With a vision of more than doubling tidal wetlands and more than tripling riparian habitats around the Estuary through restoration and enhancement in the next two decades, the partners of the SFBJV are seeking to accomplish ambitious, but well-researched and achievable goals. The next two chapters offer specific strategies for undertaking this vision.

In this chapter, eight sets of objectives are recommended to accomplish the Joint Venture’s acreage goals. The objectives are shown at the outset of each section in italicized text and are followed by a series of proposed strategies that are designed to guide Joint Venture partners in implementing them.

**Acquisition, Restoration, and Enhancement Objectives and Strategies**

The Joint Venture has developed acreage objectives for permanently protecting, restoring, and enhancing wetland habitats. These goals have been developed for each of the five subregions identified within the Joint Venture boundaries. Specific strategies to accomplish these objectives are identified for each subregion, reflecting the unique qualities of each area. To further respect regional differences, watershed working groups within each subregion have been or will be established to inform Joint Venture activities with local knowledge and to carry out responsive recommendations.

Joint Venture partners will work with landowners in the pursuit of their collective objectives. Fee acquisition of private property from willing sellers will continue to be used as the primary method for acquisition where practical, and will make use of conservation easements as a major land protection tool. Conservation easements can reduce the cost of permanently protecting habitat by purchasing only the development rights while allowing the property to remain in private ownership. The fact that SFBJV is a non-regulatory entity means that its acreage objectives assume working cooperatively with willing landowners. This does not preclude the ability of agencies to condemn land in extreme cases.

The partners also recognize the importance of working with both public and private landowners in accomplishing the restoration/enhancement objectives. Many public agencies have purchased habitat but have had difficulty finding the resources to restore and enhance these properties. Many private landowners have been good stewards and would like the opportunity to do more if they had more funding and technical assistance. The SFBJV would like to build on these initiatives.
**North Bay Subregion**  
**Acreage Objectives and Strategies**

**Objectives**

**Acquire** 23,000 acres of bay habitats, 18,000 acres of seasonal wetlands, and 1,000 acres of habitat associated with creeks and lakes in the North Bay Subregion using fee or permanent easement acquisition.

**Restore** 15,000 acres of bay habitats, 4,000 acres of seasonal wetlands, and 1,000 acres of habitat associated with creeks and lakes in the North Bay Subregion on both public and private lands using non-regulatory techniques.

**Enhance** 13,000 acres of bay habitats, 12,000 acres of seasonal wetlands, and 4,000 acres of habitat associated with creeks and lakes in the North Bay Subregion on both public and private lands using non-regulatory techniques.

The North Bay counties of Solano, Napa, and Sonoma host a mixture of large tracts of publicly owned wildlife lands and privately owned agricultural lands presenting the opportunity to protect, restore, and enhance a large mosaic of wetlands, riparian habitat, and associated uplands of close to 40,000 acres. Marin County’s shoreline and watersheds are somewhat more developed; however, 5,000 acres of undeveloped baylands remain in private ownership. Some wetland sites are under significant pressure for development, including the St. Vincent’s and the Silveira properties. The western Contra Costa Shoreline has limited restoration opportunities because the area is lined with heavy industry and the neighboring community is highly urbanized. The East Bay Regional Park District has protected large tracts of shoreline and watershed properties. A few large marshes are still in private ownership, such as Wildcat and San Pablo Marshes.

The Joint Venture has already undertaken steps to expand the San Pablo Bay National Wildlife Refuge to the Marin shoreline. This expansion is the first step toward permanently protecting large tracts of shoreline properties, and gives Joint Venture partners greater access to another funding source—the Land and Water Conservation Fund.

**Strategies to Acquire, Restore, and Enhance Wetland Habitat in the North Bay Subregion**

**Acquisition.** The North Bay Subregion has several public refuges and wildlife areas owned by the Department of Fish and Game (Napa-Sonoma...
Marshes, Petaluma Marsh), the U.S. Fish and Wildlife Service (San Pablo Bay National Wildlife Refuge), and the East Bay Regional Park District (Contra Costa). Fee title acquisitions in the North Bay Subregion will be completed by either public agencies or nonprofit conservation organizations including:

- U.S. Fish and Wildlife Service
- Wildlife Conservation Board/California Department of Fish and Game
- Coastal Conservancy (Bay Area Conservancy Program)
- State Lands Commission
- East Bay Regional Park District
- Marin Open Space District
- Marin Audubon Society
- Napa County Land Trust
- Sonoma County Agricultural Preservation and Open Space District.

The San Pablo Bay National Wildlife Refuge will be expanded to include most of the Marin baylands and possibly reaches of the Sonoma shoreline that are not already part of the refuge. Conservation or agricultural easements will be purchased where appropriate by public agencies or nonprofit conservation organizations including:

- U.S. Fish and Wildlife Service
- Wildlife Conservation Board/Department of Fish and Game
- Coastal Conservancy (Bay Area Conservancy Program)
- State Lands Commission
- East Bay Regional Park District
- Marin Open Space District
- Marin Audubon Society
- Napa County Land Trust
- Sonoma Land Trust
- Sonoma County Agricultural Preservation and Open Space District.

Restoration and Enhancement. There are numerous opportunities to complete restoration and enhancement of lands already in public ownership in the North Bay. For example, the California Department of Fish and Game and the U.S. Fish and Wildlife Service have acquired close to 15,000 acres over the past ten years. Several actions can be taken to further this objective.

1. Assist with securing funding or partners to facilitate restoration and enhancement of public lands such as Cullinan Ranch and Napa-Sonoma Marshes.
2. Encourage organizations such as Ducks Unlimited and California Waterfowl Association to continue and expand existing partnerships with public agencies.
3. Develop new sources of public and private funding that will cover the cost of planning as well as implementation for restoration and enhancement projects.
4. Support expansion of the boundaries of the San Pablo Bay National Wildlife Refuge to include Marin County baylands and sites in Sonoma adjacent to the Petaluma River and, in Napa and Solano, to ensure maximum protection of important habitats as part of the North Bay ecosystem.
5. Endorse and aid efforts by the Marin Audubon Society, Marin Baylands Advocates, and Sonoma Land Trust to acquire, restore, and enhance baylands.

In the San Francisco Bay Area, the North Bay counties of Marin, Sonoma, and Napa hold the most potential for restoration and enhancement on private lands. Many of the diked historic baylands remain in agriculture. These agricultural lands are an important part of the economy and provide various degrees of wildlife habitat. The Joint Venture partners need to continue to work with these landowners and encourage restoration on these agricultural lands by taking the following steps:

1. Implement the Stewardship Plan drafted by the San Pablo Baylands Partnership.
2. Implement watershed management plans that have been developed or are being completed for the Napa River, Sonoma Creek, Petaluma...
River, and others as they are identified and completed.

3. Encourage the development of watershed management plans for creeks and streams that are not currently within a watershed planning area.

4. Work with private landowners to develop habitat enhancement projects appropriate for cost-sharing programs such as the U.S. Fish and Wildlife Service Partners for Wildlife Program and the Natural Resources Conservation Service Wildlife Habitat Incentives Program (WHIP).

5. Develop a cost-sharing habitat restoration program for private landowners in the North Bay patterned after Partners for Wildlife and WHIP.

6. Work with urban creek groups to restore riparian habitat.

7. Cultivate and/or enhance Watershed Working Groups within the North Bay, particularly for the Petaluma River and Sonoma Creek watersheds.

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**Suisun Subregion Acreage Objectives and Strategies**

(area includes Contra Costa shoreline and uplands)

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**Objectives**

**Acquire** 3,000 acres of bay habitats, 11,000 acres of seasonal wetlands, and 1,000 acres of habitat associated with creeks and lakes in the Suisun Subregion using fee or permanent easement acquisition.

**Restore** 2,000 acres of bay habitats, 1,000 acres of seasonal wetlands, and 1,000 acres of habitat associated with creeks and lakes in the Suisun Subregion on both public and private lands using non-regulatory techniques.

**Enhance** 2,000 acres of bay habitats, 6,000 acres of seasonal wetlands, and 4,000 acres of habitat associated with creeks and lakes in the Suisun Subregion on both public and private lands using non-regulatory techniques.
The Suisun Subregion incorporates lands both north and south of the Carquinez Strait, but excludes the Suisun Marsh itself, which is part of the Central Valley Habitat Joint Venture’s geographic scope. Lands above the 10-foot contour line surrounding Suisun Marsh are included in the San Francisco Bay Joint Venture. The areas separated by the Strait are very different in terms of habitat types and land use. The Solano County area includes duck clubs, open agricultural land (primarily grazing), and urban and residential development. The Contra Costa shoreline is heavily industrialized, and land uses beyond the shoreline include dense residential development, urban areas, and some range land in the hills along the Strait and on the flanks of Mt. Diablo. There are numerous agencies and nonprofits working on either side of the Strait, and it is recommended that two watershed working groups be established to represent these areas.

One of the largest opportunities on the Contra Costa side is working cooperatively with the Concord Naval Weapons Station and adjacent landowners to restore and enhance several thousand acres of wetlands in public and private ownership.

Strategies to Acquire, Restore, and Enhance Wetland Habitat in the Suisun Subregion

Acquisition. The Suisun Subregion has several agencies and nonprofits that can assist with the implementation of the Joint Venture’s acquisition objective including:

- Wildlife Conservation Board/California Department of Fish and Game
- Coastal Conservancy (Bay Area Conservancy Program)
- State Lands Commission
- California Department of Parks and Recreation
- East Bay Regional Park District
- Contra Costa County Flood Control District
- Solano County Farmlands and Open Space Foundation
- Muir Heritage Trust (formerly Martinez Regional Land Trust)
- Agricultural Land Trust of Contra Costa County
- Save Mt. Diablo.

Conservation or agricultural easements will be purchased where appropriate by public agencies or nonprofit conservation organizations including:

- Wildlife Conservation Board/California Department of Fish and Game
- Coastal Conservancy (Bay Area Conservancy Program)
- Natural Resources Conservation Service (Wetlands Reserve Program, Farmland Protection Program)
- Department of Conservation’s Agricultural Land Stewardship Program
- Solano County Farmlands and Open Space Foundation
- Muir Heritage Land Trust
- Agricultural Land Trust of Contra Costa County
- California Waterfowl Association.

Restoration and Enhancement. Restoration and enhancement goals can be accomplished on both public and private lands in the Suisun Subregion. Strategies to complete more restoration and enhancement projects on lands already in public ownership include:

1. Assist with securing state, federal, local, and private funding or partners to facilitate restoration and enhancement of public lands.
2. Increase existing and develop new sources of public and private funding that will cover the cost of planning as well as implementation for restoration and enhancement projects.
3. Encourage organizations such as Ducks Unlimited and California Waterfowl Association to build and expand partnerships with public agencies.
4. Work with flood control districts to design and construct nonstructural flood control projects and to restore riparian corridors.
5. Promote tidal restoration projects involving partnership with Mosquito and Vector Control Districts to effect multiple benefits.
6. Facilitate the development of a management plan for the Point Edith/Concord Naval Weapons Station region of Contra Costa County to encourage the restoration, enhancement, and cooperative management of wetland habitats in public and private ownership.
To encourage restoration and enhancement on private lands, the following steps should be taken:

1. Assist with the implementation of watershed management plans that have been completed or are in process, such as Alhambra Creek’s.

2. Encourage the development of watershed management plans for creeks and streams that are not currently within a watershed planning area.

3. Work with private landowners to develop habitat enhancement projects appropriate for cost-sharing programs such as the U.S. Fish and Wildlife Service Partners for Wildlife Program and the Natural Resources Conservation Service Wildlife Habitat Incentives Program.

4. Work with resource conservation districts to identify enhancement opportunities.

5. Work with organizations such as Ducks Unlimited and California Waterfowl Association to expand their private lands programs.

6. Seek private funding sources for habitat enhancement projects on private lands.

7. Work with urban creek groups to restore riparian habitat.

8. Cultivate and enhance partnerships within the Suisun subregion, particularly for the Walnut Creek and Marsh Creek watersheds.

The Central Bay, which includes the cities of San Francisco and Oakland, is the region’s most highly urbanized section. This places great constraints on the opportunities for acquisition, restoration, and enhancement. Nonetheless, there are a number of innovative and prominent examples of habitat projects. These include recently completed efforts to restore wetlands at Crissy Field and at Pier 98 in San Francisco. Among projects in progress are re-establishing wetlands around Oakland’s Lake Merritt, riparian restoration on Codornices Creek in Albany and Cerritos and Wildcat Creeks in Richmond, the decades-long creation of Eastshore State Park, and the transfer of several hundred acres of Alameda Naval Air Station to the U.S. Fish and Wildlife Service.

There are also many opportunities to work with urban creek groups to protect, restore, and enhance the many creeks that flow into wetlands at the Bay’s edge. Higher potentials for restoration exist in less urbanized portions of the Central Bay at the Corte Madera Ecological Reserve and Golden Gate National Recreation Area (GGNRA) lands in southern Marin County. It would make sense for coordinating efforts in the Central Bay to have one Watershed Working Group for the east side and another for the northwest side, such as the Aquatic Outreach Institute and the North Bay Riparian Station respectively.

Central Bay Subregion
Acreage Objectives and Strategies

<table>
<thead>
<tr>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acquire</strong> 9,000 acres of bay habitats, 1,000 acres of seasonal wetlands, and 1,000 acres of habitat associated with creeks and lakes in the Central Bay Subregion using fee or permanent easement acquisition.</td>
</tr>
<tr>
<td><strong>Restore</strong> 4,000 acres of bay habitats, and 1,000 acres of habitat associated with creeks and lakes in the Central Bay Subregion on both public and private lands using non-regulatory techniques.</td>
</tr>
<tr>
<td><strong>Enhance</strong> 4,000 acres of bay habitats, 1,000 acres of seasonal wetlands, and 3,000 acres of habitat associated with creeks and lakes in the Central Bay Subregion on both public and private lands using non-regulatory techniques.</td>
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Strategies to Acquire, Restore, and Enhance Wetland Habitat in the Central Bay Subregion

**Acquisition.** Fee or title acquisitions can be secured by several agencies and organizations in the Central Bay in spite of the relatively limited opportunities.

- U.S. Fish and Wildlife Service
- National Park Service
- Wildlife Conservation Board/California Department of Fish and Game
- Coastal Conservancy (Bay Area Conservancy Program)
- State Lands Commission
- Marin County Open Space District
- East Bay Regional Park District
- Hayward Area Parks and Recreation District

Conservation or agricultural easements will be used if the opportunity arises. Potential agencies
and nonprofits that could purchase easements are:

- U.S. Fish and Wildlife Service
- Coastal Conservancy (Bay Area Conservancy Program)
- Natural Resources Conservation Service Wetland Reserve Program, Farmland Protection Program

**Restoration and Enhancement.** The restoration and enhancement of lands already in public ownership in the Central Bay can be completed by taking the following actions:

1. Assist with securing funding and partners to facilitate restoration and enhancement of public lands such as Eastshore State Park and Alameda Naval Air Station.

2. Encourage organizations such as Ducks Unlimited, Audubon Society, and the California Waterfowl Association to continue to build and expand working partnerships with public agencies.

3. Work with flood control districts to design and construct nonstructural flood control projects and to restore riparian corridors.

4. Work with the Ports of San Francisco and Oakland on the use of dredge spoils for tidal wetland restoration.

5. Develop new sources of public and private funding that will cover the cost of planning as well as implementation and management of restoration and enhancement projects.

Restoration and enhancement opportunities on private lands are highly constrained by urbanization in the Central Bay. In fact, most privately held wetlands in the Central Bay are riparian. Given these factors, habitat benefits can be accomplished through the following strategies:

1. Work with groups engaged in community-based restoration, including “friends of creeks” organizations, and with resource conservation districts in Alameda and Contra Costa Counties to restore riparian habitat, as is being undertaken in Albany, Berkeley, Richmond, and Oakland.

2. Support creation of regional and sub-regional watershed councils to provide supportive forums for sharing technical information among agencies and with the many “friends of creeks” organizations, and to coordinate their strategies, activities, and projects.

3. Identify a comprehensive list of riparian projects and prioritize them by need, scope, and multiplicity of objectives.

4. Develop a wetlands and riparian “extension service” to work with private landowners to encourage better land stewardship through enhancing wetlands and creeks on their properties.

5. Encourage the development of watershed plans or coordinated resource management plans to identify sources of erosion and other impacts, and to provide “bio-technical” solutions.

6. Promote the creation of creek restoration and stewardship groups wherever there are interested residents living along the channel.
7. Develop creek restoration and monitoring programs involving schools located along creeks.
8. Work with the Watershed Assessment Resource Center to improve subregional and regional watershed planning and monitoring.

South Bay Subregion
Acreage Objectives and Strategies

**Acquire** 28,000 acres of bay habitats, 7,000 acres of seasonal wetlands, and 3,000 acres of habitat associated with creeks and lakes in the South Bay Subregion using fee or permanent easement acquisition.

**Restore** 16,000 acres of bay habitats, 1,000 acres of seasonal wetlands, and 2,000 acres of habitat associated with creeks and lakes in the South Bay Subregion on both public and private lands using non-regulatory techniques.

**Enhance** 42,000 acres of bay habitats, 4,000 acres of seasonal wetlands, and 11,000 acres of habitat associated with creeks and lakes in the South Bay Subregion on both public and private lands using non-regulatory techniques.

The South Bay shoreline has a complex pattern of land uses: industrial, residential, former landfill sites, wildlife habitat and, predominantly, salt ponds. Opportunities for acquisition and restoration along the South Bay shoreline have, until recently, been limited. Cargill Salt owns over 25,000 acres that are in active salt production. Joint Venture activities along the shoreline will focus on restoring parcels already owned by the San Francisco Bay National Wildlife Refuge, such as Mayhew’s Landing and the Knapp Tract. However, recently and significantly, they will also include developing partnerships for purchasing Cargill’s salt ponds; the company announced in October 2000 its intention to sell 19,000 acres of its holdings, preferably for wetlands restoration. The SFBJV strongly supports acquisition of the ponds.

Away from the Bay’s edge, there are a number of watershed and riparian restoration efforts, such as the San Francisquito Coordinated Resource Management Plan. There are also ongoing restoration plans and projects for scores of miles of Coyote Creek and the Guadalupe River in San Jose, some of which have existed for over a decade.

Strategies to Acquire, Restore, and Enhance Wetland Habitat in the South Bay Subregion

**Acquisition.** Fee title acquisitions from willing sellers can be completed by public agencies or non-profit conservation organizations including:

- U.S. Fish and Wildlife Service
- Wildlife Conservation Board/California Department of Fish and Game
- Coastal Conservancy (Bay Area Conservancy Program)
- State Lands Commission
- East Bay Regional Park District
- Mid-Peninsula Regional Open Space District
- Peninsula Open Space Trust
- Santa Clara County Open Space Authority
- Santa Clara County Land Trust.

Alviso’s marina has reverted to tidal wetland. JAY JONES
Conservation easements will be purchased where appropriate by public agencies or nonprofit conservation organizations including:

- U.S. Fish and Wildlife Service
- Wildlife Conservation Board/California Department of Fish and Game
- Coastal Conservancy (Bay Area Conservancy Program)
- Natural Resources Conservation Service (Wetlands Reserve Program, Farmland Protection Program)
- Peninsula Open Space Trust (POST)
- Mid-Peninsula Regional Open Space District
- Santa Clara County Open Space Authority
- Santa Clara County Land Trust.

**Restoration and Enhancement.** Restoration and enhancement of lands already in public ownership can best be accomplished by:

1. Securing funding and partners to facilitate restoration and enhancement of public lands.
2. Encouraging organizations such as Ducks Unlimited and California Waterfowl Association to build and expand partnerships with public agencies in the South Bay.
3. Developing new sources of public and private funding that will cover the cost of planning as well as implementation for restoration and enhancement projects.
4. Working with flood control districts to design and construct nonstructural flood control projects and to restore riparian corridors.

Restoration and enhancement on private lands can be accomplished by taking the following steps:

1. Work with Cargill to explore ways to enhance the habitat values of the salt ponds for waterfowl and shorebirds.
2. Implement watershed management plans that have been developed or are in process for San Francisquito and Alameda Creeks, and others as they are identified and completed.
3. Encourage the development of watershed management plans for creeks and streams that are not currently within a watershed planning area.
4. Work with private landowners to develop habitat enhancement projects appropriate for cost-sharing programs such as the U.S. Fish and Wildlife Service Partners for Wildlife Program and the Natural Resources Conservation Service Wildlife Habitat Incentives Program.
5. Work with Regional Water Quality Control Boards to integrate SFBJV goals and strategies into Watershed Management Initiatives within the South Bay, particularly for the Coyote Creek and Guadalupe Creek watersheds.

**San Francisco/San Mateo Coast Subregion Acreage Objectives and Strategies**

Acquisition, enhancement, and restoration objectives for wetlands of this subregion have not yet been defined, but are likely to be small given their small size and limited number.

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**Objectives**

- Determine the total acreage for acquisition of bay habitats, seasonal wetlands, and habitat associated with creeks and lakes in the San Francisco/San Mateo Coast Subregion largely using acquisition of permanent easements.

- Determine total acreages for restoration of bay habitats and seasonal wetlands. Restore 3,000 acres of habitat associated with creeks and lakes in the San Francisco/San Mateo Coast Subregion on both public and private lands using non-regulatory techniques.

- Determine total acreages for enhancement of bay habitats and seasonal wetlands. Enhance 5,000 acres of habitat associated with creeks and lakes in the San Francisco/San Mateo Coast Subregion on both public and private lands using non-regulatory techniques.

The San Francisco and San Mateo coastal areas contain a few small coastal wetlands at the mouths of substantial stream watersheds. There are many ongoing habitat projects along this scenic coast. A community-based watershed stewardship initiative is active on San Pedro Creek. The California Department of Parks and Recreation has been implementing a hydrologic and habitat enhancement plan for Pescadero Marsh. Pillar Point Marsh has been acquired by the San Mateo County Parks Department for addition to the adjacent Fitzgerald...
Reserve, and a master plan for this area is currently in process to identify habitat restoration opportunities. Since the relatively few wetlands on the coast tend to be small, freshwater/brackish lagoons, and most of them are already protected in state or county parks, they have not been identified among the SFBJV’s acreage goals.

The majority of the Joint Venture’s opportunities for habitat acquisition, restoration, and enhancement will be found in the numerous watersheds that drain to the Pacific Ocean. There are about 275 miles of streams that flow through this area into the ocean. Several watershed assessments are under way—notably for Pescadero, Butano, San Pedro, and Pilarcitos Creeks (the last having been completed)—to determine the conditions of, and project types required for these watersheds. These assessments will also help to prioritize stream projects. Given these factors, the acreage goals are quite generalized, based on the assumption that 70 percent of San Mateo coastal streams are impaired and in need of enhancement, particularly to reduce sedimentation, and that 30 percent are in need of restoration. Many of the projects would need to involve measures to reduce sedimentation and erosion in the channels, particularly serious problems degrading habitat quality for a number of threatened and endangered species, such as coho salmon, steelhead trout, tidewater goby, San Francisco garter snake, and red-legged frog.

Unlike the other four subregions in the SFBJV, there has been no biological baseline established for the historical extent of wetlands in the San Francisco/ San Mateo Coast Subregion. To rectify this, the historic and current extent of wetlands will need to be identified as a foundation for developing valid habitat objectives for this subregion.

Strategies to Acquire, Restore, and Enhance Wetland Habitat in the San Francisco/San Mateo Coast Subregion

**Acquisition.** Fee title acquisitions on the San Francisco/San Mateo Coast will be completed by public agencies or nonprofit conservation organizations including:

- National Park Service (Golden Gate National Recreation Area)
- U.S. Fish and Wildlife Service
• Wildlife Conservation Board
• Coastal Conservancy (Bay Area Conservancy Program)
• State Lands Commission
• California Department of Parks and Recreation
• Peninsula Open Space Trust (POST)
• Save the Redwoods League
• Sempervirens Fund
• Mid-Peninsula Regional Open Space District.

Conservation or agricultural easements will be purchased where appropriate by public agencies or nonprofit conservation organizations including:

• National Park Service
• U.S. Fish and Wildlife Service
• Wildlife Conservation Board
• Coastal Conservancy (Bay Area Conservancy Program)
• Natural Resources Conservation Service (Wetland Reserve Program, Farmland Protection Program)
• Peninsula Open Space Trust (POST)
• Pacifica Land Trust
• Mid-Peninsula Regional Open Space District.

Restoration and Enhancement. To complete restoration and enhancement of lands already in public ownership, the following steps will be taken:

1. Secure funding and partners to facilitate restoration and enhancement of public lands.
2. Encourage organizations such as Trout Unlimited and other organizations interested in fisheries enhancement to build and expand partnerships with public agencies.
3. Conduct regional biological assessments, connecting and extending watershed-level assessments, that will help to prioritize actions and practices to enhance habitat conditions for threatened and endangered species throughout their range.
4. Develop new sources of public and private funding that will cover the cost of planning as well as implementation for restoration and enhancement projects.

To encourage restoration and enhancement of riparian corridors and downstream lagoons on private lands, the following steps can be taken:

1. Encourage the development of watershed management plans for creeks and streams that are not currently within a watershed planning area, such as San Vicente, Denniston, and San Gregorio Creeks.
2. Implement watershed management assessments and plans that have been developed or will shortly be completed for key watersheds such as Pilarcitos, Pescadero, Butano, and San Gregorio Creeks.
3. Work with private landowners to develop habitat enhancement projects appropriate for cost-sharing programs such as the U.S. Fish and Wildlife Service Partners for Wildlife Program and the Natural Resources Conservation Service Wildlife Habitat Incentives Program.
4. Cooperate with the agricultural community and with organizations such as the San Mateo Farm Bureau and the County’s Resource Conservation District to develop incentives for maintaining buffer areas around creeks.
5. Identify opportunities for applying conservation easements to riparian corridors, working with the agricultural community and land trusts such as POST. The intention is to provide landowners with tax credit incentives for establishing defined setbacks from creeks for conservation purposes.
6. Work with those organizations and schools that have community-based environmental stewardship programs to initiate cooperative ventures with landowners for the purpose of planting and/or maintaining buffer strips in coastal terraces and in upstream riparian corridors.
7. Use incentives for protection of recently federally listed endangered Coho salmon and threatened steelhead trout that are being developed in the Fishery Network of Central California Coastal Counties program. Employ identified best management practices (BMPs) to promote fisheries restoration in streams where sedimentation has become a significant problem.
8. Establish pilot projects within sub-watersheds to work with the agricultural community, San Mateo Farm Bureau, Monterey Bay National Marine Sanctuary, Regional Water Quality Control Boards, San Mateo RCD, and/or San Mateo County Agricultural Committee. Pilot programs should use BMPs to reduce polluted run-off and sediments, to enhance fishery habitat potential.

9. Assess historic and current extent and condition of coastal wetlands as a basis for determining more defensible objectives for acquisition, enhancement, and restoration. Assess current coverage in acres.

10. Cultivate and/or enhance the establishment of Watershed Working Groups within the San Francisco/San Mateo Subregion, particularly for the San Gregorio and Pescadero Creek watersheds.

**Refinement and Facilitation of Habitat Goals Objectives and Strategies**

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**Objectives**

- Implement all of the acreage goals of the Goals Project within thirty years.
- Promote and assist local organizations and agencies in developing and implementing habitat restoration projects.
- Develop subregional partnerships or watershed councils to evaluate and implement recommendations contained in the Habitat Goals.
- Convene a collaborative process to define acreage goals for wetlands and creeks within the San Francisco/San Mateo subregion.

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The high pace of urbanization in the Bay Area creates a greater urgency for accomplishing the wetland/riparian acreage goals set forth in the Habitat Goals. Opportunities for acquisition, enhancement, or restoration will become increasingly limited with time. It is for this reason that the SFBJV will strive to attain the Habitat Goals targets within a decade of fulfilling the Implementation Strategy’s goals. As previously noted, the Strategy represents 75 percent milestones of the Habitat Goals’ goals.

**Strategies to Refine and Facilitate Implementation of Habitat Goals**

1. Initiate a collaborative assessment process for identifying wetland and creek acreage objectives for the San Mateo Coast, particularly for determining enhancement and restoration goals. Acquisition goals will be centered almost entirely on easements for riparian corridors.

2. Assemble and analyze existing watershed assessments to refine riparian habitat objectives.

3. Develop standards and criteria for what constitutes adequate riparian “buffer zone” width(s) for water quality, wildlife, and fisheries protection, working with urban creek groups and the Regional Water Quality Control Board.

4. Seek to protect riparian areas within the geographic scope of the SFBJV through promoting the application of adequate setbacks and through purchase of conservation easements for streamside buffer zones.

5. Wherever possible, prioritize projects within sub-regions based on commonly accepted criteria.
such as urgency, availability of funds and ready partners, habitat critical to ESA-listed species, and level of existing biological diversity.

6. Cultivate establishment of watershed councils or watershed-based partnerships to refine and implement recommendations specific to individual watersheds/reaches of the Estuary as defined in the Habitat Goals, as well as strategies contained in Restoring the Estuary.

Habitat Management
Objective and Strategies

**Objective**

Improve management of bay habitats, seasonal wetlands, and creeks, lakes, and associated uplands on both public and private lands.

Thousands of acres of wetland habitat are currently found in both public and private ownership with varying degrees of management. A chronic problem for public agencies is a lack of adequate funding for operations and maintenance of their refuges and wildlife preserves. Levees cannot be maintained, biologists cannot complete basic inventories, and wardens cannot be hired. The inability to manage public lands effectively and efficiently has been the complaint of public land managers, adjacent landowners, and critics of public ownership. These problems need to be addressed if the Joint Venture wants to maximize the productivity of the habitats already in protective ownership and add to these holdings.

Management problems on private lands frequently stem from a lack of knowledge of the best techniques that can maximize habitat benefits while also managing for agricultural purposes.

**Strategies to Improve Management of Wetlands and Riparian Habitat**

1. Seek federal, state, and private funding for maintenance and management.

2. Encourage the development and use of “management endowments” as part of construction budgets for restoration/enhancement projects.

3. Ensure that enhancement and restoration projects are designed to minimize need for management. Design naturally functioning systems that avoid or minimize management and that evolve to provide a range of ecosystem functions in the shortest period of time.

4. Develop partnerships with environmental organizations that can implement or help with management (removing non-native plants, replacing tide gates, restoration, monitoring, erecting signs, etc.). For example, Marin Audubon completes wetland restoration projects, and the National Audubon Society has an Audubon Refuge Keeper (ARK) program.

5. Develop guidelines for healthy riparian systems and marshes that can be used to educate private and public landowners about management techniques that improve ecosystems. These guidelines should address such issues as the interface with adjacent uplands, what healthy riparian zones look like and why they are important, where to locate trails, etc.
6. Encourage watershed management planning.
7. Encourage the removal of invasive species.
8. Encourage the use of native plants adjacent to wetlands and creeks.
9. Develop a program to connect ranchers with state and federal programs to enhance creeks and wetlands on agricultural lands.
10. Encourage the Regional Water Quality Control Board to evaluate all sections of the Bay, and establish and enforce Total Maximum Dissolved Loads (TMDLs) for impaired water bodies.
11. Ensure that enhancement and restoration projects are designed to minimize risks of mosquito production, flooding, and other threats to public health and safety.

**Funding Objective and Strategies**

**Objective**

Strengthen existing and promote new funding sources for wetlands acquisition, restoration, enhancement, monitoring, and management programs.

The Joint Venture partners have estimated the cost of reaching its objectives over the next 20 years at $1.7 billion, or $83.4 million per year for 20 years. The common theme running throughout the Implementation Strategy is the need to increase the amount of funding available for acquisition, restoration, enhancement, and management of habitat in public and private ownership. The Joint Venture partners felt that the issue was so central to its success, that a separate objective regarding funding was warranted.

**Strategies to Accomplish the Funding Objective**

1. Promote and review existing state, federal, and private programs that can provide funding for habitat projects.
2. Leverage existing resources, and coordinate efforts with other agencies, nonprofits, corporations, and landowners.
3. Find new partners to assist with Joint Venture objectives.
4. Develop a funding package to cover the cost of implementing the SFBJV Strategy with one-third each coming from state, federal, and private sources.
5. Increase funding to existing programs such as Coastal Conservancy, Wildlife Conservation Board, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, National Park Service, Natural Resources Conservation Service.
6. Develop new state, federal, and local programs that provide funding for acquisition, restoration, enhancement, and management.
7. Coordinate with Caltrans’ mitigation needs to maximize habitat restoration benefits.
8. Explore additional applications of Administrative Civil Liabilities (fine monies), and coordinate with agencies and organizations, such as the Regional Water Quality Control Board, that can use fine monies to ensure that priority projects are funded from these sources.

**Programmatic Linkages Objective and Strategies**

**Objective**

Encourage programmatic connections between the Joint Venture’s goals and other regional initiatives that have the potential to positively effect watershed and wetland management and restoration.

The challenges posed by the relatively high cost of wetland/riparian protection and restoration in the Bay Area can be overcome by the talents and tools of a wide array of organizations and agencies that have an interest in habitat preservation. Many of
these are represented on the 27-member SFBJV Board of Directors. These entities can bring diverse and innovative means, and have the capacity to establish creative partnerships to accomplish the Joint Venture’s objectives. The preservation, funding, and monitoring objectives can be more fully realized where linkages are made to potentially supportive programs or activities that may serve to leverage financial resources and enhance utilization of technical expertise and public outreach or involvement. Several sets of strategies to accomplish the programmatic linkage objective are enumerated below.

**Coordination among Other Conservation Programs**

**Introduction.** The power of partnerships to accomplish the Joint Venture’s goals goes beyond various combinations of organizations on the present Management Board. Partnering for the sake of information exchange, legislative support, and joint grant requests and requested budget allocations extends into other conservation planning initiatives, particularly within the growing network of bird conservation programs. The following strategies apply:

1. Support the emerging framework for cooperative bird conservation in the United States through promoting an integrative and landscape approach to bird conservation and an increased coordination among separate bird conservation initiatives, notably:
   - Riparian Bird Conservation Plan for California (Partners in Flight—a coalition of migratory bird interests)
   - United States Shorebird Conservation Plan (Western Hemisphere Shorebird Reserve Network)

2. Integrate riparian study areas of Partners in Flight into a regional wetlands monitoring plan database being developed for the Bay Area by San Francisco Estuary Institute and into volunteer-monitoring websites initiated by the North Bay Riparian Station and the Friends of the Estuary.
3. Work with the Riparian Habitat Joint Venture to select significant riparian habitat projects in the SFBJV geographic scope that support habitat protection recommendations of the Riparian Bird Conservation Plan.

4. Encourage coordination among different bird conservation organizations and experts in the design of large-scale tidal wetland restoration to help maximize diversity of habitat so as to meet foraging needs of both waterfowl and shorebirds, where desirable.

**Watershed Management Planning and Implementation**

**Introduction.** Wetland and riparian restoration and enhancement projects in the San Francisco Bay Area occur within the context of complex land use patterns and a rapidly growing urban area. Joint Venture goals can only be accomplished with increased recognition of the need for environmental planning and habitat protection at the municipal and landowner levels. In addition to leveraging financial and technical resources, the Joint Venture and its partners should “leverage” societal trends to promote implementation of a restorative vision for the Bay Area. This means promoting measures that harness and extend the influence of “watershed approaches” to planning and the “land stewardship ethic” being advanced by a wide array of organizations such as the U.S. Environmental Protection Agency, resource conservation districts, and the Regional Water Quality Control Board. Taking a watershed approach to planning involves a collaborative process and the participation of stakeholders, along with the consideration of an array of resource management concerns and the education of participants about resource and water quality issues. The following two sets of recommended actions apply:

**Watershed Planning Strategies**

1. Refine creek goals for acquisition, restoration, and enhancement contained in the Implementation Strategy through a collaborative process similar to that of the Goals Project. Bring riparian baseline for the San Francisco Bay region to a level consistent with the wetlands baseline assessed in Habitat Goals. Clarify criteria for the three stewardship categories for riparian habitats (acquisition/ restoration/ enhancement).

2. Encourage greater integration of best management practices (BMPs) for erosion control, and for floodway and riparian setbacks in land use development and municipal planning through the efforts of the Regional Water Quality Control Board.

3. Enhance riparian corridors that drain into San Francisco Bay identified by SFBJV partners, and work with community-based creek groups toward completing habitat projects that fulfill multiple objectives, (i.e., that incorporate biological, public safety, access, and/or recreational values).

4. Develop a Bay Area–wide Geographic Information System (GIS) online that combines important biological and land use data as a digital tool for promoting the integration of conservation planning with general and specific plan development. Downloadable maps should represent overlays of habitat types of the Bay Area “Ecoatlas” with digital aerial photographs. (Sponsoring agencies could include Association of Bay Area Governments, Coastal Com-
mission, and Bay Conservation and Development Commission).

5. Support the development of a region-wide Volunteer Monitoring Watershed Assessment Resource Center through the Friends of the Estuary, in cooperation with the Bay Area Stormwater Management Agencies Association, and the Regional Water Quality Control Board. Promote participation by a broad range of educational institutions and community-based organizations in its formation and program implementation.

6. Promote the increase of watershed-level planning initiatives in the form of Coordinated Resource Management Program plans (CRMPs), such as the CRMPs in Napa and Santa Clara Counties, to enhance the potential for habitat preservation in concert with water quality protection.

Private Lands Stewardship Strategies

1. Support efforts of Resource Conservation Districts (RCDs) throughout the Bay Area in implementing private lands stewardship programs that preserve and enhance riparian corridors and wetlands through landowner education and assistance.

2. Using private lands stewardship initiatives, seek to cultivate common understandings with local landowners, along with the development of strategies that include cooperative agreements, conservation easements, and grazing management sufficient to protect riparian and wetland habitats.

3. Work cooperatively to enhance waterfowl habitats through active management to extend seasonal inundation of low-lying pasture lands.

4. Encourage the integration of complementary land uses that also offer a mosaic of habitats, through modification of agricultural practices (integrated pest management, cover crops, BMPs, etc.) and the restoration of riparian and wetland communities.

5. Develop cooperative programs, working with RCDs and the Natural Resources Conservation Service, to manage grazing and restore
riparian wetlands through fencing and grazing practices.

6. Work one-to-one with cooperating landowners to complete a range of habitat enhancement demonstration projects. Such projects should be chosen on the basis of: a) site suitability, b) landowner cooperation, c) availability of labor, materials, and funds, and d) likelihood of success.

Clean Water Programs

Introduction. Clean Water Programs are an outgrowth of the 1987 revisions to the federal Clean Water Act (CWA). They place greater emphasis on controlling non-point source pollutants to improve water quality throughout the nation’s streams, rivers, lakes, and bays. While “point source controls” have been effectively addressed through sanitary treatment plants, success in non-point source controls remains elusive in most parts of the nation. Non-point sources of pollution contribute 75 percent of pollutants to our waterways, including bacteria, siltation, metals, pesticides, oil/grease, and organic chemicals. As a result the EPA enhanced CWA Sections 319 (non-point source) and 320 (estuary) grants for financing water quality projects to abate non-point sources, and has promoted watershed approaches to improving water quality. Wetland and riparian loss are major factors contributing to this pollution, since they serve as “biofilters” for non-point sources. Significant opportunities exist for coupling Clean Water Programs with wetland restoration, particularly through the SFBJV developing partnerships with stormwater and waste treatment utilities and in designing innovative estuary programs financed through the Clean Water/State Revolving Funds, the major implementing mechanism of the CWA. Constructed wetlands are widely used in Europe (500+ facilities) to treat stormwater or wastewater, and there are over 200 examples in the United States.

The following strategies apply:

1. Develop an estuary wetlands restoration program that incorporates Clean Water Program requirements for reduction of non-point sources for appropriate subregions, and design wetland and riparian projects to incorporate “biofilter” concepts.

2. Encourage partnership with the Bay Area Stormwater Management Agencies Association (BASMAA) and others to conduct demonstration projects for design and implementation of constructed wetlands to treat stormwater runoff from urban uses (e.g., on Treasure Island and at the mouth of Strawberry Creek in Berkeley).

3. Coordinate with the Bay Area Regional Water Recycling Program partners to develop appropriate demonstration projects that utilize recycled water to restore or enhance wetland communities in the North and South Bays, without altering wetland community types from tidal to freshwater.

4. Explore the potential for financing estuary wetlands restoration programs around the Bay using State Revolving Funds (SRF), with repayment of SRF loans through stormwater or utility fees, other fees, and/or Park or Water Bonds.

5. Take innovative approaches to financing wetland projects through the SRF by:
   • developing flexible institutional arrangements;
   • leveraging funding sources, such as the U.S. Bureau of Reclamation’s Title XVI, Public Law 102-575, CALFED, the Water Resources Development Act, and/or new legislation;
   • integrating the public safety and biological objectives of the project through planning and design process;
• focusing on developing complementary relationships among participating partners.

**Base Closures and Realignment**

**Introduction.** The closure of military bases around the Bay Area presents significant opportunities for wetland enhancement and restoration. As most of the bases being closed are adjacent to the estuary and are partially built on fill, they contain substantial wetland resources—cumulatively almost 7,000 acres (source: Bay Area Defense Conversion Action Team, March 1997). In addition, the Public Trust Doctrine and Tidelands Trust Act suggest that wetlands retention and enhancement be given high consideration in base reuse plans. The potential partnerships can yield important projects. Over 700 acres of tidal marsh restoration at Hamilton Air Force Base and over 2,000 acres of wetland protection at Mare Island Naval Shipyard represent two of the most extensive urban wetland projects in the nation. Base “realignment,” where an operation is reduced or where one branch of the military replaces another, as at the Concord Naval Weapons Station, can also provide positive results. Military services have no mandate to improve wetland habitats, only not to fill or degrade them. Thus incentives are usually needed. Furthermore, soil contamination on bases presents great challenges to proceeding with wetland projects.

Among the potential strategies for incorporating wetland projects into base closure or realignment programs are the following:

1. Develop wetlands programs in conjunction with high-level base staff. Seek to meet multiple objectives such as toxic cleanup and environmental stewardship, and to provide incentives. These can include:
   • improved financial feasibility of reuse through open space amenity value of wetlands
   • enhancement of public safety through reduced flood hazards or seismic risks.

2. Work with base staff to identify sources of funding for wetland projects that do not draw on their operational budgets. Look for sources that can accomplish multiple objectives such as toxic cleanup and environmental steward-
3. If feasible and timely, identify and recommend inclusion of selected wetland areas in base reuse plans, through a) the study of habitat values on bases by the Arc Ecology and the Military Base Closure Environmental Network, and b) the Habitat Goals.

4. Secure consideration of wetland restoration and/or constructed wetlands projects (see Clean Water Program strategies) in the base reuse as part of the “master development agreements” using a multiple objective approach.

5. As part of an incentive program, identify opportunities for wetland construction under selective circumstances that could be coupled with toxic cleanups through bioremediation, that is, where remediation does not involve persistent heavy metals contamination (e.g., Point Molate and Mare Island where contamination is largely from petroleum-based distillates).

6. Promote criteria for cleanup of base facilities that allow for a probable future hydrology (i.e., restoration of historic wetlands). This would provide a higher and more beneficial threshold than reliance on current hydrology as a criteria.

7. Ensure protection of wetlands and wildlife resources in developing public access plans for bases.

Communications Objective and Strategies

**Objective**

Develop an inclusive, collaborative, and broad-based public outreach program to communicate the vision of Restoring the Estuary.

**Introduction.** Communications are essential to building and implementing a long-term vision to restore the Estuary and its watersheds. Accomplishing this vision through the objectives of the Implementation Strategy will require extensive communications, both externally and internally among SFBJV partners. This means developing broad-ranging and innovative outreach to the public, coupled with open and constructive interchange among Joint Venture partners. Internal communications are focused on information sharing and mutual assistance, and are directed toward improving the level of cooperation between the SFBJV partners. Public outreach includes education and awareness building, which, if done well, will translate into the public support that is key to completing wetland projects of regional significance. This support, based on understanding the value of wetlands and the need for their restoration, can engender new funding sources and improved cooperation between non-governmental organizations (NGOs), agencies, and the private sector. Effective outreach will also cultivate more volunteers for community-based stewardship and restoration groups. The more varied and creative the communication tools, the more widely the message of “Restoring the Estuary” will be disseminated, and the greater the collective capacity will be to initiate and maintain wetland projects.

Among communication strategies for Joint Venture partners to pursue individually and collectively are the following:

1. Employ a collaborative approach to both public outreach and communications among partners to create a more inclusive climate, which is con-
ducive to broadening the range of partnerships for wetlands.

2. For habitat enhancement and restoration projects or monitoring programs, develop partnerships with schools having field-based education programs, with NGOs that offer ecological educational services, and/or with community-based groups that participate in biological monitoring/stewardship efforts.

3. Wherever feasible, link environmental education programs of schools and appropriate NGOs with the implementation of monitoring of riparian and wetland projects.

4. Conduct high-visibility pilot projects and programs to test, refine, and encourage the use of partnerships to accomplish habitat goals. To enhance their outreach effectiveness, seek to distribute these widely around the Bay.

5. Encourage the creation and maintenance of watershed councils or estuary restoration groups as partnerships for habitat improvements. They can help design education, enhancement, and stewardship programs for specific subregions or segments within those subregions (potentially using the recommendations for these segments in the Habitat Goals as a framework for action).

6. Develop a website that identifies all habitat projects on the “EcoAtlas” map of the region according to key information about the project, contacts, and acreage involved. Link to web pages of participating partners.

7. Ensure continuance of SFBJV committees—particularly Acquisitions and Restoration, Public Outreach, and Creeks Committees—to promote project coordination and information sharing on a region-wide basis.

8. Promote informal liaisons with “friends of” wetlands/creeks organizations, and encourage them to adopt the goals and objectives of the SFBJV as the context for their individual actions.

9. Develop a documentary film that expresses the biological vitality of the Bay, and illustrates the habitat goals through computer simulation of the past and potential Estuary.

10. Stage a “Restoring the Estuary Festival,” composed of SFBJV partners and civic and arts organizations, around the theme of the renewal of the San Francisco Bay and its watersheds. Consider conducting it on an annual or biannual basis as a regional awareness-building festival of films, tours, exhibitions, and performances about wetlands and the many benefits of living by an estuary, recognizing the role of artists and writers in communicating and animating the restorative vision, and in cultivating a sense of place.

11. Develop and maintain contacts with local officials, professional societies, and special interest groups to communicate the goals and objectives of the Joint Venture.

12. Promote extension education regarding ecological restoration and related fields through organization with the Society of Ecological Restoration; UC Berkeley and Davis; Hayward, San Francisco, San Jose, and Sonoma State Universities, and other universities and colleges.

13. Support locally organized workshops and field tours that seek to educate the public about the Estuary and its watersheds.
14. Participate in local events such as watershed tours, harvest festivals, and Earth Day programs.

15. Publicize San Francisco Bay Joint Venture projects and accomplishments in local and regional media outlets including newsletters, newspapers, and television.

16. Conduct legislative tours for state and congressional representatives and their staffs in various subregions of the Bay to promote the habitat project opportunities and needs.

17. Work with relevant agencies and nonprofit groups to develop and implement regional wetland and riparian monitoring protocols. See Chapter 5 for details.

Legislative Objective and Strategies

Introduction. The Joint Venture established a Legislative Committee with two objectives: 1) to develop and conduct a legislative strategy to secure funding and otherwise support projects promoted by the Joint Venture; and 2) to track legislative issues and advise Management Board on appropriate action as needed. In 1999, the Legislative Committee expanded to include representation from the Central Valley, Intermountain West, and Pacific Coast Joint Ventures, in order to better coordinate these purposes on a statewide basis. The following strategies summarize the near-term (five-year) aspects of legislative agendas that are annually adopted by the Management Board and which define the SFBJV’s legislative priorities. These strategies reflect the perspectives of the nongovernmental organization members of the Board and exclude the public agency members who are unable to take positions on legislative issues.

State

1. Secure an annual allocation for appropriate state agency budgets for the San Francisco Bay Joint Venture.

2. Work closely with the Bay Area Open Space Council to create the Transportation Fund for Clean Water, a new vehicle license fee for use in wetland and riparian projects that reduce pollutant levels and improve water quality.

Federal


5. Support legislative efforts that fulfill the goals of the North American Waterfowl Management Plan.


7. Maintain efforts to increase funding levels for ecosystem restoration in the Bay. Also support funding from both state and federal levels.

8. Support legislative efforts to increase funding for other migratory bird projects.

Operations and Maintenance

9. Strengthen existing and promote new funding sources for the management of public lands through working with organizations such as the Bay Area Open Space Council, and consider developing tools such as management endowments.