federal funds for 2004 and 2005 to participate in the planning process for the South Bay Salt Pond Restoration. So the Forum no longer exists as a separate entity; its efforts are all directed at the one project.	• In 2002, the BCDC's recently completed Thermal Power Plant Siting Report described California's energy crisis and its potential impact on S.F. Bay, and examined how power plants can impact estuaries. Taking into account the sensitive resources along the Bay shoreline, improvements to technology, and the potential for power plant impacts on the environment, the report concluded that power plants no longer require siting along the shoreline of the Bay. As part of the study, the Commission compiled existing natural and cultural resource information from its project files and from other agencies and converted it to geographic information system (GIS) maps. The Commission adopted the report and maps. • In 2002, BCDC reviewed a proposal to expand the Potrero Power Plant. It recommended against approval of the expansion and the California Energy Commission did not approve it. • In 2005 BCDC will approve revised recreation policies that provide specific guidance on what types of recreational use are appropriate for former military installations and include provisions that protect the Bay's resources, including large, sandy beaches and other significant habitat areas in shoreline parks.		• For several years, the BCDC has compiled permit information and additional resource information onto GIS maps, so staff can research resource information for a particular location and identify adjacency issues that come up in siting developments, mitigation, and public access. This information helps staff develop policies, review projects, and conduct enforcement cases more efficiently, thereby protecting the Bay's resources more effectively.



Coastal rainbow trout

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

Action

NEGLIGIBLE

LAND USE ACTION 5.1

Create economic incentives that encourage local governments to take action to protect and restore the Estuary.

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

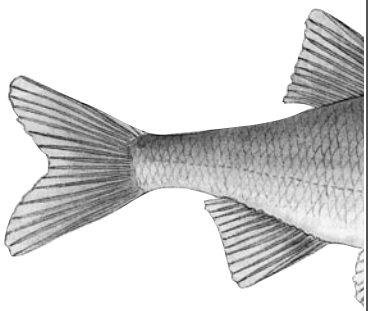
- The ABAG-CALFED Task Force has a regional focus and seeks to foster sustainability strategies and incentives that fully integrate water management solutions, including increased water conservation and efficiency, water recycling, groundwater management, watershed conservation and flood control, water quality improvement, and water blending and exchange. Implementation may be funded by Prop. 50 or by legislative vehicles. In a joint effort to implement CCMP actions via CALFED, the CCMP Implementation Committee serves as the Ecosystem Restoration Subcommittee for the Task Force.
- Early in 2005, a Bay Area Water Forum (BAWF) was launched to make recommendations to ABAG's CALFED Regional Water Task Force. The Forum's membership is much broader than the Task Force's; it includes environmental, business, and community organizations, and its purpose is to broaden the discussion on water issues beyond water districts and water agencies. One of BAWF's first projects is collaborating on creating an Integrated Regional Water Management Plan, which will enable the BAWF to tap into Water Bond (Prop 50) funds.
- The S.F. Regional Board is providing technical and financial assistance to municipalities and other entities developing self-directed watershed management and protection plans. Municipalities that implement these plans can gain regulatory credit toward potential TMDL and urban runoff permit requirements.
- The SF Bay Joint Venture website (sfbayjv.org) lists funding sources that local governments and non-profits can tap into for projects related to restoring and protecting the Estuary. The funding sources include: North American Wetland Conservation Act (NAWCA) funds, State Coastal Conservancy, SFBJV Small Grants, federal programs, state programs, local programs, and private organizations. It also lists fellowship opportunities, resources for non-profits, and funding workshops.

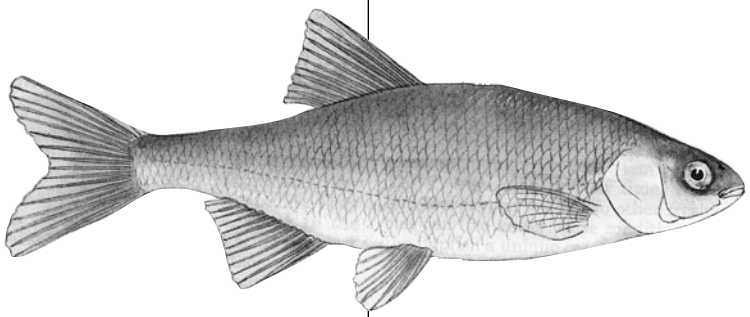
On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- Active management activities are underway in many watersheds, including the Napa and Petaluma rivers; Sonoma, San Francisquito, Alameda, and Alhambra creeks; Santa Clara Valley watershed, Codornices Creek watershed and the Wildcat-San Pablo Creeks watershed, to name just a few.

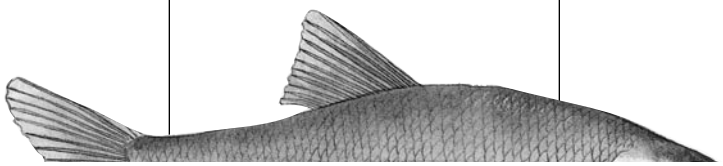
Current Gaps & Roadblocks





Ideas & Opportunities for Further Progress

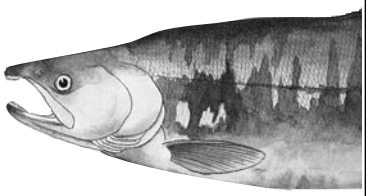
- Similar watershed management activities should be expanded to more areas of the Estuary.
- With guidance from the ABAG-CALFED Task Force and the Bay Area Water Forum, a draft of the Integrated Regional Water Management Plan will be prepared during 2005 and 2006, and it will be the first California Water Plan to be prepared since1998. The new plan will be developed through an open public process with help from a 65-person advisory committee and 350-person extended review forum. It will include a strategic plan, multiple future scenarios to help plan for uncertainties, 25 resource management strategies, a reference guide, and a technical guide.
- In 2005, the US Environmental Protection Agency requested proposals from across the country for its third annual Targeted Watersheds Grants Program. Congress has provided $18 million for grants to support community-based approaches and activities to protect and restore local water resources. Grants will be used to help support innovative, market-based approaches to watershed projects, including water quality trading. See www.epa.gov/owow/watershed/initiative/.
- Proposed legislation, the Water Resources Development Act of 2005, now pending, maintains funding for restoration and enhancement through the Army Corps at current levels. It provides ongoing funding for the San Pablo Bay Restoration and adds funding for Bel Marin Keyes, an expansion of the Hamilton restoration.
- SB 350, San Joaquin River restoration and water management bill, now being considered by the legislature, would establish the San Joaquin River Fund in the State Treasury and require the Resources Agency to expend funds for projects that (1) improve habitat and physical conditions in and along the San Joaquin River to facilitate the restoration of stream flows and native fish populations or (2) result in the acquisition of cost-effective replacement water supplies.



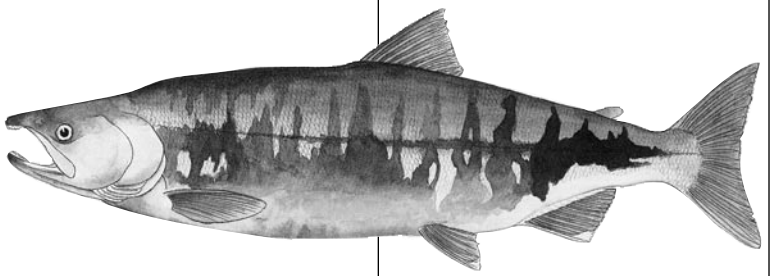
Hitch

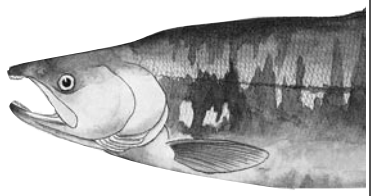
PRIORITY 3. Create incentives that motivate governments, landowners, businesses, and communities to protect and restore the Estuary.

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
SOME **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.	• CALFED Governance Legislation signed into law in 2002 created the California Bay-Delta Authority to carry out implementation of CALFED's August 2000 record of decision. The Authority operates under the California Resources Agency, with status equal to the state Dept. of Fish and Game and the Dept. of Conservation. A 20-member governing board includes 12 federal and state officials, seven members of the public, and one representative from the Bay-Delta Public Advisory Committee. • Federally appropriated funds for activities authorized under various Water Resources Development Acts are enabling the Army Corps (via programs such as Section 206 and 1135) to become a federal partner with local entities in studying and implementing restoration priorities. Specific congressional authorization has also allowed the Corps to assist in the preparation of watershed management plans for designated watersheds, including the San Pablo Bay Watershed. • Congressional authorization under Section 503 of the 1996 Water Resources Development Act enabled the Army Corps to partner with the Coastal Conservancy and The Bay Institute to prepare a San Pablo Bay watershed restoration plan and to implement restoration projects. • California voters passed Prop. 40 in 2002, allowing the state to sell $2.6 billion in general obligation bonds to develop, restore, and acquire state and local parks, recreation areas, and historical resources, and to fund land, air, and water conservation programs. • California voters passed Prop. 50 in 2002, allowing the state to sell $3.44 billion in general obligation bonds for various water-related programs. More than half the funds have been allocated to the CALFED Bay-Delta Program ($825 million) and coastal protection ($950 million), with the rest allocated to integrated water management ($640 million), safe drinking water ($435 million), clean water and water quality ($370 million), desalination and water treatment projects ($100 million), Colorado River management ($70 million), and water security ($50 million). • CALFED continues to provide substantial funding for Bay-Delta restoration and protection through its Ecosystem Restoration Program (ERP). • The S.F. Regional Board is directing its non-point-source grant monies (Prop. 40 & 50) to municipalities implementing high-priority watershed-based stream and habitat restoration projects. Called Integrated Watershed Management Program, the guidelines are expected this year and applicants can start applying for funds in early 2006. • The WCB approved a $40 million grant to the Coastal Conservancy to support Baylands restoration projects.	• Restoration projects promoted through the San Pablo Bay Restoration Program include Sonoma, American Canyon, Pinole, and Las Gallinas creeks. • As of 2004, more than 450 Ecosystem Restoration Program projects had been completed or were underway with the goal of improving aquatic and terrestrial habitats and natural processes to support stable, self-sustaining populations of diverse and valuable plant and animal species through an adaptive management process. Overall, progress was on schedule or ahead of schedule for 66% of the 119 identified program milestones. • The Environmental Water Account, one of CALFED's tools for protecting and recovering at-risk fish species, is based on the concept that flexible water management can achieve fish and ecosystem benefits. To date, EWA funds have been used mostly to reduce the impact of project operations in the Delta on Central Valley spring-run Chinook salmon, steelhead trout, Delta smelt, and Sacramento winter-run Chinook salmon.	• The state's constrained fiscal situation in 2004 created additional constraints for the ERP projects. A contracting freeze was imposed temporarily while the state fulfilled additional procedural requirements related to preparing and implementing contracts. • Most of the Prop 40 and Prop 50 bond funds will be depleted by 2007. • Cities cannot raise fees to support stormwater programs the way they can for sewage without a majority vote by taxpayers.	• SB 200, which would establish the Sacramento-San Joaquin Delta Conservancy Program, is being considered by the state legislature. The Conservancy Program would focus on preserving the unique agriculture and wildlife, economic vitality, cultural viability, and recreational opportunities of the Delta. It would fund projects 1) promoting farming that integrates agricultural activities with environmental protection through wildlife-friendly farming practices; 2) protecting farmland, including grazing land; 3) implementing policies and programs that are consistent with other government plans; 4) providing public access and recreational opportunities; and 5) protecting and enhancing projects that provide open-space and natural areas. • A Finance Options Report for the ERP is now being considered in the legislature. The goal is to create a financing plan for the next 10 years that balances a number of revenue sources. • The Alameda RCD is developing a Conservation Futures Program that will use mitigation fees from developers to leverage investment in high priority, strategic conservation activities around the county. A major use of the mitigation funds will be used to secure public and private matching grants. • Because most of the Prop 50 bond funds allocated to CALFED will be depleted in the next couple of years, the legislature is now considering future long-term financing plans for CALFED. A proposal under consideration would rely heavily on a large federal contribution and on water user fees, a controversial funding mechanism. • The legislature is now considering AB 1269 and SB 153, bills that would authorize bond funds for clean water, clean air, coastal protection, and parks. • Change 218 (ACA 13) to include stormwater/storm sewers. • The Coastal Conservancy is working with Save the Bay, Bay Institute, and others to assess regional funding options to support major Baylands restoration projects.



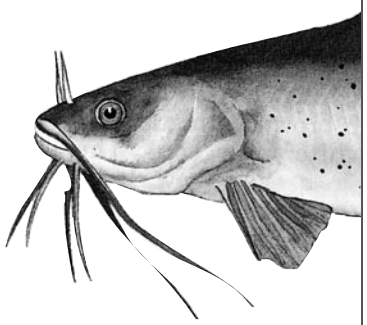
Chum salmon

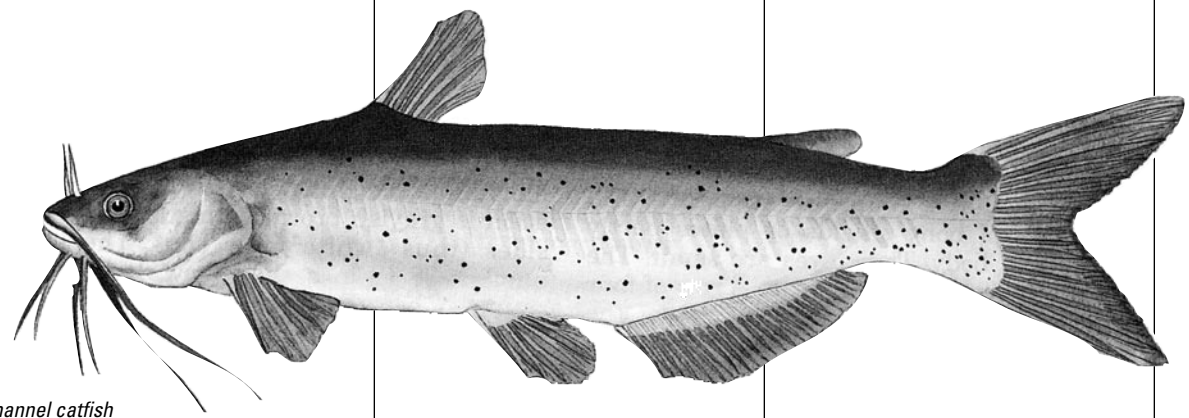




PRIORITY 3. Create incentives that motivate governments, landowners, businesses, and communities to protect and restore the Estuary.

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
SOME **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.	• 2002 Farm Bill programs provide cost-share incentives to landowners, in the context of a conservation plan. California counties will receive $87 million for 2005. The Environmental Quality Incentives Program (EQIP) promotes conservation on agricultural lands and environmental quality as compatible national goals; farmers and ranchers may receive financial and technical help to install or implement structural and management conservation practices on eligible agricultural land. The Wetlands Reserve Program (WRP) provides technical and financial assistance to eligible landowners to address wetland, wildlife habitat, soil, water, and related natural resource concerns on private lands in an environmentally beneficial and cost-effective manner; landowners receive financial incentives to enhance wetlands in exchange for retiring marginal land from agriculture. The Wildlife Habitat Incentives Program (WHIP) encourages creation of high-quality wildlife habitats that support wildlife populations of national, state, tribal, and local significance; NRCS provides technical and financial assistance to landowners and others to improve riparian, wetland, upland, and aquatic habitat areas on their properties. • The U.S. Fish & Wildlife Service has several programs, notably the Private Stewardship Grant Program, Partners for Fish and Wildlife Program, and the Coastal Program that offer funding incentives for private landowners to implement projects that benefit fish and wildlife while meeting landowners' needs.	• The Santa Clara Valley Water District's Watershed Stewardship Grant Program makes $300,000 in grant money available each year to fund community-based, nonprofit organizations in their watershed stewardship efforts aimed at enhancing ecosystem health, water supply, and water quality within Santa Clara County. For more information, see www.valleywater.org. • In 2004, the Santa Clara Valley Water District initiated a grant program for environmentally sensitive recreational uses of watersheds. About $900,000 will be allocated each year. • The Fish Friendly Farming Program goal is to help recover the federally listed Coho and Chinook Salmon and Steelhead Trout in the Russian River and North Coast Watersheds. It assists farmers in improving water quality and fish habitat and provides for voluntary compliance with local, state, and federal regulations. Farmers can receive grant assistance to implement restoration and repair projects. Farmers can also have their farm plans certified and potentially use the certification in marketing programs. The Sonoma and Napa County RCDs are expanding the program into their counties with the help of local farm associations.	• While the value of farm production in California is about 13% of the nation's total, the state receives only 6% of funds allocated through Farm Bill conservation programs. • CEQA is under attack from developers.	• Drawing on the success of its Partners in Restoration (PIR) project, which allows farmers in Monterey County to use a simple, one-stop permit shopping process for conservation projects on their land, Sustainable Conservation replicated this model project in the Morro Bay, Salinas River, Navarro River and Coastal Marin watersheds. In 2005, it is working with 4 more counties: Alameda, Santa Cruz, Humboldt and San Diego. Sustainable Conservation is now embarking on a program to train Resource Conservation Districts and NRCS staff from all over the state to carry out local permit coordination efforts. • In July 2003, Sustainable Conservation's Dairies Project, which helps farmers change their management practices and reduce pollution and works with strategic partners, U.C. Davis, government agencies, and the state's dairy industry, began a project to determine how to optimize nutrient uptake from manure used as fertilizer, so the manure doesn't pollute local waterways. The Project is currently pursuing other initiatives that require minimal investment for dairy producers, yet offer important opportunities for improving environmental quality, including the transformation of manure to methane to produce electricity, the conversion of manure to compost, and technical assistance in pollution control for non-English-speaking dairy farmers. The project is also investigating manure separation technology. In 2004, it started the Conservation Tillage Initiative to reduce water and air pollution and increase carbon sequestration. • Provide incentives for businesses to do innovative stormwater treatment; establish a competitive grants program. • Emphasize the water quality benefits of smart growth initiatives.





Channel catfish

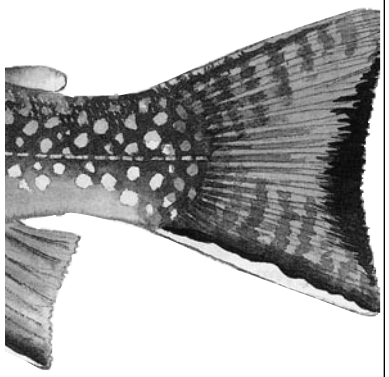
PRIORITY 4. Minimize or eliminate pollution of the Estuary from all sources.

Action

SUBSTANTIVE

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.



Brook trout

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The S.F. 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 S.F. Bay. The mission of the partnership is to use sound science, adaptive management, and public collaboration to develop and implement technically valid and cost-effective strategies including TMDLs that result in identifiable, sustainable water quality improvements in the Bay.
- The federal Clean Water Act requires states to identify waters impaired by pollution and the pollutants causing the impairment. It also requires states to establish Total Maximum Daily Loads (TMDLs) for these pollutants, and the TMDLs are essentially clean up or restoration plans that must include: numeric targets that define the desired condition of the water, the maximum amount of the pollutant that the water body can tolerate while meeting the targets, identification of the sources of the pollutant, and the pollutant load reductions assigned to each source of the pollutant.
- The S.F. Regional Board established a mercury TMDL for S.F. Bay in 2004; in 2005 and 2006, the Board will consider adopting Basin Plan amendments to establish 7 more TMDLs: Tomales Bay watershed pathogens, SF Bay urban creeks diazinon and pesticide-related TMDL, SF Bay PCBs, Napa River pathogens, Sonoma Creek pathogens, Walker Creek mercury, and Napa River sediments.
- BCDC policies related to the construction of San Francisco's new cruise ship terminal, prohibit the discharge of any ballast water, sewage, and other wastes into the Bay from cruise ships.

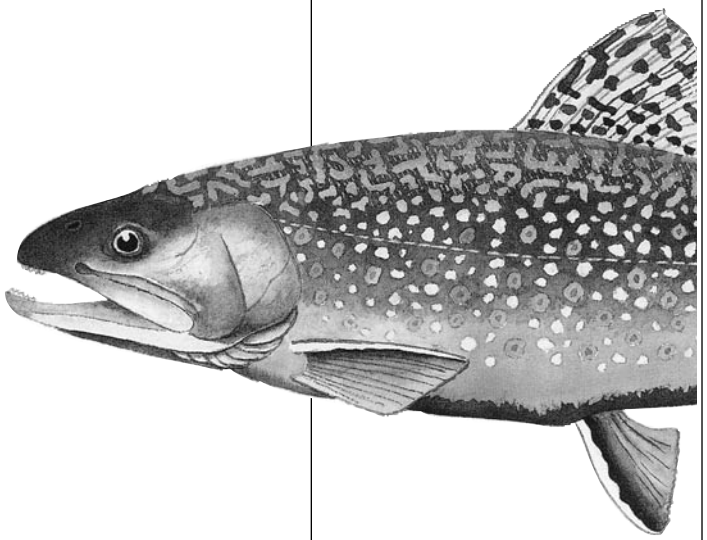
On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- West Coast cities of 50,000 or more are subject to an injunction issued by the Seattle District Court requiring implementation of a 20-yard, on-the-ground, no spray buffer zone and a 100-yard aerial buffer zone along streams that support threatened and endangered salmon. The judge's ruling covers 26 distinct populations of wild Pacific salmon and steelhead listed as threatened and endangered.
- The Emerging Contaminants Working Group and the Bay Area Pollution Prevention Group are trying to control PPCPs (pharmaceuticals and personal care products), disseminating the latest research findings to wastewater treatment agencies and working with hospitals to encourage use of BMPs for disposing of pharmaceuticals.

Current Gaps & Roadblocks

- Resources and data are limited.
- TMDLs may not be effective at controlling pollutants that bioaccumulate or remediating the effects of pollutants that bioaccumulate.
- If control measures are put in place now, it will still take the Bay over 100 years to recover from past discharges of PCBs and mercury.
- PPCPs 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 many PPCPs.
- It is difficult to go after all sources of such pollution. An example is anti-bacterial soaps, which are widely used by hospitals and consumers. Those products may be creating more by-products that are difficult for sewage plants to treat (not to mention creating resistant bacteria).



Ideas & Opportunities for Further Progress

- The SF Board has 9 TMDL projects scheduled for completion by 2008 that address over 50 impaired water quality listings and 3 efforts supported by the Clean Estuary Partnership: SF Bay legacy pesticides, SF Bay diazinon and pesticide toxicity, and SF Bay selenium. Other active projects include sediment TMDLs for Lagunitas Creek, San Francisquito Creek, Sonoma Creek and Walker Creek; nutrient TMDLs for Sonoma Creek and Napa River and the Guadalupe River watershed mercury TMDL.
- The desire to conserve and recover native fish and aquatic wildlife populations is driving the development of sediment TMDLs for Bay Area streams. Because several factors often influence species declines, the Regional Water Quality Control Board has proposed a holistic analysis and management program to facilitate recovery of at-risk species. Although the Regional Board will require actions to control sediment, they will also promote and reward actions—through the use of regulatory incentives and by awarding state and federal grants—that address other identified limiting factors, such as fish migration barriers, stream and riparian habitat degradation, and low baseflow.
- To be effective, TMDL implementation plans should include pollutant load reduction actions consistent with the pollutants' impacts, monitoring of control action effectiveness, a list of outstanding questions and a framework for answering the questions, and finally, a process for reviewing and modifying the TMDL as understanding of the pollutant grows.
- A new multi-box model of the long-term fate and transport of PCBs and sediment in the Bay will be used to further refine the PCB TMDL for S.F.Bay now being developed.
- More studies on PPCPs are needed.
- TMDLs should include pollutant load reductions consistent with the pollutant's impacts, and should be monitored for effectiveness and modified as understanding of the pollutant grows.

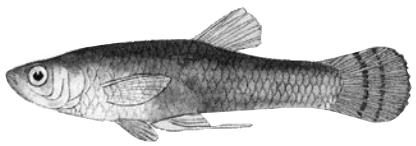
PRIORITY 4. Minimize or eliminate pollution of the Estuary from all sources.

Action

MODERATE

POLLUTION PREVENTION AND REDUCTION 2.4

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



Western mosquito fish

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

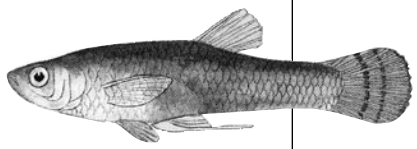
- The S.F. Regional Board continues to implement urban runoff permits including developing a new regional permit. It is also implementing a stream protection policy that will have positive impacts on water quality.. The latest permits address stream channel erosion, erosion control for public roads, and pollutant-specific requirements (mercury, pesticides, and PCBs) and include greater emphasis on managing areas of new development and redevelopment.
- In 2003 the State Water Resources Control Board issued stormwater permits for smaller urbanized areas in Marin and Napa Counties, which did not fall under the Phase I Stormwater Program.
- In 2004, the Central Valley Regional Water Quality Control Board, the State Board, and the U.S. EPA approved a TMDL and basin plan amendment for mercury in Clear Lake and for diazinon in the Sacramento/Feather Rivers. TMDLs for salt and boron in the San Joaquin River and for dissolved oxygen in the Stockton deep water ship channel have been approved by the Regional Board and are awaiting State Board approval.
- The Brake Pad Partnership, a cooperative effort among international vehicle brake manufacturers, government agencies, and environmental groups, is studying the physical and chemical properties of copper in brake pad wear debris, and determining its potential impact on the environment. In October 2003, the Partnership initiated a series of technical studies designed to model how copper is transported from brake pads to the South San Francisco Bay and to model the concentrations of copper in the water. The studies are scheduled to be completed in December 2006. At that point, the Partnership will reach one of three possible conclusions: 1) the copper is a significant problem in the environment, so car manufacturers should change the ingredients in brake pads; 2) the copper is not a problem, but car manufacturers can still use the modeling tools developed by the Partnership to study how brake pad ingredients become airborne and affect water quality; or 3) the studies can't determine whether or not copper is a problem.
- In June 2004, the County of San Benito received a $200,000 Brownfields Assessment Grant from the U.S. EPA to develop a remediation and risk assessment plan for acid mine drainage from New Idria Mine.

CONTINUED NEXT PAGE

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- Bay Area municipalities responsible for limiting urban runoff are implementing these actions.
- The EPA phased out all urban and many agricultural uses of diazinon, one of the most ubiquitous pollutants in Bay Area streams, at the end of 2004.
- California has passed a bill banning the use of some flame retardants, which are an emerging pollutant of concern (penta PBDEs).
- BCDC has updated its water quality policies to address stormwater runoff problems.
- As part of Surface Water Ambient Monitoring Program (SWAMP), the S.F. Regional Board has been monitoring trash in Bay streams for the past two years, in an attempt to link trash with threats to aquatic life and human health. On 30-some sites around the Bay, in different demographic areas, the SWAMP team regularly visits a 100-foot section of stream, along which they enumerate and categorize trash, then pick it up and remove it. From there, they assign assessment scores and revisit the same sites a few months later to estimate return rates. They also try to gauge whether the seasons or different types of public access are having an impact on the amount and type of trash they find. The team's data collection will be complete this fall and followed by a report. A trash TMDL is a possibility.

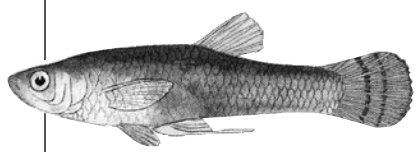


Current Gaps & Roadblocks

- Alternatives to diazinon may also present problems for aquatic life.
- There is currently no routine monitoring of Bay Area creeks. Due to the lack of monitoring, no data exists with which to assess the status and trends of creek habitat the way the RMP does for the Bay.
- Trash of all kinds—plastic debris, paper, organic matter, Styrofoam, and construction debris, to name just a few—is an ongoing problem in the Bay and the creeks that flow into it. In 2004, volunteers removed 50,000 tons of trash from Lake Merritt, trash that would have ended up in the Bay. That was the largest haul since the Clean Lake Program began in 1998, although volunteer cleanups have also become more frequent. One problem is that many cities are broke and are already charging the maximum fees possible for stormwater. There is a need for greater education, citizen participation, and structural solutions such as vortex separators to mechanically remove trash from storm drains.
- Most new stormwater treatment measures in the Bay Area focus on new development rather than older, built-out areas, which are significant sources of urban runoff into the Bay. There are several models for retrofitting dense, urban areas—including many in Portland and Seattle—but it will take a major push by regulators, cities, and cooperative developers to make these innovative projects happen in the Bay-Delta watershed. Developers have fought the Regional Boards over stronger stormwater regs in the past few years, forcing the Boards to compromise.

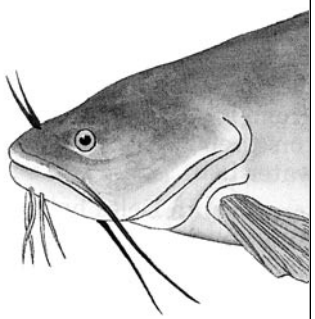
Ideas & Opportunities for Further Progress

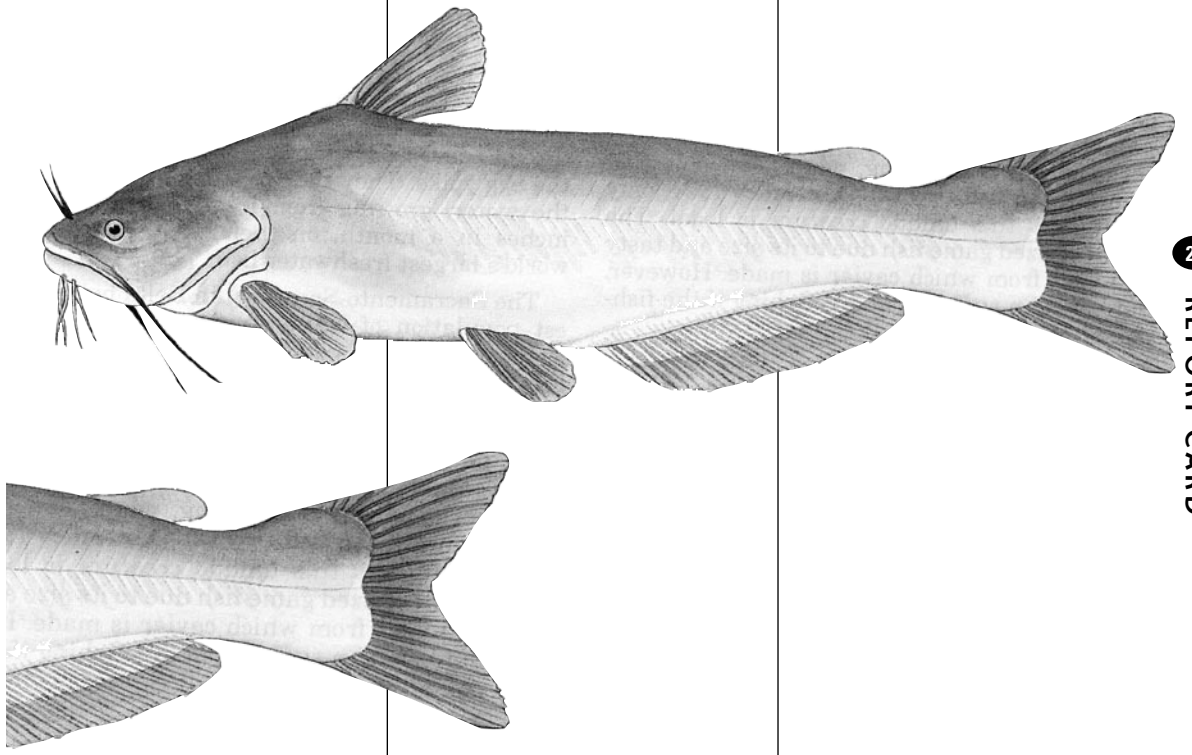
- The Central Valley Regional Water Quality Control Board is working on TMDLs for diazinon and chlorpyrifos in the San Joaquin River and Delta, for nutrients in Cache Creek, and for mercury in Cache Creek and the Delta.
- New development and redevelopment projects should incorporate 1) source controls to prevent pollutant discharge; 2) a minimum of connected impervious surfaces; and 3) treatment controls to remove pollutants from runoff before it is discharged to waterways.
- Bay Area cities and the Regional Board could and should be encouraging and implementing more innovative stormwater/urban runoff demonstration and retrofit projects. The city of Portland is leading the way in this area and could be used as a model.
- Revise 218 (ACA 13) to include stormwater.
- Implement dry weather or "first flush" treatment of urban runoff at sewage plants; encourage demonstration projects.
- Encourage and recognize innovative stormwater demonstration projects and retrofits.



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
MODERATE **CONTINUED - POLLUTION PREVENTION AND REDUCTION 2.4** Improve the management and control of urban runoff from public and private sources.	• In April 2004, the Santa Clara Valley Urban Runoff Prevention Program published a manual showing how to better design new development projects to prevent and filter urban runoff. • The Coastal Commission, Contra Costa County Public Works Dept., and the Department of Boating and Waterways just launched a major collaborative effort to educate boaters and recreationalists in the Delta about ways of preventing pollution in the Delta. • The 90 cities, counties, and special districts that make up BASMAA are tackling the trash problem by inventorying "hot spots" and devising ways to deal with them, and by stepping up a regional advertising campaign about keeping watersheds beautiful. • Some cities are considering taking "clean creeks" measures to the voters. Oakland voters passed Measure DD—$198 million for "clean water and safe parks"—while farther south, Los Angeles voters approved a $500 million bond and parcel tax for stormwater, rivers, and beach protection, indicating that Bay-Delta watershed voters might be willing to do something similar. This would give cities more money for stormwater and trash cleanup programs and devices. • The San Francisquito Watershed Council is undertaking a project to review policies, codes, and ordinances related to polluted urban runoff for the jurisdictions within the watershed. As a result of the review, expected to be complete in 2006, the Council will recommend ordinance and policy changes. The Watershed Council is starting a new project, funded by a State Water Resources Control Board Prop 13 Grant, to help keep pollutants out of San Francisquito Creek. This project is using two properties within the creek's watershed to demonstrate how to reduce the amount of polluted urban runoff that sheets off of driveways, rooftops, and other hard surfaces when it rains. The demonstration construction will be complete in 2005 and monitoring of the sites and public outreach will begin in 2006.			

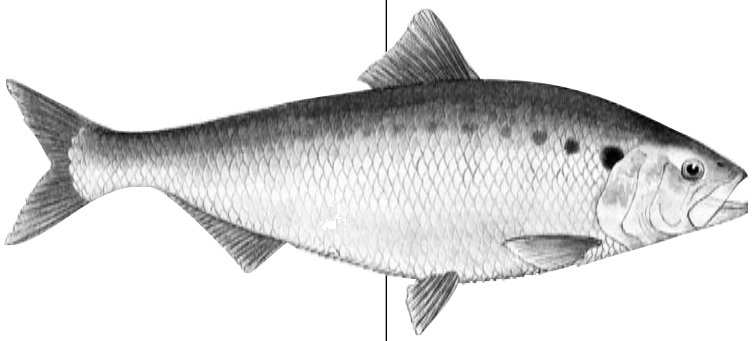




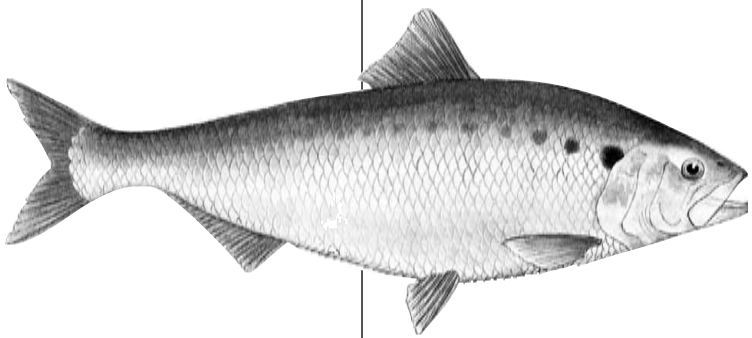
Blue catfish

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
SUBSTANTIVE **PUBLIC INVOLVEMENT AND EDUCATION 2.5** Increase long-term educational programs designed to prevent pollution of the Estuary's ecosystem.	• In 2005, the SF Regional Board published a document, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*. While the document is not intended to establish policy or regulation, it identifies environmental screening levels for over 100 contaminants, and it is intended to help expedite preparation of environmental risk assessments at sites where soil and groundwater is impacted. • The California Coastal Commission and the Contra Costa County watershed program developed a "Keep the Delta Clean" and a Boating Clean and Green campaign to do outreach on reducing pollution from recreational boating.	• Working with the SF Regional Board, the SF Estuary Project provided public education/outreach for the development of TMDLs to meet water quality standards for diazinon and pesticide-related toxicity in urban creeks around the Bay Area. SFEP developed TMDL fact sheets for the Clean Estuary Project, and assisted with monitoring pesticide problems in the Tomales Bay oyster beds. With assistance from the BASMAA, SFEP examined and reported on the sources and amounts of mercury and copper in the Bay. • The Alameda County RCD has an educational program for 4th-graders called "Watershed Adventures." Students learn about watersheds, pollution, and how to protect their creeks.	• Finding funding for classes on Best Management Practices is a continuing challenge. • Product manufacturers resist efforts they see as restricting their profits—i.e., additional testing, take-back packaging, consumer warnings, etc.	• Spearhead legislation that would mandate review of the water quality risks from both essential and non-essential consumer products. That review should include both the packaging and chemical content of the products because both end up in the Estuary. • Establish an "environmental surcharge" on products that end up in the waste stream/the Bay. • Require environmental education in schools—from grade school through college.
MODERATE **POLLUTION PREVENTION AND REDUCTION 2.6** Improve the management and control of agricultural sources of toxic substances.	• Several environmental groups have appealed the ag discharge waiver issued by the Central Valley Regional Water Quality Control Board, which exempts agricultural dischargers from obtaining the same permits and complying with the same environmental standards as other dischargers. The State Board is considering the appeal. The Regional Board has promised to re-examine the issue at future hearings.	• The Council of Bay Area Resource Conservation Districts produced *Horse Keeping: A Guide to Land Management for Clean Water*, a manual of Best Management Practices. The focus is on conservation practices that can be used at horse facilities for site improvement and manure management. In 2005, the guide became available on CDs and can be accessed in PDF at www.bayareabarnsandtrails.org. In addition, the brochure *Horse Owners' Guide to Water Quality Protection and Fact Sheets* continue to be distributed. • The Alameda RCD has an Equine Facilities Assistance Program that helps stable owners and operators improve water quality by sharing the cost of manure storage improvements and cleanup, drainage control around manure storage areas and paddocks, roof runoff control, erosion control measures such as netting and revegetation, and pasture fencing and re-seeding. • The State Water Resources Control Board is funding SFEI to undertake an aquatic pesticide monitoring program to evaluate the toxicity of aquatic herbicides. They also developed permit requirements for those herbicides.	• The Council of Bay Area Resource Conservation Districts has not worked with County Resource Conservation Districts for the past two years due to lack of funds.	• Retire selenium-contaminated lands in the San Joaquin Valley.



American shad



PRIORITY 5.

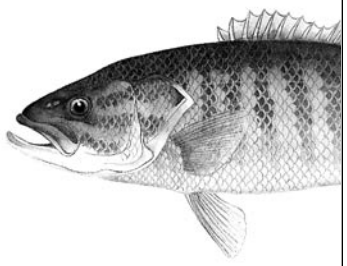
INCREASE PUBLIC INTERACTION WITH THE ESTUARY'S NATURAL RESOURCES WHILE ENCOURAGING STEWARDSHIP, PROMOTING THE VALUES OF ECOLOGICAL PROCESSES, AND EDUCATING THE PUBLIC ABOUT THE EFFECTS OF HUMAN ACTIVITIES ON THE ESTUARY.

Action

SUBSTANTIVE

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.



Smallmouth bass

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- Educating local, state, and national decision-makers about CCMP implementation, the value of estuaries, and the need to protect them are the goals of the Association of National Estuary Program's Citizen Action Committee, in which the S.F. Estuary Project and Friends of the Estuary participate. To that end, the Estuary Project offers several educational programs through the the Friends of the San Francisco Estuary, which sponsors workshops for students and teachers and helps community groups conduct restoration projects.
- Creek Keepers Environmental Justice Project, a joint effort of Friends, the SF Estuary Project and the SF Regional Board, now in its ninth year, trains and employs youth from Richmond High School to provide environmental leadership, help restore the Wildcat Creek watershed, and conduct public outreach. In collaboration with the East Bay Regional Park District, City of San Pablo, and City of Richmond, the students are currently propagating native plants and monitoring water quality.
- Friends also organizes Estuary Restoration Groups (ERG), hands on, habitat restoration experiences involving local governments, teachers and students, community groups, businesses and resource agencies. To restore habitat at Moller Ranch and Presley Preserve in Pleasanton, an ERG is planting native oaks, buckeyes, coyote brush, willows, and grasses along Laurel, Gold, and Tehan Creeks.
- Friends has created a Watershed Assessment Resource Center to provide technical assistance and training to Bay Area watershed groups. The Center has produced watershed monitoring manuals, hosted conferences, and trained citizens' groups in watershed assessment.
- On May 1,2004, Friends held "Snapshot Day", a day when citizens' groups along the entire California coast sampled bays, estuaries, rivers, streams, and the ocean and measured dissolved oxygen, temperature, pH, turbidity, and conductivity. The California Coastal Commission coordinated the monitoring, while funding was provided by the State Water Resources Control Board and EPA. Friends provided training, equipment, and field monitoring support for the participating citizens. The overall finding was that the water was relatively clean that season.

CONTINUED NEXT PAGE

On-the-Ground Implementation

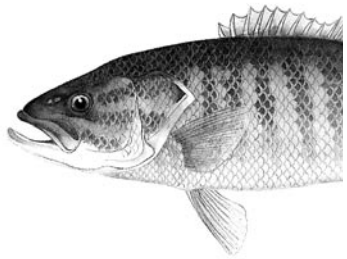
Examples of specific, local completed or in-progress projects

- The S.F. Estuary Institute has designed the EcoAtlas Information System as a way for the public and all other interests to access peer-reviewed scientific data and maps about ecological conditions in the Bay Area. The EcoAtlas can be accessed on the institute's web site.
- The State of the Estuary Conference, organized every two to three years, educates the public, interest groups, agencies, and the media about the health of the Estuary and provides up-to-date information about CCMP implementation. The next conference is in October 2005.
- ESTUARY newsletter is mailed bi-monthly to more than 3,000 decision-makers, scientists, and interested members of the public.
- S.F. Estuary Project and Friends of the Estuary co-sponsor and regularly participate in fairs, festivals, and other events to distribute information and educate the public about CCMP implementation.
- Geographic subcommittees of the CCMP Implementation Committee hold regular meetings open to the public.
- The Urban Creeks Council offers a Stream Management Program for Private Landowners (SMPPL). Based in Contra Costa County, this program assists private property owners with stream-related problems and advises them about how to use low-cost, environmentally-sound streamside management practices and alternatives to concrete and riprap. SMPPL offers numerous publications on erosion control, native plants, and bank stabilization. See: www.urbancreeks.org.
- The Urban Creeks Council also works with schools and community groups to encourage creek stewardship. As part of UCC's Watershed Restoration Action Program (WRAP), funded by CALFED, Richmond High School students are now learning about Wildcat Creek and San Pablo Creeks and how to survey and graph creek cross-sections and profiles, conduct pebble counts, and identify native plants. They'll re-plant the creeks and then help with monitoring and maintenance.
- The S.F. Bay Joint Venture gives frequent tours of restoration projects and to-be-restored sites to legislators, local politicians, and interested members of the public and decision-makers. In 2005, they will tour the South Bay Salt Ponds and restoration sites in Contra Costa County and North San Pablo Bay.

CONTINUED NEXT PAGE

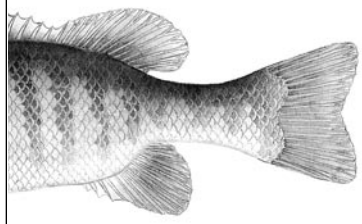
Current Gaps & Roadblocks

- 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.
- Consistent funding for these programs is lacking.



Ideas & Opportunities for Further Progress

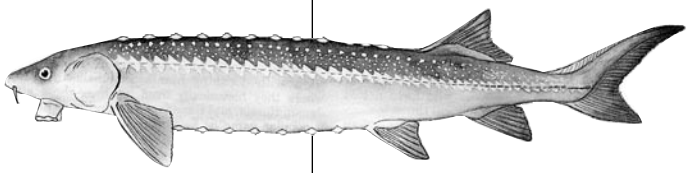
- Establish a Bay-Area-wide watershed council that would offer technical support, staffing, and funding for local watershed groups and non-profits.
- Develop region-wide data standards.



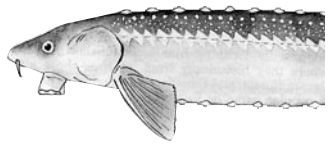
PRIORITY 5.

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
SUBSTANTIVE **CONTINUED** **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.	• The EPA's science advisory board is working on indicators for ecosystems nationwide that will encompass the Bay. The "Framework for Assessing and Reporting on Ecological Conditions" is intended to condense basic information about any ecosystem into a few broad categories that the general public can understand. The framework uses categories that can be applied across ecosystem types—whether a forest, rangeland, or watershed—such as landscape structure and composition. • The Contra Costa Water Forum and Community Development Dept. have a lending library with equipment for water quality testing, GPS, and written resources. They are also developing a mitigation obligation and fine money coordination effort to keep dollars in the area and direct them to local restoration projects. These organizations also offer volunteering monitoring programs using GPS and benthic macroinvertebrates.	• The Wildlife Stewards offers docent-led tours of the South Bay Salt Ponds, starting at the Don Edwards Wildlife Refuge in Mountain View. See: www.wildlifestewards.org. • In 2003, the Bay Institute developed the Bay-Delta Ecological Scorecard, which is geared toward the general public as well as more technical audience, and decision-makers. The Scorecard uses a series of indexes, or environmental topic areas, to evaluate how well the Bay and Delta are functioning, such as habitat extent, fish, birds, invertebrates, flows, water quality, stewardship, and human uses (how fishable, swimmable, and drinkable is the water?). Within each index, several indicators—species richness, abundance, percent of native species, and numbers of species that are tolerant of human impacts (in the bird and fish indexes), for example—are evaluated to come up with a grade, score, and trend. The Ecological Scorecard is designed to be consistent with the formats U.S. EPA and other agencies are now developing for ecological indicators nationwide. • In 2004, the Bay Institute further refined the Index and started the Healthy Bay Campaign to share the results with businesses, environmental agencies and the scientific community. Students at the University of California, Berkeley, began developing environmental justice measures for the Scorecard's Human Uses Index to determine whether or not access to safe recreation areas along the Bay front are distributed equitably among communities of different socioeconomic types. • BayQuest (formerly Project Transquest), an educational program offered by the Bay Model Association (BMA), takes students--middle school through graduate level--out on the Bay for 3-hour adventures aboard a 133' research vessel. Students learn about techniques for sampling and measuring water quality, benthos and fish. They also learn how human activity has changed the Bay and how recycling, reduced pesticide and herbicide use, and organic farming help minimize the negative impacts. Since the program began in 2001, over 500 students have participated and learned firsthand about the importance of protecting the Bay. See: www.baymodel.org.	• The Geosciences Department at San Francisco State University is teaching urban students about the city's watersheds in a program called S.F. ROCKS, a $1.25 million, five-year grant from the National Science Foundation to attract traditionally underrepresented high school students—blacks, Latinos, and Pacific Islanders—to the geosciences. Since early 2002, working through the San Francisco Unified School District, S.F. ROCKS has been introduced into the science classes of about 1,000 ninth graders from Burton High and Balboa High. Twenty-five students have taken part in a summer institute at S.F. State, where they gained field experience and received extra mentoring from geoscience professors and undergraduates from S.F. State and the City College of San Francisco. These students presented their research in poster form at the American Geophysical Union Conferences in San Francisco in both 2003 and 2004. • The San Jose Green Building program attempts to promote the "creation of environmentally-sound and resource-efficient commercial, municipal and residential by using an integrated approach to design." Free training events seek to educate developers, architects, engineers, contractors, property owners, and residents about green building and to promote environmentally sound building practices. www.ci.san-jose.ca.us/esd/gb-home.htm • Many citizens' groups—particularly friends of creek groups—are working to restore riparian habitat and improve water quality in the creeks that drain to the Bay. See www.aoinstitute.org/ creekspeak/CreeksSpeak2002-1.pdf for a list of these groups. • The Bay Institute's STRAW program (Students and Teachers Restoring a Watershed) has involved more than 8,000 students in watershed studies and restoration. They have planted almost 9,000 native plants and restored almost 22 acres of rural and urban creek banks. • *Bay Nature* magazine publishes frequent articles on the health of the Bay and Delta.	



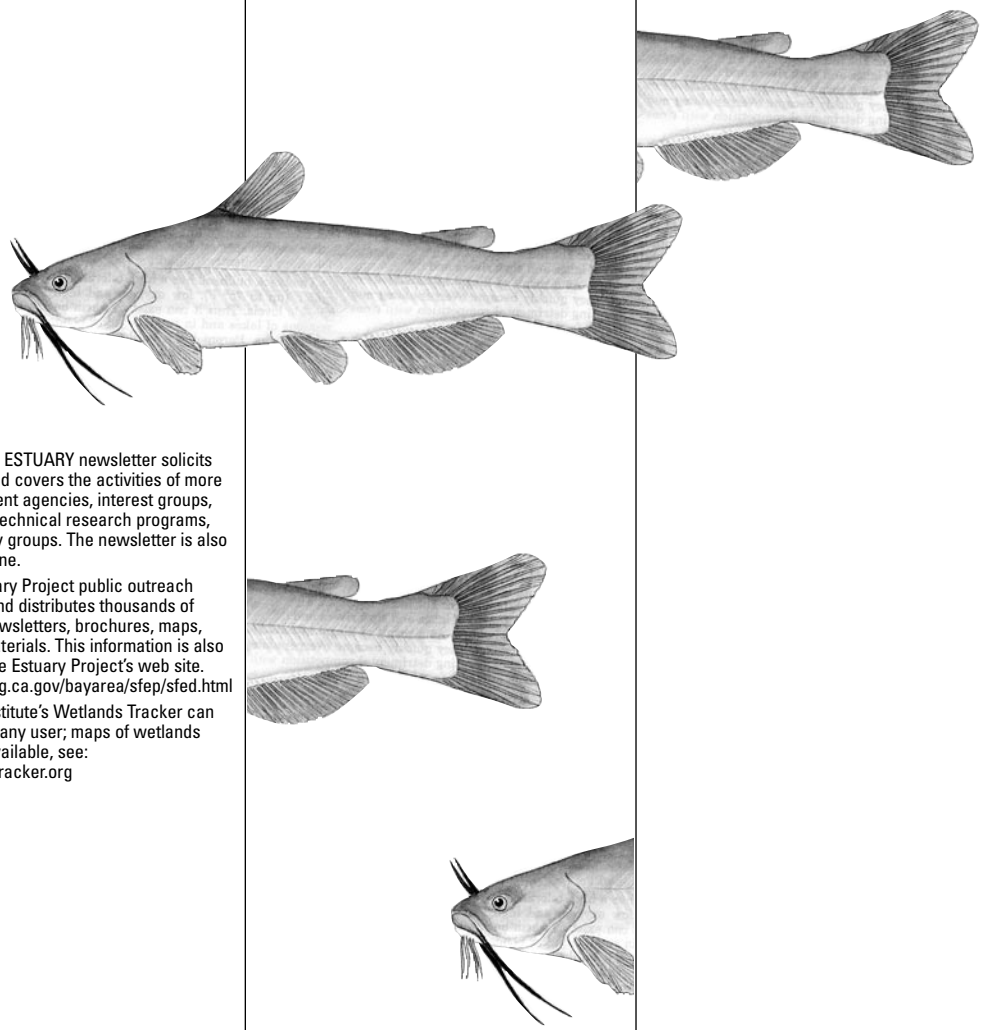
White sturgeon



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
SUBSTANTIVE **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.	• The Estuary Project has established a small grants program through an allocation from the U.S. EPA, under which local governments, citizens, and local non-profits can apply for projects that work to restore the Estuary and surrounding habitat. • In 2005, the Contra Costa County's Watershed Program (CCWP) partnered with the Watershed Project (WP) to administer the Community Watershed Stewardship Grant Program, which will distribute a total of $233,000 to watershed groups in unincorporated Contra Costa County in 3 grant cycles between 2005 and 2007. By encouraging grassroots community stewardship, the grant program aims to prevent water pollution and restore the health of local watersheds, creeks, and the San Francisco Bay. Grants will go to projects with strong stewardship components and may be used for project coordination, monitoring, habitat restoration, rehabilitation, outreach, and education projects. See: www.thewatershedproject.org.	• The Estuary Project awarded $98,955 in 2004-05 to 13 citizen and community groups and local agencies for projects that will enhance the Estuary.		
FULL **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 S.F. Bay Joint Venture website (www.sfbayjr.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. • 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		

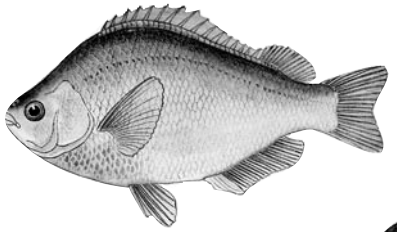


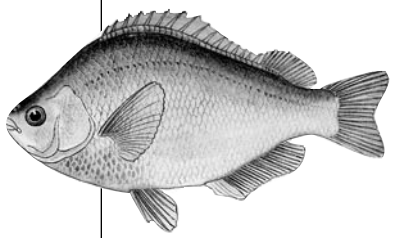
White catfish

PRIORITY 5.

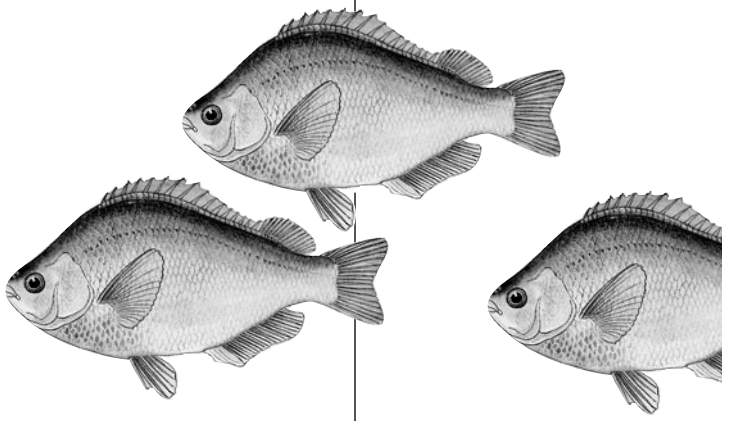
INCREASE PUBLIC INTERACTION WITH THE ESTUARY'S NATURAL RESOURCES WHILE ENCOURAGING STEWARDSHIP, PROMOTING THE VALUES OF ECOLOGICAL PROCESSES, AND EDUCATING THE PUBLIC ABOUT THE EFFECTS OF HUMAN ACTIVITIES ON THE ESTUARY.

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
SUBSTANTIVE **LAND USE 4.1.** Educate the public about how human actions affect the Estuary.	• CALFED has launched a series of "Science in Action" inserts in ESTUARY newsletter, see: http://calfed.water.ca.gov/newsletter_0302.htm Published since 2001, these 8 to 24 page inserts cover a range of topics: pollutants of concern, new science about rivers, the Delta and marsh restoration, invasive species, and endangered species. Four inserts are planned for 2005. • A new online science journal published by the Bay-Delta Science Consortium, San Francisco Estuary and Watershed Science, is an open access, peer-reviewed publication focused on the latest scientific findings about the San Francisco Estuary, the Sacramento-San Joaquin River Delta and upstream watersheds. The three issues planned for 2005 will cover climate change in California, subsidence and levee integrity in the Delta, hydrologic modeling, water resources planning and other topics. See: www.estuaryscience.org. • San Francisco Estuary and Watershed Archive, a companion service to the electronic journal, provides access to a myriad of scientific documents, including surveys, planning and project reports, and environmental information resources. See: www.estuaryarchive.org	• 1-888-BAYWISE is a toll-free information line funded by Bay Area water pollution prevention agencies: www.baywise.info. The line connects callers with information about water pollution prevention options (such as less toxic pesticides) and stormwater prevention options. • The Estuary Project's non-profit, arm, the Friends of the San Francisco Estuary, sponsors workshops for students and teachers and helps community groups conduct restoration projects. As a joint project with the S.F. Regional Water Quality Control Board, the Friends work with inner-city students from Richmond High School—the "Richmond High Creek Keepers"—each year to provide environmental leadership opportunities and to train students to conduct hands-on restoration and public outreach. • In October 2003, the Estuary Project sponsored a State of the Estuary Conference, focusing on the current state of Bay-Delta waters, wetlands, wildlife, watersheds, and aquatic ecosystems. In 2004, it published *Changes and Challenges, State of the Estuary 2004*, an 80-page report highlighting new restoration research, exploring pressing science questions, and offering useful information for anyone working to protect California's water supplies and endangered species. The report is available on line and in hard copy. • The Estuary Project regularly supplies the media with background information on the CCMP, its goals, and implementation activities. • The Estuary Project conducts widespread media campaigns to educate boaters about how to prevent pollution, and prints and distributes environmental guidelines for recreational boaters along with maps of the Bay-Delta showing the location of pump-out stations.In 2004, it published updated boating guides, with to-do lists for preventing pollution, as well as maps of pumpout and portable toilet stations at marinas and yacht harbors around the Bay-Delta. About 35,000 copies of the guides and maps were distributed. • Working closely with the S.F. Regional Board, the Estuary Project holds several workshops each year to teach developers, builders, consultants, and municipal staffs about Best Management Practices that prevent erosion and control sediment from construction sites. CONTINUED NEXT PAGE	• 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.	• The Delta Protection Commission could improve outreach to Delta communities, working with Audubon, Ducks Unlimited, Nature Conservancy, and local RCDs.





Tule perch



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.

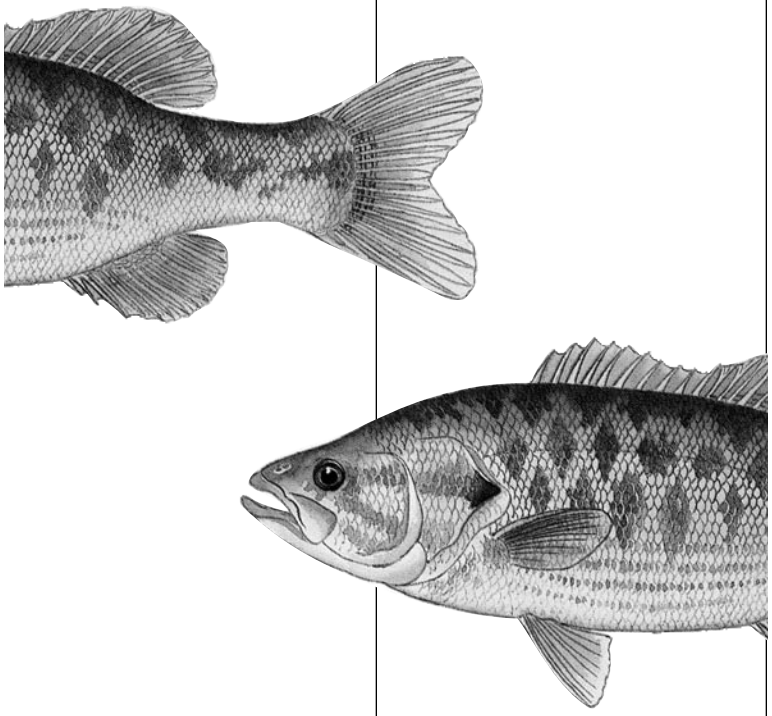
Action

SUBSTANTIVE

CONTINUED

LAND USE 4.1.

Educate the public about how human actions affect the Estuary.



Redeye bass

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- With funding from the Resources Agency's Coastal Impact Assistance Program, BCDC has 7 public access projects underway: 1) Public Access Design Guidelines Update for permit applicants and developers, 2) Bay Shoreline Landscape Guide: Planting Materials and Methods for SF Bay Shoreline Projects, 3) wildlife and public access study of effects of recreational trail use on shorebirds and waterfowl in mudflat foraging habitat, 4) Public Access Sign Program, 5) Shoreline Access Forum composed of local experts on balancing public access with wildlife habitat needs, 6) Bay Trail grant funding for constructing difficult to achieve sections of the Bay Trail, and 7) public access maps publication.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- In 2004, the Delta In-Channel Island Work group, funded and supported by the S.F. Estuary Project, received additional funds from CALFED to adaptively manage pilot projects on three Delta in-channel islands. The projects demonstrate the benefits and habitat values of soil bioengineering and bank stabilization techniques. The work group repaired the sites and will maintain and monitor them through Aug. 2006.
- Close to 100 community groups around the Bay, particularly "Friends of" creek groups and watershed awareness groups, hold regular work parties and/or implement restoration and revegetation projects, encouraging grassroots citizen involvement in protecting and restoring the Estuary and its watersheds.
- Bay Area wastewater agencies, including the Central Contra Costa Sanitary District (CCCSD), sponsor week-long sewer science labs for high school students to teach them how wastewater is treated before being released into the environment and why they should not put harsh cleaners, medicine, paint, or oil down the drain. The sponsors provide the curriculum, along with lab workbooks, equipment and an in-class facilitator, free of charge. See: www.city.paloalto.ca.us/cleanbay/sewerscience/.
- The non-profit Marine Science Institute (MSI) offers hands-on environmental education programs to students K-12 throughout the Bay Area. Students go out on the Bay aboard a 90-foot research vessel to learn about the Estuary's ecosystem and their role in it. From the ship, they collect and examine plankton, run hydrology tests, and observe wetland ecology. They also use a trawl net to catch fish and then measure them for the MSI's monitoring program. See: www.sfbaymsi.org.
- Student and Landowner Education and Watershed Stewardship (SLEWS), a program of the Center for Land-Based Learning in Winters, CA funded by a CALFED Ecosystem Restoration Program grant, engages high school students in restoring agricultural land to wildlife habitat along Willow Slough, Putah Creek, and Cache Creek in Yolo and Solano Counties. Since the program began three years ago, more than 30 classes from 15 different high schools have restored habitat in hedgerows that separate crop areas, and beside creeks and man-made ponds, all on land voluntarily taken out of production by farmers. www.landbasedlearning.org.
- The Watershed Project (formerly the Aquatic Outreach Institute) strives to improve water quality in the Bay by teaching communities to protect their watersheds and creeks and to use less-toxic methods of gardening and pest-control. Its programs include over 50 workshops a year for educators and the general public, support for creek protection groups, and a marsh and grassland restoration project. It also publishes Creek Speak, a newsletter for creek enthusiasts. See: www.thewatershedproject.org
- Save the Bay's Baylands Habitat Goals Project enlists volunteers in restoring habitat at several sites around the Bay, including the Marin Islands off San Rafael, the MLK Shoreline in the East Bay, San Francisquito Creek in Palo Alto, Schoolhouse Creek in Berkeley and Tolay Creek near Novato. In partnership with resource agencies, Save the Bay volunteers help with everything from planting and weeding to building native plant nurseries and photo-monitoring. See: www.savesfbay.org.
- Since 2001, the San Francisco Department of Recreation and Parks' Green Schoolyards program has encouraged the re-vegetation of schoolyards in order 1) to reduce the impact of schools on the natural environment by capturing storm water runoff, 2) to teach children about environmental stewardship and 3) to provide food and foraging areas for wildlife. The program also promotes community participation in the schools and neighborhood beautification. In October 2004, the Green School Grounds Conference brought together over 200 teachers and community members from the Bay Area to learn more about creating outdoor learning environments. See: www.sfgreenschools.org.
- Kids for the Bay, a project of the Earth Island Institute, is another Bay Area non-profit that works with urban elementary school children, to teach them about how their local creeks connect to the Bay.
- The Delta Commission sponsors many outreach activities for the public.
- KQED recently aired news about oyster restoration efforts around SF Bay.

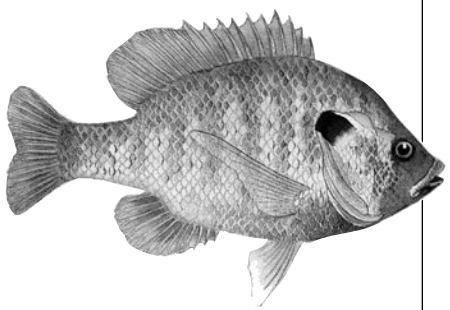
Current Gaps & Roadblocks

Ideas & Opportunities for Further Progress

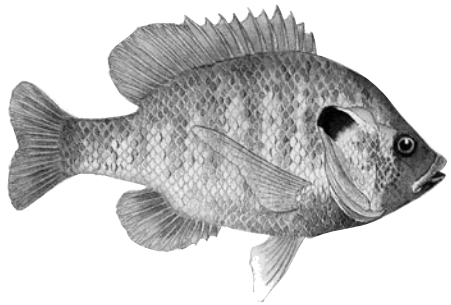
PRIORITY 6.

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
SUBSTANTIVE **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 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. • Participants in the S.F. Bay Area Wetlands Restoration Program's Wetlands Monitoring Group have been involved in the following regional monitoring efforts: - Monitoring Group members are beginning work on the CALFED Integrated Regional Wetland Monitoring (IRWM) Pilot project. This monitoring analysis will investigate six sites among San Pablo Bay, Suisun Bay and the Delta, comparing one natural location to a restored location at each. Partners include the University of California at Berkeley, PRBO Conservation Science, the U.S. Geological Survey, Phillip Williams and Associates, the San Francisco Estuary Institute, the University of Washington, and San Francisco State University. This project should be finished in 2006; the product will be monitoring protocols for tidal marshes. If approved they will be integrated into the WRMP. - Contra Costa County is initiating a new GIS-based mosquito information system. The GIS data management application that will provide information to managers and to the public on where the pests are located, where pesticides are used, where endangered species are located (so as to avoid pesticide application in those locations), and where any problematic wetlands might be located. Options for real-time use of this are creation of an entirely new data management system, piggybacking on to an existing system, combining it with information coming into the vector control districts, and/or through the Department of Health Services. - Work continues on the U.S. EPA's Environmental Monitoring and Assessment Program (EMAP) project, which is an U.S. EPA research program to develop the tools necessary to monitor and assess the status and trends of national wetland resources. The EMAP project expects to finalize indicators that can be used on coastal wetlands throughout California in 2005 or 2006. Ongoing monitoring will then be the state's responsibility, but for the first time EPA is earmarking some Section 106 grant money for local wetlands monitoring projects.	 - 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. The SF Estuary Institute is the Bay Area regional partner for the effort. As of 2005, the Legacy Project had been mostly dismantled; however, the Resources Agency still oversees the wetland tracker. Now they are piecing together wetlands information for the state. By 2006, quad sheets will be digitized for the whole state, completing the inventory. - The California Rapid Assessment Method for wetlands (CRAM) is being developed 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. CRAM is the second level of a three-tiered program. Level one is the wetland tracker (see above), level 2 is CRAM, and level 3 consists of intensive monitoring protocols that provide the data for validating CRAM and that will be used to standardize monitoring around the Bay Area. For level 3, wetlands of different types are randomly selected, and their condition is assessed. In 2005, CRAM staff worked on calibrating the methods for estuarine wetlands and riverine wetlands throughout the state. They will be developing a watershed demonstration of CRAM using data from Napa County in 2006. - The Bay Institute has developed an Ecological Scorecard Wetlands Index that brings together a wide range of data to measure fish and invertebrate communities, freshwater flow, habitat and water quality conditions, and human impacts on the Bay's environment. Initiated in 2003, the index was the first scientific benchmark of the Bay's ecological health. In 2004, TBI launched the Partnership for a Healthy Bay Campaign to share the Index with the public, local government agencies, and the business community. As part of TBI's outreach efforts, students from UC Berkeley developed a Service Learning Project to develop environmental justice measures for the scorecard's human uses (Fishable-Swimmable-Drinkable) index. Their work will help determine the extent to which information about access to a safe and recreational Bay front is equally distributed among communities. • The S.F. Estuary Institute's Watershed Science Program provides Bay Area environmental managers with quality science information in the context of the whole system (watersheds, the airshed, wetlands, and S.F. Bay). The Program is helping to develop a regional picture of watershed conditions and downstream effects through a solid foundation of literature review and peer-review and the application of a range of quality science methodologies, empirical data collection, and interpretation in watersheds around the Bay Area. The Program is implementing projects in four areas: 1) water quality, sediment, and pollutant loads; 2) geomorphology, habitat analysis, and bioassessment; 3) historical landscape ecology, stream form and function, and change through time; and 4) GIS and mapping. Current projects include a watershed sediment TMDL baseline study on the Napa River; a North Bay nutrient and pathogen TMDL study; and measurement of sediment and contaminant loads from the Guadalupe River watershed. For more, seewww.s.f.ei.org/watersheds/Watershedproginfo.htm. • The S.F. Regional Board, BACWA, BASMAA, and other stakeholders launched the Clean Estuary Partnership, a major new scientific program that will foster a collaborative approach to TMDL development (see Priority 4). The Partnership's activities will complement Regional Monitoring Program efforts. Ongoing projects include support for TMDL development for diazinon in urban creeks and diazinon, legacy pesticides, mercury, PCBs, and selenium in SF Bay. Also ongoing is support for copper/nickel SSO development. For more, see www.cleanestuary.org. • The CALFED Science program has funded a number of research studies pertinent to key CCMP issues under a contract with the S.F. Estuary Project/ABAG. • CALFED Science Program has sponsored a number of workshops relating to CCMP issues through a contract with the S.F. Estuary Project/ABAG.	• Establish a local "bucket brigade." • Recent CALFED workshops and conferences include 2004 Science Conference Sacramento (October 4-6, 2004), SF Estuary Project - 6th Biennial State of the Estuary - Conference 2003 (October 21, 22, and 23, 2003), 27th Annual Larval Fish Conference - Santa Cruz, California (August 20-23, 2003) • The San Francisquito Watershed Council's Long-Term Monitoring and Assessment Plan lays out a framework for coordinating and monitoring activities in the watershed. Four permanent monitoring stations in the lower watershed are already collecting water quality and flow data. Three more stations are planned and will be installed as funds become available. The program also includes an ongoing project to compile a repository of studies on six areas related to watershed monitoring: physical, hydrological, chemical, biological, social, and management. The Council has a work group that meets once or twice a year to review efforts of the past year and to plan for the next year.

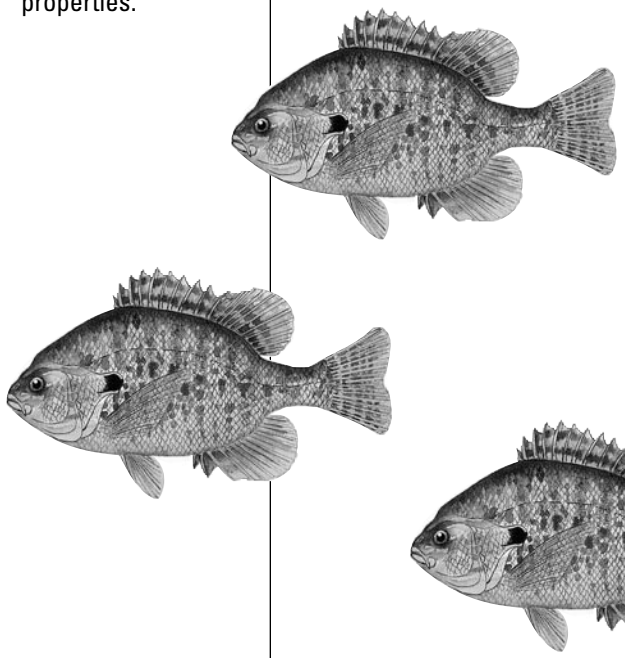


Redear sunfish

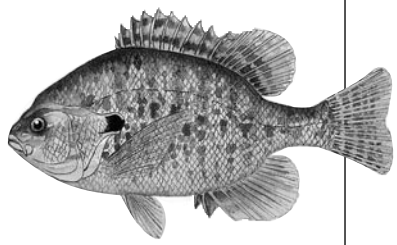


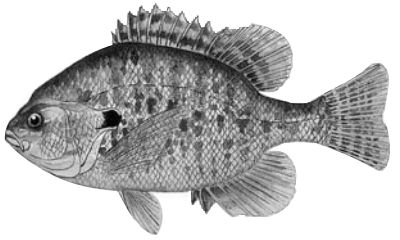
PRIORITY 6. CONTINUE, SUSTAIN AND EXPAND THE REGIONAL MONITORING PROGRAM TO ADDRESS ALL KEY CCMP ISSUES INCLUDING POLLUTION, WETLANDS (INCLUDING MITIGATION MEASURES), WATERSHEDS, DREDGING AND SEDIMENT TRANSPORT, BIOLOGICAL RESOURCES, AND LAND USE AND FLOWS, AND INTEGRATE SCIENTIFIC MONITORING RESULTS 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
SUBSTANTIVE **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 Regional Monitoring Program for Trace Substances in the San Francisco Estuary (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 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 RMP focuses on determining spatial patterns and long term trends through sampling of water, sediment, bivalves, and fish, effects on sensitive organisms, and chemical loading to the Bay. • Major findings from the RMP report, Pulse of the Estuary 2005, include the following: levels of flame retardants in tern eggs and Bay Area women are among the highest yet reported in the world; pyrethroid pesticides are an emerging concern; and runoff discharges and fallout from the skies continue to carry old pollutants into the Bay, such as DDT, mercury, dioxin, and PCBs. The capacity of the Estuary to degrade, dilute, or bury has been greatly exceeded for many pollutants. The RMP also notes that scientists are worried about the salt pond restoration resulting in the production and export of methyl mercury. The report found that habitat alterations, exotic species, and freshwater diversions can thwart attainment of pollution standards. CONTINUED NEXT PAGE	• The Surface Water Ambient Monitoring Program (SWAMP) is a statewide monitoring effort begun in 2000 and designed to assess the conditions of surface waters throughout the state of California. The program operates with only 5% of the funds originally requested of the legislature, so many important projects are not undertaken. In 2005, SWAMP staff completed a study of fish contamination in 10 reservoirs and along the San Mateo coast and Tomales Bay, releasing the findings in "Chemical Concentrations in Fish Tissues from Selected Reservoirs and Coastal Areas in the San Francisco Bay Region." During the summer of 2004, staff developed fish consumption advisories for the reservoirs and Tomales Bay. For the past 2 years they have been monitoring watersheds in the East Bay, as well as Marin County and San Francisco, and they have found that the main water quality problems are low dissolved oxygen, elevated temperatures, and elevated pathogens rather than contaminants. These problems seem to be related to physical habitat changes. There were very few exceedances for contaminants. Finally, SWAMP staff are developing an index of biointegrity and conducting an evaluation of benthic invertebrate communities to see if they are healthy.	• The Estuarine Reserve Division of NOAA just designated two areas in the SF Bay Region as estuarine reserves: China Camp State Park and Rush Ranch in Solano County (part of Suisun Marsh). Starting in 2006, these areas will be monitored continuously for water quality parameters and nutrients, according to NOAA protocols.

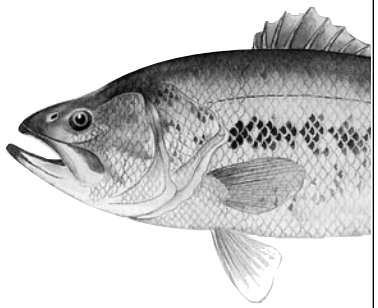
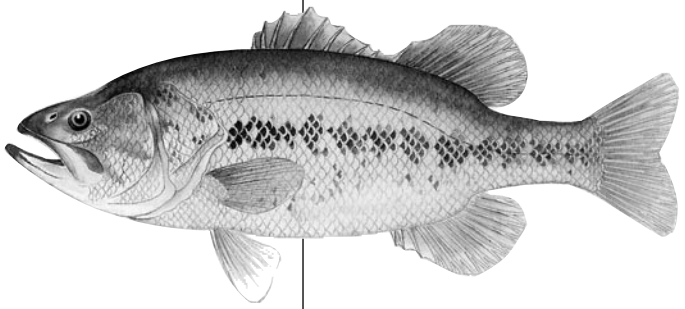
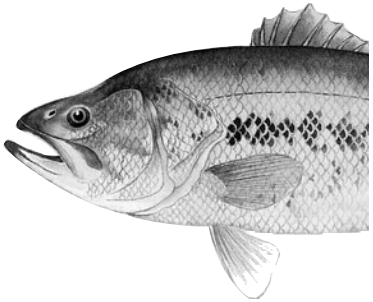


Pumpkinseed



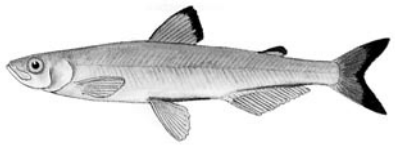
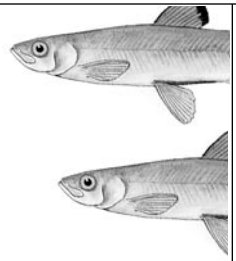
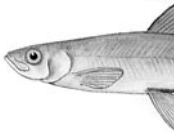
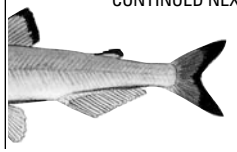


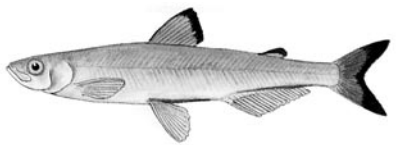
PRIORITY 6. CONTINUE, SUSTAIN AND EXPAND THE REGIONAL MONITORING PROGRAM TO ADDRESS ALL KEY CCMP ISSUES INCLUDING POLLUTION, WETLANDS (INCLUDING MITIGATION MEASURES), WATERSHEDS, DREDGING AND SEDIMENT TRANSPORT, BIOLOGICAL RESOURCES, AND LAND USE AND FLOWS, AND INTEGRATE SCIENTIFIC MONITORING RESULTS 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
SUBSTANTIVE **CONTINUED** **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 U.S. Geological Survey Bay/Delta Hydrodynamics Project is conducting monitoring aimed at determining the magnitude and location of variations in hydrodynamics (water currents and salinity) within S.F. Bay that result from changes in freshwater inflows from the Sacramento-San Joaquin Delta. The project is also measuring flows in Delta channels and working to understand the factors, such as state and federal water projects' pumping operations, causing flow variations. A significant project accomplishment is the measurement of net outflow from the Delta. Since 2003, the project has added 13 new monitoring stations, so a total of 26 are now operational. Ongoing special studies begun in the past couple of years include 1) Stockton Deep Water Channel Study, in collaboration with Stanford University and UC Davis, to determine the mechanisms leading to low dissolved oxygen in the channel; 2) the Frank's Tract Study, to see if closing openings would reduce the salinity intrusion into the Delta so that that less freshwater inflow would be needed; 3) the Delta Cross Channel Study that is determining how to improve fish survival in the cross channel; and 4) a South Delta Pump Operations Study that is looking at how to keep Delta smelt and salmon from being entrained. • The SFEP coordinated meetings on Estuary restoration infrastructure with SFEI and Friends of the Estuary to better integrate activities with CALFED. It also has assisted several organizations with monitoring tasks: 1) Worked with the S.F. Regional Board to assess the benefits provided to salmonids by installed structures; 2) provided technical support to develop a more robust electronic reporting system for the 70 to 80 Bay Area dischargers who daily discharge 600 million gallons of treated wastewater into the Bay; 3) provided technical support to develop a Sanitary Sewer Overflow (SSO) electronic reporting system; 4) provided funding, administrative, and technical support to SFEI in updating/maintaining the Bay Area Wetlands Project Tracker; and 5) participated with SFEI, the Bay Institute, and others to help develop a set of indicators to measure the health of the Estuary.		

Largemouth bass

PRIORITY 7. PROMULGATE BASELINE INFLOW STANDARDS FOR SAN FRANCISCO, SAN PABLO, AND SUISUN BAYS TO PROTECT AND RESTORE THE ESTUARY.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
AQUATIC RESOURCES MANAGEMENT 4.1 NEGLIGIBLE Adopt water quality and flow standards and operational requirements designed to halt and reverse the decline of indigenous and desirable non-indigenous estuarine biota.			• 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 in endangered species.	
AQUATIC RESOURCES MANAGEMENT 5.1 MODERATE 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.	• In 2005, the DWR released an update to Bulletin 160: California Water Plan. The plan recommends 25 resource management strategies, ways to: 1) reduce water demand, 2) augment supply, 3) improve efficiency and transport and 4) improve resource stewardship. The plan's recommendations will affect decisions on flow rates of the SWP/CVP. • Under the Vernalis Adaptive Management Program (VAMP), a 12-year experiment designed to determine whether low flows in the river or high exports from the Delta have a greater impact on fish mortality, flows at Vernalis (downstream of the confluence with the Stanislaus River) are set at specific levels during the spring fish migration period, depending on the type of water year. The experiment is predicated on obtaining the necessary flows through the San Joaquin River Agreement, under which the biggest water rights holders on the river and its tributaries provide up to 110,000 acre-feet of water a year for the VAMP experiment. The agreement is financed through a combination of state and federal funds, including, if necessary, the CVP Improvement Act Restoration Fund. • The South Delta Improvement Project (SDIP), jointly proposed by the Department of Water Resources and BurRec and overseen by CALFED, aims to increase the capability to export water from the South Delta, protect water rights holders and farming in the South Delta, and protect downstream migrant juvenile salmon from the effects of exports using barriers and structures. CONTINUED NEXT PAGE	• Vernalis Adaptive Management Program (VAMP), initiated in 2000 by the State Water Resources Control Board, is a large-scale, long-term (12-year) program designed to protect juvenile Chinook salmon migrating from the San Joaquin River through the Sacramento-San Joaquin Delta. It is also an experiment to determine how salmon survival rates change in response to alterations in San Joaquin River flows and State Water Project (SWP)/Central Valley Project (CVP) exports with the installation of the Head of Old River Barrier (HORB). VAMP employs an adaptive management strategy to use current knowledge of hydrology and environmental conditions to protect Chinook salmon smelts and to gather information about how to protect these fish in the future. The VAMP experiment is carefully orchestrated each spring to coordinate tributary operations, the installation of the HORB, export operations, and the release and recovery of up to 400,000 test fish. In 2000, 2001, and 2002, salmon survival rates with VAMP—under the flow and export conditions tested and with the installation of Head of Old River Barrier—were much higher than during the pre-VAMP years. In 2003 and 2004, however, salmon survival rates during the VAMP period were very low, much lower than in the three previous years and comparable to the survival rates during pre-VAMP years. VAMP staff is now trying to determine the cause of the low survival rates. CONTINUED NEXT PAGE 	• Funding constraints in 2004 limited the implementation of studies to complement the VAMP studies. Such studies could provide additional information on factors and mechanisms affecting salmon survival other than flow and export conditions. • The total projected 10-year cost of CALFED is $8.2 billion. Federal and state money combined could contribute about $1.9 billion, leaving a $6.3 billion shortfall, which the program will try to make up by charging users who benefit from the 11 CALFED programs, such as water exporters. However, it is difficult to determine who benefits from some of these programs like the Ecosystem Restoration Program (ERP). • More research and focus on water diversion issues and levee sustainability are needed. • The Tracy Fish Test Facility, planned for construction in 2003, will not be built after all because the BurRec decided the project is too expensive. With the goal of increasing fish populations, by implementing fish collection, holding, and transport and release technology at major water diversions in the south Delta, the BurRec is instead improving existing facilities, including the Tracy Test Collection Facility and the John F. Skinner Facility at the Harvey O. Banks Pumping Plant. In addition, BurRec is implementing other measures to boost fish populations, such as cycling the radial gates at John F Skinner and at the Delta Cross Channel, removing dams, and restoring fish habitat. CONTINUED NEXT PAGE	• The relationships between salmon survival rates and Vernalis flow and SWP/CVP export conditions tested in the first five years of VAMP have not been found to be statistically significant. Experimenters should conduct survival tests at extreme target levels. • New modeling, monitoring and camera technology are allowing scientists to go underwater and get new ideas about how tidal knobs might be micromanaged to keep either fish or drinking-water-tainting salts moving around the Delta from ending up in the wrong places. Three locations where adjusting tidal knobs might make an enormous difference are the Delta Cross Channel to the north, Franks Tract in the Central Delta, and the state and federal pumping facilities to the south. • Refine the VAMP to make sure it successfully meets flow standards. • Reassess the physical landscape and hydrologic configuration of the Delta in terms of its ability to meet CCMP goals. • Delay the South Delta Improvement Project's proposal to expand the capacity for diversion into Clifton Court Forebay until impacts on fish are quantified. • Develop recommendations to the State Board and other agencies for Bay inflow standards that will protect Estuary habitat. • Implement a research program that adequately responds to large-scale food web and community composition changes in the Estuary. • Identify and pursue further opportunities to restore native fish runs in Bay tributaries. CONTINUED NEXT PAGE



Delta smelt

PRIORITY 7. PROMULGATE BASELINE INFLOW STANDARDS FOR SAN FRANCISCO, SAN PABLO, AND SUISUN BAYS TO PROTECT AND RESTORE THE ESTUARY.

Action

MODERATE

CONTINUED

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.

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The San Ramon Valley Recycled Water Program (led by the Dublin San Ramon Services District-East Bay Municipal Utility District Recycled Water Authority in partnership with the Army Corps) will provide recycled water to irrigate landscapes in Blackhawk, Danville, Dublin, and San Ramon. First deliveries will begin in summer 2005, and the yield will be about 1,500 acre-feet per year. Final buildout, which will occur in 2025, will yield about 6,400 acre feet per year.
- Under the Delta Pumping Plant Fish Protection Agreement (Four Pumps Agreement) between the DWR and Cal Fish & Game to offset direct fish losses at the Harvey O. Banks Pumping Plant, approximately $58 million has been approved since 1986 for striped bass, salmon, and steelhead mitigation projects. Approximately $40 million of approved funds have been expended to date, with the remaining funds allocated for new or longer-term projects.
- In 2005, several studies of the Delta Cross Channel's hydrodynamics, water quality, and fish passage will be released. Also expected for release this year are results of studies about how to track fish and predict fish behavior in the DCC. Results suggest that closing the DCC gates at night when fish are higher in the water could help reduce the numbers of fish that enter the DCC.
- In 2005, the State Water Resources Control Board began its first review of water quality standards for the Bay-Delta—core protections for the Estuary's fish, wildlife, and habitat that have been implemented during the past decade. The Bay Institute and other environmental organizations are making a case for improving these protections.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

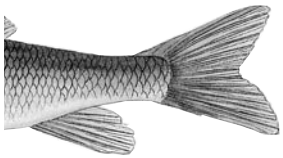
- The Department of the Interior's Quantification Settlement Agreement of 2003 has forced California to reduce its use of Colorado River Water from 5 million to 5.2 million cubic acre feet of water per year to no more than 4.4 million cubic acre feet per year. Since then, the Metropolitan Water District of Southern California has been trying to avoid increased reliance on Northern California water in order to prevent water diversions south through the Delta which could lead to reduced flows in rivers and waterways connected to the Delta and reduced freshwater inflow to the Estuary. The Metropolitan Water District is increasing investments in local resources and offering financial incentives to increase water saving efforts in larger urban landscapes. It awarded a five-year contract to manage and market a region wide conservation program for commercial, industrial, and institutional customers; and it authorized two project agreements that will provide more than a billion gallons of recycled water per year for landscape irrigation. To the extent additional water is required through the State Water Project system, it would be made available through wet-period banking and the voluntary purchase of conserved dry-year water from willing sellers in Northern California.

Current Gaps & Roadblocks

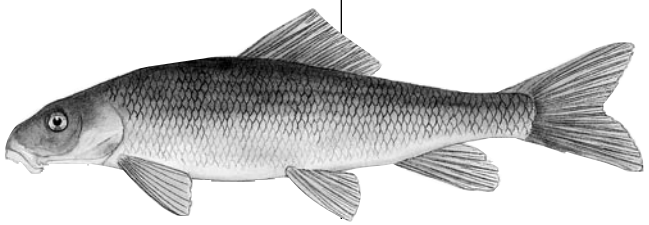
- DCC studies have been hampered by the reluctance of the water projects to allow DCC operations under conditions that might force them to reduce exports or increase flows to avoid violating Delta standards and by the reluctance of fish agencies to use limited "environmental water" for experiments unless operations during the experiment will also provide benefits to fish.
- In recent years, fish salvage operations have been found to be highly ineffective.
- This summer, pelagic organisms and fish populations crashed in the Delta, possibly as a result of over-pumping.

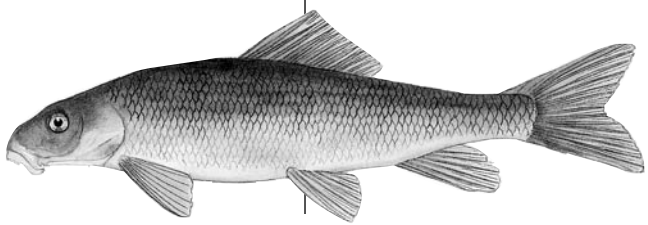
Ideas & Opportunities for Further Progress

- The CALFED Science Program is overseeing research on fish movement and on sediment and salt in the Delta that will help guide operations of Delta facilities. Specifically, research is being conducted on the collection, handling, and transport and release of fish salvaged at the Delta pumping plants; studies begun in 2004 will provide information on the hydrodynamics of the central and south Delta regions and the effects on fish transport and water quality; and agencies and stakeholders are working with scientists to re-evaluate the approach to screening at the state and federal facilities in the Delta through the South Delta Fish Facilities Forum.
- The DCC studies conducted between 2001 and 2004 show that regional scale studies are needed to get a real understanding of the effects of DCC operations on fish migration. Fish should be monitored in Georgiana, Sutter, and Steamboat Sloughs, as well as the DCC.

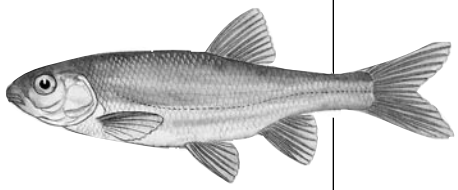
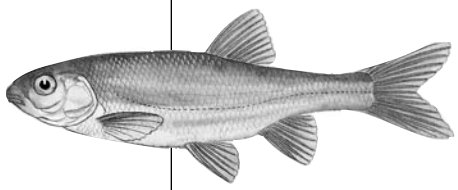
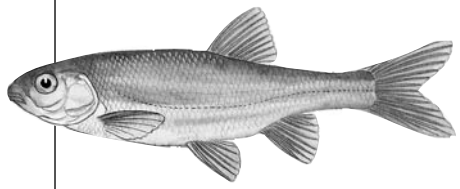


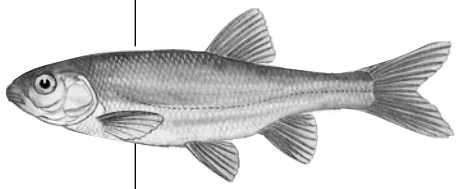
Sacramento sucker



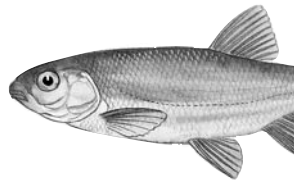


PRIORITY 7. Promulgate baseline inflow standards for San Francisco, San Pablo, and Suisun Bays to protect and restore the Estuary.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
UNKNOWN **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.				
SOME **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.	• The CALFED Bay-Delta Program includes the Environmental Water Account (EWA), which is intended to reduce the conflict betwen fishery management and water supply. It began implementation in the winter of 2001, and allows fisheries agencies to call for reductions in State Water Project and Central Valley Project pumping in order to contribute to the protection, restoration, and recovery of fish. The EWA buys water from willing sellers or diverts surplus water when safe for fish to replace water project supplies interrupted by export reductions undertaken to protect fish. In the past 4 years, the EWA has attempted to reduce the direct negative effects of water exports on Delta fish and to protect the state and federal water projects from supply impacts due to excessive incidental take of at-risk fish species. The EWA has made more than 1 million acre-feet of water available for fish protection measures without reducing water deliveries to other users. • In 2004, the Bay Institute released a new report, *The Year in Water 2003*, which evaluates the implementation of the environmental water programs established during the past few decades, including the EWA, the Central Valley Project Improvement Act (b)(2), the Anadromous Fish Restoration Program, CALFED's ERP, and the Bay-Delta Water Quality Control Plan.	• Use of recycled water around the Bay has greatly increased. Today, about 20 million gallons of recycled water are used per day. • The Environmental Water Program (EWP), an element of the CALFED Ecosystem Restoration Program, is intended to acquire water from willing sellers on streams tributary to the Sacramento-San Joaquin River Delta in order to improve instream conditions that will provide flows and habitat conditions for fishery protection and recovery. This program will help meet the commitment of the Ecosystem Restoration Program Plan to purchase up to 100,000 acre feet of water from upstream tributaries between 2000 and 2007. Initial EWP efforts will focus on five streams: Butte Creek, Clear Creek, Deer Creek, Mill Creek, and the Tuolumne River. These streams have been selected because they have active groups focused on watershed protection, have been targeted for investments by the CALFED Bay-Delta Program and the Central Valley Project Improvement Act, have substantial populations of native fish, and have historical monitoring data available. The EWP is currently working with local interest teams to identify potential water acquisitions and to prepare conceptual proposals which will be reviewed for scientific value and feasibility. Each acquisition will be made for a fixed period of time, and will be monitored to determine if it achieves its goals. Plans for Deer Creek are almost complete and acquisitions and flow changes are expected to start in late 2005. Clear Creek acquisition plans will be implemented in 2006. • As of 2004, through Props 13 and 50, CALFED has funded more than $240 million for more than 160 local groundwater storage and conjunctive use studies and projects. Funded groundwater storage and recharge projects are expected to yield over 300,000 af annually. These projects are intended to benefit water supply reliability, the EWA, ecosystem restoration, and water transfers. CONTINUED NEXT PAGE	• Implementation and use of the EWA are controversial. During the EWA implementation process, CALFED agencies have worked collaboratively to modify the EWA consistent with the CALFED ROD's concept of functional equivalency. The EWA was expected to acquire (via purchase and variable water management tools) an average of 380,000 af of water each year, but in each of its first 4 years, it only acquired and used about 300,000 af/yr. While the EWA has purchased the quantity of water identified in the ROD, the variable EWA water management tools have not produced as much water as was expected. In 2003 and 2004, annual fish actions have left EWA in debt. EWA funding has not reached the recommended level, nor is there a dedicated, long-term funding source for this program. • According to the EWA science oversight panel, during its first 4 years, the EWA has guaranteed water supply reliability perfectly, but EWA cannot claim to have had benefits on fish because the tools used for assessing impacts are not accurate. Further, the panel questions whether EWA is targeting the right species, at the right time and whether exports are being cut enough and long enough to make a difference. The Delta smelt is a targeted fish, the one most likely to benefit from EWA, yet the populations of Delta smelt plummeted in 2004 and early 2005. Intensive research has just been initiated to try to figure out why, and it is focusing on three main culprits: the amount and timing of exports, toxics (from both runoff and herbicides), and invasives (clams and weeds like egeria). These culprits may be working in combination to cause the fish population declines. It could be that the exports made in summer and fall to compensate for the lack of exports in the winter and spring (the time when fish migrate) could create conditions that favor invasive CONTINUED NEXT PAGE	• In 2004, the CALFED agencies agreed to extend for three years the EWA as well as regulatory commitments to continue state and federal Delta water exports without additional reductions to protect key fish species. The regulatory agencies found the program to be in compliance with the CALFED ROD. • Demand for water for municipal and industrial uses is rising, so the availability of water for purchase from the spot-market on short notice is expected to decrease while the cost is expected to increase. At the same time water transfers will increase overall as more long-term agreements between buyers and sellers are enacted. Therefore, it is critical for EWA agencies to pursue these long-term contracts to ensure availability of water at acceptable prices.



Roach



PRIORITY 7. PROMULGATE BASELINE INFLOW STANDARDS FOR SAN FRANCISCO, SAN PABLO, AND SUISUN BAYS TO PROTECT AND RESTORE THE ESTUARY.

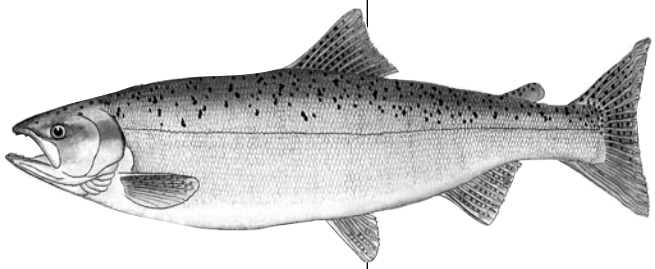
Action

SOME

CONTINUED

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.



Chinook salmon

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The Bay Area Water Recycling Program Master Plan, now complete, calls for recycling 125,000af/year in the Bay Area by 2010 and about 240,000 af/year by 2025.

On-the-Ground Implementation

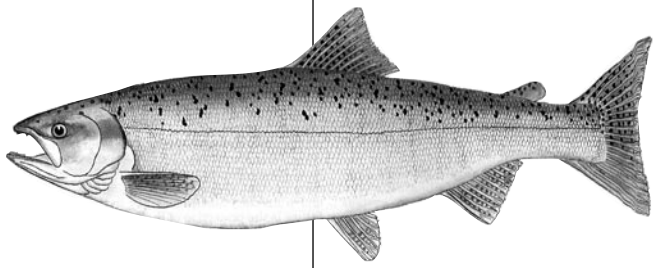
Examples of specific, local completed or in-progress projects

- CALFED has made progress on investigations of potential surface storage projects. In 2004, Contra Costa County voters approved a ballot measure to move forward with studying the expansion of Los Vaqueros reservoir. The DWR has completed some of the feasibility studies and environmental documentation for five projects:North-of-Delta offstream storage, Shasta enlargement, Los Vaqueros expansion, Upper San Joaquin storage, and In-Delta storage.
- In the first four years, 2001 to 2004, CALFED's Water Use Efficiency Program provided more than $160 million in grants, loans, and technical support for local water conservation and recycling programs that contribute to the goals of the Program. To date, projects funded through the Water Use Efficiency Program are expected to result in an annual water savings of nearly 50,000 af of conserved water, and to recycle more than 400,000 af. In April 2004, the Authority adopted recommendations to improve measurement of urban and agricultural water use and authorized the director to work with the State Administration and the Legislature to develop legislation to implement the recommendations.
- The Water Transfers Program is on track and assisted in the transfer of more than 700,000 af of water in 2004, including water for the EWA. In the first four years of the CALFED Program, over 3.5 million af of water was transferred to the EWA, DWR Dry-Year Program, CVIA Transfers, and the Colorado River Contingency Plan. The On-Tap Website, a water market information resource, is up and running. (see: www.ontap.ca.gov) It is designed to supply potential water transaction participants, affected third parties, and other interested parties with information to assist the efficient transfer of water.
- Now many Bay Area agencies are designing and constructing water recycling projects. The Dublin San Ramon Services District recycling facility's treatment capacity is expected to increase from 3 mgd to 9.6 mgd. The District and EBMUD are developing the San Ramon Valley Recycled Water Program. The first recycled water deliveries are expected in 2005. In addition, EBMUD's East Bayshore Recycled Water Project is under construction and will begin deliveries in 2005. The project will include nearly 30 miles of pipeline through several East Bay cities and will save nearly 2.5 mgd after all water customers are hooked up.

Current Gaps & Roadblocks

weeds, which in turn leads to herbicide use —and both the invasives and the herbicides could be threatening plankton populations and the entire food web.

- There is debate as to whether the EWP is meeting this CCMP priority. The EWP's purpose is limited to acquisitions of small quantities of water in upstream tributaries to improve salmon spawning and rearing conditions. The downstream fate of these water acquisitions is unclear, and, in any case, is not intended by CALFED to improve baseline habitat conditions in Suisun, San Pablo, and San Francisco bays. EWP activities will be coordinated with acquisitions for EWA and with CVPIA environmental restoration programs.
- There is a continuing need for performance measures.
- There have been no EWA acquisitions to date; the future of program funding for the next several years is unclear.
- The environmental impacts of Shasta, Los Vaqueros, etc., are controversial.

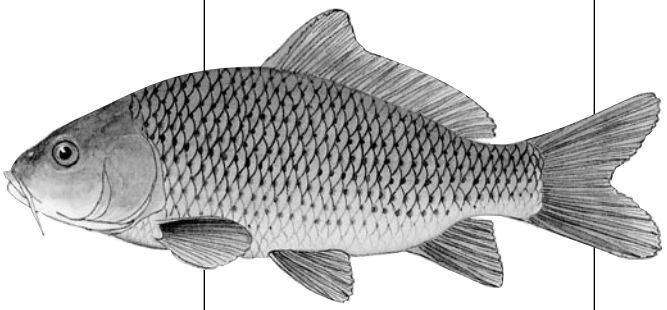


Ideas & Opportunities for Further Progress

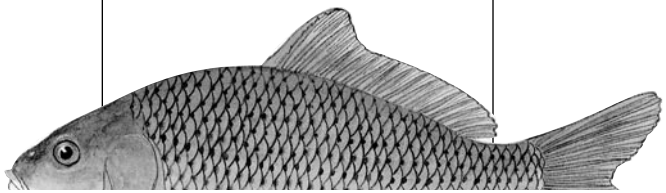
- Baseline withdrawals can be reduced if conservation and efficiency are pursued more aggressively, and additional baseline withdrawals from waterways shouldn't be necessary in future decades. Withdrawals to support new storage projects could take place in wet years with minimal environmental impacts.
- We need to think about withdrawals for storage and withdrawals to meet baseline needs separately. These categories have been blurred, to the political advantage of those who advocate more withdrawals—because they can justify everything as a response to drought. But instead, we need to justify withdrawals for storage based on drought needs and withdrawals for baseline based on baseline needs.

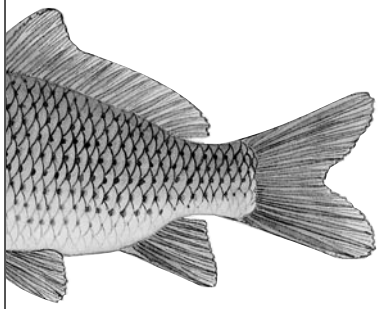
PRIORITY 7. Promulgate baseline inflow standards for San Francisco, San Pablo, and Suisun Bays to protect and restore the Estuary.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
MODERATE **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.	• EWA and B2 water provided some benefit to instream flows over the past four to five years. • In 2002, the Lower American River Task Force prepared the Lower American River Corridor Management Plan (RCMP) to provide a framework for flood, environmental, and recreational management issues affecting the lower reach of the river from Folsom Dam to the Sacramento River. • In early 2005, the first Lower American River State of the River Report was published, a review of the health of the river's ecosystem as of 2004. The report focuses on how the river is doing in five areas and concludes that at least moderate progress has been made in all. • The Water Forum, in conjunction with Reclamation, the U.S. Fish and Wildlife Service, and other agencies, has been working toward an updated and improved Flow Management Standard (FMS) for the Lower American River to be presented to the SWRCB in late 2005. • The purpose of the FMS is to provide a reliable and safe water supply for the region to the year 2030 and to preserve the fishery and wildlife values of the American River, primarily the production and survival of the fall-run Chinook salmon and steelhead. After the FMS is finalized, the 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.	• Of the 28 actions in the FISH Plan's three-year action plan, 8 actions are either completed or underway, 11 actions are in the plan development stage (i.e., designs or studies to implement the actions are being conducted), and 9 actions are not started or on hold, primarily due to staffing and funding constraints. The FISH Plan is available on the Water Forum's web site (www.waterforum.org). Specific examples include: 1. The FISH Working Group meets on a quarterly basis to track and guide implementation of the FISH Plan. 2. The State Board held a workshop in late 2004 to review Delta water quality standards. 3. 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. The AROG provides its conclusions regarding the most favorable operations for American River fisheries (within other constraints) to management in Reclamation and the US.F.WS. 4. A Temperature Control Device for the Folsom Dam M&I intake was constructed and put into operation in mid 2003. While the device is working there are still cold-water problems every year. These could be addressed by operational or physical changes to the reservoir. • The updated flow standard for the LAR is being developed and a draft may be available in late 2005. Hydrologic models have been run and meetings with affected stakeholders have and continue to take place during its development.	• EWA water can only be used on streams and rivers where EWA has acquired water, while B2 water can only be used on CVP streams and rivers, although there may be some opportunities for water exchange, which could affect flows on other streams and rivers. With the new B2 accounting rules, less B2 water may be available for flow enhancement. • An average of 50% of B2 water has been used to comply with current water quality standards; 25% to comply with ESA actions; and only 25% for new fish protection actions and instream flows. • The Water Forum released a report in 2004, *Impacts on Lower American River Salmonids and Recommendations Associated with Folsom Reservoir Operations to Meet Delta Water Quality Objectives and Demands,* that describes redd dewatering and isolation, fry stranding, and juvenile isolation. The report recommends adaptive management strategies and Integrated CVP/SWP operational approaches to avoid these impacts. • In 2005, a federal court ruled that the operation of Friant Dam on the San Joaquin River violates a California Department of Fish and Game law that calls for maintaining the fish below the dam in good condition. • The American River does not have a flow standard, which means that when water operators choose to release water at the last minute from Folsom to meet the requirements of the Delta water quality standard called X2, the river can be drained to a level that strands young fish and causes the river's water temperature to rise too high for fall-run salmon. The Water Forum is working on a report about X2's impacts on the American River and ways to minimize them while maintaining water quality. • The State Board is also considering operational protocols to avoid late releases from Folsom and to allow flexibility in implementation.	• Folsom Reservoir is cold-water-supply limited. Improvements to the outdated temperature control shutters at the reservoir have been suggested and should be implemented. A new flow standard should incorporate temperature requirements for specific locations in the American River. While the device is working, there are still cold water problems every year. These could be addressed by operational or physical changes to the reservoir.



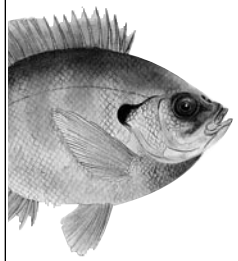
Carp

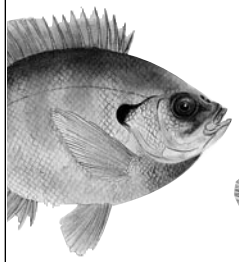


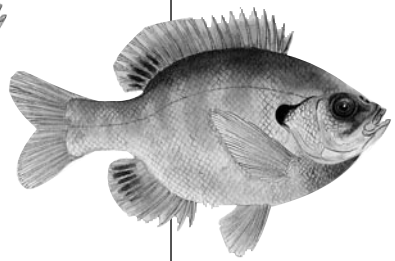


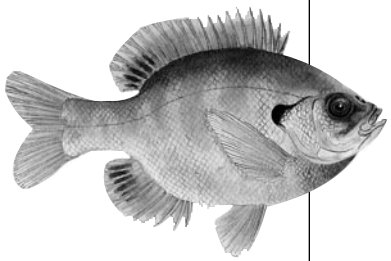
PRIORITY 7. Promulgate baseline inflow standards for San Francisco, San Pablo, and Suisun Bays to protect and restore the Estuary.

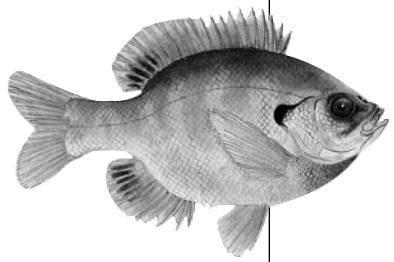
Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
AQUATIC RESOURCES MANAGEMENT 6.2 Implement the Upper Sacramento River Management Plan.	• In 2004, the Army Corps approved the Sacramento San Joaquin Rivers Comprehensive Study document that sets forth guiding principles and an approach to developing flood management and ecosystem restoration projects within the Comprehensive Study area that ensures system-wide effects are evaluated regardless of project scale.	• Two projects identified during the Comprehensive Study are likely to be implemented: • A feasibility study is underway for the Enhanced Flood Response and Emergency Preparedness (EFREP) Feasibility Study, which identifies flood response and emergency preparedness problems and potential solutions in the Sacramento and San Joaquin river basins; this project involves the installation of monitoring equipment, and construction is expected to take place in 2007. • Hamilton City Flood Damage Reduction and Ecosystem Restoration Feasibility Study, which is developing an array of alternatives that combine 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 levee 500' to a mile 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. Levee construction is planned for 2006, and restoration will take place in 2006 and 2007.		• Several local and regional groups have formed to coordinate with the Comprehensive Study and others in order to pursue projects in their areas. Potential large regional projects include the Lower Sacramento and Yuba-Feather river regions and the Lower San Joaquin River basin.
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.			• There is a proposal for increased storage on Millerton Dam. • BurRec just released an EIS analyzing Bay-Delta and in-valley disposal options such as evaporation ponds. Selenium can bioaccumulate in the Bay-Delta, and wildlife are vulnerable to impacts—such as birth deformities—when selenium biomagnifies in evaporation ponds.	• In 2005, a federal court ruled that the operation of Friant Dam on the San Joaquin River violates a California Department of Fish and Game law that calls for maintaining the fish below the dam in good condition. The Department of the Interior and the Bureau of Reclamation are pursuing development of a San Joaquin River Improvement Plan to address these problems to coincide with the court's ruling on restoration actions in early 2006. • Identify and pursue opportunities to acquire water from drainage-impaired lands to help meet CCMP priorities and improve flow conditions. • Retire selenium-impaired lands.











Bluegill

THE GRADES

	FULL	SUBSTANTIVE	MODERATE	SOME	NEGLIGIBLE	UNKNOWN
WETLANDS		WM 1.1 Prepare regional wetlands management plans WM 4.1 Restore and acquire non-wetland areas to wetlands	WM 2.1.3 Establish implementation program to achieve wetland policies.	WL 2.2 Enhance biodiversity		
EXOTIC SPECIES		AR 2.4 Educate the public about exotics	AR 2.1 Implement ballast water regulations AR 2.3 Control problem exotics	AR 2.2 Prohibit exotic species introduction WL 3.1 Implement predator control programs		
WATERSHED MANAGMENT		LU 3.1 Prepare and implement watershed management plans		LU 1.1 Incorporate watershed protection in local general plans		
ECONOMIC INCENTIVES				LU 2.1 Consistent local government policies LU 5.2 Develop new funding mechanisms LU 5.3 Create market-based incentives	LU 1.3 State land use integration LU 5.1 Create economic incentives for local government.	
RUNOFF		PP 2.1 Pursue a mass emissions strategy PP 2.5 Control measures for transportation pollution PI 2.5 Increase long-term educational programs	PP 2.4 Improve urban runoff management PP 2.6 Control agricultural sources of toxics			

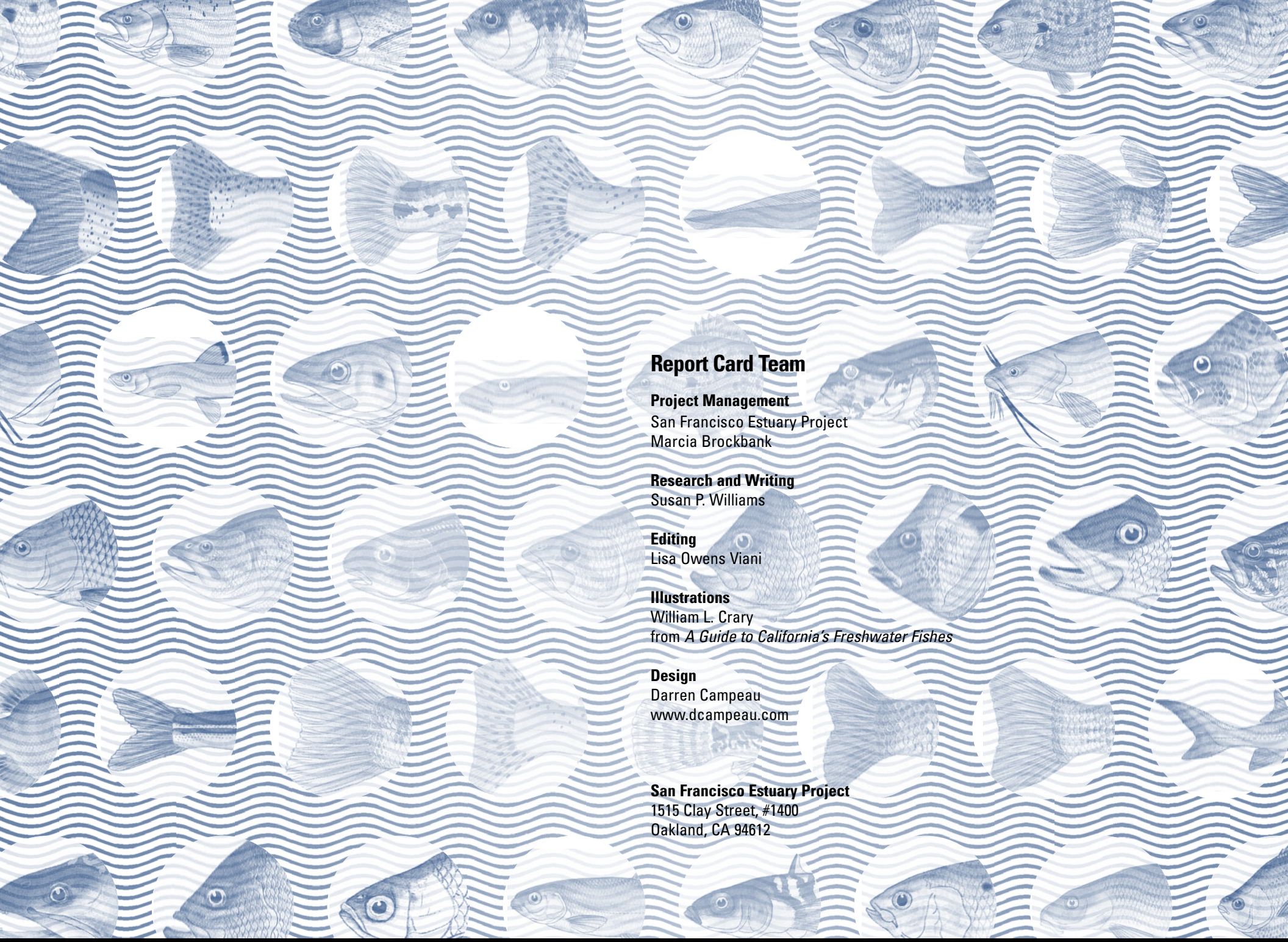
Rating Notes

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

The ratings given to each action in this summary and in the *CCMP Workbook* were added as a rough, ballpark evaluation of the level of implementation progress. This evaluation sought to measure how items listed as progress in the workbook stacked up against the specific language and intent of the CCMP. In some cases therefore, there may be many items listed in the workbook but a low implementation rating (because of their peripheral nature to the intended action).

THE GRADES

	FULL	SUBSTANTIVE	MODERATE	SOME	NEGLIGIBLE	UNKNOWN
ESTUARY EDUCATION	PI 1.5 Provide a central clearing house for Estuary information.	PI 1.1 Build CCMP awareness PI 1.2 and 1.3 Opportunities for citizen involvement LU 4.1 Educate the public about human effects				
REGIONAL MONITORING		RM 2.1 Develop regional monitoring strategy AR 1.1 Coordinate existing monitoring programs				
INFLOW STANDARDS			AR 5.1 Identify long-term water quality and flow standards and measures AR 6.1 Provide instream flows and temperatures for Central Valley salmon	AR 5.3 Implement flow and management alternatives AR 6.2 Implement upper Sacramento River plan AR 6.3 Develop the San Joaquin River plan	AR 4.1 Adopt water quality and flow standards	AR 5.2 Develop EIS/EIR on flow and management alternatives
TOTALS	1 FULL	12 SUBSTANTIVE	7 MODERATE	10 SOME	3 NEGLIGIBLE	1 UNKNOWN



Report Card Team

Project Management
San Francisco Estuary Project
Marcia Brockbank

Research and Writing
Susan P. Williams

Editing
Lisa Owens Viani

Illustrations
William L. Crary
from *A Guide to California's Freshwater Fishes*

Design
Darren Campeau
www.dcampeau.com

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