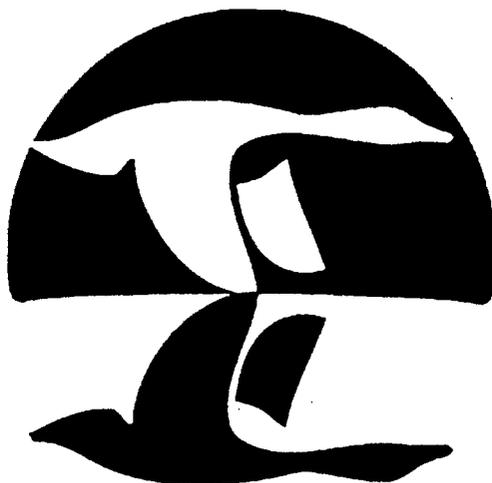


**SAN FRANCISCO BAY  
JOINT VENTURE**



*North American Waterfowl  
Management Plan*

*Plan nord-américain de  
gestion de la sauvagine*

*Plan de Manejo de Aves  
Acuáticas de Norteamérica*

# Wetlands Ecosystem Goals Project

S A N F R A N C I S C O B A Y A R E A



E-017946

E-017946

## Introduction

Wetlands and riparian areas play a vital role in maintaining a healthy ecosystem — buffering the impact of floodwaters, cleansing pollutants from runoff, recharging overdrawn water supplies, stabilizing shorelines, and providing critical habitat for hundreds of species of fish, birds, and other wildlife. Hundreds of plant and animal species rely on wetlands during all or part of their life cycles. Wetlands and riparian areas also yield a variety of economic benefits, offer recreational opportunities, and contribute to a higher quality of life for residents in the densely populated San Francisco Bay Area.

Residential and industrial development and conversion of agricultural land to urban uses continue to threaten wetlands. At the same time, local planning efforts to protect wetlands have been hampered by a lack of clear, coherent goals spelling out what types, quantities and locations of wetlands are needed. To address this, the San Francisco Bay Area Wetlands Ecosystem Goals Project has begun the process of developing wetlands goals — goals representing a shared vision of the wetlands and associated habitats needed to ensure a healthy Bay ecosystem.

## History

The Goals Project grew out of discussions during the early 1990s among members of the San Francisco Estuary Project, a cooperative public-private partnership sponsored by the U.S. Environmental Protection Agency and the State of California. In 1993, the Estuary Project reached its goal of developing and unanimously adopting a *Comprehensive Conservation and Management Plan (CCMP)* for the Estuary.

The *CCMP* recommends preparation of a regional wetlands management plan based on regional wetlands habitat goals.

**Bay Area  
Wetlands**  
c. 1840

- Tidal Marsh
- Intertidal Flats
- Bay Waters



U.S. Environmental Protection Agency Administrator, Carol Browner, and California Governor, Pete Wilson, approved the CCMP in 1993. Also, during that year, Governor Wilson issued the California Wetlands Conservation Policy, which calls for no net loss of wetlands. Information developed by the Goals Project will assist in carrying out this policy.

# Wetlands Ecosystem

## Participation

Establishing wetlands ecosystem goals for the Bay Area's wetlands is a complex process. Many levels of government and the public have strong interests in wetlands issues. To include all these varying perspectives, a rigorous system of peer review and public input has been built into the Goals Project.

A number of groups will share responsibility for developing the wetlands ecosystem goals. The Resource Managers Group, comprised of senior agency ecologists and biologists, oversees all aspects of the project and will work with other project participants to produce the final wetlands ecosystem goals. Focus Teams of scientists with recognized expertise in targeted populations of fish, wildlife, and plants will select representative plant and animal species, including threatened and endangered species, then identify habitat types that support those species. The Focus Teams will produce for public review and comment draft recommendations for the amount and arrangement of habitats needed to support the species that rely on the region's wetlands.

## Utilization

The wetlands ecosystem goals will not dictate wetlands policy or land use regulation. They will, however, provide a biological foundation to help guide and assist decisionmakers involved in land use planning and numerous Bay Area wetlands protection programs.

For example, the goals may be used by private landowners seeking to improve wetlands on their properties; by local resource conservation, open space or park districts undertaking wetlands restoration or enhancement projects; by city and county planning departments wishing to protect wetlands through zoning or general plans; and by state and federal resource agencies planning to restore or enhance wetlands.

Some of the regional agencies and environmental programs that may wish to use the goals are the CALFED Bay-Delta Program, the Long Term Management Strategy for Dredged Material, the Partnership for San Pablo Baylands, the San Francisco Bay Conservation and Development Commission, the San Francisco Bay Joint Venture, and the San Francisco Bay Regional Water Quality Control Board.

## Involvement

# Wetlands Ecosystem Goals

# Involvement/Commitment

Goals will  
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Area wetlands

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Francisco Bay  
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Water Quality

Public participation is an important aspect of establishing sound Ecosystem Goals. The public will be invited to review and comment on the draft recommendations prepared by the project participants. All Project meetings are open to the public and special workshops will be held to share products. For meeting schedules and more information, call the Ecosystem Goals Hot Line at (510) 286-1221.



# s Project

Plant & Animal Groups  
ANIMAL GROUP

...for which there are Focus Teams, include: Estuarine Fishes and Invertebrates; Baylands Plants; Baylands Mammals, Reptiles, Amphibians and Terrestrial Invertebrates; Shorebirds and Waterfowl; and Other Baylands Birds.

A Hydro-geomorphic Advisory Team has also been established to assure that water, land, and infrastructure constraints are adequately considered during the process.

The Science Review Group, comprised of leading scientists with expertise in wetland ecosystem analysis, integrated resource planning, and conservation biology, provides critical scientific peer review of the Goals Project's process and products.

The San Francisco Estuary Institute, a nonprofit organization, will assist in establishing the Goals Project's scientific process and provide support to Focus Teams and the Resource Managers Group.

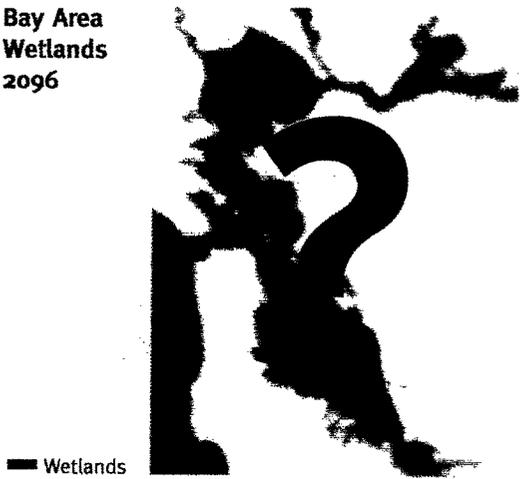
An Administrative Core Team of agency representatives provides administrative and public outreach support.

# SCOPE

The Goals Project is a scientific process. It will consider the historical and current distribution of baylands — mudflats, seasonal and perennial freshwater wetlands, existing and diked historical tidal marshlands and other wetland types — within the region between the South Bay and the western margin of the Delta at the confluence of the Sacramento and San Joaquin rivers.

The Goals Project will also examine the current abundance and distribution of endangered species, waterfowl,

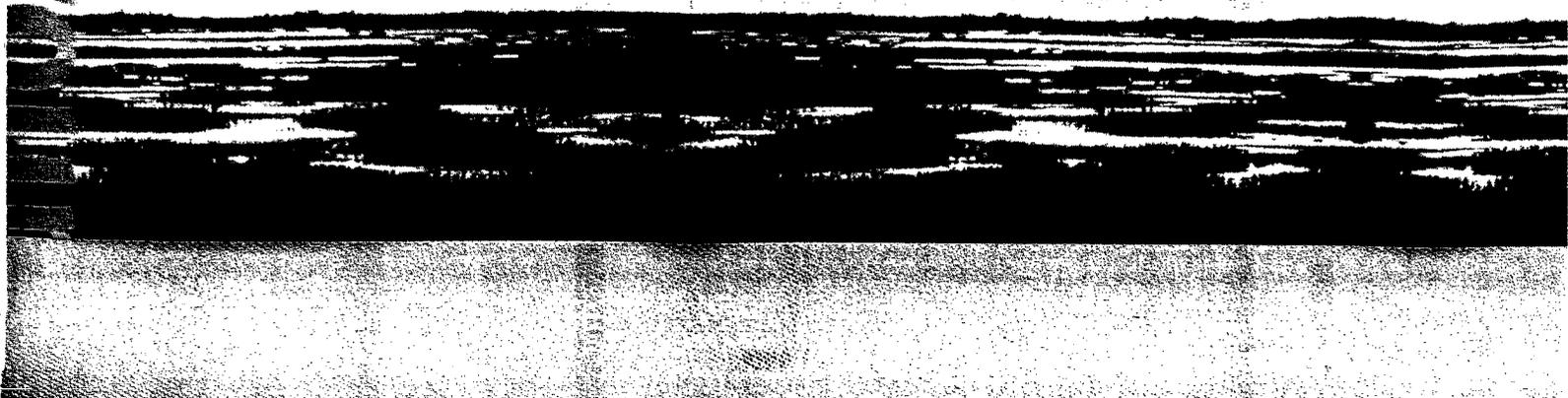
Bay Area Wetlands 2096



shorebirds, and other important natural resources, and consider the influence of climate, hydrology, and landscape constraints on wetlands restoration. The Goals Project may be expanded to include instream, riparian, and terrestrial habitats.

# Goals Project

# Project



# Goals Project PROJECT

The Goals Project is a voluntary, collaborative effort among many of the agencies and public interests involved in local wetlands management and regulation. Using available scientific knowledge, the Goals Project will identify the wetlands types, amounts, and distribution required to sustain diverse and healthy communities of fish and wildlife. The Goals Project will produce wetlands ecosystem goals — written descriptions and/or illustrative maps recommending a mosaic of wetlands and related habitats — along with recommendations for planning and

Bay Area Wetlands 1996

- Tidal Marsh
- Intertidal Flats
- Diked Baylands
- Salt Ponds
- Bay Waters



designing wetlands restoration projects. The wetlands ecosystem goals and their supporting data will be available to the public, and will be periodically updated to accommodate new scientific information.

# Sponsors

- California Coastal Conservancy
- California Department of Fish and Game
- California Department of Water Resources
- California Resources Agency
- National Marine Fisheries Service
- San Francisco Bay Conservation and Development Commission
- San Francisco Bay Joint Venture
- San Francisco Bay Regional Water Quality Control Board
- San Francisco Estuary Institute
- San Francisco Estuary Project
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service

**For more information contact:**

The San Francisco Bay Ecosystem Goals Project  
Peggy Olofson, Administrative Manager  
S.F. Bay Regional Water Quality Control Board  
2101 Webster Street, Suite 500  
Oakland, CA 94612  
(510) 286-0427

Preparation and printing of this brochure was made possible by support from the U.S. Fish and Wildlife Service's San Francisco Bay Program.

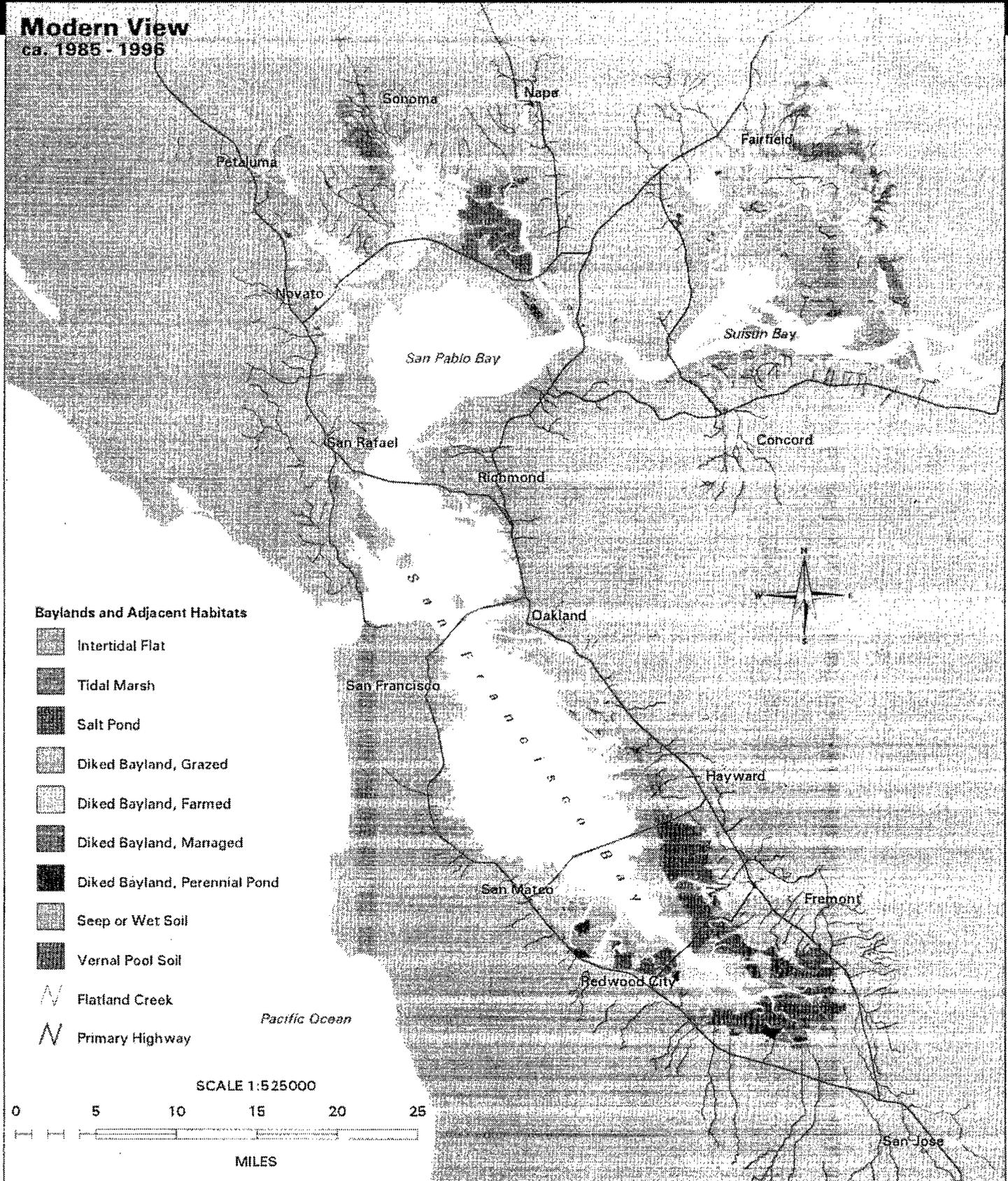
Graphic Design: Darren Campeau

Cover: Detail of 1776 Spanish explorer's map of the San Francisco Bay Area.

Other Maps courtesy of the San Francisco Estuary Institute.



# Past and Present



**Modern View Primary Sources:**  
CA State Lands Commission, US Geological Survey, US Fish and Wildlife Service, US National Aeronautical and Space Administration, and local experts.

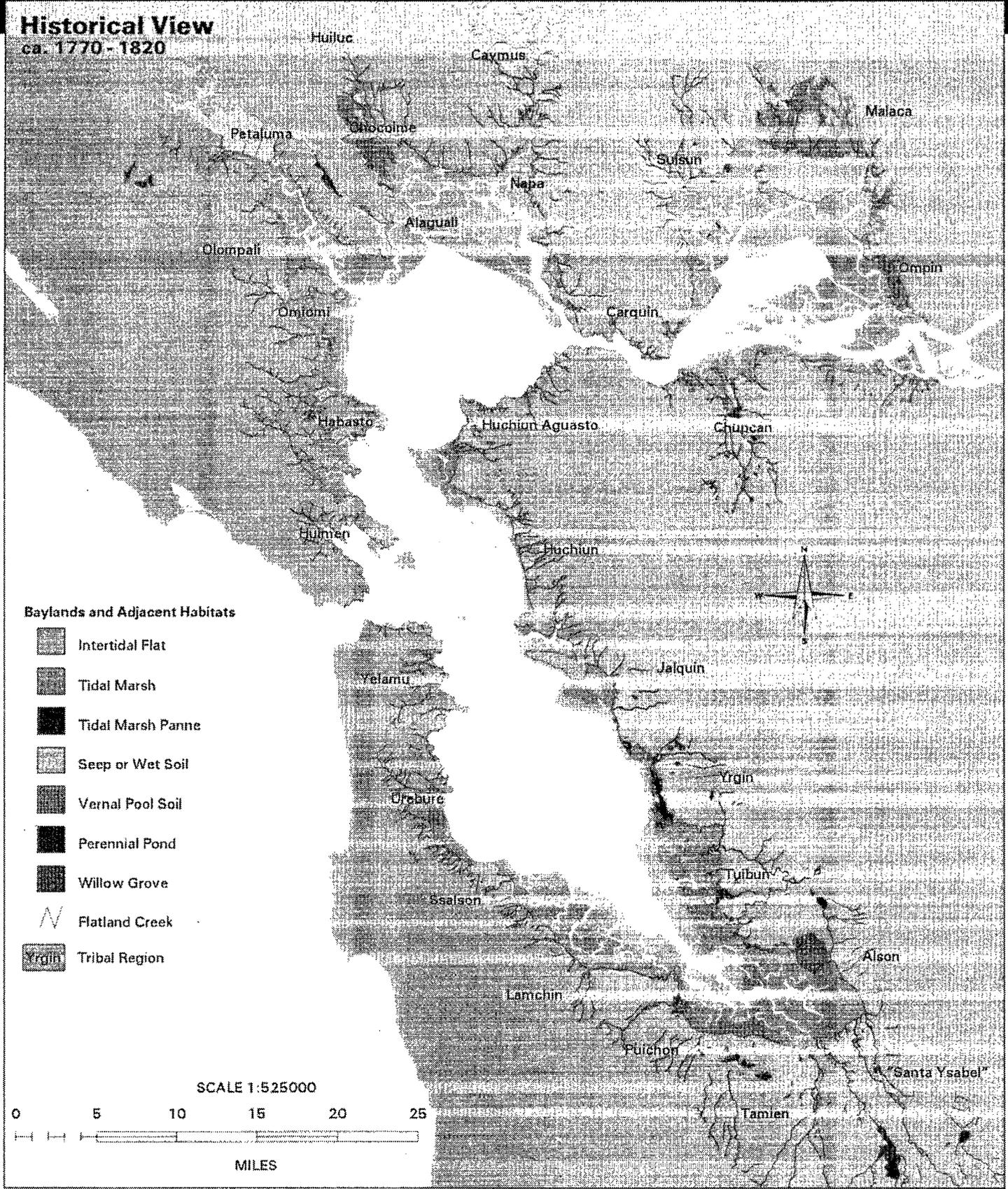
**Production:**  
Science coordination, GIS and Map Design by the San Francisco Estuary Institute Richmond, California <http://www.sfei.org> EcoAtlas 1.0 ©1997 SFEI



# Bay Area EcoAtlas

## Historical View

ca. 1770 - 1820



### Historical View Primary Sources:

US Coast Survey, US Geological Survey, US Department of Agriculture, Spanish disenos, explorers' journals, and local archives. Tribal Regions courtesy of Randall Milliken.

### Projection:

1927 North American Datum  
Universal Transverse Mercator Projection  
UTM Zone 10

## THE SAN FRANCISCO BAY JOINT VENTURE WETLANDS RESTORATION PROGRAM



### The San Francisco Bay Estuary

San Francisco Bay, combined with the Delta, forms the West Coast's largest estuary, draining approximately 40% of the state's surface area. The Bay's resources enable the nation's fourth largest metropolitan region to pursue diverse activities including shipping, fishing, recreation and commerce and are, in part, responsible for the higher quality of life that attracts new residents.

The Bay hosts a rich diversity of flora and fauna and is one of the most important coastal wintering and migration areas for waterfowl and shorebirds. Nearly half of the birds of the Pacific Flyway and two-thirds of the state's salmon pass through the Bay. But these wetland resources have been severely impacted by conversion to agricultural and urban uses, flood control projects and water diversions. Tidal marsh acreage has been reduced from approximately 190,000 to 40,000, diminishing the Bay's productive capacity for fish and wildlife populations. Seasonal wetlands and riparian habitats have suffered similar losses, further impairing the Bay's ability to support its rich diversity of species. The result has been an increasing number of threatened and endangered species such as the California clapper rail, the salt marsh harvest mouse, the Delta smelt and several runs of chinook salmon to name a few.

For decades, the San Francisco Bay-Delta Estuary has been at the heart of many battles over water diversions from the Estuary and the subsequent impacts on fish and wildlife populations. The Central Valley Project Improvement Act (CVPIA), passed in 1992, is notable because it was the first time that the needs of fish and wildlife would be factored into water deliveries. It still has not been implemented fully. In 1994, the historic Bay-Delta Accord was signed and the CALFED Bay-Delta Program was born. The CALFED Program is significant because all the stakeholders are at the table attempting to put an end to the long-standing water wars and millions of dollars have been committed to the ecosystem restoration. It is too soon to declare the program a success.

### Restoring the Estuary

Hopeful signs are emerging. In 1987, the US EPA launched the San Francisco Estuary Project. It was an enormous undertaking that brought together diverse stakeholders from the environmental, business, agricultural and public resource and regulatory communities. The Estuary Project began a

collaborative, sometimes contentious, consensus process of over 100 stakeholders addressing the health of the Estuary. Five years and hundreds of meeting hours later, the Comprehensive Conservation and Management Plan (CCMP) for the San Francisco Estuary was signed by Governor Wilson and EPA Administrator Carol Browner. The CCMP outlines 145 actions to restore ecological health to the Estuary. The creation of the San Francisco Bay Joint Venture was one of these actions.

The Estuary Project's State of the Estuary Report, 1992-1997, estimates that approximately 8,000 acres of degraded or former wetlands have been restored and enhanced since 1993 within the larger Bay-Delta Estuary. Many more wetland acquisition and restoration projects are in various stages of development and several new programs aimed at protecting and restoring wetland habitat have emerged in recent years.

A comprehensive approach to restoring the Bay's wetland ecosystem will lead to numerous benefits in addition to those accruing to fish and wildlife populations. A healthy ecosystem reduces the number of threatened and endangered species, contributing to a reduction in land use conflicts, providing regulatory relief to the agricultural and business communities, ensuring more reliable water supplies of higher quality and maintaining the economic health of the Bay Area. The economic benefits of restoration can also be found in the role wetlands play in buffering the impact of floods, cleansing pollutants from runoff, recharging overdrawn water supplies and protecting against shoreline erosion.

### Joint Venture Goals

The Joint Venture, a partnership of public agencies, environmental organizations, business groups and agricultural interests, is working to protect, restore, increase and enhance wetlands, riparian habitat and associated uplands in the San Francisco Bay Area. The Joint Venture is developing an Implementation Strategy, to be completed in fall 1998, outlining the acreage goals for protection and restoration necessary to increase fish and wildlife populations and begin restoring ecological health to the Bay. Through a combination of state, federal, local and private funding sources, Joint Venture partners are tackling a variety of projects ranging from watershed planning to levee breaching, aimed at restoring the ecological health of the Bay's wetland and riparian systems.

(over)

### **Funding Needs**

Early estimates indicate that if the ambitious goals of the Joint Venture are to be achieved, \$20 million a year over the next 20 years will be needed. \$20 million a year is undeniably a large sum but is comparable to, and in some cases, well below the annual funding levels for significant natural areas in other parts of the country. Funding from existing state, federal and private sources can be increased and new ones can be created. Joint Venture partners have identified several opportunities where state and federal sources could be increased.

### **Federal Funding Sources**

***Land and Water Conservation Fund.*** The LWCF is a great idea that has been historically underutilized. Revenues from offshore oil and gas development are directed to the LWCF, authorized at \$900 million annually. The reality is that funds are consistently appropriated under the \$200 million level and no funds have been appropriated in recent years for the State Program that provides matching grants up to 50% to state agencies and municipalities. Funding from LWCF will be used to complete the acquisitions of Bair Island and private lands within the boundaries of the San Pablo Bay National Wildlife Refuge, including the proposed expansion to the Marin Baylands. State program monies can be used to purchase and restore properties by the many local park districts in the Bay Area. LWCF should be funded at \$900 million with \$200 million allocated to the State Program.

***North American Wetlands Conservation Act.*** NAWCA provides 50% matching grants to acquisition and restoration projects that increase wetland habitat quantity and quality. A popular funding source for joint ventures throughout the US, NAWCA is authorized at \$30 million a year but has been funded well below that level. The FY99 budget is at \$14.7 million, an increase of approximately \$3 million over recent years. A \$200,000 NAWCA grant pushed the Oro Loma Marsh Restoration Project in Hayward to completion. NAWCA is also up for reauthorization this year, with Senator John Chafee (R-RI) taking the lead. NAWCA's reauthorization and full funding at \$30 million will contribute significantly to meeting the Joint Venture's goals.

***CALFED Bay-Delta Ecosystem Restoration Funding.*** The CALFED Bay-Delta Program is focusing the majority of its restoration activities upstream of the San Francisco Bay Ecosystem. However, Joint Venture partners have received some project funding from this source and support the \$143 million FY99 appropriation for ecosystem restoration.

***1996 Farm Bill.*** This bill contains several programs that offer funding for the purchase of conservation and agricultural easements, known as the Wetlands Reserve Program and Farmland Protection Program, respectively. The bill also established the Wildlife Habitat Incentive Program (WHIP), a financial incentive program for landowners that want to enhance or restore wildlife values on their properties. Funding levels for each of these programs should be increased.

***Estuary Habitat Restoration Partnership Act of 1997 (S 1222).*** This bill, introduced by Sen. Chafee (R-R.I.) at the urging of the national group Restore America's Estuaries, is designed to encourage federal, state, local and private partnerships to restore 1 million acres of estuarine habitats by 2010. The bill would provide matching funds to state and other non-federal entities for estuarine restoration projects with the federal share ranging from 25 to 75%. Current funding authorization levels are \$40 million in FY99, \$50 million in FY00, and \$75 million in FY's 2001 through 2003.

### **State Funding Sources**

***Park Bond.*** State Senator Thompson's SB 2 is an \$850 million park bond providing much needed funding to the Coastal Conservancy and the Wildlife Conservation Board, two prominent Joint Venture partners. The bond also contains \$5 million to the Coastal Conservancy for projects that meet the goals of the Joint Venture.

***Water Bond.*** State Senator Costa's SB 312 and Assembly Member Machado's AB 254 would provide funding for a multitude of water-related projects including nonstructural flood control alternatives. The Coastal Rivers and Streams Program of the bill would provide funds to mitigate past water control projects by restoring historic floodplains.

***Bay Area Conservancy Program.*** The passage of SB 1048 last year created the Bay Area Conservancy Program at the Coastal Conservancy. The program supports Joint Venture projects but is currently unfunded. The Bay Area Conservancy Program should be funded from a park bond or through the state budget process.

***Budget Process.*** The state budget should be used to identify and fund wetland acquisition and restoration projects.

***For more information, contact Nancy Schaefer, Joint Venture Coordinator, at 510-286-6767 or nans@aol.com.***

**SAN FRANCISCO BAY JOINT VENTURE**

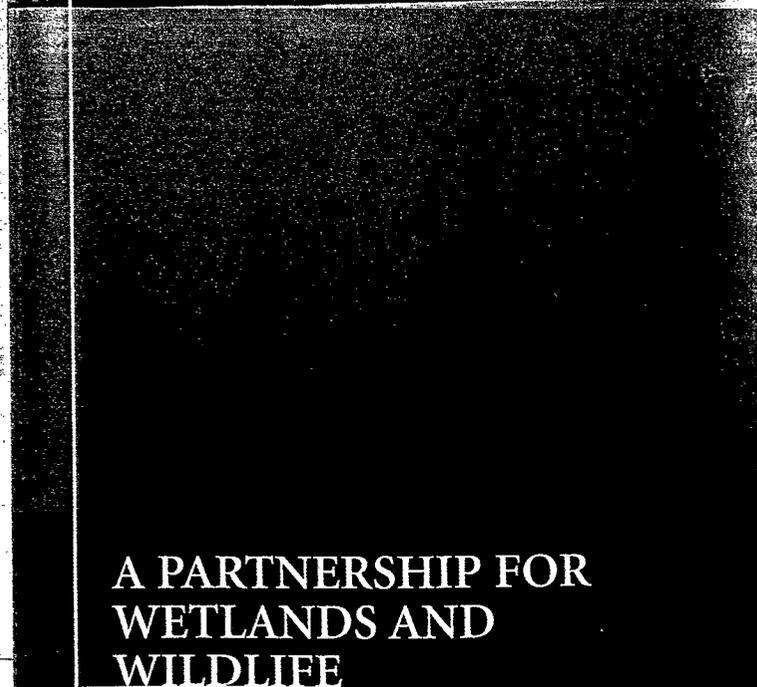
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NANCY SCHAEFER, Coordinator

Coastal Conservancy  
1330 Broadway, Suite 1100  
Oakland, CA 94612-2530

Phone: 510-286-6767  
Fax: 510-286-0470

# THE SAN FRANCISCO BAY JOINT VENTURE



A PARTNERSHIP FOR  
WETLANDS AND  
WILDLIFE

## The Wealth In Wetlands

Wetlands and riparian habitats play a vital, and frequently overlooked, role in maintaining a healthy ecosystem by performing a myriad of functions: buffering the impact of floodwaters, cleansing pollutants from runoff, recharging overdrawn water supplies, protecting our shorelines from erosion and providing habitat for hundreds of fish and wildlife species. The wetlands of the San Francisco Estuary are one of the most important wintering and stopover areas for the migratory ducks, geese and shorebirds along the entire Pacific Flyway, linking the Arctic with Central and South America. Wetlands and riparian habitat also provide economic benefits by supporting commercial fisheries, offering recreational opportunities and generally contributing to a higher quality of life for residents in the densely populated San Francisco Bay Area.



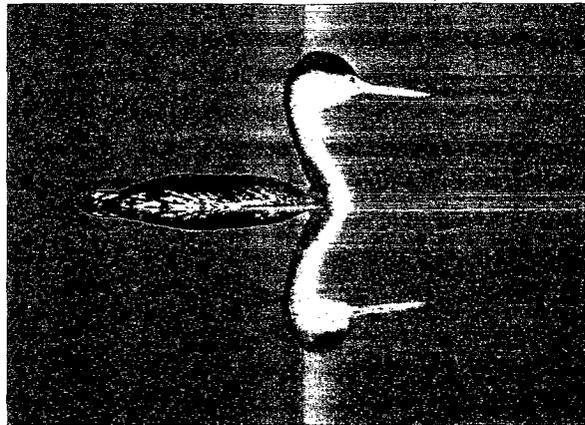


## The North American Waterfowl Management Plan: A Plan for Wetlands and Wildlife

The plight of wetlands and wildlife in the San Francisco Bay Area is only one example of a widespread problem across North America. American, Canadian and Mexican biologists have outlined what must be done to save North America's wetlands and wetlands associated wildlife in all their abundance and diversity in a visionary document called the *North American Waterfowl Management Plan*. This historic international agreement was signed by the United

States and Canada in May 1986. Mexico signed on in 1994.

The Plan is a federal, state and private initiative designed to protect wetland habitat and increase wetland wildlife populations while improving water quality, reducing soil loss and addressing many other wetland ecosystem issues. It establishes ambitious goals for duck, goose and swan populations and identifies wetland habitat conservation priorities in specific regions of the continent. San Francisco Bay is one of these high priority areas.



*Clark's grebe,*  
Mark Rauzon, courtesy S.F. Bay National Wildlife Refuge



*California clapper rail,*  
Mark Rauzon, courtesy S.F. Bay National Wildlife Refuge

In addition to waterfowl, the wetlands protection actions outlined in the Plan also benefit numerous other species, including shorebirds, songbirds, raptors, mammals, fish, invertebrates and other threatened and endangered plant and animal species.



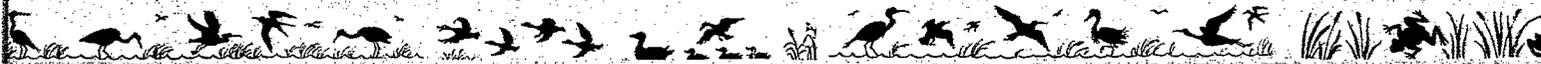
*Greater scaup,*  
courtesy S.F. Bay National Wildlife Refuge



*Pickleweed*



*Chinook salmon*



## What is the San Francisco Bay Joint Venture?



The Plan envisioned a cooperative approach to implementation and specifically called for the creation of public/private partnerships or joint ventures to accomplish its objectives. The San Francisco Bay Joint Venture is one of these partnerships consisting of public agencies, environmental organizations, business representatives and agricultural interests working together to meet the Plan's goals by protecting, restoring, increasing and enhancing wetlands, riparian habitat and associated uplands to benefit fish and wildlife in the San Francisco Bay Watershed.

Using a non-regulatory, cooperative approach, the Joint Venture is focusing on completing on-the-ground habitat projects that benefit fish and wildlife populations by leveraging existing resources, developing new funding sources and creating unique partnerships to accomplish the following objectives:

- Protect wetlands, riparian habitat and associated uplands through fee or permanent easement acquisition from willing sellers.
- Restore and enhance wetlands, riparian habitat and associated uplands on both public and private lands using non-regulatory techniques.
- Improve habitat management on publicly and privately owned wetlands, riparian habitat and associated uplands through the use of cooperative management agreements and voluntary incentive programs.
- Strengthen existing and promote new funding sources for wetlands acquisition, restoration, enhancement and management programs.
- Support monitoring and evaluation of existing restoration projects, as well as pertinent research studies, to improve future restoration projects.



*Damon Marsh clean-up, courtesy Coastal Conservancy*

The Joint Venture is supporting the development and implementation of watershed management plans that

foster a cooperative community-based approach to the protection and enhancement of stream corridors.



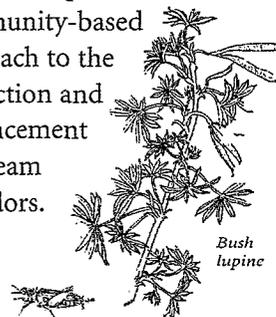
*Gumplant*



*Snowy egret, Buck Lovell, courtesy S.F. Bay National Wildlife Refuge*



*Western gull, Mark Rauzon, courtesy S.F. Bay National Wildlife Refuge*



*Bush lupine*



## Wetlands and Wildlife In Peril

San Francisco Bay originally had roughly 190,000 acres of tidal marsh that supported thriving populations of fish and wildlife. As the human population has grown, tidal marsh acreage has declined to approximately 40,000, putting fish and wildlife as well as the ecological health of the Bay at risk. Nearly 55 percent of threatened and endangered species and up to 90 percent of commercial and recreational fish species in San Francisco Bay depend on wetland and riparian habitat. For example, several species dependent on tidal marshes, such as the California clapper rail, salt marsh harvest mouse, Chinook salmon and Delta smelt, have declined dramatically due to the loss of habitat. The Bay is of particular importance to Canvasbacks and other diving ducks of the Pacific Flyway where up to 66 percent of the Canvasback population can be found in the North Bay in the winter. Migratory shorebirds are also found in large numbers, during the winter months, especially in the South Bay.



## THE JOINT VENTURE PARTNERS

- Bay Area Audubon Council
- Bay Area Open Space Council
- Bay Area Regional Watershed Network
- Bay Conservation & Development Commission
- Bay Planning Coalition
- California Department of Fish and Game
- Citizens' Committee to Complete Refuge
- Coastal Conservancy
- Coastal Region, Mosquito and Vector Control Districts
- Ducks Unlimited
- National Audubon Society
- Natural Resources Conservation Service
- P G & E
- SF Bay Regional Water Quality Control Board
- Save San Francisco Bay Association
- Sierra Club
- The Bay Institute
- US Environmental Protection Agency
- US Fish and Wildlife Service
- Wildlife Conservation Board

For more information, contact:

Nancy Schaefer, Coordinator

San Francisco Bay Joint Venture

PHONE 510-286-6767 FAX 510-286-0470

### MAILING ADDRESS

Coastal Conservancy

1330 Broadway, Suite 1100

Oakland, CA 94612

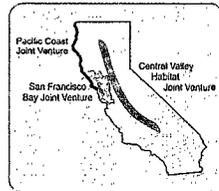
The San Francisco Bay Joint Venture is an independent project with funding for coordination from the US Environmental Protection Agency, California Department of Fish and Game, the Coastal Conservancy, the California Resources Agency, the US Fish and Wildlife Service, and The Trust for Public Land.

Cover and Gatefold photos: courtesy, S.F. Bay National Wildlife Refuge  
Back photo: courtesy, Mary Moehle, Baseline Designs  
Design: Mary Moehle, Baseline Designs. On recycled paper



**GEOGRAPHIC SCOPE**

Flanked to the north by the Pacific Coast Joint Venture and to the east by the Central Valley Habitat Joint Venture, the San Francisco Bay Joint Venture is the only one found in a major metropolitan area. The San Francisco Bay Joint Venture encompasses the San Francisco Bay Watershed, incorporating all or part of the nine Bay Area counties and the San Mateo County coast.



top left: Viewing wetland wildlife, Jim & Karen Hollingsworth, courtesy S.F. Bay National Wildlife Refuge  
 center left: Black-necked Stilt, Kris Swarth, courtesy S.F. Bay National Wildlife Refuge  
 bottom left: Hayward Shore Interpretive Center, courtesy Save San Francisco Bay Association



**San Mateo Coast**

Several freshwater and tidal marshes dot the 55 mile San Mateo Coast. These wetlands and extensive riparian corridors support numerous rare, endangered and unique species. The coastal streams have been especially impacted by sedimentation caused by development, agricultural practices and water diversion.

Gatefold plant illustrations: Bush lupine, Gumplant, Mimi Osborne, courtesy San Francisco Bay Shoreline Guide; Project director/ editor: Rosa Giattolis; Writer: Jerry Emery; Publisher: University of California Press; © 1995 California State Coastal Conservancy

co-funded by the National Park Service Rivers, Trails and Conservation Assistance Program, P G & E, US Bureau of Reclamation and US Fish & Wildlife Service.

**North Bay**

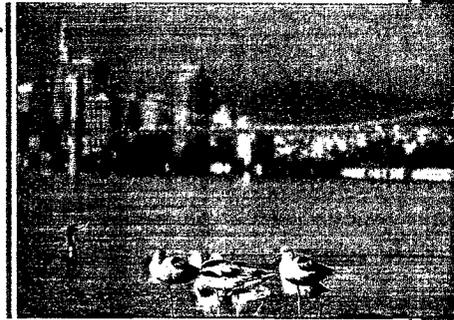
Tidal marsh, once a predominant habitat throughout the Bay, has been converted to diked baylands for agriculture in the North Bay. Diked baylands provide upland habitat and seasonal wetlands for numerous wetland-dependent species. The remaining tidal sloughs and marshes, riparian corridors and open water habitat continue to support numerous waterfowl and shorebird species as well as anadromous fish migrating to and from the Pacific Ocean.



Northern pintails, Ken Crowley, courtesy S.F. Bay National Wildlife Refuge

**Central Bay**

Much of the Central Bay wetlands have been diked, drained and converted to urban and industrial uses. Habitat restoration opportunities are limited primarily to the few remaining tidal marshes, seasonal wetlands and stream corridors.



Avocets in the Central Bay with San Francisco skyline, Mark Rauzon, courtesy S.F. Bay National Wildlife Refuge

**South Bay**

Much of the historic tidal marsh in the South Bay has been converted to salt producing ponds. Approximately 30,000 acres remain in salt production providing habitat for shorebirds and waterfowl. The Don Edwards San Francisco Bay National Wildlife Refuge encompasses 20,000 acres of tidal marsh, salt ponds, mud flats and uplands.



Looking north over multi-colored salt ponds toward the Port of Redwood City, Bair Island, Brady Aerial Photography



