# San Francisco Bay Coastal Management Program Assessment and Strategy

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by

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## Summary

### Background

Since 1977, the San Francisco Bay Conservation and Development Commission *(BCDC* or *the Commission)* has received financial assistance from the National Oceanic and Atmospheric Administration (NOAA) under the provisions of the federal Coastal Zone Management Act (CZMA) to implement BCDC's coastal management program for San Francisco Bay. When Congress reauthorized the Coastal Zone Management Act in 1990, it added a new voluntary coastal zone enhancement grant program under Section 309 of the CZMA.

The 309 program encourages states to develop innovative approaches for addressing the following nine coastal issues that Congress found to be of national significance: (1) public access, (2) coastal hazards, (3) ocean resources management, (4) wetlands protection and restoration, (5) cumulative and secondary impacts of development, (6) marine debris, (7) special area management planning, (8) energy and government facility siting, and (9) aquaculture.

To be eligible for funding, coastal agencies are required to periodically conduct an assessment of their programs, assign a ranking to areas where the program could be improved, and prepare a strategy of priority program enhancements corresponding to one or more of the nine coastal issues. The assessment and strategy are submitted to NOAA for review and ranking for funding eligibility. This document contains the draft assessment of BCDC's coastal management program for San Francisco Bay.

### Assessment

Based on the program assessment, the following enhancement areas are *high priority* for improving BCDC's coastal management program to achieve the nine defined national objectives.

**Public Access.** Federal enhancement objectives for state coastal management programs address the need to increase opportunities for public access to coastal areas, and include providing access while protecting wildlife, particularly endangered species. BCDC's program continues to increase opportunities for public access to the Bay and shoreline and remains a model for other public access efforts.

To further its program to increase public access to the Bay, the Commission should explore new ways to improve public access and refine its policies related to public access, through such avenues as:

- Joint planning with other agencies, particularly local government, and non-government organizations to identify and assess sensitive wildlife habitats and species around the Bay and the potential impacts of access on these resources.
- Updating BCDC's *Public Access Design Guidelines* and *Bay Shoreline Landscape Guide* to incorporate siting, design and management strategies that would lessen impacts of public access on wildlife, as well as providing guidelines for appropriate landscaping in public access areas and applying state guidelines for planning for access for the disabled.
- Improving and expanding BCDC's signage program to identify public accessways to the Bay shoreline.

**Wetlands Protection and Restoration.** Program objectives address the need to protect, restore and enhance existing coastal wetlands or to create new wetlands. Commission efforts to control filling have nearly halted further conversion of Bay wetlands, and where the Commission has permitted fill for legally allowed uses, the mitigation conditions required by the Commission as a condition for permits have resulted in the creation of considerably more tidal wetlands than were filled.

The Commission should expand protection of the Bay's wetlands and foster wetland restoration programs by refining its Bay Plan policies, such as by:

- Updating the salt ponds, managed wetlands and mitigation policies to reflect current scientific knowledge, particularly in light of the growing demand for Bay mitigation sites to offset effects of development in the region.
- Joining with other resource agencies and the scientific community to identify and assess subtidal aquatic habitats and associated aquatic life in the Bay.
- Expanding on the work of the *San Francisco Bay Wetlands Ecosystem Goals Project* to develop a companion *San Francisco Bay Subtidal Habitat Goals Project* that would be designed, in part, to determine where Marine Protected Areas would most benefit Bay species.

a. Determining the areas no longer in BCDC's "bay" jurisdiction and assessing the potential additional impacts to wetland areas throughout the Bay created by the diminution of the Commission's authority in these areas as a result of the 1994 *Littoral* Appeals Court decision.

**Cumulative and Secondary Impacts of Development.** Program objectives address the need to develop and adopt procedures to assess, consider and control cumulative and secondary impacts of coastal growth and development, including the collective effect of various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources. BCDC was formed to deal with the cumulative impacts of Bay filling that was being undertaken to accommodate unrestricted growth. Inland development activities continue to generate pressure to place Bay fill and increase demands for public access to the Bay.

The Commission should build on its successful track record in partnering with other agencies, interest groups and the public to better coordinate and manage planning efforts important to the Bay region. These priority efforts could be pursued in a number of ways, including:

- Partnering with local governments, other regional agencies, and organizations to develop and implement strategies for "smart growth" or "sustainable development" in the Bay Area.
- Refining Bay Plan policies and priority use area designations such as those that pertain to transportation, particularly the siting of ferry terminals, to address potential impacts to Bay resources. The Commission should work with transportation and resource agencies, local governments, and the business and environmental communities, in addition to the general public, in promoting the better use of existing transportation infrastructure to better accommodate growth in the Bay Area. This work could address such issues as appropriate siting and links

between ferry terminals and land and air transportation systems and determining future ferry terminal locations and regional growth patterns to lessen potential impacts on the Bay.

- Working with local governments and park and open space districts to update the Commission's recreation policies and priority use area designations to reflect appropriate local plans and policies for closed military bases designated in the Bay Plan for future recreation uses.
- Updating the Bay Plan recreation use policies to reflect the increasing demand for waterfront parks and the need for revenue generating commercial recreation facilities; within parks to help finance development and maintenance, the changing nature of those uses deemed appropriate within a public park, such as the Presidio of San Francisco (Golden Gate National Recreation Area), and the suitability of specific shoreline sites and uses for recreational purposes.
- Working with the scientific community, resource agencies—notably the Regional Water Quality Control Board, the State Water Resources Control Board, Department of Water Resources, the Department of Fish and Game, U. S. Fish and Wildlife Service, National Marine Fisheries Service, the U. S. Environmental Protection Agency, and CALFED Bay-Delta Program—to refine Bay Plan policies that address water quality, fresh water inflow, water surface area and volume.
- Coordinating with efforts such as CALFED, the San Francisco Bay Joint Venture, San Francisco Estuary Project and the Coastal Conservancy to promote habitat restoration planning and implementation for Bay aquatic and wildlife species including endangered species, thereby contributing to the enhancement of natural resources lost as a result of growth and development in the San Francisco Bay Area.
- Increasing the Commission's involvement with public agencies and non-government organizations striving to address threats to the health of the Bay ecosystem presented by invasive non-native plant and animal species.
- Expanding public involvement in the Commission's program by establishing an extensive public and legislative education and outreach program that would be integral to conducting Bay management partnership efforts such as those outlined above.

**Special Area Management Planning.** Program objectives address the need to prepare and implement special area management plans for important coastal areas. Special area management planning is an effective way to eliminate inconsistencies between the plans and policies of different agencies having regulatory jurisdiction over the same areas or issues, to provide greater regulatory certainty and predictability, and to deal with emerging issues such as public access, nonpoint pollution control, wetland management and cumulative impacts of development. BCDC has been a pioneer in developing special area management plans with local governments and other agencies.

BCDC should build on its proven success in joining with local jurisdictions and non-government organizations to foster greater coordination in developing policies and land use planning for the Bay and shoreline through such special area planning programs as:

- Waterfront planning efforts, such as Fishermans Wharf in San Francisco and the Oakland Waterfront, to coordinate local goals with those of the McAteer-Petris Act and Bay Plan.
- Regionwide planning as a tool to balance shoreline and Bay fill development with protecting Bay resources, particularly projects that have the potential to impact large areas of the Bay.

**Energy and Government Facility Siting.** Program objectives address the need to adopt procedures and enforceable policies to help facilitate the siting of energy facilities, energy-related activities and government activities that may be of greater than local significance. Through the priority use designations in the Bay Plan, the Commission has ensured that shoreline areas needed for ports, airports, and water-related industries, such as oil refineries, have not been preempted by other land uses that can be accommodated elsewhere.

The Commission should refine its policies and pursue planning efforts to address issues related to energy and government facility siting in critical areas such as:

- Power plant siting, by updating BCDC's thermal power plant study and working with the California Energy Commission to ensure that adequate and appropriate sites are available along the Bay shoreline for construction of needed power plants in light of California's energy deficiencies and increasing demand for power.
- Working with the new San Francisco Bay Water Transit Authority to develop policies and possible priority use area designations on the Bay Plan maps to ensure appropriate sites for new ferry terminals.
- Working with appropriate maritime and resource agencies to develop Bay Plan policies to address oil spill prevention and navigational safety.
- Expanding BCDC's work with the Metropolitan Transportation Commission, the Association of Bay Area Governments, the Federal Aviation Administration and local airports to ensure that BCDC's policies reflect current information on the aviation industry in the Bay Area, consistent with the *Regional Airport System Plan.*

The Commission determined the following area to be of *medium priority* for improving the Commission's management program for the Bay.

**Coastal Hazards.** Program objectives address the need to prevent or significantly reduce threats to life and destruction of property by controlling development and redevelopment in high hazard areas, managing development in other hazard areas, and anticipating and managing the effects of potential sea level rise. BCDC has been recognized as a national leader in addressing coastal hazards, particularly in seismic safety and sea level rise.

The Commission could improve its coastal management program by:

- Working cooperatively with local governments to ensure that development in shoreline areas incorporates current safety standards.

- Updating BCDC's study of the effects of sea level rise on the Bay, and the Safety of Fills Bay Plan policies, incorporating recent scientific knowledge developed since the adoption of the Bay Plan sea level policies in 1989, and holding workshops to coordinate with local governments and interested parties to develop programs to address impacts of sea level rise.

The Commission concluded the following to be of *lower priority*.

**Ocean Resources, Marine Debris and Aquaculture.** These areas were found to be of low priority for the purposes of this assessment because the primary authority to address ocean resources or to avert impacts from marine debris rests with agencies other than BCDC. Finally, the Bay does not afford a marine environment conducive to aquaculture activities.

**Strategy**

The following five priority program changes would take advantage of opportunities identified in the assessment, and would allow the Commission to better address the nationally important issues of energy and government facility siting (program change 1), public access (program change 2), cumulative and secondary impacts of development (program change 3), special area management planning (program change 4), and wetlands protection and restoration (program change 5).

**Program Change #1: Update Power Plant Siting Study.** BCDC's *Thermal Power Plant Non-siting Study* is based on information developed in the late 1970s and is out of date. The McAteer-Petris Act requires the Commission to update the power plant siting study every five years; however, because of lack of resources the study has not been updated since 1991. Because of the urgency of California's power needs and the likelihood that applications for new or expanded power plants will be soon submitted to the Commission, BCDC must update its power plant siting study and designations.

**Program Change #2: Public Access Program Improvements.** To further its program to improve public access to the Bay, the Commission should explore ways to increase public access and refine its policies related to public access, through such avenues as:

- **Update Public Access Design Guidelines.** The Commission's Public Access Design Guidelines provide recommendations to assist permit applicants, developers and design professionals to design and develop attractive, usable and safe public access as part of their projects. Although the Guidelines are advisory, they have been adopted by the Commission and are based on the *San Francisco Bay Plan* public access policies. In the 16 years since the Guidelines were adopted by the Commission in 1985, in addition to siting and design techniques to avoid or minimize the impacts of public access on wildlife, new information on materials and designs of public access has evolved, and important trends have emerged that are not incorporated in the current Guidelines.
- **Landscaping Guidelines.** The *Bay Shoreline Landscape Guide: Planting Materials and Methods for San Francisco Bay Shoreline Projects* was originally prepared by BCDC in February 1984. The guide provides recommendations for suitable plants and planting techniques for development projects on the San Francisco Bay shoreline. Over the last 16 years, the landscape guide has been well received by private developers, design consultants, other public agencies, individuals and other groups conducting work along the Bay shoreline. However, the information in

the document is now dated and, in some ways, incomplete. An updated *Bay Shoreline Landscape Guide* would provide the public with a much needed informational tool, one that would aid in improving water quality and increased resource value for wildlife.

- **Signage Program.** BCDC could improve its public access program by creating a standardized and improved approach to identifying public access areas and directing users to them, and by increasing the number and quality of interpretative signage in access areas. The program could expand to include: (1) a reexamination of the design of the public shore sign to determine whether it or another design best meets the intended purpose; (2) a more consistent approach to public shore parking signs; (3) an interpretative sign program that educates the public about Bay resources; and (4) a new directional sign program that includes signs on city streets and possibly freeways to direct the public to shoreline staging areas and access sites. This component of the program would require outreach to local planning, parks and recreation, and public works departments, and to the Department of Transportation and the Metropolitan Transportation Commission. Further, in light of elevated levels of a number of toxic pollutants in the Bay, the Commission could join with other efforts to educate the public to the potential harmful effects of consuming high levels of fish and other aquatic species taken from Bay waters, through the use of signage.
- **Identify Overlap of Existing and Planned Access with Sensitive Wildlife Habitat.** The Commission would expand its joint planning with other agencies and non-government organizations to identify and assess sensitive wildlife habitats and species around the Bay to better locate, design and manage public access that is required of projects in order to avoid the potential impacts of public access on these resources. This resource information could be mapped in combination with existing public access and the planned route for the Bay Trail, as well as proposed wetland restoration sites using a GIS mapping system, to determine whether there are existing access areas or planned trail routes that may affect significant habitat areas. This information would be used to site, design and manage public access required by in Commission permits and would inform the appropriate routes for the Bay Trail.

**Program Change #3: Bay Planning and Management Partnerships to Address Coastal Development Impacts.** The Commission should develop policies and programs to address impacts to the Bay created by growth and development by building on its successful track record in collaborating with agencies, interest groups and the public to better coordinate and manage planning efforts important to the Bay region. Refining a number of Bay Plan policy sections such as those listed below could contribute to this end.

- **Update Recreation Policies and Priority Use Area Designations.** It is necessary that the Commission update the Bay Plan recreation policies and priority use areas to address the increasing demand for waterfront parks and the need for revenue generating commercial recreation facilities to assist in managing these parks. To accomplish this, BCDC needs to work with local governments and park and open space districts to ensure that Bay Plan designated shoreline parks and recreation areas and park and recreation policies are incorporated into local governments plans and policies.

- **Update Transportation Policies.** BCDC needs to work with the newly formed Water Transit Authority and the Metropolitan Transportation Commission to identify appropriate sites for terminals and to develop transportation policies to support the proposed expansion of Bay ferry transit. Siting efforts should consider such factors as the amount of dredging required to maintain water depths sufficient to accommodate ferries, proximity to wetlands and other sensitive habitats, proximity to landside transportation and potential effects on adjacent communities.
- **Water Quality, Fresh Water Inflow, Water Surface Area and Volume.** The Commission can work with the scientific community, resource agencies—notably the Regional Water Quality Control Board and the CALFED Bay-Delta Program—to refine Bay Plan policies that address water quality, fresh water inflow, water surface area and volume. These Bay Plan policies need to reflect current scientific knowledge in a number of areas, including nonpoint source pollution and the updated Regional Water Quality Control Board's Basin Plan for the Bay. Additionally, the Commission's policies should reflect the initiatives of the CALFED program, particularly as they relate to fresh water inflow.
- **Invasive Species.** The Bay is considered the "most invaded Estuary in the world." Invasive species are the primary threat to the Bay's native biodiversity, with new species introduced at a rate of one every twelve weeks. BCDC should become an active participant in programs addressing threats to the health of the Bay ecosystem introduced by non-native plant and animal species.

**Program Change #4: Special Area Management Planning.** The Commission should build on its proven success in joining with local jurisdictions and others to foster greater coordination in developing policies and land use planning for the Bay and shoreline through such special area planning programs as:

- **San Francisco Waterfront Planning.** The San Francisco Special Area planning completed with the Port of San Francisco and Save San Francisco Bay Association does not include the remainder of the very important Fishermans Wharf and Southern Waterfront areas. The Port, Save the Bay and the tenants of the Fishermans Wharf area agree that a special area plan for the Fishermans Wharf area is needed and the Port and Save the Bay recognize that a special area plan is needed for the changing Southern Waterfront area.
- **Oakland Waterfront Planning.** Because a joint planning effort begun in 1996-98 with the City and the Port of Oakland offers a unique opportunity to develop policies and access guidelines for an urban industrial waterfront in accordance with BCDC policies, the Commission should work with the partner agencies to redefine and complete the project to advance common goals for improving shoreline public access in Oakland.

**Program Change #5: Wetlands Program Improvements.** The Commission should expand protection of the Bay's wetlands and foster wetland restoration programs through refining its Bay Plan policies, such as by:

- **Mitigation Policies.** As part of its effort to develop and implement a comprehensive program for the use and restoration of Bay resources, the Commission should update its mitigation policies. BCDC's mitigation policies need to reflect current scientific knowledge, particularly in light of increasing demand for Bay mitigation sites to offset impacts of development in the region. The *San Francisco*

*Bay Wetlands Ecosystem Goals Project* completed in 1999 provides significant new information for the Commission's review and update of its salt pond and managed wetlands policies as well as the policies related to mitigation for the loss of wetland habitat.

- **Subtidal Habitat Goals Assessment Study.** The Commission will initiate a preliminary analysis of the feasibility of undertaking a project to characterize the subtidal habitats of the Bay and establish a long-term regional vision for the protection and restoration of the Bay as a whole. The overarching purpose of the feasibility study is to establish a process that would enable the successful completion of a subtidal habitat goals project for the San Francisco Estuary. The feasibility study would require outreach to scientists knowledgeable in a variety of marine and estuarine topics in order to outline the scientific questions most pertinent to the endeavor.

- **Impacts to Wetlands Created by Change in BCDC's Bay Jurisdiction.** In 1994, the California Court of Appeal held in *Littoral Development Co. v. San Francisco Bay Conservation and Development Commission* that the upper limit of the Commission's "bay" jurisdiction extends only to the mean high tide line in areas that do not consist of tidal marsh and to five feet above mean sea level in areas that do consist of tidal marsh. This decision also applies to the upper limit of the Commission's certain waterways jurisdiction because the same statutory language applies.

  To better understand the area of Bay resources impacted by the Littoral decision, accurate measurements of the mean high water line at specific demonstration sites around the Bay could be made by using global positioning system (GPS) technology. Such data could inform the Commission as to the increased potential for impacts to Bay resources created by the Littoral decision, as well as assist in making jurisdictional determinations.



### BCDC's Coastal Management Program

The Commission is designated by the California McAteer-Petris Act as the agency responsible for maintaining and carrying out the provisions of the Act and the *San Francisco Bay Plan* for the protection of the Bay and its natural resources, and for the development of the Bay and shoreline to their highest potential utilizing a minimum of Bay fill. The Commission regulates filling and dredging activities in its jurisdiction of all areas of San Francisco Bay subject to tidal action (to the mean high tide line including marshlands up to five feet above mean sea level), which includes San Pablo, Suisun and other bays, sloughs and certain creeks and tributaries that are part of the Bay system, salt ponds and specified areas that have been diked off from the Bay. BCDC regulates development within the first 100 feet inland from the Bay to ensure that maximum feasible public access to the Bay is provided and that key shoreline areas are reserved for regionally important high priority uses. The Commission is directed to protect Suisun Marsh, the largest remaining wetland in California, by administering the Suisun Marsh Preservation Act in cooperation with local governments. In addition, the Commission is directed to pursue an active planning program to study Bay issues so that Commission plans and policies are based upon the best available current information.

To protect the shoreline and the waters of San Francisco Bay to the maximum extent possible, the Commission is empowered to issue or deny permits for any proposed project that involves placing fill, extracting materials or making any substantial change in use of any water, land or structure within the area of the Commission's jurisdiction. The McAteer-Petris Act and Bay Plan allow only the minimum Bay fill necessary for specified water-oriented projects or minor amounts for necessary shoreline improvement or public access. Fill is defined by the Act as any substance or material placed in any area subject to tidal action, including any pilings or structure on pilings or cantilevered over the Bay, or any structure moored in the Bay for extended periods of time. Filling of the Bay and certain waterways specified under the Commission's jurisdiction is authorized only when public benefits clearly exceed public detriment from the loss of water areas and when no alternative upland location is available for the proposed project. The nature, location and extent of any fill must be such that it will minimize harmful effects to the Bay as a whole, such as the reduction or impairment of the surface area or circulation of water, water quality, fertility of marshes or of fish and wildlife resources. Further, the public health, safety and welfare require that fill be constructed with sound safety standards that will afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters.

The McAteer-Petris Act directs the Commission to carry out its regulatory program in accordance with the provisions of the *San Francisco Bay Plan*, which guide the protection and development of the Bay and its marshes, managed wetlands, salt ponds, and shoreline. The Bay Plan includes policies on issues critical to the wise use of the Bay ranging from ports and public access to fish and wildlife. Integral to the Bay Plan are the Plan maps, which encompass the entire Bay region. The areas under the jurisdiction of the Commission are broadly delineated, as are areas reserved for priority uses. Certain water-oriented land uses along the Bay shoreline found to be essential to the public welfare of the region are specified in the Act: ports, water-related industries, airports, wildlife refuges and water-oriented recreation and public assembly are included among the water-oriented uses. The Commission makes provision for adequate and suitable shoreline locations for these uses, thus minimizing the necessity for future filling of the Bay to create new areas for these uses. Development of priority use areas is governed by the Bay Plan policies that apply for each specific use.

Development of shoreline areas not reserved for priority use is limited to projects that provide maximum feasible public access consistent with the project. In order to provide the maximum opportunity for public enjoyment of the Bay and its shoreline, the Commission's jurisdiction over a shoreline band 100 feet landward and parallel to the edge of the Bay provides BCDC with the authority to require that "maximum feasible public access, consistent with the proposed project, to the Bay and its shoreline" be a part of every new shoreline development project.

The Commission is further charged with administering the federal Coastal Zone Management Act for the San Francisco Bay segment of the California coastal zone. The CZMA encourages coastal states and territories to develop and implement programs to manage the nation's coastal resources. BCDC's management program is based on the provisions and policies of the McAteer-Petris Act, the Suisun Marsh Preservation Act of 1977, the *San Francisco Bay Plan*, the *Suisun Marsh Protection Plan*, and the Commission's

administrative regulations. Federal agencies are generally required to carry out their activities and programs in a manner consistent with the Commission's management program and proposed projects are subject to consistency determinations by the Commission.

## BCDC 309 Funded Efforts

### North Bay Wetlands and Agricultural Protection Program

A partnership between the Commission and four cities and four counties in the North Bay to develop a wetlands and agriculture protection program for the historical tidelands of the North Bay was initiated by the Commission in 1995. The project area encompassed the largest tract of undeveloped baylands, diked wetlands and surrounding rural uplands in the Bay region. The mission of the program was to (1) provide local governments with the tools and information to ensure the protection, enhancement and restoration of North Bay wetlands; (2) protect agriculture; (3) allow compatible uses to continue, such as recreation and public education, that are consistent with wetlands and agricultural values and functions; and (4) guide incompatible uses to other appropriate locations.

**Partnership Development and Steering Committee.** BCDC staff met with the staffs of the participating local governments as well as individuals and interest groups both at the outset of the program and on an ongoing basis to ensure that local issues and concerns are reflected in the North Bay planning process. Elected representatives from each of the eight local governments and the Commission comprised the North Bay Steering Committee, which provided policy guidance and program direction for the North Bay Wetlands Protection Program. The committee conducted public meetings to consider staff background reports and to ensure that public comments and concerns were incorporated in the protection program. To further coordinate this planning effort, the Commission staff worked closely with the planning staffs of the local governments to identify issues and develop implementation options for local application.

**Wetlands Database and GIS.** In developing the data and mapping information for the North Bay Wetlands Protection Program, BCDC staff undertook its first use of a computer geographic information system (GIS). Staff worked with the University of California, Berkeley's Research Program in Environmental Planning and Geographic Information Systems (REGIS), GIS housed at the University's Center for Environmental Design and Research, furnishing REGIS with land use data developed by the staff as well as with wetlands data from the preliminary San Francisco Bay Area EcoAtlas compiled by the San Francisco Estuary Institute (SFEI). The EcoAtlas maps the distribution and abundance of twelve types of wetland habitats, and represents the most current and complete inventory of wetland habitats in the North Bay.

Completion of this task represents a major accomplishment and a significant advance for regional planning in the Bay Area. The baseline data on land use, general plan designations, zoning designations, current wetlands restoration projects, and major public ownership now available on GIS over the Internet through the North Bay Program provides the opportunity for future assessments of the cumulative impacts of land use changes on estuarine resources, such as wetlands and riparian corridors. The methodology and framework established through the North Bay Program may provide an important model that can be used by BCDC to improve its protection of other areas of San Francisco Bay.

**Background Reports.** A number of background reports were developed for the program. Based upon an analysis of the data compiled through the mapping activities, *North Bay Land Use and Public Ownership* inventoried the status of land use in the North Bay, and further provided planning policy conclusions. The report was widely circulated and approved by the Steering Committee in September 1996. A report and findings and policies on *Wetlands in the North Bay Planning Area* was approved in February 1997. Four additional staff reports were completed, including reports that address polluted runoff, riparian corridor protection, agricultural uses, and implementation strategies. Together these reports provide a much needed regional picture of the North Bay, its natural resources and current land use patterns, its protection status and tools for local governments to assess the location and value of former tidal wetlands in the North Bay and protect these locally and regionally valuable resources. This regional picture provides invaluable data and a firm foundation for future protection efforts. The reports also emphasize innovative techniques that each city and county has used to protect its resources, thus serving as a forum for technology transfer among the North Bay jurisdictions.

**Distribution of the EcoAtlas.** During the planning process the BCDC staff facilitated the transfer of the digital and hardcopy of the EcoAtlas to the participating local governments, and provided technical assistance to help planners integrate the EcoAtlas into their general plans, zoning, and advanced planning strategies. As described above, the EcoAtlas, prepared by the San Francisco Estuary Institute, identifies wetlands and associated biological habitats at a regional scale. The local governments chose to use the EcoAtlas in a variety of innovative ways, including (1) preparation of a pre-application wetlands protection handbook for developers; (2) providing the basis for new wetlands or Bayfront protection zones or general plan policies, and (3) providing a first-cut demarcation line for sensitive resources, thus aiding in advance planning efforts. Marin County incorporated the EcoAtlas into its General Plan and included EcoAtlas as a data layer in the countywide Marin Map project utilized by the County, cities and special districts in Marin County. The staff also prepared a model stream protection ordinance that was used by local governments as a basis for stream protection policies and ordinances.

**Proposal Input and Environmental Impact Report Review.** Over the course of the program the BCDC staff provided input on a wide range of North Bay proposals, including specific development plans, zoning and general plan change proposals, and more. This input helped local government staff integrate regional concerns and data from the background reports into the consideration of these projects.

**Meeting the Goals of the North Bay Program.** The North Bay Program succeeded in developing and transferring new tools to local government to better protect wetlands in the North Bay and tributary creeks and streams and their riparian zones. A key objective of the North Bay program was to provide local governments with the tools and information to ensure the protection, restoration and enhancement of wetlands. In other words, the transfer of information and technology to local governments to enable them to incorporate wetland protection into their planning and public policy setting process. This transfer was arguably most important in the areas adjacent to existing urban areas and in the path of urban development.

The Highway 101 corridor in Marin County was of particular concern. The EcoAtlas identified the wetlands and wetland-related areas agreed to by the state and federal resource agencies. Marin County incorporated the EcoAtlas into its General Plan and took the EcoAtlas one step further by contracting with the San Francisco Estuary Institute (the developer of the EcoAtlas) to develop and digitally map a buffer zone around the wetland perimeter to use in its land use planning and control process. The County then linked the area identified in the EcoAtlas to the County's Baylands protection zone to create a comprehensive wetlands protection zoning district consistent with the wetland area identified in the EcoAtlas.

The City of San Rafael used the EcoAtlas to modify the proposed specific plan for a significant development project in its sphere of influence that prior to the incorporation of the EcoAtlas into that planning process, had designated wetland and wetland-related areas for development. The modified specific plan eliminated the wetland areas from planned development.

The City of Novato, using the EcoAtlas and the findings and policies of the wetlands report developed its own baylands protection district which was consistent with that adopted by Marin County to create a uniform city/county baylands wetlands protection zone. In addition, the City of Novato, using information and the model stream protection ordinance drafted by staff as part of the North Bay Program, adopted a new stream protection ordinance as part of its General Plan and zoning code revision.

Along the Highway 37 and Highway 29 urban growth corridor in Solano County, the City of Vallejo amended its General Plan and zoning ordinance changing the designation of the wetland area along the Napa River in and near White Slough from urban use to natural resource protection and the County of Solano changed its zoning of its jurisdiction in the area from agricultural use (which would allow for some kinds of urban development) to a marsh protection zone.

In addition, the Program found that existing local government land use planning for agriculture use and zoning controls was appropriate to protect agriculture and that agricultural use and wetland protection were in the North Bay were consistent. One notable exception was the agricultural use designation in Marin County, which would allow one residential unit per two acres. However, the agriculturally zoned areas were also in the County's Baylands protection district, which protected the wetlands areas but would permit the clustering of residential units in areas that did not impact wetlands. However, the California Coastal Conservancy purchased the last remaining large diked wetland parcel in the County's planning area for wetlands protection and restoration.

#### Public Access and Wildlife Compatibility Project

In 1988, BCDC initiated, through an innovative partnership with the Association of Bay Area Government's (ABAG) Bay Trail Project, the San Francisco Bay Public Access and Wildlife Compatibility Policy Development Project. BCDC received funding from NOAA, Office of Coastal Resources Management for FY 98 and FY 99 to enable the development of policy decisions regarding balancing public access and natural resource protection.

The objectives of the Public Access and Wildlife Compatibility Project are to: (1) better understand the effects of public access on wildlife; (2) better understand the effectiveness of design and management measures to address public access impacts; (3) develop public policy conclusions on how best to avoid or minimize adverse impacts of public access improvements on Bay wildlife; (4) amend the *San Francisco Bay Plan* public access and other appropriate policy elements; and (5) institute a process for monitoring and periodically assessing public access improvements implemented pursuant to a BCDC permit.

BCDC and ABAG signed a memorandum of agreement to work in partnership to better inform future decisions on siting, design, construction, and management of public access and the Bay Trail. To this end, the Bay Trail Project, with BCDC assistance, has taken the lead in facilitating original field research. BCDC staff advised and assisted ABAG in the design of a wildlife and public access scientific field research plan to generate quantitative and statistically testable data on the impacts of trail users on birds in the tidal marshes of San Francisco Bay. Independent consultants installed the study quadrants, and hired and trained site observers and supervisors to collect data. BCDC staff attend quarterly meetings on the progress of the field study and have participated as backup site observers. A full year of field research has been completed and the data are currently being analyzed. The Bay Trail Project has secured funding to extend this important field research for another year.

BCDC, with Bay Trail Project assistance, is concentrating on improving its knowledge of design and management strategies to avoid or reduce impacts of public access on wildlife. A comprehensive assembly and analysis of available information was undertaken, including an exhaustive literature search for field studies on recreational impacts on wildlife. Research and analysis was also undertaken on siting, design and management strategies that may avoid or reduce impact of public access on wildlife.

BCDC conducted a nationwide survey of land managers from coastal and Great Lake states to gather further observational information on recreational impacts on wildlife, and to document on-site experiences with specific design and management strategies and how those strategies have or have not been effective at avoiding or reducing impacts on wildlife from human activities. An excellent response rate of 42 percent (a total of 157 responses) generated a great deal of additional information on recreational impacts and design and management strategies.

The Policy Advisory Committee (PAC) was comprised of 14 individuals representing a wide range of professional fields, geographic areas and public interests including biologists (consultant, academic and agency), resource managers, regional park district employees, environmental planners, landscape architects, and non-governmental organization activists, including both recreation and wildlife protection advocates. The PAC was instrumental in reviewing and analyzing information as it became available, and reached consensus on conclusions and proposed policy directions. The resulting conclusions of the study and policy concepts agreed upon by the PAC were further refined by BCDC staff as proposed revisions to the *San Francisco Bay Plan* public access findings and policies.

The outcome of this project will be revised public access policies that will improve the ability of the Commission to guide public access siting, design and management throughout the Bay Area, especially in sensitive habitat areas and where the protection of endangered species is a concern. The Commission will hold a public hearing on the proposed findings and policies (Proposed Bay Plan Amendment No. 5-00) in January 2001.

### Aquatic Habitat and Species

The purpose of the Aquatic Habitat and Species work element of the Bay Plan Habitat Findings and Policies project is to:

(1) Conduct research and analysis and prepare a planning policy report that identifies, maps and characterizes the aquatic habitats and associated aquatic life in San Francisco Bay.

(2) Identify the threats to the continued productivity of these habitats and their associated aquatic life species.

(3) Assess the opportunities and means to improve Bay aquatic habitats in order to create more abundant and diverse aquatic species in the Bay.

(4) Amend the *San Francisco Bay Plan* to include appropriate findings and policies to guide the Commission in its regulatory actions in a manner that will protect, and wherever possible, improve aquatic habitats and aquatic life species.

**Information Assembly.** Staff conducted an extensive literature search, searching a variety of scientific journals, Internet sites and databases. The search yielded little information about the Bay's aquatic habitats as an ecological system, although some studies examined specific components of the system (such as benthic communities in a tidal marsh or the habitat requirements of a particular fish species).

Staff also investigated possible mapping sources, including bathymetry, sediment type, and fish habitat maps, but no map was found that adequately characterized aquatic habitats (however, some references suggested no such mapping is possible, given that each aquatic species may have its own specific habitat consisting of factors such as salinity, pH balance, water chemistry, sediment, etc.)

Based on the literature review, staff identified several areas where information is lacking regarding subtidal habitats, including:

- subtidal habitat classifications and maps;
- connection between indicator species and habitat classifications;
- information regarding protection priorities, opportunities, and mechanisms; and
- information regarding restoration and enhancement needs and mechanisms.

**Draft Report.** Staff used the information obtained in the literature review to begin development of a preliminary draft background report characterizing aquatic habitats. Staff elected to use the background report as a chapter in a larger report concerning the Bay's habitats (an ecologically focused update of the Bay Plan marshes and mudflats and fish and wildlife policies). This report will provide the foundation for changes to the *San Francisco Bay Plan's* findings and policies related to Bay habitats and species. To ensure that aquatic habitat concerns are addressed, staff worked to integrate aquatic habitat data into the remaining chapters of the report (including chapters on the Bay's

habitats, threats, wildlife sanctuaries, and restoration). (See "Wetlands Policies" in the Wetlands section.)

**Subtidal Panel.** To overcome the scarcity of information, staff elected to convene a panel of experts in submerged habitats to discuss the relative values of various submerged habitat types and explore their recommendations for appropriate restoration and protection techniques. The panel also focused on identifying gaps in knowledge that prevent us from satisfactorily understanding and managing submerged habitats. In addition, the panel also addressed the question of marine or estuarine sanctuaries, and if such sanctuaries might be needed for particular subtidal species or habitats in the Bay. Staff earlier met with representatives from various agencies (including the National Marine Fisheries Service, the California Department of Fish and Game, and the U.S. EPA) to solicit their input about the proposed panel questions and panelists. Staff also recruited a moderator for the panel, Professor Robert Twiss from the University of California, Berkeley Center for Environmental Design and Research. Professor Twiss was the Interim Science Panel Chair for the federal and state CALFED water program.

Staff convened the aquatic habitats panel in September 2000. Panel members included Bob Tasto from the California Department of Fish and Game; Brian Mulvey (National Marine Fisheries Service); Phil Williams (Phil Williams and Associates, hydrogeomorphology consultants); Bill Sydeman (Point Reyes Bird Observatory); Hal Markowitz (Biology Department, San Francisco State University); Bruce Thompson (San Francisco Estuary Institute); Michael McGowan and Wim Kimmerer (Romberg Tiburon Center, San Francisco State University); Bruce Herbold and Mike Monroe (U.S. EPA); Fred Nichols and John Takekawa (USGS); Sarah Allen (Point Reyes National Seashore); and Paul Siri, with the Bodega Marine Lab, U.C. Berkeley.

The panel discussed the above issues and identified gaps in knowledge that prevent resource managers from satisfactorily understanding and managing submerged habitats. Additionally, the panel addressed the question of marine or estuarine refuges, and if such refuges might be needed for particular subtidal species or habitats in the Bay.

Information from the aquatic habitat panel was subsequently used to complete the aquatic habitats chapter in the Bay Habitats report, as well as the aquatic-related findings and policies. The draft report will be circulated to appropriate technical experts for comment, and a revised draft circulated for review and comment by the public and interested parties. Commission consideration of the completed Bay Habitats report is scheduled for mid-2001.

### Permit Tracking System

In 2000, the Commission undertook to develop a text-based Permit Tracking System (PTS) database that will be fully compatible with the Commission's technology base, management resources and protocols, staff capabilities, and day-to-day needs. Once developed and populated with data, the new system will, in addition to supporting routine permitting work, yield access to summary information about development activities on a regional scale. In anticipation of the day when it will be economically and technically feasible to develop and manage a broadly accessible GIS based system, permit data will be gathered and stored in such a way as to make it possible to migrate the system to a spatial-based system. It will also be possible to export data to support occasional special studies using GIS technology.

The development of the PTS can provide the Commission new and unique shoreline planning capabilities. The Commission's permit files, taken together as a whole, represent the most complete and authoritative record of 35 years of shoreline development around the San Francisco Bay. These data, which exist nowhere else in such comprehensive form, are a "hidden" resource that the Commission and its partner agencies could use to support planning studies and analyses, if the information could be accessed and manipulated effectively.

Gaining control over the information contained in these files could offer a concise view of conservation and development trends that could be used to validate or question many commonly held beliefs that underlie federal, state, and local planning efforts regarding the Bay. For example, the data could provide an objective measurement of certain types of permit activities that, if combined or compared with outside analyses routinely generated by other agencies with a common interest in the Bay, may suggest or support new directions in shoreline planning or, conversely, conserve effort and costs by quickly identifying trends not taken into account in initial studies.

## Enhancement Area Analysis

### Introduction

The 1990 reauthorization of the federal Coastal Zone Management Act called for states to strengthen coastal management in the United States and its territories. One of the efforts to achieve this objective is the coastal zone enhancement grant program, established under Section 309 of the CZMA. The program encourages states to develop new and innovative approaches to address coastal issues of national significance and provides additional financial assistance for states to develop and implement changes to improve their coastal management programs in nine priority areas, as defined by the CZMA.

The following nine program areas are identified as candidates for enhancement under the section 309 program:

(1) Protecting, enhancing, or creating wetlands.

(2) Preventing or significantly reducing threats to life and property by controlling coastal development and redevelopment in hazardous areas, and anticipating and managing the effect of sea level rise.

(3) Attaining increased opportunities for public access.

(4) Reducing marine debris by managing uses and activities that contribute to marine debris.

(5) Developing and adopting procedures to address the cumulative and secondary impacts of growth and development.

(6) Preparing and implementing special area management plans.

(7) Planning for the use of ocean resources.

(8) Adopting procedures and policies to facilitate the siting of energy and government facilities and activities that may be of greater than local significance.

(9) Improving procedures and policies for considering siting of marine aquaculture facilities while maintaining current levels of coastal resource protection.

The purpose of the enhancement grant program is to foster improvements in state coastal management programs in these specific areas, with a goal of improved protection for coastal resources. The CZMA is administered at the federal level by the Office of Ocean and Coastal Resource Management (OCRM) within the National Oceanic and Atmospheric Administration (NOAA). The federally approved management program for the San Francisco Bay segment of the California coastal management program is administered by the San Francisco Bay Conservation and Development Commission. The California Coastal Commission administers the coastal management program for the Pacific Ocean coastline segment of the California coastal zone.

The enhancement program encourages states to achieve the nine objectives by strengthening their coastal management programs with new laws, regulations or other enforceable mechanisms to provide greater protection for coastal resources. Program improvements are defined as changes to a state's federally approved coastal zone management program as opposed to changes in the manner in which the program is implemented. The types of changes that would qualify as program improvements include the following actions if they would improve a state's ability to achieve one or more of the coastal zone enhancement objectives:

- Changes to coastal zone boundaries.
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders and memoranda of agreement.
- New or revised local coastal zone programs and implementing ordinances.
- New or revised coastal land acquisition, management and restoration programs that attain one or more of the coastal zone enhancement objectives.
- New or revised special area management plans or plans for areas of particular concern.
- New or revised guidelines, procedures and policy documents.

**Public Involvement** Although not included among the nine federal coastal enhancement areas, one of the fundamental goals of the Commission's strategic plan concerns increasing the public's understanding of BCDC's mission, jurisdiction and authority. An organized public information program to educate Bay Area residents about BCDC's management program for San Francisco Bay would expand public awareness of, and appreciation for, the Commission's activities. Increased public participation in BCDC's efforts on behalf of the Bay would in turn contribute to the success of these efforts.

Recognizing the importance of public outreach and education, in 1999 the Commission established a Public Outreach Task Force, which developed a comprehensive program that was unanimously adopted by the Commission. Foremost among the task force findings was the need for a Public Information officer to develop an outreach program. By redirecting resources for an intern position away from its regulatory activity in late 2000, BCDC was able to identify and retain a consulting firm to develop a public information strategy to guide the Commission.

To increase public involvement in BCDC's programs, the Commission should establish an extensive public education and outreach program that would be integral to the success of enhancing the Commission's management program. For example, collaborative efforts with other agencies, non-government organizations and the public are

highlighted throughout the assessment as an effective way for BCDC to enhance its management program. Virtually any partnership effort involving the Commission would require a significant investment of staff time in community outreach and public participation. BCDC is unable to fulfill such responsibilities because the Commission has no staff or fiscal resources allocated for public outreach. Nor has the Commission had a strategy to conduct such a program.

In addition to expanding its efforts to directly inform local jurisdictions and community groups of BCDC's coastal management program for the Bay, furthering a management program for the Bay often involves extensive work with the Legislature, either in the development of strategies or in the implementation of recommendations.

BCDC's ability to constructively engage in the development of legislation, including that related to partnership ventures, is constrained because BCDC's legislative affairs program is currently limited to approximately 0.1 PY that the Commission's dredging program manager can direct to this work after fulfilling core responsibilities

### Public Access

Program objectives address the need to increase opportunities for public access to coastal areas, taking into account current and future public access needs. Objectives include providing access while protecting wildlife, particularly endangered species.

**Background.** Creation of public access is a founding tenet of BCDC's coastal management program. Waterfront parks and beaches are delineated as priority use areas in the Bay Plan. In addition to public access to the Bay provided by waterfront parks, beaches, marinas, and fishing piers, maximum feasible access consistent with a proposed project to and along the waterfront must be provided as part of every Bay and shoreline project approved by the Commission. Public access is recognized as a source of substantial public benefit, one of the few uses for which some Bay fill is allowed. Since 1970, 860 acres of new public access along more than 78 miles of Bay shoreline (reflecting a gain of nearly 138 acres along more than 16 miles of shoreline from 1997 through 2000) have been created by BCDC through its approval of major permits. Although shoreline access is increasing around the Bay as a result of the Commission's permit requirements and park development provided by other agencies, concern has been raised by wildlife resource management agencies and non-governmental organizations over the possible conflict of public access with and adverse impact on wildlife, particularly endangered species.

**BCDC's Public Access Program.** The authority for BCDC's public access program is specifically granted by Section 66602 of the McAteer-Petris Act, which states, in part, "that existing public access to the shoreline and waters of the San Francisco Bay is inadequate and that maximum feasible public access...should be provided." The foundation for the Commission's public access program lies in the findings and policies of the *San Francisco Bay Plan* (Bay Plan), which establish that shoreline areas not needed for designated priority uses are to be developed in ways that do not preclude public access to the Bay.

The primary Bay Plan public access policies are contained in the sections concerning recreation, public access, and appearance, design and scenic views. Public access should be provided wherever feasible in and through any shoreline development, and is intended to result in considerably more access to the Bay than can be provided by

public parks alone. Because of the need to increase the availability of recreational opportunities, small amounts of Bay fill may be allowed for shoreline parks and recreational areas that cannot otherwise be developed, provided the fill is the minimum necessary to develop the project in accordance with Commission access requirements.

BCDC's public access program consists primarily of attaching conditions to permits for Bay fill and for development within the 100-foot shoreline band that require that access be provided on a permanent basis. The McAteer-Petris Act (Section 66632.4) grants BCDC the authority to deny permit applications for projects that fail to provide maximum feasible public access, consistent with the proposed project, to the Bay and its shoreline. The phrase, "consistent with the proposed project," has required that the Commission establish a nexus between the public access burden created by an individual project and the public access exaction required by the Commission.

The Design Review Board (DRB), comprised of landscape architects, architects, planners, and engineers, serves as a voluntary advisory board assisting BCDC in evaluating the design aspects of specific projects for which a permit or consistency determination is needed. A permanent staff member serves as secretary to the Board. The DRB provides recommendations in three areas: evaluating whether or not specific projects provide maximum feasible public access; suggesting changes to improve public access; and evaluating appropriateness of fill for proposed public access or for improving the appearance of the shoreline.

In evaluating a project for maximum feasible public access, the Board refers to Bay Plan policies on public access, and appearance, design and views; the Commission's Public Access Design Guidelines; and the Commission's regulations on fill for public access and shoreline appearance.

**Conclusions of Previous Assessment.** BCDC's program continues to increase opportunities for public access to the Bay and shoreline and remains a model for other public access efforts. The Commission should be involved in joint planning efforts to increase access to the Bay and shoreline. To assist BCDC in its mission to balance access to the Bay with natural resource protection, the Commission should participate in a study of the impacts of public access on wildlife.

**Changes in BCDC's Public Access Program since Previous Assessment**

| Management Category | Changes Since Last Assessment |
|---|---|
| Regulatory Programs | None |
| Acquisition Programs | None |
| Comprehensive Access Planning | Significant |
| Operation & Maintenance Programs | None |
| Innovative Funding Techniques | None |
| Public Education and Outreach | Significant |

- **Public Access and Wildlife Compatibility Project.** In 1988, BCDC initiated, through an innovative partnership with the Association of Bay Area Government's (ABAG) Bay Trail Project, the San Francisco Bay Public Access and Wildlife Compatibility Policy Development Project. BCDC received funding from

NOAA, Office of Coastal Resources Management, for FYs 1998 and 1999 under the Section 309 program to enable the development of policy decisions regarding balancing public access and natural resource protection.

The objectives of the Public Access and Wildlife Compatibility Project are to: (1) better understand the effects of public access on wildlife; (2) better understand the effectiveness of design and management measures to address public access impacts; (3) develop public policy conclusions on how best to avoid or minimize adverse impacts of public access improvements on Bay wildlife; (4) amend the *San Francisco Bay Plan* public access and other appropriate policy elements; and (5) institute a process for monitoring and periodically assessing public access improvements implemented pursuant to a BCDC permit.

BCDC and ABAG signed a memorandum of agreement to work in partnership to better inform future decisions on siting, design, construction, and management of public access and the Bay Trail. To this end, the Bay Trail Project, with BCDC assistance, has taken the lead in facilitating original field research. BCDC staff advised and assisted ABAG in the design of a wildlife and public access scientific field research plan to generate quantitative and statistically testable data on the impacts of trail users on birds in the tidal marshes of San Francisco Bay. Independent consultants installed the study quadrants, and hired and trained site observers and supervisors to collect data. BCDC staff attend quarterly meetings on the progress of the field study and have participated as backup site observers. A full year of field research has been completed and the data are currently being analyzed. The Bay Trail Project is currently attempting to secure funding to extend this important field research for another year.

BCDC, with Bay Trail Project assistance, is concentrating on improving its knowledge of design and management strategies to avoid or reduce impacts of public access on wildlife. A comprehensive assembly and analysis of available information was undertaken, including an exhaustive literature search for field studies on recreational impacts on wildlife. Research and analysis was also undertaken on siting, design and management strategies that may avoid or reduce impact of public access on wildlife.

BCDC conducted a nationwide survey of land managers from coastal and Great Lake states to gather further observational information on recreational impacts on wildlife, and to document on-site experiences with specific design and management strategies and how those strategies have or have not been effective at avoiding or reducing impacts on wildlife from human activities. An excellent response rate of 42 percent (a total of 157 responses) generated a great deal of additional information on recreational impacts and design and management strategies.

The Policy Advisory Committee (PAC) was comprised of 14 individuals representing a wide range of professional fields, geographic areas and public interests including biologists (consultant, academic and agency), resource managers, regional park district employees, environmental planners, landscape architects, and non-governmental organization activists, including both recreation and

wildlife protection advocates. The PAC was instrumental in reviewing and analyzing information as it became available, and reached consensus on conclusions and proposed policy directions. The resulting conclusions of the study and policy concepts agreed upon by the PAC were further refined by BCDC staff as proposed revisions to the *San Francisco Bay Plan* public access findings and policies.

The outcome of this project will be revised public access policies that will improve the ability of the Commission to guide public access siting, design and management throughout the Bay Area, especially in sensitive habitat areas and where the protection of endangered species is a concern. The Commission will hold a public hearing on the proposed findings and policies (Proposed Bay Plan Amendment No. 5-00) in January 2001.

**Priority Objectives to Improve BCDC's Public Access Program.** To further its program to improve public access to the Bay, the Commission should explore ways to increase public access and refine its policies related to public access, through such avenues as:

- **Update Public Access Design Guidelines.** The Commission should update its *Public Access Design Guidelines* (Guidelines) to incorporate siting, design and management strategies that, among other goals, would lessen impacts of public access on wildlife. The Guidelines provide examples of siting, design and management strategies to assist permit applicants, developers, and design professionals to design and develop attractive, usable and safe public access as part of their projects. Although the Guidelines are advisory, they have been adopted by the Commission and are based on the *San Francisco Bay Plan* policies. The Guidelines reflect past permit decisions of the Commission and recommendations of the Commission's advisory Design Review Board on individual project designs, and therefore help streamline the permit process.

  In the fifteen years since the Guidelines were adopted by the Commission in 1985, new information on materials and designs of public access has evolved, and important trends have emerged that are not captured in the current Guidelines. For example, BCDC is currently updating its Public Access policies to reflect the growing concern related to public access and wildlife compatibility. BCDC has gained much information during this study on the effectiveness of specific siting, design and management strategies to avoid or minimize the effects of public access on wildlife. It would be appropriate and extremely beneficial to include this type of new information in the Guidelines. The Guidelines are well-recognized, accepted and well-utilized by applicants, staff, the Commission and the public, and it is important that they be kept current and continually functional.

- **Identify Sensitive Habitat.** The Commission could expand its joint planning with other agencies and non-government organizations to identify and assess sensitive wildlife habitats and species around the Bay to better identify the potential impacts of public access on these resources.

  BCDC and the Bay Trail Project partnered for the innovative Public Access and Wildlife Compatibility Study which has greatly improved the state of knowledge on public access impacts on wildlife and design and management strategies to avoid or minimize impacts. The Project results are helping to guide the Commission in revising existing public access policies to better achieve both public access

and natural resource protection objectives. However, there is still a scarcity of scientific information on the public access impacts on wildlife and the Commission has been and should continue to be in the forefront in this area of coastal management.

The Bay Trail Project, in partnership with BCDC, has completed one year of original scientific field study on the impacts of trail users on birds in the tidal marshes of San Francisco Bay and is currently conducting preliminary statistical analysis of the data. Although the results of the field study are an important additional piece of information to consider when revising existing public access policies, there is much greater value to be gained from continuing this research (the only of its kind known of on-going in the United States) for at least another year. Specifically, a second year (or more) of data would offer insight as to annual variability of both bird use and trail use; have the potential to capture a greater diversity of bird species; and produce a more valuable data set for the Bay Trail Project, BCDC, and other research organizations. Continuation of the study would allow researchers to look at seasonal sensitivities of specific species, including federally and/or state listed endangered species. This increased and more detailed information on public access impacts on Bay avian species would be very valuable when considering siting, design and management of public access in the Bay Area.

There is a clear need for scientific data on the effectiveness of specific design and management strategies to avoid or reduce impacts of human activities on wildlife. There are currently no known studies anywhere in the United States comparing the effectiveness of such strategies (either as compared to no strategies at all or compared among various strategies). The outcome of this type of research would improve the Commission's ability to guide the siting, design and management of public access to best avoid or reduce impacts to wildlife. Ongoing participation in and/or support of such studies would greatly improve BCDC's public access program.

Further, during the course of the Commission's Wildlife and Public Access Compatibility Project, the Policy Advisory Committee and staff determined that in order to better refine BCDC's public access policies, it is necessary to accurately characterize the relative sensitivities of Bay habitats so that planners and developers can better locate, design and manage public access that is required of projects. This resource information could be mapped in combination with existing public access and the planned route for the Bay Trail, using a GIS mapping system, to determine whether there are existing access areas or planned trail routes that may affect significant habitat areas. This mapping effort would clarify whether gaps in the protection of habitats exist, and whether these gaps should be addressed by re-routing planned trail routes. Currently, certain planned segments of the Bay Trail are located on roadways that are removed from the Bay. Over time, as wetland restoration and development projects proceed, it is expected that some of these trail segments may be relocated closer to San Francisco Bay. The information generated by this inquiry would be useful in siting these relocated segments in such a way as to avoid impacts on resources.

Substantial existing information could be used, and where necessary, supplemented to produce a general characterization of habitats. Existing information sources include the Baylands Ecosystem Habitat Goals Project, the San Francisco Estuary Institute's EcoAtlas Habitat Maps, NOAA's Environmental Sensitivity Index, USFWS Habitat Maps and other current, accurate sources that provide a basis for characterizing habitat sensitivity. As an extension of the Commission's existing partnership with the Bay Trail Project, the Commission would explore building on the existing GIS mapping capabilities of the Bay Trail Project as well as resources of other Bay Area agencies to economize on staff resource allocation. This project would lead to further refinements to the *San Francisco Bay Plan* public access policies.

**Additional Opportunities for Improvement**

- **Landscaping Guidelines.** The *Bay Shoreline Landscape Guide: Planting Materials and Methods for San Francisco Bay Shoreline Projects* was originally prepared by BCDC in February 1984. The guide provides recommendations for suitable plants and planting techniques for development projects on the San Francisco Bay shoreline. Over the last 16 years, the landscape guide has been well received by private developers, design consultants, other public agencies, individuals and other groups conducting work along the Bay shoreline. However, the information in the document is now dated and, in some ways, incomplete.

  The Commission could join with the San Francisco Estuary Project, the Friends of the Estuary, and the California Native Plants Society to update the native plant list, which is the foundation of the landscape guide. The proposed revision would include other objectives as well, such as a discussion on the use of native plants and design guidelines for the transition from marsh habitat and other native zones to ornamental plantings. An updated *Bay Shoreline Landscape Guide* would provide the public with a much needed informational tool, one that would aid in improving water quality and increased resource value for wildlife.

- **Signage Program.** BCDC's public access sign program currently focuses on identifying areas required in BCDC's permits that are open to the public. BCDC could improve this important element of its public access program by creating a standardized and improved approach to identifying public access areas and directing users to them, and by increasing the number and quality of interpretative signage in these areas. The program could expand to include: (1) a reexamination of the design of the public shore sign to determine whether it or another design best meets the intended purpose; (2) a more consistent approach to public shore parking signs; (3) an interpretative sign program that educates the public about Bay resources; and (4) a new directional sign program that includes signs on city streets and possibly freeways to direct the public to shoreline staging areas and access sites. This component of the program would require outreach to local planning, parks and recreation, and public works departments, and to the Department of Transportation and the Metropolitan Transportation Commission when signs on Bay Area freeways are deemed appropriate. Further, in light of elevated levels of a number of toxic pollutants in the Bay, the Commission could join with other efforts to educate the public to the potential harmful effects of consuming high levels of fish and other aquatic species taken from Bay waters, through the use of signage.

- **Access for Disabled Persons.** BCDC should ensure that the public access components of major projects that come before the Commission provide maximum feasible access for all potential users of the access. The Commission's Design Review Board (DRB) should hold briefings with representatives of the disabled community and the Office of the State Architect to receive information that would assist the DRB in considering more fully the adequacy of public access components during its project review. By understanding how public access around the Bay can be improved to enhance the outdoor experience of persons with disabilities, the DRB should develop guidelines that would apply state access design requirements more specifically to accommodate the needs of the disabled community for access to the Bay and shoreline areas. Examples of how best to site and design access for the disabled should be incorporated into the Design Guidelines.

### Wetlands Protection and Restoration

Program objectives address the need to protect, restore or enhance existing coastal wetlands or to create new coastal wetlands.

| Wetlands Type | Extent in acres ca. 1800 | ca. 1988 | Trends % change |
|---|---|---|---|
| Tidal Marsh[a] | 189,931 | 40,191 | -79% |
| Non-Tidal (Diked managed and non-managed marsh)[a] | - | 64,518 | - |
| Freshwater (Diked agricultural lands - seasonal wetlands)[a] | - | 34,620 | - |
| Publicly Acquired Wetlands ("Protected" per SFBJV[b]) | 22,000[b] | | - |
| Restored Wetlands | n/a | | - |

a. Goals Project. 1999. *Baylands Ecosystem Habitat Goals.*
b. San Francisco Bay Joint Venture. January 2001. *Restoring the Estuary.*

**Background.** Since 1850, nearly 80 percent of the Bay's tidal wetlands have been filled or diked. Farming, salt production and urbanization have led to wetland conversion and filling of the Bay. Intensive urbanization following WW II resulted in large scale filling of the majority of the Bay's remaining tidal wetlands. By the 1960s, 280 of the Bay's 680 square miles of surface area had been diked off from tidal action. Since the 1950s, however, the rate of wetland conversion has slowed considerably, due in large part to the creation of BCDC. BCDC efforts have increased the size of the Bay 1,843 acres (483 acres from 1997 through 2000).

In addition to providing habitat for fish and wildlife, wetlands also contribute to flood control and shoreline stabilization, water quality maintenance and groundwater recharge, and open space and recreation opportunities. BCDC is mandated to eliminate unnecessary filling of Bay tidal and managed wetlands and the subsequent loss of this valuable natural resource.

| Threat | Significance |
|---|---|
| Development/fill | High |
| Erosion | Medium |
| Pollution | High |
| Channelization | Low |
| Nuisance or exotic species | High |
| Freshwater Input | High |

**BCDC's Wetlands Program.** A reduction in the loss and conversion of Bay wetlands is a primary concern of BCDC. The Bay Plan recognizes the Bay as a complex biological system of open water, mudflats and marshlands, and the potential for even minor filling to degrade fish and wildlife habitat is addressed. Policies designed to support the vital role of wetlands in preserving the ecological vitality of the Bay are featured throughout the Bay Plan: sections on Marshes and Mudflats, Salt Ponds and Other Managed Wetlands, and Fish and Wildlife address most directly the issue of wetland loss and conversion. Moreover, the Commission's mitigation policy provides for the increase in the size of the Bay to offset impacts of permissible fill.

Stringent permit review for placement of fill and dredging in areas that lie within the Commission's Bay jurisdiction is the most effective method available to the Commission to prevent the loss of wetlands. In addition to open water, tidal marshland and mudflats areas diked from the Bay and managed for salt production or as duck hunting preserves or game refuges, fall under the Commission's jurisdiction. Project mitigation requirements, which are specified in permit conditions, generally require that mitigation be provided concurrently with those segments of the project creating adverse impacts. Mitigation usually takes the form of restoring to the Bay equal or greater habitat values and typically consists of creating new tidal marsh in areas that have formerly been diked from the Bay.

Many tidal wetlands around the Bay that were diked and used for agricultural purposes following the Gold Rush remain in agricultural use. The 80 square miles of diked historic baylands are found mainly in the Suisun and San Pablo Bay areas. Although BCDC's jurisdiction does not extend to the nearly 52,000 acres of privately-owned diked historic baylands, the Commission monitors activities in the historic baylands because of the important ecological interrelationship between these areas and the Bay, and comments on projects proposed in these areas to the local governments and U.S. Army Corps of Engineers.

The Suisun Marsh is protected through shared authority with the area local governments. The local governments have primary responsibility for carrying out the Commission's *Suisun Marsh Protection Plan* in the upland area through local protection plans, while the Commission is primarily responsible for the wetlands, assuring that existing uses (duck clubs and extensive agriculture) continue, and that further development in the Marsh watershed does not adversely affect water quality.

**Conclusions of Previous Assessment.** Commission efforts to control Bay filling have nearly halted further conversion of tidal lands; however, development continues to threaten remaining diked historic baylands. The Commission should continue its col-

laborative effort in the North Bay to develop tools to assist local governments in improving and refining wetland habitat protection plans and enforceable regulations in the diked historic baylands and tidal wetlands. The Commission should determine areas no longer included in its Bay jurisdiction as a result of the *Littoral* court decision, and assess the potential additional impacts to wetland areas throughout the Bay because of the diminution of Commission authority in these areas. To further wetland protection efforts, the Commission should improve its coastal management program by updating the Bay Plan policies dealing with marshes and mudflats, fish and wildlife, salt ponds, and mitigation.

**Changes in BCDC's Wetlands Program since Previous Assessment**

| Management Category | Changes Since Last Assessment |
|---|---|
| Regulatory Programs | Significant |
| Wetlands Protection Standards | Moderate |
| Assessment Methodologies | Moderate |
| Impact Analysis | Moderate |
| Restoration/Enhancement Programs | Significant |
| SAMPs | None |
| Education/Outreach | Moderate |
| Wetlands Creation Programs | Significant |
| Acquisition Programs | None |

**Wetlands Protection**

- **Habitat Goals Project.** In 1995, the Commission began its participation in the Bay Area Habitat Goals Project sponsored by the U.S. Environmental Protection Agency (U. S. EPA), U.S. Fish and Wildlife Service, Department of Fish and Game, Regional Water Quality Control Board, California Environmental Protection Agency, Resources Agency, and BCDC. The Goals Project grew from discussions during the early 1990s among members of the San Francisco Estuary Project, a cooperative public-private partnership sponsored by U.S. EPA and the State of California. The project attracted broad interest and extensive participation by a number of resource management agencies, academic institutions and scientific organizations. BCDC staff was directly involved in overseeing the project through its membership on the Resource Managers Group, as well as with identifying habitats throughout the Bay needed to support threatened and endangered species. Staff participation was funded by the state general budget.

  Completed in early 1999, the *Bay Area Habitat Goals Project* (Habitat Goals Project) reflects a scientific process that considered the historical and current distribution of baylands, including mudflats, seasonal and perennial freshwater wetlands, existing and diked historical tidal marshlands and other wetland types, within the region. The project produced wetlands ecosystem goals for the Bay, along with recommendations for planning and designing wetlands restoration projects. Alternative regional wetland "mosaics" were presented in a geographic information system (GIS) format made available to agency

decision-makers and to the public. The mosaics were based on the most current biological information and reflect the best professional judgment and scientific consensus of the project participants, and are available to local planning departments to better protect wetlands through zoning; public agencies to coordinate acquisition efforts; private landowners to improve wetlands on their properties; and to state and federal agencies charged with wetland protection or endangered species recovery.

- **EcoAtlas.** The San Francisco Estuary Institute EcoAtlas maps the distribution and abundance of mudflats, tidal marshlands, diked baylands, and adjoining riparian tree stands, and creates a base map upon which other data about the baylands will be compiled. Based largely on U.S. Fish and Wildlife National Wetlands Inventory maps, the EcoAtlas depicts the distribution and abundance of twelve types of wetland habitats, and represents the most current and complete inventory of wetland habitats in the North Bay for planning purposes.

  In 1998, the Commission converted the *San Francisco Bay Plan* to an electronic format and used the EcoAtlas as the base map and wetlands data layer for the updated Bay Plan maps. Using the EcoAtlas maps in this way enables the Bay Plan to more accurately reflect the extent of wetlands within BCDC's jurisdiction and to ensure regional consistency in shoreline mapping and wetland identification. This project was funded by state general funds.

- **Wetlands Policies.** The *San Francisco Bay Plan* policies on Marshes and Mudflats and Fish and Wildlife have not been updated since the Bay Plan's inception in 1965 and are in need of revision. In light of this need, the Commission included the Bay Plan amendment process for both the Marshes and Mudflats and Fish and Wildlife findings and policies in its general fund work program for FY 1999. In initiating this process, staff soon realized that the treatment of both Marshes and Mudflats and Fish and Wildlife as distinct subjects requiring separate findings and policies did not reflect the interconnected and interdependent nature of the ecology of the San Francisco Estuary. Specifically, the Estuary as an ecological unit extends from the Bay's surrounding watersheds to the Bay's subtidal habitats. Further, scientific understanding and management of the San Francisco Estuary has expanded in such a way that certain subject areas which were left out of the Bay Plan initially can now be addressed under a broader habitat-based approach. New subject areas to be included in the Habitat Bay Plan amendment include invasive species, subtidal habitats, endangered species and wildlife refuges. Additionally, various statutes have been enacted since 1965, such as the federal and state Endangered Species Acts, which must be reflected in the Bay Plan policies as they pertain to the Commission's responsibilities to new legislative mandates.

  An extensive process is underway to pull together the breadth of topics into Bay Plan findings and policies. This process includes writing an in-depth planning policy report, which will provide the underpinning for habitat-based findings and policies; convening reputable scientists to help focus knowledge concerning aquatic habitats, which will then be folded into a subtidal habitats chapter within the report; circulating the draft planning policy report to key

reviewers from the scientific community and resource agencies; providing a series of public hearings in which Commissioners will get a chance to be apprised and ask questions on a variety of Bay resource questions; and eventually presenting the findings and policies to the Commission for their review.

The overall intention of this policy endeavor is to address the Estuary as an ecological unit when assessing the potential impacts created by projects proposed in the Commission's jurisdiction. For example, the Commission is increasingly asked to approve projects, such as sand dredging, in subtidal habitats. In order to make informed and ecologically sound decisions, Commission staff must formulate policies that reflect the true values and functions of Bay habitats, fish, and wildlife. In addition, findings and policies must also reflect the impacts associated with risks as diverse as potential global warming and sea level rise, invasive species and urban encroachment on wetlands. In turn, these policies will help to guide decisions made by Commission staff and Commissioners when presented with proposed projects. Significantly, understanding the Estuary's ecology through scientifically sound policies even extends to the ability of the Commission to assess and approve proposed restoration and mitigation projects in the Commission's jurisdiction.

In 2001, the proposed findings and policies will be brought before the Commission as a proposed Bay Plan amendment in a series of public hearings that will help to shape the final findings and policies, which will then be voted upon and incorporated into the Bay Plan under the heading *Habitat Findings and Policies*, replacing the Marshes and Mudflats and Fish and Wildlife policies.

- **Aquatic Habitat and Species.** The purpose of the Aquatic Habitat and Species element of the Bay Plan Habitat project is to:

  (1) Prepare a planning policy report that identifies, maps and characterizes the aquatic habitats and associated aquatic life in San Francisco Bay.

  (2) Identify the threats to the continued productivity of these habitats and their associated aquatic life species.

  (3) Assess the opportunities and means to improve Bay aquatic habitats in order to create more abundant and diverse aquatic species in the Bay.

  (4) Amend the *San Francisco Bay Plan* to include appropriate findings and policies to guide the Commission in its regulatory actions in a manner that will protect, and wherever possible, improve aquatic habitats and aquatic life species.

**Information Assembly.** Using funding provided by the federal Section 309 grant program, Commission staff conducted an extensive literature search of scientific journals, Internet sites and databases. The search yielded little information about the Bay's aquatic habitats as an ecological system, although some studies examined specific components of the system (such as benthic communities in a tidal marsh, or the habitat requirements of a particular fish species).

Staff also investigated possible mapping sources, including bathymetry, sediment type, and fish habitat maps, but no map was found that adequately characterized aquatic habitats (however, some references suggested that no such mapping is possible, given that each aquatic species may have its own specific habitat consisting of factors such as salinity, ph balance, water chemistry, sediment, etc.).

Based on the literature review, staff identified several areas where information is lacking regarding subtidal habitats, including:

- subtidal habitat classifications and maps;
- connections between indicator species and habitat classifications;
- information regarding protection priorities, opportunities, and mechanisms; and
- information regarding restoration and enhancement needs and mechanisms.

**Draft Report.** Staff used the information obtained in the literature review to begin development of a draft background report characterizing aquatic habitats, electing to use the background report as a chapter in a larger report concerning the Bay's Habitats (an ecologically focused update of the Bay Plan marshes and mudflats and fish and wildlife policies). This report will provide the foundation for habitat-related changes to the Bay Plan's findings and policies. To ensure that the aquatic habitat concerns are addressed, staff worked to integrate aquatic habitat data into the remaining chapters of the report (including chapters on the Bay's habitats, threats, wildlife refuges, and restoration).

**Subtidal Panel.** To overcome the scarcity of the data, staff elected to convene a panel of experts in submerged habitats to discuss the relative values of various submerged habitat types and explore their recommendations for appropriate restoration and protection techniques. The panel also focused on identifying gaps in knowledge that prevent us from satisfactorily understanding and managing submerged habitats. In addition, the panel addressed the question of marine or estuarine sanctuaries, and if such sanctuaries might be needed for particular subtidal species or habitats in the Bay. Staff earlier met with representatives from various agencies (such as the National Marine Fisheries Service, the California Department of Fish and Game, and the U.S. EPA) to solicit their input about the proposed panel questions and panelists. Staff also recruited a moderator for the panel, Professor Robert Twiss from the University of California, Berkeley, Center for Environmental Design and Research. Professor Twiss was the Interim Science Panel Chair for the federal and state CALFED water program.

Staff convened the aquatic habitats panel in September 2000. Panel members included Bob Tasto from the California Department of Fish and Game; Brian Mulvey (National Marine Fisheries Service); Phil Williams (Phil Williams and Associates, hydrogeomorphology consultants); Bill Sydeman (Point Reyes Bird Observatory); Hal Markowitz (Biology Department, San Francisco State University); Bruce Thompson (San Francisco Estuary Institute); Michael McGowan and Wim Kimmerer (Romberg Tiburon Center/San Francisco

State University); Bruce Herbold and Mike Monroe (U.S. EPA); Fred Nichols and John Takekawa (USGS); Sarah Allen (Point Reyes National Seashore); and Paul Siri, with the Bodega Marine Lab, U.C. Berkeley.

The panel discussed the above issues and identified gaps in knowledge that prevent resource managers from satisfactorily understanding and managing submerged habitats. Additionally, the panel addressed the question of marine or estuarine refuges, and if such refuges might be needed for particular subtidal species or habitats in the Bay.

Information from the panel was used to complete the aquatic habitats chapter in the Bay Habitats report, as well as the aquatic-related findings and policies. The draft report will be circulated to appropriate technical experts for comment, and a revised draft circulated for review and comment by the public and interested parties. Commission consideration of the completed Bay Habitats report is scheduled for mid-2001.

- **North Bay Wetlands and Agricultural Protection Program.** A partnership between the Commission and four cities and four counties in the North Bay was funded under Section 309 of the CZMA to develop a wetlands and agriculture protection program for the historical tidelands of the North Bay was initiated by the Commission in 1995. The project area encompassed the largest tract of undeveloped baylands, diked wetlands and surrounding rural uplands in the Bay region. The mission of the program was to (1) provide local governments with the tools and information to ensure the protection, enhancement and restoration of North Bay wetlands; (2) protect agriculture; (3) allow compatible uses to continue, such as recreation and public education, that are consistent with wetlands and agricultural values and functions; and (4) guide incompatible uses to other appropriate locations.

  **Partnership Development and Steering Committee.** BCDC staff met with the staffs of the participating local governments as well as individuals and interest groups both at the outset of the program and on an ongoing basis to ensure that local issues and concerns are reflected in the North Bay planning process. Elected representatives from each of the eight local governments and the Commission comprised the North Bay Steering Committee, which provided policy guidance and program direction for the North Bay Wetlands Protection Program. The committee conducted public meetings to consider staff background reports and to ensure that public comments and concerns were incorporated in the protection program. To further coordinate this planning effort, the Commission staff worked closely with the planning staffs of the local governments to identify issues and develop implementation options for local application.

  **Wetlands Database and GIS.** In developing the data and mapping information for the North Bay Wetlands Protection Program, BCDC staff undertook its first use of a computer geographic information system (GIS). Staff worked with the University of California, Berkeley's Research Program in Environmental Planning and Geographic Information Systems (REGIS), GIS housed at the University's Center for Environmental Design and Research, furnishing REGIS with land use data developed by the staff as well as with wetlands data from the preliminary San Francisco Bay Area EcoAtlas compiled by the San

Francisco Estuary Institute (SFEI). The EcoAtlas maps the distribution and abundance of twelve types of wetland habitats, and represents the most current and complete inventory of wetland habitats in the North Bay.

Completion of this task represents a major accomplishment and a significant advance for regional planning in the Bay Area. The baseline data on land use, general plan designations, zoning designations, current wetlands restoration projects, and major public ownership now available on GIS over the Internet through the North Bay Program provides the opportunity for future assessments of the cumulative impacts of land use changes on estuarine resources, such as wetlands and riparian corridors. The methodology and framework established through the North Bay Program may provide an important model that can be used by BCDC to improve its protection of other areas of San Francisco Bay.

**Background Reports.** A number of background reports were developed for the program. Based upon an analysis of the data compiled through the mapping activities, *North Bay Land Use and Public Ownership* inventoried the status of land use in the North Bay, and further provided planning policy conclusions. The report was widely circulated and approved by the Steering Committee in September 1996. A report and findings and policies on *Wetlands in the North Bay Planning Area* was approved in February 1997. Four additional staff reports were completed, including reports that address polluted runoff, riparian corridor protection, agricultural uses, and implementation strategies. Together these reports provide a much needed regional picture of the North Bay, its natural resources and current land use patterns, its protection status and tools for local governments to assess the location and value of former tidal wetlands in the North Bay and protect these locally and regionally valuable resources. This regional picture provides invaluable data and a firm foundation for future protection efforts. The reports also emphasize innovative techniques that each city and county has used to protect its resources, thus serving as a forum for technology transfer among the North Bay jurisdictions.

**Distribution of the EcoAtlas.** During the planning process the BCDC staff facilitated the transfer of the digital and hardcopy of the EcoAtlas to the participating local governments, and provided technical assistance to help planners integrate the EcoAtlas into their general plans, zoning, and advanced planning strategies. As described above, the EcoAtlas, prepared by the San Francisco Estuary Institute, identifies wetlands and associated biological habitats at a regional scale. The local governments chose to use the EcoAtlas in a variety of innovative ways, including (1) preparation of a pre-application wetlands protection handbook for developers; (2) providing the basis for new wetlands or Bayfront protection zones or general plan policies, and (3) providing a first-cut demarcation line for sensitive resources, thus aiding in advance planning efforts. Marin County incorporated the EcoAtlas into its General Plan and included EcoAtlas as a data layer in the countywide Marin Map project utilized by the County, cities and special districts in Marin County. The staff also prepared a model stream protection ordinance that was used by local governments as a basis for stream protection policies and ordinances.

**Proposal Input and Environmental Impact Report Review.** Over the course of the program the BCDC staff provided input on a wide range of North Bay proposals, including specific development plans, zoning and general plan change proposals, and more. This input helped local government staff integrate regional concerns and data from the background reports into the consideration of these projects.

**Meeting the Goals of the North Bay Program.** The North Bay Program succeeded in developing and transferring new tools to local government to better protect wetlands in the North Bay and tributary creeks and streams and their riparian zones. A key objective of the North Bay program was to provide local governments with the tools and information to ensure the protection, restoration and enhancement of wetlands. In other words, the transfer of information and technology to local governments to enable them to incorporate wetland protection into their planning and public policy setting process. This transfer was arguably most important in the areas adjacent to existing urban areas and in the path of urban development.

The Highway 101 corridor in Marin County was of particular concern. The EcoAtlas identified the wetlands and wetland-related areas agreed to by the state and federal resource agencies. Marin County incorporated the EcoAtlas into its General Plan and took the EcoAtlas one step further by contracting with the San Francisco Estuary Institute (the developer of the EcoAtlas)to develop and digitally map a buffer zone around the wetland perimeter to use in its land use planning and control process. The County then linked the area identified in the EcoAtlas to the County's Baylands protection zone to create a comprehensive wetlands protection zoning district consistent with the wetland area identified in the EcoAtlas.

The City of San Rafael used the EcoAtlas to modify the proposed specific plan for a significant development project in its sphere of influence that prior to the incorporation of the EcoAtlas into that planning process, had designated wetland and wetland-related areas for development. The modified specific plan eliminated the wetland areas from planned development.

The City of Novato, using the EcoAtlas and the findings and policies of the wetlands report developed its own baylands protection district which was consistent with that adopted by Marin County to create a uniform city/county baylands wetlands protection zone. In addition, the City of Novato, using information and the model stream protection ordinance drafted by staff as part of the North Bay Program, adopted a new stream protection ordinance as part of its General Plan and zoning code revision.

Along the Highway 37 and Highway 29 urban growth corridor in Solano County, the City of Vallejo amended its General Plan and zoning ordinance changing the designation of the wetland area along the Napa River in and near White Slough from urban use to natural resource protection and the County of Solano changed its zoning of its jurisdiction in the area from agricultural use (which would allow for some kinds of urban development) to a marsh protection zone.

In addition, the Program found that existing local government land use planning for agriculture use and zoning controls was appropriate to protect agriculture and that agricultural use and wetland protection were in the North Bay were consistent. One notable exception was the agricultural use designation in Marin County, which would allow one residential unit per two acres. However, the agriculturally zoned areas were also in the County's Baylands protection district, which protected the wetlands areas but would permit the clustering of residential units in areas that did not impact wetlands. However, the California Coastal Conservancy purchased the last remaining large diked wetland parcel in the County's planning area for wetlands protection and restoration.

**Wetlands Restoration**

- **Hamilton Field.** The Commission staff has been acting as co-project manager for a wetlands restoration project at the Hamilton Army Airfield in Marin County, along with the Coastal Conservancy and the U.S. Army Corps of Engineers. The closed military base presents a unique opportunity to demonstrate the beneficial reuse of over ten million cubic yards of dredged material to restore a diverse mix of tidal and seasonal wetlands. The restored wetlands will provide habitat for endangered and special status species, waterfowl using the Pacific flyway, provide a nursery for anadramous and resident fish species, and contribute to restoring and ensuring the health of San Francisco Bay. The Conservancy and the Commission completed a conceptual plan and an EIR/EIS for the project. Subsequently the agencies worked with the Corps to prepare a feasibility study that led to Congressional authorization of a $45 million federal project to restore Hamilton. The 1999-2000 state budget included the approximately $14 million state share of the construction cost and the FY 2000-20001 federal budget included a $2 million appropriation to complete final design and initiate construction.

  The Commission staff is now working closely with the Conservancy and the Corps to prepare and manage technical planning studies and participate in outreach efforts to implement restoration of this area. The Commission is providing its expertise in dredging and dredged material reuse, particularly as it relates to the use of dredged material as part of wetland restoration projects. The Commission also will coordinate these efforts with the LTMS program.

- **San Francisco Bay Area Conservancy Program.** The 1996 Assessment identified as an opportunity to improve its program the establishment of a "Bay Trust" that would work to acquire, manage, and enhance Bay natural resources. As envisioned, it would entail a partnership with the Coastal Conservancy. Legislation was passed in 1997 that established within the Conservancy a new San Francisco Bay Area program. Through the new program, the Conservancy is not only involved in wetland restoration, resource enhancement and public access projects around the Bay shoreline, but is also authorized to do open space, parks, educational centers, campgrounds and other types of open space, recreation, access and natural resource projects anywhere in the nine Bay Area counties. The Conservancy consults with land trusts, local governments and agencies including BCDC in determining what projects to fund. BCDC staff involvement is accomplished through state general funding.

The Bay Area Conservancy supports projects throughout the nine-county Bay Area. Notable projects within the Commission's purview include acquisition of the 1,613-acre Bel Marin Keys property adjacent Hamilton Airfield, which was accomplished using $3 million of Bay Conservancy funding. The combined properties comprise 2,600 acres of diked baylands that will be restored to tidal wetland. The Bay Area Conservancy also has supported the wetland restoration and enhancement goals of the San Francisco Bay Joint Venture (discussed below). The Conservancy works to restore and enhance managed wetlands and associated uplands for the benefit of waterfowl and other wetland-dependent species in the Suisun Marsh. Additionally, a number of public access projects around the Bay shoreline are supported by the Conservancy program.

- **Joint Venture.** The San Francisco Bay Joint Venture is an outgrowth of the North American Waterfowl Management Plan, an agreement finalized in 1994 among Canada, the United States and Mexico to foster public-private partnerships to increase waterfowl population to 1970 levels. San Francisco Bay is designated as one of 34 "Waterfowl Habitat Areas of Major Concern" in Canada and the U.S. The Plan calls for the formation of cooperative associations between federal and state agencies and non-government organizations to collaborate in the planning, funding and implementation of the restoration and enhancement of wetland ecosystems.

  The concept of a joint venture also was envisioned as a means to implement the *Comprehensive Conservation and Management Plan* (CCMP) for San Francisco Bay, an integrated estuary plan developed over five years by a consortium of 42 signatory agencies and organizations. The CCMP called for the formation of a joint venture to increase the acreage of wetlands protected in the Estuary.

  The Commission was a signatory agency of the CCMP and is a member of the Joint Venture, which was involved in 20 wetland protection, restoration or enhancement projects in the Bay Area between July 1996 and March 1999, totaling 7,812 acres. Acquisition efforts during the same period protected an additional 2,340 acres. BCDC staff participation is supported by state general funding.

- **BAWPG.** The California Resources Agency designated the Bay Area Wetlands Planning Group (BAWPG) as the lead in developing a plan to improve regional wetlands planning and regulation for the Bay Area. The BAWPG includes representatives of the state and federal resource and regulatory agencies involved in wetland issues who meet regularly to consider how best to enhance and restore the Bay's wetland areas and to coordinate related projects with the recommendations of the Habitat Goals Project. The Commission is an active member of BAWPG. BCDC staff participation is supported by the state general budget.

- **San Francisco Bay Project.** In 1995, the National Oceanic and Atmospheric Administration initiated a program to provide technology, data developed by NOAA's National Ocean Service (NOS) and expert assistance from NOAA staff to provide new and better tools to manage coastal resources and maritime shipping. NOAA chose San Francisco Bay as one of two regions in the

country to demonstrate how the technology can assist agencies such as the Commission. The Commission is assisting NOAA in carrying out the program, which includes improved maritime navigation and computerized shoreline maps (T-sheets) with greatly improved "real time" data on tides and currents (PORTS). In partnership with the Commission, NOS developed color aerial photography for the Bay, which the Commission has made available to interested parties.

**Priority Objectives to Improve BCDC's Wetlands Program.** The Commission should expand protection of the Bay's wetlands and foster wetland restoration programs through refining its Bay Plan policies, such as by addressing:

- **Mitigation, Salt Ponds and Managed Wetlands Policies.** As part of its effort to develop and implement a comprehensive program for the use and restoration of Bay resources, the Commission directed staff to evaluate whether the Commission's mitigation policies should be revised to implement the goals being established through the Habitat Goals Project sponsored by U.S. EPA, U.S. Fish and Wildlife Service, California Department of Fish and Game, the Regional Water Quality Control Board, California EPA, the State Resources Agency, and the Commission. Completed in 1999, the Goals Project provided significant new information for the Commission's review and update of its marshes and mudflats policies (as discussed above) and will inform the update of its salt pond and managed wetlands policies. Additionally, the Commission needs to update its mitigation policies, particularly in light of anticipated development projects that will involve large amounts of Bay fill, incorporating the conclusions and recommendations of the Goals Project where appropriate.

- **Aquatic Habitats.** Bay Area decision-makers are increasingly asked to make decisions that affect subtidal habitats. These include decisions on the relative importance of subtidal habitats (e.g., do we need more shallow water versus deep water habitats?); on appropriate restoration techniques (should shallow water habitats be restored with dredged materials or by returning areas diked from the Bay to tidal action?); and on the appropriateness of large-scale fill for subtidal habitat improvement.

  However, no compilation of information exists for aquatic (shallow and deep water) habitats in the Bay, leaving policymakers without a fully satisfactory basis for decision making. No comprehensive inventory exists of the types, components, locations, and characteristics of aquatic habitats in the Bay. Nor is there a full understanding of the threats to these habitats; the relative importance of each subtype of habitat in comparison to others; or techniques to protect or preserve these resources. Various components of aquatic habitat quality (such as water quality or freshwater inflow) have been addressed individually, but not from a strategic, habitat-based perspective.

  Although BCDC has assembled existing information in its work on the Bay Plan subtidal habitat and species policies, further work remains to be done. With appropriate resources, BCDC could institute a planning process for the subtidal habitats to establish a comprehensive vision for the restoration, enhancement, and protection of these subtidal resources. This project would be a companion to the Habitat Goals Project—which systematically inventoried wetlands and developed a picture of what restoration is necessary to help ensure the health of

the Bay—and would enlist the assistance of relevant scientists to ensure that a breadth of information on Bay habitats is compiled and assessed in a manner that allows agencies, such as BCDC, to make sound public policy decisions concerning subtidal habitats.

Included in this new Subtidal Goals Project should be a concerted effort to address the value of using Marine Protected Areas as a tool to protect sensitive subtidal habitats and species in San Francisco Bay. Critical to this effort would be a consensus among scientists, similar to the Habitat Goals Project, as to where Marine Protected Areas should be established to promote the protection and potential restoration of at-risk or severely degraded subtidal habitats. Additionally, recent scientific studies are demonstrating both the decline in fisheries and the value of Marine Protected Areas in fostering the stabilization of populations of species at risk of extinction. Addressing the need for Marine Protected Areas in the Bay would be invaluable at a time when the federal government is striving to inventory, establish and promote the expansion of Marine Protected Areas. (See Special Area Management Planning for further discussion of Marine Protected Areas.)

**Additional Opportunities to Improve BCDC's Wetlands Program**

- **Assess Impacts to Wetlands Created by Change in BCDC's Bay Jurisdiction.** In 1994, the California Court of Appeal held in *Littoral Development Co. v. San Francisco Bay Conservation and Development Commission* that the upper limit of the Commission's "bay" jurisdiction extends only to the mean high tide line in areas that do not consist of tidal marsh and to five feet above mean sea level in areas that do consist of tidal marsh. This decision also applies to the upper limit of the Commission's certain waterways jurisdiction because the same statutory language applies. The Court overruled the Commission's existing regulation that interpreted the Commission's "bay" and "certain waterways" jurisdiction as extending inland to any area touched at any time by tidal waters at any stage of the tide since the Commission was established on September 17, 1965. The Commission referred to the upland boundary of this earlier interpretation of its jurisdiction as "the line of highest tidal action." The *Littoral* decision also indirectly affected the extent of the Commission's shoreline band jurisdiction because that jurisdiction begins at the upper limit of the Commission's Bay jurisdiction and extends 100 feet inland. In 1995, the Commission amended its regulations to implement the Court of Appeals decision.

  Under the Commission's earlier interpretation of the upland extent of its Bay and certain waterways jurisdictions, the Commission's Bay and certain waterways jurisdictions extended further inland than they extend under the Court of Appeal's decision and the Commission's current regulations. The extent to which the Commission's jurisdiction under the prior interpretation differs from the Commission's current interpretation of its jurisdiction depends on the difference between the elevations determined by the two rules and the slope of the shoreline in the area in question. At the times when the highest tides occur, the daily high tide inundates a large area above the mean high tide line in certain areas

around the Bay. This area is now excluded from the legal definition of the Commission's Bay and certain waterways jurisdictions in areas of non-tidal marsh. Even in areas of tidal marsh, it is possible that the area above five feet above mean sea level, which is now excluded from the Commission's Bay and certain waterways jurisdictions, could be inundated at very high tides.

The *Littoral* decision also creates additional problems for determining the Commission's jurisdiction because tidal data for the mean high tide line and five feet above mean sea level are available only for certain specified locations around the Bay edge. These numbers are contained in tidal datum sheets prepared by the National Ocean Service of the National Oceanic and Atmospheric Administration. Most if not all of these locations exist in areas of open water shoreline, and the tidal data are based on continuous tidal measurements at a very few permanent tide gauges and measurement over limited periods of time at a much larger number of temporary tide gauges. For open water areas other than the locations of the tidal datum sheets, interpolation between the two nearest points with tidal data works well.

However, some of the Commission's jurisdictional determinations involve areas further up sloughs or other narrow tidal channels or behind dikes in areas of muted tidal action through narrow openings in dikes or levees. Tidal data for these areas based on tidal datum sheets for relatively nearby open water areas may not be accurate.

The environmental and regulatory significance of the impact of the *Littoral* decision derives from the fact that the Commission has substantially greater authority over regulated activities that occur within San Francisco Bay or within a named certain waterway that BCDC has over regulated activities that occur within the Commission's shoreline band jurisdiction. Activities that occur within the Commission's Bay or certain waterways jurisdictions must be consistent with a series of specific policies that are very restrictive in their application and are intended to protect the Bay and Bay-related resources. Among these policies are that the placement of any fill must be for a water-oriented purpose, the amount of such fill must be the minimum necessary to achieve the purpose of the fill, no upland alternative location can exist that would achieve the purpose of the fill, and all fill must be appropriately mitigated before the Commission can authorize the placement of fill. The McAteer-Petris Act also defines "fill" very broadly so that it includes solid fill, pile-supported fill, and some forms of floating fill. In short, a much more restrictive and protective policy network exists to regulate activities in the Bay or a certain waterway than in the shoreline band.

No complete or partial surveys of the Bay's shoreline have been conducted to determine the actual locations of the earlier line of highest tidal action or the current upland limit of the Commission's Bay and certain waterways jurisdiction. Moreover, no survey of the areas that were located in the Commission's Bay or certain waterways jurisdictions prior to the *Littoral* decision but now excluded has been conducted to determine the quality and quantity of Bay-related resources that might no longer be adequately protected.

To better understand the area of Bay resources impacted by the Littoral decision, accurate measurements of the mean high water line at specific demonstration sites around the Bay could be made by using global positioning system (GPS) technology.

Such data could inform the Commission as to the increased potential for impacts to Bay resources created by the Littoral decision, as well as assist in making jurisdictional determinations. Additionally, project applicants would benefit from the Commission's ability to determine the elevation of a particular location. As part of its shoreline mapping responsibilities, NOS will delineate an accurate mean high water line and also will instruct BCDC, the regulated community, and local surveyors on how to locate the mean high water line by using GPS.

NOS has used its T-Sheet (shoreline map) data to develop an information base that can be used to analyze and model changes in the ecology of the Bay. Data collected by NOS can be used in GIS to recreate the historical location of the Bay's shoreline, land use, and threats to resources. By accessing the information available through NOS, the Commission can incorporate into its system historical and contemporary data on the Bay and its resources, and thereby track the effects of development on Bay wetlands. The NOS information can aid BCDC in identifying wetlands, local sources of pollution, and provide other data critical for resource protection. Additionally, NOS hydrographic, current, and water level information can assist in planning sustainable dredging operations. Information derived from NOS photogrammetry and accurate positioning technology can help the Commission to identify vulnerable coastal resources as well as potential dredge disposal and reuse sites.

Using information developed by the Habitat Goals Project, and incorporating data from the NOS project, the Commission could expand on the methodology created for the North Bay Wetlands and Agricultural Protection Program to assess the potential impacts to wetlands throughout the Bay from the Court's redefining the Commission's Bay jurisdiction.

### Cumulative and Secondary Impacts

Program objectives address the need for development and adoption of procedures to assess, consider and control cumulative and secondary impacts of coastal growth and development, including the collective effect of various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources.

**Background.** Comprised of 28 receiving watersheds (based on research by BCDC with the University of California, Berkeley, Center for Environmental Design), the San Francisco estuary includes the lands and waters within the boundaries of the immediate San Francisco Bay watershed, Suisun Marsh and the Sacramento-San Joaquin Delta. The estuary drains 60,000 square miles, or more than 40 percent of the state. Inland activities play an important role in maintaining the Bay's resources and will increase in significance with population growth and urban development. The many beneficial uses of San Francisco Bay depend on the quality of its waters, and impacts within each segment of the region can affect the health of the estuary in its entirety. Programs that address land use issues throughout the region are necessary if the Bay's beneficial uses are to continue and flourish.

| Area | CSI Threats |
|---|---|
| San Francisco waterfront: Fisherman's Wharf Area | Development: potential Bay fill; impacts to public access |
| Oakland waterfront | Development: impacts to public access |
| South San Francisco | Airport development: large Bay fill |

**Growth and Development.** State population growth, coupled with development of lands within the Bay-Delta region and beyond, create a variety of adverse impacts on the estuary's environment. Loss of wetlands and other habitats, pressures to fill the Bay, daily inputs of pollutants, and increased diversion of fresh water flow and altered flow regimes, result from activities related to population growth. Impacts to wetlands and program efforts to address them are discussed in the Wetlands section of this assessment.

By reserving areas for uses that have a demonstrated need to be sited along the Bay and not releasing the entire shoreline for unrestricted development, the Commission averts pressures to fill the Bay for water-oriented uses once shoreline sites have been depleted. Permits for development proposed within these priority use boundary areas are granted or denied based on the appropriate Bay Plan policies that pertain to ports, water-related industry, water-oriented recreation, airports and wildlife areas.

With increased population comes heightened demand for development along the Bay as well as for greater access to the Bay and its shoreline. The important role of the Commission in maintaining the scenic and recreational qualities of the Bay and shoreline is reflected in its authority over the 100-foot shoreline band in assuring the public access to the Bay wherever feasible—thus the requirement of new development in and along the Bay to provide the maximum amount of public access that is compatible with a proposed project. The policy works to supplement access provided by parks, fishing piers and marinas in order to open as much of the Bay and shoreline as possible to the public.

The title to the tide lands, submerged lands and tidewaters of San Francisco Bay and its tributaries, and living resources inhabiting these waters, is held by the State in trust for the benefit of the public. This property right establishes the right of the public to use and enjoy these trust waters, lands and resources for a wide variety of recognized public uses including navigation, commerce, natural resources and recreation. The State Lands Commission is the California agency with direct responsibility for exercising the public trust. BCDC, in its planning and regulatory functions, also exercises the public trust within the Commission's jurisdiction.

**Water Quality.** Water quality programs initiated in the 1960s and 1970s reduced sewage treatment and industrial discharges into San Francisco Bay, so that today the major source of pollution in San Francisco Bay is urban and non-urban runoff or polluted runoff (nonpoint source pollution). Over the next 20 years, the Bay

Area will become home to more than 8 million people, a 16 percent increase over the current population. With increasing population, additional impervious urban land surfaces will be developed, accelerating the runoff of elevated levels of pollutants into San Francisco Bay.

The Bay Plan recognizes the importance of maintaining water quality in San Francisco Bay at levels sufficient to protect the beneficial uses of the Bay and its resources. A number of policies are applicable to this end, particularly those addressed in the Water Quality, Fresh Water Inflow and Dredging sections of the Bay Plan. The policies, decisions, and authority of the State Water Resources Control Board and the Regional Water Quality Control Board provide the basis for the water quality responsibilities of the Commission. The Commission works closely with the Regional Board in its permitting process to further Bay water quality efforts.

**Fresh Water Diversion.** Over the past forty-five years, the operation of large agricultural and urban water projects such as the federal Central Valley and the State Water Projects has drastically altered the natural drainage pattern of the Central Valley. In addition to increasing pollutant loading to the estuary from agricultural runoff, the annual diversion of the fresh water supply from the Bay and Delta affects water circulation and habitat conditions in the estuary. Salinity levels, critical to the composition and abundance of Bay organisms, are controlled by fresh water inflow.

Bay Plan policies support adequate fresh water inflow by including the following provisions: (1) diversions of fresh water should not reduce the inflow into the Bay to the point of damaging the oxygen content of the Bay, the flushing of the Bay, or the ability of the Bay to support existing wildlife; (2) high priority should be given to the preservation of Suisun Marsh through adequate protective measures including maintenance of fresh water inflows; and (3) the impact of diversions of fresh water inflow into the Bay should be monitored by the State Water Resources Control Board, which should set standards to restore historical levels of fish and wildlife resources. The Commission should cooperate with the State Board and others to maintain adequate fresh water inflows to protect the Bay.

**Sedimentation and Dredging.** Each spring, the tributaries of the San Francisco Bay deposit fresh water laden with silt, sand, and clay sediment into the shallow Bay. Six to eight million cubic yards of material must be dredged from the Bay each year for the safe maintenance of harbors and navigation and flood control channels that contribute to more than $5.4 billion of economic activity annually.

BCDC regulates dredging and disposal of dredged material in the Bay, and has the dual mission of protecting the Bay's natural resources while fostering appropriate use of the Bay for maritime commerce and recreational boating. In reviewing permits for dredging and disposal of dredged materials, BCDC requires that a need for the activity to serve a water-oriented use or other important public purpose be demonstrated; that materials meet water quality requirements of the Regional Water Board; and that important fisheries and

natural resources be protected. Whenever possible, disposal must take place in non-tidal areas where beneficial uses of the dredged materials can be realized, or in designated ocean sites. Disposal of dredged materials in the Bay is allowed at sites designated by the Commission and the U.S. Army Corps of Engineers only when non-tidal and ocean disposal have proven infeasible.

BCDC joined with other agencies in a cooperative arrangement to formulate a Long Term Management Strategy for dredging and dredged material disposal (LTMS). The LTMS will serve as a comprehensive dredging and disposal management plan and implementation program. BCDC is responsible for the study of upland disposal of dredged material, with emphasis on the use of dredged material as a resource. The Corps of Engineers is responsible for overall management of the LTMS. The LTMS provides uniform federal and state dredged material disposal policies and regulations, and serves as the basis for recent amendments to the Bay Plan dredging policies.

**Conclusions of Previous Assessment.** BCDC was formed to address the cumulative impacts of Bay filling that was being undertaken to accommodate unrestricted growth. Inland development activities continue to generate pressure to place Bay fill and increase demands for public access to the Bay. To better address impacts of growth and development, the Commission should continue to pursue partnerships with other interested parties and agencies to further programs designed to reduce threats to Bay water quality and natural resources. To relieve the pressure for disposal of dredged material in the Bay, and to foster beneficial uses of these sediments, the Commission should continue its work with other interested agencies and organizations in the Long Term Management Strategy (LTMS) to better manage dredging and dredged material disposal activity in the Bay. The Commission should facilitate dredging projects by working with other relevant agencies to coordinate permitting of these activities and the proper disposal of dredged materials. The Commission should join with other efforts to coordinate habitat restoration planning and implementation thereby contributing to the enhancement of natural resources lost as a result of growth and development in the San Francisco Bay Area.

### Changes in BCDC's Cumulative Impacts Program since Previous Assessment

**Dredging.** BCDC has committed substantial resources to explore ways to accommodate dredging activity needed to maintain the Bay Area's maritime economy in a manner that will protect the Bay's environmental resources. Efforts have focused on continued involvement in the LTMS dredging program and working with dredgers, legislators, and environmentalists to foster the use of dredged materials as a resource. The dredging program continues to be one of the Commission's highest priorities. Commission staff participation is currently supported by state general funding.

- **Dredging Management.** BCDC has continued to work with the U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, the State Water Resources Control Board, and San Francisco Bay Regional Water Quality Control Board, to complete the LTMS and prepare a Management Plan for its implementation. As part of the LTMS development, the Commission staff completed a number of analyses and tasks related to dredging and dredged material disposal and beneficial reuse, and, in 1998, the final policy EIS and programmatic EIR on the LTMS was completed which included the new

management strategy for the region. In June 2000, the Draft LTMS Management Plan was issued which presented the specific mechanisms for reducing in-Bay disposal of dredged material over time and increasing both the beneficial use of material and disposal at the federally-designated deep ocean disposal site.

- **Bay Plan Amendment and Regulation Changes.** In December 2000, the Commission amended the *San Francisco Bay Plan* findings, policies and maps, and its implementing regulations as they relate to dredging activities and the disposal and beneficial use of dredged material in the Bay Area. These changes will provide the Commission with the policy basis necessary for continuing its work in the LTMS program and to implement the new dredging and disposal management strategy for the region through its regulatory process.
- **Project Review.** Permits are needed from a number of state agencies and the U.S. Army Corps of Engineers to dredge and/or dispose of material in San Francisco Bay. Additionally, the U.S. EPA has oversight for disposal in the Bay and permitting authority for disposal in the ocean. Historically, applicants had to fill out separate permit applications that were processed sequentially by the various agencies. However, the Commission worked with the other agencies that regulate dredging to establish a joint-agency office to coordinate permit processing and to create a single application form.

  In 1996, the Commission, with the Regional Water Quality Control Board, the State Lands Commission, the Corps of Engineers, and the U.S. EPA, initiated the pilot Dredged Material Management Office (DMMO) to process cooperatively applications for permits to dredge or dispose of dredged material in San Francisco Bay. The DMMO applicants are now able to complete one application form for use by all the Bay regulatory agencies and have it processed jointly by the agencies. Other agencies with expertise regarding Bay resources, including the National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department of Fish and Game, also participate in reviewing permits and provide their advice to the DMMO member agencies. The Commission has continued its work as a member of the DMMO and, in light of its effectiveness, the member agencies have started to take the necessary steps to formalize the DMMO.

**CALFED.** The CALFED Bay-Delta Program is a federal-state partnership to develop an integrated system to better manage the natural and economic resources of San Francisco Bay and the Sacramento-San Joaquin River Delta. This cooperative effort was established in June 1994 and pledges the state Department of Fish and Game, Department of Water Resources, and the State Water Resources Control Board, with the U.S. EPA, Fish and Wildlife Service, Bureau of Reclamation, and the National Marine Fisheries Service, to work together in three areas of Bay-Delta management: (1) water quality standards development; (2) State Water Project and federal Central Valley Project operations coordination; and (3) development of long-term solutions to Bay-Delta estuary resource problems.

The Bay-Delta Advisory Council—comprised of 30 citizens appointed to represent California's agricultural, environmental, urban, business, and fishing interests—advises CALFED on its mission, the issues it should address, and its objectives. CALFED has established a three step process for carrying out its mandate: (1) problem definition and a range of alternative solutions; (2) state and federal environmental documents to identify the impacts of each alternative solution; and (3) final environmental documentation of the impacts of the selected alternative. Urban and agricultural water users, sport and commercial fishing interests, environmental and business organizations, other interested organizations, and the general public are actively involved in the CALFED program.

The Commission followed the CALFED program closely and commented as part of the public review process on the environmental documentation prepared for the CALFED Bay-Delta program. In November of 2000, the Commission processed and approved a federal consistency determination for the CALFED program. The Commission and the Coastal Conservancy also jointly applied for and received a $1 million CALFED Ecosystem Restoration Project grant for the Hamilton Wetlands Restoration Project and Commission staff have been working with CALFED staff on dredged material beneficial reuse projects in the Suisun Marsh and Sacramento-San Joaquin Delta Island levees. The Commission will continue its work with CALFED and likely will be processing permits and consistency determination applications for projects needed to implement the CALFED program within the Commission's jurisdiction.

**Polluted Runoff.** As part of the assessment process, BCDC is evaluating its role in addressing nonpoint source pollution, or polluted runoff, in San Francisco Bay. This is in accordance with the memorandum from the Secretaries of the California Environmental Protection Agency and Resources Agency to agencies under their purview. The memorandum calls for developing a five year plan with appropriate actions to implement management measures for which BCDC has authority and resources and are targeted in the first Five Year Implementation Plan of California's Nonpoint Source Pollution Control Program (Program Plan), and designating a lead staff person for coordinating with the State Water Resources Control Board and the California Coastal Commission on nonpoint source issues. Other actions described in the memorandum include ensuring that any actions BCDC takes to implement the Program Plan are tracked, monitored, assessed and reported to the State Water Resources Control Board and the California Coastal Commission, and considering the need to establish or revise formal agreements with the State Water Resources Control Board and the California Coastal Commission.

As called for in the memorandum, a lead staff member has been designated for this program, supported by state general funds. In addition, staff has conducted an analysis of the 61 management measures in the Program Plan and their relationship to the Commission's authority. Based on this analysis, a draft Five Year Plan has been developed appropriate to the Commission's resources and authorities. Staff also evaluated existing permit conditions regarding polluted runoff; runoff-related Bay Plan policies and polluted runoff-related planning efforts; select local governments and their polluted runoff mechanisms; BCDC's existing Memorandum of Understanding with the Regional Water Quality Control Board, which designates the Board as the lead agency in the Bay

regarding polluted runoff issues; and relevant management measures. The draft plan provides a succinct review of BCDC's current polluted runoff authority and strategy, identifies gaps in the strategy and proposes recommendations to address them.

**Planning Partnerships.** The Commission remains committed to establishing working relationships with appropriate agencies and organizations to provide effective planning and regulatory efforts on behalf of San Francisco Bay.

- **Boating Clean and Green Campaign.** BCDC continues to partner with the California Coastal Commission (CCC) on the Boating Clean and Green Campaign to inform the boating community throughout the state of strategies and means to reduce pollution of the state's waterways by boating activities, and to develop uniform policies for prevention of boating-related pollution within the California coastal zone. In FY99-00, BCDC and the CCC designed their joint program to: (1) raise the awareness among boaters, marina and boat yard operators of the environmental and economic impacts of pollution, and applicable pollution prevention laws; (2) increase the use of marina and recreational boating management measures and best management practices; (3) increase the availability of convenient pollution prevention services for boaters; and (4) increase the local enforcement of pollution laws in marinas and on the water.

  In FY00-01, BCDC and the CCC will carry out the following specific tasks:

  b. Increase education and outreach by partnering with local agencies, nonprofits, and others and providing the coordination and support needed. BCDC will assist the CCC in developing and organizing media and print outreach materials.

  - Coordinate and staff boating outreach events, track facilities and report on performance, and maintain web site.

  BCDC will assist the CCC in updating and developing detailed technical "Best Management Practices" (BMP) manuals for marinas for pollution prevention. BCDC also will coordinate with the CCC in developing additional appropriate clean boating guidelines or policies for pollution prevention. A combination of grant funding from the California State Waste Management Board and state general funding will support BCDC participation in this program.

- **Regional Collaboration Strategy.** In December 1999, the Commission adopted a Regional Collaboration Strategy as a step toward fulfilling its goal to work collaboratively with others to achieve an effective, efficient baywide planning and regulatory program. The strategy was developed by a task force made up of commissioners and the Chair of the Commission Citizens' Advisory Committee. As part of its charge, the task force surveyed other agencies and organizations regarding their interest in working with BCDC on issues of common interest. The task force also held a series of meetings during which it determined the issues it would recommend the Commission address through regional collaborative efforts and what strategies should be employed in these efforts.

The task force found a number of issues that could be effectively addressed through collaborations with other agencies, and while there are examples where the Commission has successfully worked with other agencies to achieve common goals—such as working with the California Coastal Conservancy, the U.S. Army Corps of Engineers and Bay dredgers to secure federal and state funding to restore wetlands at the former Hamilton Airfield—a greater number of priority areas require resources either on the part of the Commission or the potential partners that preclude collaborative initiatives during the current or upcoming fiscal year. Such a case involves developing with the Army Corps a detailed program that would enable the Corps and BCDC to work together more effectively on the issues of restoration, permit streamlining, sustainable development, toxic cleanup and transportation.

- **Regional Agencies Smart Growth Strategy**. In July 2000, the Commission joined the other regional agencies—the Association of Bay Area Governments, the Metropolitan Transportation Commission and the Bay Area Air Quality Management District—and partners from the business and environmental communities, to develop alternative regional growth strategies for the Bay Area. A member of the Commission has been appointed to represent BCDC on the regional agencies group in seeking to foster support among public officials, civic leaders and stakeholder groups as to preferred land use patterns designed to accommodate regional population and job growth over the next 20 years, while preserving—and enhancing—the natural environment.

  Beginning in October 2000, the Commission was provided technical assistance from NOAA to undertake planning for sustainable development in the region. Under a two-year partnership, a NOAA representative will coordinate with and represent the interests of NOAA and BCDC in discussions with partner organizations in developing policies conducive to "smart growth" in the Bay Area. In addition to providing technological assistance, including current data and data tools, NOAA will coordinate with other relevant federal agencies, including the U.S. Geological Survey, and assist in other aspects of the project as they arise.

- **Joint Aquatic Resource Permit Application.** As part of its continuing efforts to experiment in ways to streamline the permit process, in May 2000, the Commission authorized the BCDC staff to allow permit applicants to use the Joint Aquatic Resource Permit Application, or JARPA, on a voluntary basis for one year to test its effectiveness in providing adequate information to regulatory agencies using a single combined form, while simplifying the permit process for applicants.

- **CCRISP.** The California Continuing Resource Investment Strategy Project (CCRISP) is a statewide cooperative, comprehensive planning effort to develop a set of policy and strategy recommendations on protecting California's diverse biological and natural resources, through conserving, restoring, and enhancing stewardship of our natural and working landscapes. In order to support this planning effort, a statewide GIS will be developed to inform the decision making process.

The state's Resources Agency anticipates that it will take approximately six years to adequately define, plan, expand, and update data and strategies for the state. Currently, the project is in the early stages of partner and stakeholder scoping, which will continue through spring 2001. It is expected that the Commission, along with the other resource agencies and local governments in the Bay Area, will have a significant role in both evaluating the quality and availability of resource data and in defining conservation priorities for the Bay region.

**Update Bay Plan.** The Commission is charged with keeping the *San Francisco Bay Plan* current to reflect contemporary scientific information as it relates to Bay habitats, wildlife and development of the Bay. Although the Bay Plan has been amended more than 80 times since its adoption in 1969, many policy elements have not been reviewed for a number of years and some not since they were originally adopted. Additionally, a number of issues that impact the Bay have emerged that may affect the plan policies. To keep the Bay Plan current, the Commission recognized that a systematic review program is needed, and in December 1998, it adopted a rolling five-year work program for reviewing and updating the Bay Plan policy elements. This process will be ongoing and integrated into the Commission's continued review of its Strategic Plan and development of its work program and budget proposals.

- **Bay Plan Part V.** The first scheduled Bay Plan update involved amending the implementation policy element, Part V, Carrying Out the Plan. The work focused on simplifying the organization of the Bay Plan, eliminating redundant or unnecessary sections, and making existing policy language concerning approving fill consistent with the McAteer-Petris Act. Also included was a new policy section, "Filling for Public Trust Uses on Publicly-Owned Property Granted in Trust to a Public Agency by the Legislature," which outlines those public trust uses for which filling of the Bay can occur in such an area for which a Special Area Plan has been developed and where it is found that the fill is necessary to the health, safety, and welfare of the [Bay Area] public. The policies offset impacts of development by providing for major shoreline parks, removal of existing pile-supported fill to create open water basins, increased safety of fills, and other benefits to the Bay and the public. In August 2000, OCRM concurred with the Commission that this amendment constituted routine program change of BCDC's coastal management program for San Francisco Bay. This work was included in the Commission's state general budget.

- **Dredging.** As discussed above, in December 2000, the Commission voted to amend the Bay Plan findings, policies and maps, and BCDC's implementing regulations as they relate to dredging activities and the disposal and beneficial use of dredged material in the Bay Area. These changes will provide the Commission the policy basis necessary for continuing its work in the LTMS program and to implement the new dredging and disposal management strategy for the region that stresses beneficial upland reuse of dredged materials. This work was included in the Commission's state general budget.

- **Public Access and Wildlife.** In partnership with the Association of Bay Area Government's (ABAG) Bay Trail Project and with funding provided by the Office of Coastal Resources Management through Section 309, BCDC initiated the San Francisco Bay Public Access and Wildlife Compatibility Policy Development Project.

  The objectives of the Public Access and Wildlife Compatibility Project are to: 1) better understand the effects of public access on wildlife; 2) better understand the effectiveness of design and management measures to address public access impacts; 3) develop public policy conclusions on how best to avoid or minimize adverse impacts of public access improvements on Bay wildlife; 4) amend the *San Francisco Bay Plan* public access and other appropriate policy elements; and 5) institute a process for monitoring and periodically assessing public access improvements implemented pursuant to BCDC permits.

  As described in the Public Access section, the staff report was completed in the Fall of 2000 and distributed to the Commission and interested parties. The report and staff recommended changes to the Bay Plan public access findings and policies are scheduled for a public hearing in January 2001.

- **Marshes and Mudflats, Fish and Wildlife.** Because the Bay Plan policies on Marshes and Mudflats and Fish and Wildlife have not been updated since the Bay Plan's inception in 1965, Commission staff began the Bay Plan amendment process for both the Marshes and Mudflats and the Fish and Wildlife findings and policies in 1999. Staff soon realized that the treatment of the policy areas as distinct subjects requiring separate findings and policies did not reflect the interconnected and interdependent nature of the ecology of the San Francisco Estuary. Further, scientific understanding and management of the Estuary has expanded to an extent that certain subject areas which were left out of the Bay Plan initially can now be addressed under a broader habitat-based approach. Subject areas that will be included in the new Habitat policy section include invasive species, subtidal habitats, endangered species and wildlife refuges. Additionally, statutes that have been enacted since 1965, such as the federal and state Endangered Species Act, will be reflected in the policies as they pertain to the Commission's responsibilities under new legislative mandates. The proposed policy revisions are designed to better protect Bay resources. This proposed amendment is scheduled to come before the Commission in mid-2001. The majority of this work was included in the Commission's state general budget; the aquatic habitats element was funded by NOAA under the CZMA Section 309 program. (See Wetlands Protection and Restoration section for further discussion.)

**Priority Objectives to Improve BCDC's Cumulative Impacts Program.** The Commission should develop policies and programs to address impacts to the Bay created by growth and development by building on its successful track record in collaborating with agencies, interest groups and the public to better coordinate and manage planning efforts important to the Bay region. These efforts could be pursued in a number of ways, including:

**Bay Management Partnerships.** The Commission should join with other regional agencies and non-government organizations to develop and implement strategies for sustainable development in the Bay Area. Refining a number of Bay Plan policy sections such as those listed below could contribute to this end.

- **Transportation.** The booming economy in the San Francisco Bay Area has resulted in both high prices for housing and gridlocked freeways. A recent survey of Bay Area residents ranked traffic as the number one issue negatively affecting the quality of life in the region. Pressures to relieve this congestion have resulted in proposals to increase the number of bridge crossings over and/or BART tunnels under the Bay. An alternative potential solution that recently has gained a lot of support would increase ferry transportation in the region. In response, the state legislature created the Water Transit Authority (WTA) to expand ferry transportation on San Francisco Bay by significantly increasing the number of terminals and the number of vessels. BCDC should work together with both the newly formed WTA and the Metropolitan Transportation Commission to identify appropriate sites for terminals and to develop transportation policies to support the proposed expansion of Bay ferry transit. Siting efforts should consider such factors as the amount of dredging required to maintain water depths sufficient to accommodate ferries, proximity to wetlands and other sensitive habitats, proximity to landside transportation and potential effects on adjacent communities.

- **Recreation.** The Commission also could expand its efforts to respond to the needs of a growing regional population and protect the Bay from the effects of increased development demands by working with local governments and park and open space districts to update the Commission's recreation policies and priority use area designations to incorporate local plans and policies pertaining to public recreation along the Bay shoreline. In addition to reflecting the increasing demand for waterfront parks and commercial recreation facilities, the update work should consider the changing nature of uses deemed appropriate within a public park, such as the Presidio of San Francisco (Golden Gate National Recreation Area), and the suitability of specific shoreline sites and uses for recreational purposes.

- **Water Quality, Fresh Water Inflow, Water Surface Area and Volume.** The Commission can work with the scientific community, resource agencies—notably the Regional Water Quality Control Board and the CALFED Bay-Delta Program—to refine the Bay Plan water quality, fresh water inflow, water surface area and volume policies to better address activities that may affect resources dependent on the waters of the Bay. Last updated in 1987, 1982 and not since original adoption in 1968, respectively, these Bay Plan policies need to reflect current scientific knowledge and related policy, including areas such as nonpoint source pollution and the updated Regional Water Quality Control Board's Basin Plan for the Bay. Additionally, the Commission's policies should reflect the initiatives of the CALFED program, particularly as they relate to fresh water inflow.

- **Update Priority Use Areas.** To prevent further filling of the Bay to accommodate certain water-oriented uses that must be located immediately adjacent the Bay, such as ports, the Commission designates certain shoreline areas for these uses. While some of the designated priority use areas have been reconsidered or scheduled for review as part of the Bay Plan update program, others have not been reviewed since first established more than 30 years ago. In October 2000, a Commission task force began considering a program for reviewing the various priority use area designations, as established by Commission Resolution 16 and reflected on the Bay Plan maps. Working with local governments to incorporate local needs, land use policies and other factors, as well as possible boundary changes to the designations, would entail considerable research and coordination with local agencies before recommendations could be developed for the Commission's consideration and adoption.

- **Habitat Restoration.** The Commission should closely coordinate with efforts such as CALFED and the Coastal Conservancy to promote habitat restoration planning and implementation for endangered species, thereby contributing to the enhancement of natural resources lost as a result of growth and development in the San Francisco Bay Area. A major component of the CALFED program will involve restoration of habitats for endangered aquatic species in the Bay-Delta system. Both San Pablo and Suisun Bays and the Suisun Marsh will be strong candidates for CALFED Ecosystem Restoration efforts. In addition to the Commission's role in federal consistency determinations and permits required for CALFED projects, the Commission should be involved in the CALFED restoration project process for the Bay and in improving the quality of water entering the Bay from agricultural drainage facilities.

- **Invasive Species.** The Bay is considered the "most invaded Estuary in the world." Invasive species are the primary threat to the Bay's native biodiversity, with new species introduced at a rate of one every twelve weeks. BCDC should become an active participant in programs addressing threats to the health of the Bay ecosystem introduced by non-native plant and animal species.

**Additional Opportunities for Improvement.** In addition to the kinds of Bay management partnership efforts discussed above, the Commission could further its program to control impacts of growth and development through such actions as:

- **Polluted Runoff Assessment.** As part of the assessment and strategy, BCDC is evaluating its role in addressing nonpoint source pollution in San Francisco Bay. Staff has conducted an analysis of the 61 management measures listed in the 2000 California Nonpoint Source Pollution Control Plan ("California Plan") and their relationship to the Commission's authority. Based on this analysis, a draft Five Year Plan has been developed appropriate to the Commission's resources and authorities. The Commission is expected to review the draft plan during the first quarter of 2001.

  Future implementation of this plan is hampered by a lack of fiscal and staff resources. This project requires the involvement of both planning and permitting staff familiar with the agency's procedures. Current resources only

allow eight hours of permit staff time per month, and approximately 10 hours of planning staff per month until June 2001. With these limited resources, staff will strive to complete the Five Year Plan; however, tracking and monitoring the Plan, as required by the Resources Agency/Cal-EPA memorandum-directive, as well as implementing the Plan, may not be possible. Further funds would allow for such tracking and monitoring, and for implementation of the Plan's provisions such as increased coordination with water quality agencies, a review and update of BCDC's polluted runoff permit conditions, potential further studies such as a marina design study and guidelines for new and expanding marinas, revisions to BCDC's existing Memorandum of Understanding with the State Water Resources Control Board and the Regional Water Quality Control Board, and possible updates to BCDC's Bay Plan policies on Water Quality and Recreation.

- **Permit Monitoring System.** In 2000, the Commission undertook to develop a text-based Permit Tracking System (PTS) database that will be fully compatible with the Commission's technology base, management resources and protocols, staff capabilities, and day-to-day needs. Once developed and populated with data, the new system will, in addition to supporting routine permitting work, yield access to summary information about development activities on a regional scale. In anticipation of the day when it will be economically and technically feasible to develop and manage a broadly accessible GIS based system, permit data will be gathered and stored in such a way as to make it possible to migrate the system to a spatial-based system. It also will be possible to export data to support occasional special studies using GIS technology.

  The development of the PTS can provide the Commission new and unique shoreline planning capabilities. The Commission's permit files, taken together as a whole, represent the most complete and authoritative record of 35 years of shoreline development around the San Francisco Bay. These data, which exist nowhere else in such comprehensive form, are a "hidden" resource that the Commission and its partner agencies could use to support planning studies and analyses, if the information could be accessed and manipulated effectively.

  Gaining control over the information contained in these files could offer a concise view of conservation and development trends that could be used to validate or question many commonly held beliefs that underlie federal, state, and local planning efforts regarding the Bay. For example, the data could provide an objective measurement of certain types of permit activities that, if combined or compared with outside analyses routinely generated by other agencies with a common interest in the Bay, may suggest or support new directions in shoreline planning or, conversely, conserve effort and costs by quickly identifying trends not taken into account in initial studies.

### Special Area Management Planning

Program objectives address the need to prepare and implement special area management plans for important coastal areas.

| Area | Major Conflicts |
|---|---|
| San Francisco | Development: potential Bay fill; impacts on public access along waterfront |
| Oakland | Development impacts on public access |
| San Francisco Bay | Impacts to subtidal habitat and aquatic species |

**Background.** Special area management planning involves the preparation and implementation of management plans focusing on important coastal areas. These areas may require protection of significant natural resources, coastal-dependent economic growth or improved protection of life and property in hazardous areas. Since its creation, BCDC has utilized special area planning to address a variety of issues and areas meriting special concern. Under BCDC regulations, a special area plan (SAP) applies any or all of the policies in the Bay Plan in greater detail to a specific geographic area lying either wholly or partially within BCDC jurisdiction. The purpose of a SAP is to guide more precisely public agencies and private parties as to what fill, dredging or change of use in a shoreline area would be consistent with the McAteer-Petris Act and Bay Plan policies. Interagency cooperation is a key feature of SAPs, which are adopted by the Commission as amendments to the Bay Plan and by local governments as part of their general plans and zoning ordinances. A number of special area plans have been produced by the Commission to offer management strategies specific to selected areas. This comprehensive approach is an integral part of Commission planning activities and has been successfully incorporated into its coastal management program for San Francisco Bay.

**BCDC's Special Area Plans.** The Commission has developed a number of plans for specific areas around the Bay. The *Suisun Marsh Protection Plan* represents an early special resource management plan adopted by the Commission, and includes unique implementation measures involving intergovernmental coordination to protect the 89,000 acres of tidal marsh, wetlands, adjacent grasslands and waterways of the Suisun Marsh and 22,500 acres of surrounding upland agricultural land.

To aid in planning for future uses on San Francisco's northern waterfront, in 1975 a committee representative of many interests developed the *San Francisco Waterfront Special Area Plan*. Like other SAPs developed by BCDC, the plan is intended to serve as a guide as to what fill, dredging or changes in use are consistent with the McAteer-Petris Act and policies of the Bay Plan. The Special Area Plan called for the preparation of more specific policies for the segment of the waterfront between piers 9-24. The *San Francisco Waterfront Total Design Plan* was adopted in 1980 and discussed more precisely potential replacement fill and appropriate uses on the designated piers. Following a four-year planning process that involved the San Francisco Port Commission, Save San Francisco Bay Association, citizen groups and BCDC, in July 2000 the Commission

amended the Special Area Plan and the Bay Plan. Subsequently, the Port Commission modified its *Waterfront Land Use Plan* in a manner consistent with the changes to the Special Area Plan that were adopted by the Commission. The Total Design Plan was rescinded, and its relevant policies incorporated in the revised Special Area Plan.

To address increased demand for recreational uses and problems associated with poorly controlled houseboat uses in an area of the Bay located in southern Marin County, an agreement was reached among the various agencies involved to jointly prepare a special area plan for Richardson Bay. The *Richardson Bay Special Area Plan* created a unified set of policies and regulatory controls that establishes a shared jurisdiction between the Commission and five local governments (one county and four cities) over this important recreational water body.

The *Benicia Special Area Plan* was adopted by the City of Benicia as part of its comprehensive plan and as an amendment to the Bay Plan in 1977, and thus guides BCDC and Benicia in planning and permitting in the waterfront area. Adopted the same year as the Benicia SAP, the Richmond *South Richmond Shoreline Special Area Plan* applies to a particular segment of the City of Richmond's shoreline, and helps guide new shoreline development and Bay protection in this area.

In 1996, the Commission conditionally approved the *White Slough Specific Area Plan* prepared and adopted by the City of Vallejo and Solano County. Although not a special area plan under the Commission's rules, the White Slough Plan was prepared pursuant to the White Slough Protection and Development Act. Under the Act, after the conditional approval of the plan by the Commission, Vallejo and the County were required to amend their general plans and zoning ordinances to conform to the White Slough Plan. The Commission granted final approval of the plan in December 1999; consequently, BCDC will issue or deny permits for the placing of fill, extraction of materials, or the substantial change in use of any area within White Slough based on the project's consistency with the *White Slough Specific Area Plan*.

**BCDC's Regional Plans.** The Commission participates in regionwide planning efforts for the Bay Area in addition to the *San Francisco Bay Plan*. The *San Francisco Bay Area Seaport Plan*, a result of a cooperative effort between the Metropolitan Transportation Commission (MTC) and BCDC, guides both agencies in their decision making regarding seaport development and related proposals for transportation and land use development. The Seaport Plan is a component of the Bay Plan, where it is the basis for the Commission's policies for port development. *The Regional Airport System Plan (RASP)*, most recently updated in September 2000 by the Regional Airport Planning Committee (co-sponsored by the Association of Bay Area Governments, MTC and BCDC), serves a similar function for the Bay Area's system of airports and aviation-related facilities as the Seaport Plan does for port facilities. These planning efforts are discussed in the Energy and Government Facility section.

**Conclusions of Previous Assessment.** Special area management planning is an effective way to eliminate inconsistencies between the plans and policies of different agencies having regulatory jurisdiction over the same areas or issues, to provide greater regulatory certainty and predictability, and to deal with emerging issues such as nonpoint pollution control, military base closures, wetland management and cumulative impacts of development. BCDC has been a pioneer in developing special area management plans with local governments and other agencies. BCDC should continue its efforts to coordinate the goals of local waterfront planning efforts, such as in San Francisco and

Oakland, with those of the McAteer-Petris Act and Bay Plan. The Commission also should continue to pursue regionwide planning as a tool to accommodate development and protect Bay resources.

**Changes in BCDC's Special Area Planning Program Since Previous Assessment**

| Area | Status | 309 Involvement |
|---|---|---|
| San Francisco Waterfront | Revised BCDC *San Francisco Waterfront Special Area Plan*, Bay Plan policies and Port of San Francisco Waterfront Plan | No |
| Oakland Waterfront | Special Area Public Access Plan | No |

**Local Government Planning Partnerships.** In keeping with the objectives of the McAteer-Petris Act that encourage BCDC to coordinate its planning with planning by local agencies, the Commission has worked closely with Bay Area local agencies to further BCDC's goals to prevent unnecessary Bay fill, maximize public access where compatible with resource protection, and to encourage and support appropriate shoreline development. Recent efforts to enhance the Commission's public access program have focused on joining with local governments and other agencies to work together to plan for increased public access to the Bay shoreline, thereby coordinating the Commission's goals for public access with those of local agencies for development.

- **San Francisco Waterfront Planning.** In 1997, the Port of San Francisco adopted its *San Francisco Waterfront Plan*, including the *Waterfront Design and Access Element* to guide long-term use and development of property under the Port's jurisdiction. The Port and the Commission worked cooperatively together commencing in early 1996 to bring the Waterfront Plan and the Commission's *San Francisco Bay Plan, San Francisco Waterfront Special Area Plan* and *San Francisco Waterfront Total Design Plan* policies and implementing mechanisms into consistency, and to provide greater predictability for project proponents along the San Francisco Waterfront. The Port funded a consultant in FYs 1996-99 who worked with the Commission's staff and the Port's staff to develop proposed modifications to the Commission's plans consistent with the McAteer-Petris Act and, where necessary, changes to the Port's Waterfront Plan, to achieve the desired consistency of the policy documents.

  Staff met regularly with Port staff and, at the invitation of both agencies, with representatives of Save the San Francisco Bay Association, to refine public access concepts and designate specific areas along the San Francisco waterfront for public access. In addition, BCDC staff held regular meetings with San Francisco community groups interested in the future development of the waterfront, to incorporate their concerns and recommendations in the planning process. This coordinated planning was used to develop a public access and urban design plan for the San Francisco waterfront that was incorporated into the Port's Waterfront Plan and modifications to the Special Area and Total Design Plans.

In July 2000, the San Francisco Port Commission adopted changes to its Waterfront Land Use Plan and Design and Access Element that were consistent with the changes to the Bay Plan and the Special Area Plan that were adopted by the Commission. As part of these changes, the Total Design Plan was rescinded, in part because some of its relevant policies were incorporated in the revisions to the Special Area Plan, and because the remaining policies were either achieved or no longer relevant.

The amended *San Francisco Waterfront Special Area Plan* includes provisions for substantial public benefits, including pier removals to create new open water and two large new public plazas. The plan also specifies the type and amount of public access to be provided with new development and provides for preservation of significant historic resources, a goal strongly supported by local citizen activists. The Special Area Plan includes implementation requirements that ensure the public benefits will be provided in a timely manner consistent with development and available resources. It also includes policies that foster greater coordination between the agencies to ensure that the policies of the plan are implemented successfully.

The changes to Bay Plan allow for a broader range of uses on redeveloped piers that will create a vibrant and inviting waterfront setting, that, in conjunction with substantial open spaces provided for in the plan, will meet the evolving public trust needs of Bay Area residents, visitors and all Californians.

The amendments to the Special Area Plan cover a portion of the entire plan area—from Pier 35 to China Basin. Additional planning is needed to address the area to the north and west of this area, Fishermans Wharf, and the area to the south, the Central Basin and Mission Bay waterfronts. However, the Commission should first address public access, potential Bay fill for commercial recreation and removal of pile supported Bay fill in the Fishermans Wharf Area.

- **Oakland Waterfront.** In the wake of several military base closures in the Bay Area in the early 1990s, in 1995 the Port of Oakland completed its Vision 2000 plan, a comprehensive redevelopment strategy for the Navy's Fleet Industrial Supply Center, Oakland (FISCO). The plan called for substantial port terminal development, consistent with the *San Francisco Bay Area Seaport Plan*, however it lacked a public access strategy. The Port staff, Commission staff and staff from the City of Oakland agreed to cooperatively develop a public access plan for the entire Oakland Waterfront. At that time, the Port believed that it would be advantageous if it could, in cooperation with the Commission and the City, develop a mechanism that would enable the Port to construct public access where it was most needed outside of the port area and use the benefits of that to meet its public access responsibilities for the Vision 2000 development program. The agencies entered into an MOU and for three years, conducted a community based planning process to determine the waterfront public access priorities for Oakland and to develop a mechanism for transferring public access from the Port's development areas to other areas of the Oakland Waterfront.

  During the public access planning process (1996-98), the City and the Port of Oakland, with the participation of an Oakland citizen advisory committee and BCDC staff, developed and adopted a new element of the Oakland General Plan, the *Oakland Estuary Policy Plan*. The Estuary Plan focused on a segment

(approximately half) of the Oakland waterfront. During this planning process, the Port, the City, and the Commission staff continued work on the public access plan. The Port assisted the Commission by funding BCDC staff participation in the planning effort during FYs 1996-98.

In May of 1998, the Commission staff, with input from the partner agencies, developed a draft of the Oakland Waterfront Public Access Plan. At that time, it was agreed that the transfer mechanism was no longer relevant, because the Port, with Commission and City concurrence, proposed providing substantial public access within the port area, adjacent to new container terminals, instead of providing access elsewhere on the Oakland

waterfront. At the same time, staff shortages among the partner agencies necessitated redirecting resources away from the Oakland public access plan during FY1999-00 to complete the amendments to the *San Francisco Waterfront Special Area Plan.*

Because the joint planning effort offers a unique opportunity to develop policies and access guidelines for an urban industrial waterfront in accordance with BCDC policies, the Commission should work with the partner agencies to redefine and complete the project to advance common goals for improving shoreline public access in Oakland.

**Priority Objectives to Improve BCDC's Special Area Planning Program.** The Commission should build on its proven success in joining with local jurisdictions and others to foster greater coordination in developing policies and land use planning for the Bay and shoreline through such special area planning programs as:

- **San Francisco Southern Waterfront.** Working closely with the Port of San Francisco and Save San Francisco Bay Association, the Commission recently revised BCDC's *San Francisco Waterfront Special Area Plan* and the Port's *Waterfront Plan,* to address development and public access in the northern waterfront area. The Port has requested that the Commission continue this work to address future development along much of the remainder of the waterfront. Specifically, the Port and the Commission need to plan for potential development impacts that will affect the southern waterfront. The area south of China Basin features the City's remaining cargo shipping facilities, and is currently facing proposals for non-maritime mixed use development.

- **Fishermans Wharf Planning.** A number of issues remain to be resolved before additional changes can be proposed to the portions of the Special Area Plan and the Port's Waterfront Plan that address the Fishermans Wharf and Central Basin-Mission Bay areas. Consequently, the Commission should continue and conclude the planning effort it has begun with the Port and community groups to define revised policies that will apply to future development along these segments of San Francisco's waterfront.

  Specifically, the Commission needs to build on the successful work recently completed, extending those approaches to process and policy that would apply to the Fishermans Wharf segment of the waterfront. BCDC staff, in concert with Port of San Francisco staff and representatives of Save the San Francisco Bay Association, should work with the various stakeholders to develop a consensus view on the appropriate policy framework to guide the redevelopment of the

area. Particular attention would be paid to the type and location of public access to be provided with development and to the nature and extent of Bay fill that may be needed to accommodate existing and proposed maritime uses in the area. In addition, the Commission would likely reevaluate its existing policies regarding land uses allowed on new and replacement fill in the area and determine whether revised policies are appropriate.

- **Oakland Waterfront Planning.** As discussed above, in 1998, Commission staff, in consultation with the Port and the City of Oakland staff prepared a draft of the *Oakland Waterfront Public Access Plan* (Public Access Plan). This plan was envisioned as a more detailed articulation of public access policies and visions expressed in the *Oakland Estuary Policy Plan*. The Port, the City and BCDC agreed that the Port could and should provide public access facilities within the port area with its development projects instead of other locations along the Oakland Estuary. To that end, Commission staff served on a project development team, a broadly representative body made up of local, state and federal agency staff and concerned citizens, to develop and refine the concept and design for a 34-acre "Middle Harbor Shoreline Park." The Public Access Plan would focus primarily on the location and characteristics of public access along the entire waterfront, in part to further the goals of the San Francisco Bay Trail. The plan would identify specific areas where public access is lacking, prioritize public access connections, and facilitate public access improvements. Now that the *San Francisco Waterfront Special Area Plan* is completed, work should commence on completing the Oakland Public Access Plan.

- **Marine Protected Areas.** On May 22, 2000, President Clinton issued Executive Order 13158 directing the federal government and its state partners to protect areas of the ocean that are environmentally sensitive, ecologically important, economically valuable or historically significant through the mapping and establishment of special protected areas known as Marine Protected Areas (MPAs). In light of this directive, the Commission, in partnership with NOAA's Office of Ocean and Coastal Resource Management, under the authority of the Coastal Zone Management Act, has begun the process of developing an inventory of state Coastal Zone Management special management areas currently in the Commission's jurisdiction. Initially included in this inventory will be areas such as Hamilton Field, the Don Edwards National Wildlife Preserve, the San Pablo Bay National Wildlife Preserve, and Bair Island.

  Worth noting is that the Commission's own wildlife area priority use area designations are in the process of being revised through the update of the Bay Plan Marshes and Mudflats and Fish and Wildlife Policies. In addition, the wildlife area priority use areas designations do not extend into the Bay itself; they are only land-based designations. Thus, issues to be addressed in the current Bay Plan update process include discussing the possibility of extending the wildlife area priority use area designation to include Bay waters in order to recognize that certain wildlife refuge boundaries extend into the Bay, such as San Pablo Bay Wildlife Refuge.

  Additionally, the Bay Plan update raises the question as to whether certain portions of San Francisco Bay itself should be set aside specifically as Marine Protected Areas. Currently, no such MPA, such as the Monterey Bay National Marine Sanctuary in Monterey Bay, exists in San Francisco Bay. In light of this

absence, Commission staff posited the question of need to a group of scientists assisting the Commission with the subtidal habitats (those habitats below Mean Lower Low Water) chapter of the Bay Plan Marshes and Mudflat and Fish and Wildlife Background Report. Significantly, the scientists concurred that the need for Marine Protected Areas in San Francisco Bay warranted special attention. Furthermore, they noted that a future Habitat Goals Project for subtidal habitats would be a starting point for answering the dual question of where and in what manner Marine Protected Areas could be established in San Francisco Bay, if they are deemed necessary.

- **Regional Planning.** The Commission should pursue regionwide planning in partnership with relevant agencies, local governments and non-government organizations as a tool to balance shoreline and Bay fill development with protecting Bay resources, particularly for projects with the potential to impact large areas of the Bay (see Cumulative and Secondary Impacts section for a discussion of Bay Management Partnerships.)

### Energy and Government Facility Siting

Program objectives address the need for adoption of procedures and enforceable policies to help facilitate the siting of energy facilities and energy-related activities and government activities that may be of greater than local significance.

**Background.** The San Francisco Bay and shoreline feature a number of uses related to energy and government facilities. Located primarily on the northeastern shoreline, energy-related uses include oil and natural gas processing facilities, refineries, marine terminals for storing and transporting oil and gas, natural gas extraction and storage facilities, and other ancillary uses. Public facilities such as airports, ports, and military bases encircle the Bay. BCDC is mandated by the McAteer-Petris Act (Section 66602.1) to "make provision for adequate and suitable locations" for water-oriented land uses as specified in the Act. Water-related industry, ports, and airports are among those uses designated in the Bay Plan as high priority uses of San Francisco Bay and its shoreline. Suitable shoreline areas for these activities are limited and should be reserved for priority purposes. A regional issue that has recently emerged is the closing of military bases and military facilities around the Bay.

BCDC has initiated working relationships with a number of agencies controlling shoreline holdings to coordinate planning, protection, and management efforts, and has produced studies on the facilitation of siting of energy and government facilities. These undertakings have led to amendments to the Bay Plan and specific plans intended to accurately reflect the findings and policies of the studies. The *Thermal Power Plant Non-Siting Study* and *San Francisco Bay Area Seaport Plan* are representative of BCDC's efforts to work cooperatively with state and regional agencies, municipalities, and facilities operators to meet long-range planning needs.

### BCDC's Energy and Government Facility Program

**Energy Facilities.** To ensure that the Commission does not restrict the development of needed power plants, BCDC works cooperatively with the State Energy Resources Conservation and Development Commission (Energy Commission) to consider suitable sites for proposed energy facilities. Although no permit is

needed from BCDC because the Energy Commission has exclusive jurisdiction over power plants, the commission is required to include specific provisions that satisfy BCDC's laws and policies in its project approval process.

The respective roles of BCDC and the Energy Commission in the regulation of power plant siting are defined in the McAteer-Petris Act (Sections 66645 and 66646). BCDC is required to designate those areas within its jurisdiction that are not suitable for power plants. To ensure that BCDC does not restrict the development of needed power plants in the Bay Area, BCDC is required to consider the most recent comprehensive Biennial Report of the Energy Commission. The Energy Commission is prohibited from placing any power plant within BCDC's jurisdiction at a location not identified as appropriate for such use by BCDC. The *Thermal Power Plant Non-Siting Study*, last updated by BCDC in 1990, identified those areas of the Bay, its salt ponds and managed wetlands, and 100-foot shoreline band around the Bay not suitable for power plant siting due to inconsistencies with the Bay Plan or the *Suisun Marsh Protection Plan.*

**Airports.** There are three major commercial airports in Oakland, San Francisco, and San Jose sited along or near the Bay. The shoreline locations are favored because the Bay provides open space for takeoffs and landings directed away from populated areas, and results in less noise carried to those areas. The Bay shoreline locations also provide ready access to densely populated urban centers. Although there are small reliever airports in the Bay Area, the overwhelming majority of passenger and cargo air traffic is handled at the three major facilities. Air traffic is expected to increase significantly in the Bay Area, with passengers doubling between 1998 and 2020, to 111 million annual passengers. Air cargo levels are expected to triple during this period, to 5.5 million tons annually. Capacity expansion has been proposed at the three major airports that may involve filling of the Bay, requiring BCDC involvement in these planning efforts.

The Bay Plan designates airport priority use areas along the Bay shoreline. However, filling of the Bay for expansion or construction of airport facilities is permitted only if it is found that there is no remaining capacity at any Bay Area airport and that there is no upland location for a new airport. If fill for airport facilities is permitted, adverse impacts must be fully mitigated and public access to the Bay must be provided to the extent consistent with the project.

The *Regional Airport System Plan (RASP)*, first prepared in 1982 and updated in 1994 by the Regional Airport Planning Committee (RAPC), was partially updated in 2000 to address runway expansion plans at the San Francisco and Oakland airports. BCDC is a co-sponsoring agency of the RAPC with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments. The RASP outlines the long-term development requirements of all airports in the region. Airport projects that expand terminal and runway capacity and improve ground access must be consistent with the RASP. The plan serves as the air transportation element of MTC's Regional Transportation Plan, the comprehensive program MTC is responsible for developing to meet Bay Area transportation needs. The Commission has generally looked to the RASP to guide airport growth and development, and encourages airports in the region to coordinate their facility planning with the RAPC. Through a regional planning approach, congestion at airports may be relieved by diverting passengers, cargo, and general aviation to airfields able to accommodate additional traffic.

**Seaports.** San Francisco Bay is one of the world's great natural harbors and the area's ports are major contributors to the economic vitality of the region. Five public use ports serve the Bay: Oakland, San Francisco, Redwood City, Richmond and Benicia. The Commission recognizes the substantial public benefits of developing an adequate regional system of port facilities capable of keeping San Francisco Bay in the forefront of the world's great harbors, particularly during a period of rapid change in the shipping industry. The Bay Area expects the volume of container cargo to nearly triple by 2020, requiring large, specially designed terminals and supporting transportation facilities. BCDC, in cooperation with MTC, developed the *San Francisco Bay Area Seaport Plan* to ensure the continued vitality of the region's port system.

The Seaport Plan is a component of the Bay Plan and the maritime element of MTC's Regional Transportation Plan. First developed in 1982, the Seaport Plan was revised in 1996. The plan is produced by the Seaport Planning Advisory Committee (SPAC), consisting of representatives of local, state and federal agencies, the ports, and environmental and development interest groups. The Seaport Plan provides BCDC with policies for reviewing permit applications, environmental assessments, federal consistency requirements, and MTC with policies for reviewing environmental assessments and funding applications. The plan also calls for local governments to institute land use protections for the designated port areas.

**Military Bases.** The coastal zone for San Francisco Bay is defined as all the area within BCDC's permit jurisdiction. Federal approval of the Commission's coastal management program for the Bay requires federal agencies to comply with state program policies. Federal projects or activities that affect the coastal zone are thus subject to review for consistency with policies of the McAteer-Petris Act, the Bay Plan, the Suisun Marsh Preservation Act and Local Protection Programs, even if the activities occur inland from the coastal zone. BCDC's federal authority therefore can extend beyond the 100-foot shoreline band, particularly to encompass priority use areas designated in the Bay Plan. State policy directs that a change in use of federal property cannot take place if it would result in a use that is inconsistent with the Bay Plan's designated priority use areas.

The closure of a number of military bases sited along the Bay has required consistency review by the Commission as new uses are proposed for the facilities. Those military facilities that are subject to Bay Plan priority use designations are restricted as to the types of projects or activities that can occur at the sites once they are decommissioned. BCDC has worked closely with local agencies planning for base reuse to ensure that proposed future uses are consistent with the Commission's applicable plans and policies to the fullest extent possible.

**Conclusions of Previous Assessment.** Through the priority use area designations in the Bay Plan, the Commission has ensured that shoreline areas needed for ports, airports, and water-related industries, such as oil refineries, have not been preempted by other land uses that can be accommodated elsewhere. The Commission should play a valuable role in addressing some of the critical problems resulting from the closure of military bases in the Bay Area by expanding its partnerships with local governments and

other affected agencies to facilitate strategies for the reuse of the closed bases. The Commission should join with other agencies to accelerate deepening of navigation channels to support maritime operations. The Commission should further its mandate to protect the Bay and its resources by developing appropriate Bay Plan policies to address oil spill prevention and navigation safety.

**Changes in BCDC's Facility Siting Program since Previous Assessment**

- **Military Base Closures.** In 1996, the Commission revised the *San Francisco Bay Area Seaport Plan* (Seaport Plan) which, in large part, reassessed the region's need for closing military bases to serve as civilian seaports. The SPAC oversaw the development of the original Seaport Plan in 1982 and its subsequent updates. By incorporating improvements in cargo handling and other changes in the maritime industry, the updated plan accommodates the expected growth in maritime cargo to 2020 with less acreage reserved, and less Bay fill, as the previous plan.

  Throughout the 1994-1996 analysis and revision of the Seaport Plan, the Commission worked closely with the base reuse authorities around the Bay to retain the port priority use area designation only on those locations found to be suitable to future marine terminal development. The Commission retained 220 acres of the approximately 1,500-acre former Naval Air Station at Alameda for port priority use. The City of Alameda subsequently requested that the entire former military base be removed from priority use designation. In response to Alameda's concerns, the Commission entered into an arrangement with the Alameda Reuse and Redevelopment Authority, the East Bay Conversion and Reinvestment Commission, and the Metropolitan Transportation Commission to combine resources to conduct a feasibility study of development of a container cargo marine terminal on the 220-acre Alameda site. In 1997, following completion of the study and staff reports that discussed options to continuing the designation at Alameda, the Commission amended the Bay Plan and the Seaport Plan to remove the port priority use area and marine terminals designations from the former air station. It was found that the future capacity for container cargo assigned to the air station could be handled instead at the closing Oakland Army Base, immediately adjacent the Port of Oakland and designated for port use when no longer needed by the military.

  In September 2000, the Port of Oakland and the Oakland Base Reuse Authority submitted an application to the Commission—and provided full funding for the staff work required—to amend the Bay Plan and the Seaport Plan to: (1) delete approximately 175 acres of port priority use area at the northern part of the Oakland Army Base which would allow the Port to reconfigure its marine terminals and Joint Intermodal Terminal thereby increasing its container cargo throughput capability to exceed the Seaport Plan 2020 cargo forecast, (2) retain 15 acres of land on the Oakland Army Base for port ancillary uses; and (3) add an additional 15 acres of land within the Interstate Highway 880 right-of-way and east of Interstate Highway 880 and add approximately 30 acres of land west of Interstate 880 at 7$^{th}$ Street for port ancillary uses. Retention of 15 acres at the Oakland Army Base and the addition of approximately 45 acres of land under and adjacent to the Interstate 880 freeway for port ancillary uses was recommended by the Oakland Base Reuse Authority and Port of Oakland staff to provide sufficient trucking-related port ancillary uses in addition to the 75 acres already provided by the Port. The Port and the Base Reuse Authority believed

that the maritime cargo capability of the Port would be increased because of the improved efficiencies that the reconfigured Port marine terminals and Joint Intermodal Terminal would provide, and the 127 acres of fill for new Port marine terminals recommended in the Seaport Plan to meet the Port's cargo capability by the year 2020 would not be necessary. The Commission voted to amend the Bay and Seaport Plans in December 2000.

- **Seaport Planning.** In 1999, at the request of the property owners, the Seaport Plan and Bay Plan port priority use area and marine terminal designations were removed from the privately-owned Encinal Terminals in Alameda, which was no longer operating as a marine terminal, to make way for residential and future mixed use development. The Commission found that deletion of the Encinal Terminals as a port priority use would not adversely affect the region's capability to handle the 2020 forecast of cargo demand in the Bay Area. Encinal's owners provided the necessary funding to undertake the amendment process.

  To remain competitive with other West Coast container ports, the Port of Oakland plans to deepen the Oakland Harbor to -50 feet MLLW and construct a joint intermodal rail terminal. In 2000, the Commission staff expedited its consideration of the project and worked with the Port of Oakland and the interested parties to implement beneficial uses for the material dredged as part of the project, through partnerships with the Port of Oakland, the LTMS agencies, the California Coastal Conservancy and other interested parties—consistent with the Commission's Bay Plan policies on dredging and the beneficial reuse of dredged material. In December of 2000, the Commission approved the 50 foot deepening project which included plans to use dredged material to restore wetlands at the Hamilton and Montezuma sites and to use material to develop subtidal habitat at the Port's Middle Harbor.

- **Cargo Monitoring.** The *San Francisco Bay Area Seaport Plan* includes findings and policies concerning the need for annual cargo monitoring to provide a basis for ongoing review of the Seaport Plan's findings and policies concerning container and bulk cargo marine terminal designations. The data collected through the monitoring process is used to evaluate requests for changes in marine terminal or port priority use designations, including possible deletions of such designations. An ongoing cargo monitoring process also eliminates the need for updating the Seaport Plan every five years and allows the SPAC to update the Plan on an as-needed basis. It also allows the SPAC to consider individual requests for amendments to port priority use areas and marine terminal designations.

  In August 1999, staff developed an approach to gathering data and carrying out the monitoring program. It was decided to begin by collecting information to cover the period since preparation of the 1996 update of the Seaport Plan, and to continue collecting Bay Area cargo shipping information annually thereafter. Staff worked with each of the six Bay Area ports to collect data on the number of ship calls and tonnage handled at the individual terminals for the years 1994-1998. In 2000, staff updated the cargo monitoring program with data from the ports for the year 1999. Staff will continue to update Bay Area cargo data and present the information the SPAC and the Commission on an annual basis. This task is included in the Commission's general fund budget.

- **Airport Planning.** Acknowledging potential impacts to the Bay that could result from future airport expansion along its shoreline, in 1998 MTC and ABAG invited BCDC to join them as a signatory agency on the Regional Airport Planning Committee (RAPC), whereupon the RAPC initiated an update of the RASP designed to assess the region's future air transportation needs. The Commission worked closely with MTC, ABAG, the FAA, and local airports throughout the update process to gain a greater understanding of the aviation industry and how its operations affect local and regional airport planning. In November 2000, the RAPC amended the RASP, concluding that expansion at all three Bay Area airports—San Francisco International, Oakland International, and San Jose International—was needed to meet air travel demand. The Commission is able to continue its airport planning work under an agreement whereby San Francisco International Airport provides consultant funding to BCDC. Additionally, as an outgrowth of an Independent Scientific Panel organized by the National Oceanic and Atmospheric Administration in 1999 to identify the critical issues in need of analysis in the EIR/EIS, a peer review process has been established for the review of the environmental studies.

- **Oil Spill Contingency Planning,** Funded by the state Office of Oil Spill Prevention and Response, BCDC implements the provisions of the 1990 California Oil Spill Prevention and Response Act that require BCDC to participate in programs designed to prevent oil spills in San Francisco, San Pablo and Suisun Bays. BCDC's efforts in preventing oil spills helps to protect over a 1,000 species of fish and wildlife species that live in or visit San Francisco Bay, several of which are threatened or endangered, and the habitats that they need to survive. BCDC also participates with federal, state and local agencies, and industry in the development of comprehensive oil spill response plans for this geographic region.

  The principal focus for the BCDC oil spill program since 1996 has been navigational safety and oil spill prevention. A BCDC commissioner and a staff member serve on the San Francisco Bay Harbor Safety Committee, and BCDC is also a member of the U.S. Coast Guard's Area Contingency Planning Committee. In these roles, BCDC continues to work within these committees, assisting federal, state and local agencies, marine facilities, vessel and tow companies, and harbor pilots in the development and implementation of strong regulations and procedures for vessel and facility safety, public health, and environmental protection. In addition, by law, BCDC reviews oil spill contingency response plans for the more than 40 marine facilities around the Bay. BCDC oil spill staff also participate in oil spill drills and training exercises around the Bay and assist the BCDC enforcement and permitting programs on matters that may raise navigational safety or oil spill issues.

  In addition, BCDC staff chairs the U.S. Coast Guard's Area Planning Committee's Volunteer Coordination Sub-committee, which oversees the development of a program that would address local community preparedness, use of volunteers in the event of an oil spill, and public outreach. BCDC also continues to support the expanded application of GIS and the NOS Physical Oceanographic Real-Time System (PORTS) (which provides actual current, tide, salinity and wind data for San Francisco Bay) for use by those in the maritime field. This information can

also be used during a spill and, combined with the local knowledge of harbor pilots, commercial fishing interests, and environmental organizations, it could increase the accuracy of spill trajectory projections and contribute to faster, more efficient response.

### Opportunities for Improvement

- **Power Plant Study.** California's power emergency began in mid-2000, when a warmer than usual summer increased demand and the newly deregulated utilities were unable deliver sufficient power to Silicon Valley and also raised rates three to four fold in one month in the San Diego area. These occurrences resulted in major hardships to many residential rate payers and small businesses as well as blackouts in Silicon Valley. Unable to pay their utility bills, small businesses in San Diego were forced out of business, at least temporarily, while the city and the state searched for solutions to the problem.

  The situation expanded and the two biggest power utilities in the state, Southern California Edison and Pacific Gas and Electric, claim that they are both dangerously close to bankruptcy. As in San Diego, the power problems threaten to affect the entire economy, as large and small businesses are uncertain whether they can afford to continue to do business in the state. As an example, Intel Corporation, the world's largest manufacturer of computer chips, announced that it would no longer expand its plants or build new ones in California until the state resolves its problems, such as the sporadic threats of rolling blackouts and soaring prices.

  The crisis appears to be the result of the deregulation of the utility companies, the lack of new construction of electric power plants and an increase in demand. As the state's population increased and the economy grew rapidly, no new power plants were built in the state. At the same time deregulation affected the industry, increased demand and static supply created a recipe for large increases in the wholesale market and soaring rates for utility companies and their users.

  In response to the emergency, Governor Gray Davis has proposed a strategy that includes the creation of a new public agency, which would be responsible for constructing new power plants. The creation of new power plants should increase California's control of its power resources and reduce dependency on wholesale power generators. The California governor pledged to set aside $1 billion to address the issue and stated that he would also be willing to commit state owned land to provide sites for the new plants.

  Many California officials support the Governor's plan, which will greatly increase the number of new power plant proposals in the state, potentially along California's coast and the San Francisco Bay. BCDC has the authority, through its legislation, to determine those areas within its jurisdiction that are not suitable for power plants. Through its *Thermal Power Plant Non-Siting Report*, BCDC is required to identify those locations where power plants may not be sited, due to sensitive resources or a conflict with another priority use identified in the Bay Plan. The report has not been updated in ten years and does not reflect recent

habitat restoration projects in the Bay and amendments to the Bay Plan. In order to respond to the anticipated power plant proposals and to ensure that adequate and appropriate sites are available along the shoreline of the Bay, BCDC needs to work closely with the Energy Commission to update this report in a timely manner.

- **Ferry Terminal Siting.** The Commission should work with the new San Francisco Bay Water Transit Authority to develop policies and possible priority use area designations to reserve appropriate sites for ferry terminals that may be proposed by a new regional water transit plan.
- **Seaport Planning.** Development demands along the waterfront have heightened interest in a number of areas designated in the Bay Plan for priority shoreline uses, particularly port areas. Commission efforts to monitor Bay Area cargo activity indicate a need to reassess the forecast for cargo growth that forms the basis for policies and land use designations included in the *San Francisco Bay Area Seaport Plan*. It is expected that following an update of the waterborne cargo forecast for the Bay Area, a revision of the Seaport Plan, particularly in some cargo areas, may be needed. This undertaking will require extensive coordination with the Bay Area ports and local jurisdictions to develop appropriate policies and land use designations necessary to retain the level of port activity required to meet long term cargo projections.
- **Oil Spill Prevention and Response Program.** Additional BCDC Oil Spill Prevention and Response Program initiatives could include amending the Bay Plan to recognize the environmental benefits of navigational safety and oil spill prevention and the existing agencies and organizations dedicated to these issues.

  The Bay Plan does not contain policies on navigation safety. Much information about Bay navigation and safety hazards is developed through the San Francisco Bay Harbor Safety Committee as part of its role in oil spill prevention planning. Moreover, additional information on navigation obstacles is available from detailed bathymetric information developed by the National Ocean Service, USGS, and the Corps of Engineers. This information is currently being referenced and used as a basis for a possible navigational safety and oil spill prevention element that could be included in the Bay Plan.

  In addition to considering amending the Bay Plan, BCDC's Oil Spill Prevention and Response Program could explore measures that could improve the safety of shipping of hazardous chemicals by tanker in the Bay, such as requiring tug escorts. It could also develop one or more regionwide, or "blanket" permits, that would pre-authorize certain response and clean-up activities in BCDC jurisdiction and could be used in the event of an oil spill emergency, and/or that pre-authorize certain projects or improvements that would make navigation safer in San Francisco Bay without creating any significant adverse affects on the environment.

  All of the above initiatives would help BCDC carry out the goals and objectives of California's McAteer-Petris Act and its Lempert-Keene-Seastrand Oil Spill Prevention and Response Act which are aimed at protecting San Francisco Bay and its environment now and for future generations.

- **Airport Planning.** By broadening BCDC's ongoing work with the Metropolitan Transportation Commission, the Association of Bay Area Governments, the Federal Aviation Administration and local airports to address the need for expanded airport facilities along the Bay shoreline, the Commission will ensure that BCDC's airport policies reflect current information on the aviation industry in the Bay Area, consistent with the *Regional Airport System Plan*. This effort should be undertaken only after the Commission considers any application submitted by San Francisco International Airport for a runway configuration project.

### Coastal Hazards

Program objectives address the need to prevent or significantly reduce threats to life and destruction of property by controlling development and redevelopment in high hazard areas, managing development in other hazard areas, and anticipating and managing the effects of potential sea level rise.

| Hazard | High Risk | Medium Risk | Low Risk |
|---|---|---|---|
| Hurricane/Typhoons | | | x |
| Flooding | | x | |
| Storm Surge | | x | |
| Episodic Erosion | | x | |
| Chronic Erosion | | x | |
| Sea Level Rise | x | | |
| Subsidence | x | | |
| Earthquakes | x | | |
| Tsunamis | | | x |

**Background.** San Francisco Bay is located in an active and dangerous seismic zone. Earthquakes can destroy structures and breach levees that protect low-lying areas adjacent to the Bay. Improper placement of fill can magnify ground shaking and the destructive force of earthquakes and contribute to ground failure and collapse of structures. Substandard engineering of old fill encircling much of the Bay heightens risks to persons and property in the shoreline area. Chronic hazards, including relative sea level rise and shoreline erosion, are potentially equally damaging to the Bay Area. Secondary effects may include damage to storm water drainage and sewer systems and saltwater intrusion into surface and below ground fresh water aquifers.

**BCDC's Coastal Hazards Program.** Section 66605(e) of the McAteer-Petris Act requires the Commission to ensure that any fill project it approves in the Bay is "constructed with sound safety standards which will afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters." Further, the Bay Plan offers specific policies on safety of fills and sea level rise to reduce the risk of life and damage of property.

By undertaking studies, developing policies and implementing them through permit review and intergovernmental coordination, the Commission has actively responded to the potential danger created by natural hazards. The Commission primarily uses the permit review process and its advisory Engineering Criteria Review Board to minimize hazardous effects in new Bay fill areas. Pursuant to the McAteer-Petris Act, BCDC exercises safety authority in its "bay" jurisdiction; however, in its shoreline band jurisdiction, the Commission's authority is generally limited to assuring that proposed projects provide maximum feasible public access to the Bay or that priority use areas are reserved for their designated uses (Section 66632.4). The Commission does not have safety authority in the shoreline band under the McAteer-Petris Act.

**Seismic Hazards.** The Safety of Fills section of the Bay Plan recognizes the risks to life and damage to property related to construction on filled lands. A number of measures are intended to minimize these risks, including extensive project review and permit conditions specifying methods of construction and fill placement. Because so much of the land within the Commission's shoreline band jurisdiction is old, non-engineered fill, structures are as susceptible to earthquake damage in these areas as on new Bay fill.

Fundamental to BCDC's program in addressing coastal hazards is the Engineering Criteria Review Board (ECRB), established to consider seismic safety conditions. The ECRB reviews permit applications for major Bay fill projects to ensure that appropriate state-of-the-art safety criteria are used in their design and construction. The Board has been highly successful in establishing and revising safety criteria for fills and structures; reviewing projects for safety provisions and providing recommendations for improvements; developing an inspection system; and gathering performance data on specific projects. These activities are intended to complement the functions of local building and planning departments. Over the past two decades, ECRB review has resulted in significant improvements in the seismic engineering of fills and structures placed on them.

**Sea Level Rise.** The Bay Plan's Safety of Fills findings and policies were amended in 1989 to recognize the impact of accelerated relative sea level rise and to incorporate tidal flood protection engineering design review procedures and criteria into the Commission's permit review process. (Relative sea level rise refers to the sum of (1) a rise in global sea level and (2) land elevation change (lifting or subsidence).) Rising relative sea level may contribute to overtopping of levees that protect urban development, agricultural lands, managed wetlands, and salt evaporation ponds. The rise in water level would be particularly damaging during storm surges and extreme high tides. A rapidly rising Bay could inundate unprotected low-lying areas, increase periodic flooding of previously protected low-lying areas, disrupt storm drainage systems, erode tidal marsh, shoreline and beach areas, and lead to salt water intrusion into fresh water tributaries and groundwater. The Commission held a workshop in the late 1980s for local governments and interested parties to explain relative sea level rise and steps local agencies can take to address its impacts. However, the Commission's outreach program to local government on sea level rise was curtailed. The staff engineer has focused on major transportation projects that have been proposed in the last several years.

**Shoreline Erosion.** Shoreline erosion threatens structures, roads, recreation facilities, and farmlands. Most of the Bay's shoreline is retreating inland as storms, rain, waves, water runoff, vertical and horizontal land movement, and changes in water level (relative sea level rise) erode the shoreline. The Protection of the Shoreline section of the Bay Plan incorporates findings and policies to guide BCDC's permit actions concerning shoreline erosion protection projects. New erosion control projects or reconstruction and maintenance efforts are authorized if found to be necessary, appropriate to the site, and properly engineered and constructed. Since the Commission has adopted these policies, the staff has worked with shoreline protection project applicants and their engineers to ensure that shoreline protection projects are consistent with the Commission's policies.

**Subsidence.** Land subsidence can result from natural events such as earthquakes, but also can be hastened to a great degree by human activities. Common reasons for subsidence in the Bay Area are the placement of heavy fill on Bay mud and extensive pumping of groundwater, which in turn can cause flooding, erosion and groundwater contamination. Without levees or other protective measures, flooding would be of particular concern to areas of the South Bay that have experienced extensive subsidence.

BCDC is limited to recommendations and conditions to minimize the threat of subsidence created by activities outside its jurisdiction, such as groundwater pumping. These conditions, which could include diking and leveeing affected areas, can only respond to the undesirable effects of the activities, rather than prevent land from subsiding. Compounding the problem is the limited knowledge regarding the precise locations of groundwater reservoirs. As part of BCDC's dredging program and in addition to other research developed through the Long Term Management Strategy (LTMS) for dredged materials disposal in the region, Commission staff is working closely with the state Department of Water Resources and the U.S. Army Corps of Engineers to conduct pilot projects to test the suitability of dredged material for stabilizing levees in the Sacramento-San Joaquin Delta. In developing an avenue for the safe disposal of dredged spoils, the proposed program to protect hundreds of miles of Delta levees could prove to be of equal benefit to San Francisco Bay. Salinity impacts of importing Bay material to the Delta is a continuing concern. Future demonstration projects will likely be situated in the Suisun Marsh area, where benefits of such projects can be demonstrated and potential salinity impacts evaluated.

**Conclusions of Previous Assessment.** BCDC has been recognized as a national leader in addressing coastal hazards, particularly in seismic safety and sea level rise. The Commission should improve its coastal management program by working cooperatively with local governments to ensure development in shoreline areas incorporates current safety standards. The Commission should seek the passage of legislation that would provide it with the authority to address seismic and flooding issues in all areas under its permit jurisdiction, not just in the Bay. These improvements to the Commission's program should be accomplished through reestablishing a permanently funded staff engineering position. Additional benefits to local planning agencies and to resource protection agencies could be realized through expanding the Commission's geographic information system (GIS) activities to identify those areas most in jeopardy of the effects of sea level rise and subsidence.

**Changes in BCDC's Coastal Hazards Program since Previous Assessment**

| Mechanism | Changes Since Last Assessment |
|---|---|
| Building restriction | None |
| Repair/rebuilding restrictions | None |
| Restrict "hard" shoreline protection structures | None |
| Restrict renovation of shoreline protection structure | None |
| Beach/dune protection | None |
| Permit compliance program | Moderate |
| Inlet management plans | None |
| SAMPs | Moderate |
| Local hazards mitigation planning | None |
| Innovative procedures for dealing with takings | None |
| Methodologies for determining setbacks | None |
| Disclosure requirements | None |
| Publicly funded infrastructure restrictions | None |

- **Engineering Support.** Through an interagency agreement with the California Department of Transportation (Caltrans), funding was provided to the Commission for one full-time engineer who devoted a major portion of his or her time to coordinating with Caltrans on its proposed projects and to engineering issues in other proposed permits and planning projects. The agreement with Caltrans was originally a one-year pilot program that expired at the end of FY 1996-97. Because of the uncertainty of the continuation of the reimbursement agreement, the Commission submitted a request for a General Fund augmentation for FY 1997-98. This allocation was not approved. However, because the program worked successfully during the first year, Caltrans and the Commission agreed to extend the program for another three years.

  A significant portion of the staff engineer's work has focused on major transportation projects that were proposed to reduce the Bay Area's strangling traffic and to address the region's seismic activity. Included in the recent projects were major seismic retrofit projects on all Bay Area bridges; new Carquinez and Benicia Bridges; a widened San Mateo-Hayward Bridge; the replacement of the Cypress Freeway in Oakland that was destroyed in the Loma Prieta earthquake; a new east span of the San Francisco-Oakland Bay Bridge; widening of the approach to the Dumbarton Bridge; and a number of high occupancy vehicles lanes on Interstate 80 and 580, and Route 101. This transportation workload prevented the staff engineer from doing any significant work on coastal hazards. Restoring the Commission's engineer staff position would allow a broader range of engineering and program review to work to be undertaken, including as related to coastal hazards.

- **Shoreline Safety.** Legislation was introduced by Assemblymember Aroner in the 1999-2000 session that would have allowed the Commission to address seismic and wildlife habitat aspects of projects proposed in its shoreline band permit jurisdiction. Although BCDC's jurisdiction would not have been expanded by application of its existing authorities to shoreline band projects, the legislation was controversial. The final legislative language in AB 954 that was signed into law addresses impacts on wildlife habitat when the Commission considers public access projects in the shoreline band.

**Opportunities to Improve BCDC's Coastal Hazards Program.** The Commission should improve its coastal management program by working cooperatively with local governments to ensure that development in shoreline areas incorporates current safety standards.

- **Planning for Sea Level Rise.** BCDC could update its landmark study of the effects of sea level rise on the Bay, and the Safety of Fills Bay Plan policies, incorporating applicable scientific knowledge developed since the adoption of the Bay Plan sea level policies in 1989. The Commission could conduct workshops to coordinate with local governments and interested parties to develop programs to address impacts of sea level rise. BCDC also could institute a collective effort of Bay Area governments to use both Commission, local and other resources to re-establish geodetic bench marks needed to accurately determine relative sea level and the risks associated with relative sea level rise.

### Marine Debris

Program objectives address the need for reducing marine debris entering the nation's coastal and ocean environment by managing uses and activities that contribute to the entry of such debris.

**Background.** Debris in the Bay can threaten environmental resources, endanger marine life, and pose risks to public health and safety. Bay debris originates from a variety of sources including recreational users of the Bay and shoreline, urban storm drains, and municipal waste water treatment plants. Water quality varies significantly within the Bay due to the pattern of waste discharges and the varying capability of the Bay to disperse and flush these discharges.

Plastics are considered to be the most harmful debris to the marine environment and to marine life and are the most common type of debris found in the Bay. The light weight of plastic items threaten marine mammals and birds with entanglement or ingestion. Even when plastic debris break into smaller pieces in the water, particles remain a danger to the marine environment for decades.

Hazards to navigation are presented by logs, pilings and other forms of large debris floating in the Bay. Deteriorating pile-supported structures are found along some areas of the shoreline. San Francisco's waterfront, in particular, features a number of deteriorating piers, elements of which can break free to create hazards to large and small vessels.

Storm water runoff is directed into the Bay through a network of open channels, drain pipes and street gutters. Catch basins are designed to limit the amount of debris entering the storm drains; however, many are not designed to stop smaller solid waste products.

**BCDC's Marine Debris Program.** Because of the regulatory authority of the State and Regional Water Boards, the EPA, and the Army Corps of Engineers, the Bay Plan does not deal extensively with the problems and means of waste control. However, the entire Bay Plan is founded on the belief that water quality in the Bay should be maintained at levels sufficiently high to protect the beneficial uses of the Bay. The McAteer-Petris Act (Section 66646.1) states that the policies, decisions, advice and authority of the State Water Resources Control Board and the San Francisco Bay Regional Water Quality Control Board should form the basis for the Commission in carrying out its water quality responsibilities for San Francisco Bay. Section 66632(e) of the Act further requires that copies of project applications filed with BCDC be submitted to the Regional Water Board, which in turn files a report on the project's potential adverse effects to Bay water quality. By including in permits that it issues specific water quality conditions that help to implement the standards of the Regional Board, the Commission can work with the Board to protect the public and the beneficial uses of the Bay.

**Conclusions of Previous Assessment.** Successful recycling programs enacted in localities throughout the Bay Area have helped to reduce the levels of solid waste that can enter the Bay. As the Bay Area's population continues to grow, these efforts as well as those of relevant regulatory agencies will become increasingly critical to reducing marine debris. Due to ongoing budget and staff constraints, BCDC is unable to assign adequate resources to the debris issue. However, with an expanded public outreach effort, the Commission could contribute to a multi-agency public education campaign similar to the Adopt-a-Beach program sponsored by the Coastal Commission, such as an "Adopt-an-Access" program that would involve Bay shoreline communities and nonprofit organizations concerned with the quality of the Bay's natural resources. BCDC approval for marina development could require that recycling programs be made available for marina users. The Commission should continue to strive to maintain the quality of the Bay's waters through its functions under its Memorandum of Agreement with the Regional Water Board, and continue to support and cooperate with other agencies charged with regulating water quality and addressing debris issues.

**Changes in BCDC's Marine Debris Program Since Previous Assessment**

| Source | Impact | Type of Impact |
|---|---|---|
| Abandoned and sunken vessels | Significant | Navigational hazards |
| Non-permitted anchor outs, houseboats | Significant | Navigational hazards; water quality impacts |

c. **Alviso Slough.** An inter-agency task force was established in 1995 to clear the mouth of Redwood Creek in San Mateo County of abandoned and sunken vessels, resulted in the successful removal of 80 vessels. Following the success of the "Operation Aqua Terra" joint enforcement effort, representatives from federal, state and local agencies and elected officials formed the "Alviso Slough Cleanup Group" to address a similar situation in Alviso Slough in the South Bay. This effort resulted in the removal of 30 abandoned and sunken vessels and six out of a total of nine illegal live-aboard vessels. Funding for these activities was obtained from the state Bay Fill Clean-up and Abatement Fund. To force the removal of the remaining three live-aboard vessels, BCDC acted independently

from the task force and issued three cease and desist and civil penalty orders in 1997. Compliance with one of these orders has been achieved and the other two were referred to the California Attorney General's Office. The Attorney General obtained final judgments that ordered removal of the unauthorized houseboats and the payment of appropriate penalties. The two parties have not complied with these court orders and the staff is seeking other methods of enforcing the order.

- **Richardson Bay.** Since the Commission obtained "bay" jurisdiction in 1965, the Commission has had significant enforcement concerns in Richardson Bay due to a sizable and growing houseboat and anchor-out community and extensive marinas along the Sausalito shoreline. In 1984, the *Richardson Bay Special Area Plan* (RBSAP) was adopted jointly by the Commission, Marin County, and the Cities of Sausalito, Tiburon, Belvedere and Mill Valley. The RBSAP contains the findings and policies that guide the Commission, the cities and the county in authorizing uses and development in Richardson Bay. In 1985, the Richardson Bay Regional Agency (RBRA) was created by a joint powers agreement among the cities and County. The agreement provides that the RBRA's governing body shall maintain and implement the provisions of the RBSAP including the regulation of mooring, dredging and navigational channels; the coordination of public services and facilities such as police and fire protection, sewage pump-out facilities and public docks or moorings; and the undertaking of enforcement actions.

  In 1995, the RBRA hired a full time Harbor Administrator and undertook an ambitious plan to systematically remove navigational hazards, derelict structures and anchor-outs from Richardson Bay. From 1995 to 1998, the RBRA removed 82 vessels including four houseboats. Most of the removed vessels had been used as residences on Richardson Bay at one time or another, and at least 22 of those were anchor-out vessels at the time they were removed. Approximately 45 of the removed vessels posed a severe navigational threat. An additional thirty or 40 vessels have visited but moved on from Richardson Bay as a result of the RBRA's effort to track vessels and discourage permanent anchorage. In 2000, the RBRA removed another 60 vessels or other structures. Approximately 89 non-authorized vessels remain in Richardson Bay.

  The Commission works closely with the RBRA to track the arrival and removal of non-authorized vessels and provide enforcement support and assistance. Commencing in 1998, the staff assigned a liaison to attend the regular RBRA meetings. This contact has increased the staff's understanding of the physical and legal impediments to removing non-authorized vessels, and the staff believes it has been able to inform the RBRA about the Commission's concerns with illegal vessels. Further, the staff has assisted the RBRA on projects such as developing a recent legislative proposal to streamline the process to remove abandoned vessels. Finally, the Commission has provided funds available through a $750,000 account established by Caltrans to be used as mitigation for the fill needed for the seismic retrofit of the Richmond-San Rafael Bridge for use by the RBRA in removing sunken and derelict vessels. The RBRA and the Commission will continue their individual and joint efforts to remove these navigational hazards from the Bay.

**Opportunities for Improvement.** BCDC has demonstrated that it has an important role in addressing issues related to marine debris, particularly that in the form of Bay fill. Through partnerships with other interested agencies, the Commission can assist local governments address major clean-up and removal efforts. Through its Enforcement Committee and Compliance Assistance Task Force, BCDC has contacted local governments and the public to inform them of BCDC's program, thereby advancing efforts to reduce the amount of debris entering the Bay.

### Ocean Resources

Program objectives address the need for planning for the use of ocean resources.

The jurisdiction established by the McAteer-Petris Act for the San Francisco Bay Conservation and Development Commission delimits its westernmost boundary as the line from Point Bonita in Marin County to Point Lobos in San Francisco. This is a shared boundary with the California Coastal Commission, the state agency charged with administering the coastal management program for the Pacific Ocean segment of the coastal zone. Thus, as BCDC's management program operates under the Act, ocean waters do not fall within the Commission's authority, but under that exercised by the California Coastal Commission.

Please refer to the Wetlands and Cumulative and Secondary Impacts sections, respectively, for related discussion on habitat and dredged material management planning for San Francisco Bay.

### Aquaculture

Program objectives address the need for considering siting of marine aquaculture facilities while maintaining current levels of coastal resource protection.

Primarily as a result of lingering water quality issues, it is not anticipated that an aquaculture program for San Francisco Bay will be developed in the near future. Past experience with oyster farming in the Bay proved not to be cost effective, when oysters had to be relocated out of San Francisco Bay to Tomales Bay to flush toxins deposited in the oysters before being marketed. Studies continue to show high levels of toxins in the Bay, and warnings have been issued by the Regional Water Board and local departments of public health as to potential adverse effects caused by eating fish caught in the Bay.

## Response to Comments

The Commission held two public workshops on February 8, 2001 to solicit public comment on the Commission's draft program assessment, in addition to a formal public hearing on March 1. Following are the comments on the assessment received from the public and the staff's response.

### Public Access

*Provide Signage*: A number of workshop participants emphasized the need to provide more signs to inform the public of access to the Bay. Specifically, they noted that developed areas may appear to be private property or otherwise not accessible to the public when public access is in fact available.

**Response**: A discussion of the potential to improve BCDC's public access signage program is included in the assessment discussion of public access.

*Promote Public Access*: Several comments referred to the need to promote the Bay as an accessible and a valuable resource, through public education about access, activities, and resources of the Bay.

**Response**: A discussion of the need for BCDC to develop an extensive public outreach program is included in the assessment.

*Living on the Waterfront*: One participant stated that BCDC needs to better accommodate people's desire to live near the water and should encourage smart development of housing along the shoreline.

**Response**: A discussion of the Commission's efforts to create sustainable development, or "smart growth" strategies for the Bay Area is included in the assessment discussion of cumulative and secondary impacts of development.

*Landscaping*: A representative from the Native Plants Society suggested that BCDC enhance its efforts to work collaboratively with his organization and commercial landscapers when designing landscaping for public access areas. Important considerations in the landscaping should be the location of the trail and how landscaping can be used to enhance public access and still provide a buffer that protects the environment.

**Response**: BCDC staff has been meeting with members of the Native Plants Society to gain information to update the Commission's Landscape Design Guidelines. A discussion of the need to update the guide is included in the Public Access section of the assessment.

*Improved access*: BCDC was complimented on the significant headway it has made in increasing and improving public access to the Bay.

**Response**: Comment noted.

**Wetlands Protection**

1) BCDC should approach wetland protection from a *regional perspective*. 2) *Private wetlands* should be considered for protection. 3) BCDC also should assess the efficacy of wetlands for *mitigating stormwater runoff* and other releases as well as the need to address *invasive cord grass*.

**Response:** These issues will be discussed in the background report underpinning the update to the Marshes and Mudflats and Fish and Wildlife *San Francisco Bay Plan* (Bay Plan) policies. The *Baylands Ecosystem Habitat Goals* project recommends a regionwide mosaic of protected and restored wetlands, and informs the Commission's background report. From the background report, new findings and policies will be added to the Bay Plan as part of the amendment process. Specifically, the Bay Plan amendment process for the Marshes and Mudflats and Fish and Wildlife policies will be initiated in spring of 2001. See the Wetlands Protection and Restoration section of the assessment for further discussion.

*Transportation Planning*: BCDC should work with the Metropolitan Transportation Commission to design transportation routes in and around wetlands to avoid adverse impacts to wetlands.

**Response:** A discussion of an interagency agreement with the California Department of Transportation (Caltrans) whereby funding is provided to BCDC for a senior engineer is included in the Coastal Hazards section of the assessment. BCDC policies do not allow filling of wetlands except where it is demonstrated to the Commission that no feasible alternative upland site is available to achieve the purpose of a specific project, and then require appropriate mitigation for any lost resources.

*Public Education*: BCDC should seek funding to broaden its community outreach efforts and develop a Bay Area curriculum on wetlands.

**Response**: A discussion of the need for BCDC to develop an extensive public outreach program is included in the assessment. The Commission also stresses partnering with other government and non-government groups in planning for the Bay. A wetlands curriculum could be a candidate for a joint public information program that would necessarily involve the appropriate resource agencies as well as local school districts.

**Cumulative and Secondary Impacts of Development**

*Creek restoration*: BCDC should develop policy and provide education in support of daylighting creeks that are tributaries to the Bay.

**Response:** The Commission is a member of the San Francisco Bay Joint Venture, which addresses Bay Area creek restoration. See the assessment Wetlands section for more about the Joint Venture.

*Increase the size of the Bay*: BCDC should attempt to restore more open water area, not just wetlands, in the Bay.

**Response:** BCDC's vision statement states that the Commission will be relied upon to lead in achieving a larger, healthier Bay. The Commission pursues its vision through its ongoing regulatory and planning programs. The *San Francisco Waterfront Special Area Plan* is one example where the Commission worked with a local jurisdiction to create open water areas. Further discussion of this process is included in the Special Area Management Planning section of the assessment.

*Ferries*: BCDC should provide leadership in ensuring that ferry transportation planning includes regional coordination with other transportation systems and responds to community input. BCDC should outlaw diesel ferries because of the pollution associated with operation.

**Response:** The Commission will work with the new San Francisco Bay Water Transit Authority to reserve appropriate sites for ferry terminals that may be proposed by a new regional water transit plan.

*Jurisdiction*: 1) BCDC should claim the entire 100-foot coastal boundary around the Bay as the legal jurisdiction of the Commission; BCDC should not negotiate this buffer zone to be less than 100 feet. 2) The public needs to have a better understanding of the relationship between the Tideland Trust and BCDC.

**Response:** 1) BCDC exercises permit authority over the Bay and a 100-foot wide shoreline band adjacent to and surrounding the Bay. In general, public access is required of projects proposed in the shoreline band; the open access area often includes much of the shoreline band at a project site. 2) Informing the public of BCDC's authority as it relates to the Tideland Trust could be included in any public outreach program the Commission develops.

*Polluted runoff*: BCDC should provide leadership to revamp the current National Pollutant Discharge Elimination System (NPDES) permit process.

**Response:** The Commission discusses its responsibilities in addressing NPDES in the Cumulative and Secondary Impacts section of the assessment.

*Exotic species*: BCDC should have policies for addressing exotic species brought to the Bay via ballast water from foreign ships.

**Response:** The role ballast water exchange plays in the introduction of exotic species to San Francisco Bay will be discussed in the background report underpinning the update to the Marshes and Mudflats and Fish and Wildlife *San Francisco Bay Plan* (Bay Plan) policies. From the background report, new findings and policies on invasive species which address measures the Commission can take to minimize their introduction into the Bay will be added to the Bay Plan as part of the amendment process. Specifically, the Bay Plan amendment process for the Marshes and Mudflats and Fish and Wildlife policies will be initiated in spring of 2001.

### Energy and Government Facility Siting

*New facilities*: BCDC should consider no new energy or government facilities unless they are intended for maritime use or public access.

**Response:** The California Energy Commission has sole permitting authority for siting of power plants throughout the state. The Commission is charged with assisting the Energy Commission by identifying those Bay shoreline sites that are inappropriate for thermal power plants, e.g., wildlife areas. Updating BCDC's power plant study is a high priority for the Commission.

*San Francisco Airport Expansion*: BCDC should provide better public outreach and education materials on its role in the expansion of the San Francisco Airport, including the extent of its jurisdiction over this project. This information could be provided on the Internet in a user-friendly manner.

**Response:** The airport maintains an informational web site related to its runway expansion planning. The Commission maintains an extensive mailing list that is used to disseminate briefing and other informational materials on this issue on a regular basis. The Commission is currently investigating alternative methods of disseminating information related to airport planning; establishing a web site is among of those options being considered.

### Coastal Hazards and Marine Debris

*Abandoned vessels*: The Commission should work to remove derelict houseboats and other abandoned vessels.

**Response:** The Commission's efforts to eliminate navigational hazards presented by abandoned vessels are discussed in the Marine Debris section of the assessment.

*Health hazards*: BCDC should include warnings in its signage regarding health threats presented by high pollutant levels in the Bay on subsistence fish consumption.

**Response:** This recommendation has been included in the assessment discussion of Public Access.

*Two-stroke engines*: BCDC should eliminate all use of two-stroke engines on the Bay.

**Response:** Through the Clean Boating Program, BCDC works with the Coastal Commission to educate recreational boaters and marina operators about this and related issues. This program is discussed in the Cumulative and Secondary Impacts section of the assessment.

### Public Involvement

*Public outreach:* Participants suggested public outreach and education would help to alleviate confusion regarding BCDC's jurisdiction and mission. Participants also stressed the importance of BCDC actively engaging, and not simply reacting to, the public. A number of participants expressed a desire to see BCDC become more "accessible" to the general public. People stated that the formality of BCDC meetings is often intimidating to members of the public, specifically low-income or minority communities around the Bay.

The public workshop was cited as a good example of proactive engagement. Participants also complimented BCDC on the content and graphic appeal of its new brochure.

**Response:** One of the fundamental goals of BCDC's strategic plan to improve the manner in which the Commission and its staff carries out their responsibilities concerns increasing the public's understanding of BCDC's mission, jurisdiction and authority. An organized public information program to educate Bay Area residents about BCDC's management program for San Francisco Bay would expand public awareness of, and appreciation for, the Commission's activities. Increased public participation in BCDC's efforts on behalf of the Bay would in turn contribute to the success of regional planning efforts. The importance of developing a public outreach program is discussed in the assessment under Public Involvement.

## Program Enhancement Strategy

### Budget Summary

| Program Change | FFY 2001 | FFY 2002 | FFY 2003 | FFY 2004 | FFY 2005 | Total |
|---|---|---|---|---|---|---|
| Power Plant Siting Study | $120,000 | | | | | $120,000 |
| Public Access Program Improvements | $70,000 | $170,000 | $365,000 | $105,000 | | $710,000 |
| Bay Planning and Management Partnerships | $160,000 | $350,000 | $355,000 | | | $865,000 |
| Special Area Management Planning | $125,000 | $125,000 | $100,000 | $110,000 | | $460,000 |
| Wetlands Program Improvements | $80,000 | $130,000 | | $110,000 | $325,000 | $645,000 |
| **Total** | $555,000 | $775,000 | $820,000 | $325,000 | $325,000 | $2,800,000 |

### Program Change #1: Energy and Government Facility Siting—Update Thermal Power Plant Siting Study

The Commission, as required by the McAteer-Petris Act, has designated those areas in and around the Bay where the siting of a thermal power plant would be inconsistent with the Commission's laws and policies. This study is based on information developed in the late 1970s and is out of date. The McAteer-Petris Act requires the Commission to update the power plant siting study every five years, however, because of lack of resources the study has not been updated since 1991.

With deregulation of the electric power industry in California in 1996, California electric utilities have been selling their power plants to electricity wholesalers. New power plants have not been built and some existing power plants have been closed. Moreover, the demand for power in California and the Bay Area has increased substantially in the past decade. As a consequence, electric power generation has not kept pace with electricity demand and proposals for new power plants can be expected in the Bay Area, some of which may be proposed in the Commission's jurisdiction. These new power plants will probably be fueled by natural gas and may or may not require a shoreline location.

Because of the urgency of California's power needs and the likelihood that applications for new or expanded power plants will be soon submitted to the Commission, BCDC must update its power plant siting study and designations. To do this, BCDC must gather and analyze new information concerning the location needs of power plants; identify those areas around the Bay that are not suitable for the siting of power plants due to inconsistencies with the *San Francisco Bay Plan* (Bay Plan) or the *Suisun Marsh Protection Plan;* and work with the California Energy Commission to ensure that adequate and appropriate sites are available along the Bay shoreline for the construction of needed power plants.

The project will include working with the California Energy Commission and the energy producing and energy supply companies, reviewing changes in the distribution of Bay resources and to the Bay Plan policies due to restoration work or Plan amendments, developing new digital maps as part of BCDC's geographic information system, and re-writing the current report to make it more clear and concise.

**Coordination with Other Agencies and Organizations.** BCDC and the Energy Commission are required to work together on the development of the *Power Plant Non-Siting Report* and the location of power plants within BCDC's jurisdiction. Government Code Section 66645 (b) requires BCDC to "consider the conclusions, if any, reached by the State Energy Resources Conservation and Development Commission in its most recently promulgated comprehensive report." In addition to reviewing the most recent comprehensive report from the Energy Commission, BCDC staff will work closely with the Energy Commission in the update of the *Thermal Power Plant Non-Siting Report.* As part of the study, interaction and close coordination will be established with other state and federal agencies, such as the Department of Fish and Game, State Lands Commission, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Environmental Protection Agency and with non-governmental organizations, such as Save San Francisco Bay Association.

**Project Objectives.** The main objectives of the project are to ensure that adequate and appropriate sites are available along the shoreline of the Bay and that inappropriate sites are identified, such as those areas that contain sensitive resources and/or would create a conflict with another priority use. Additionally, the study will develop a report and geographic information system digital maps that reflect the most recent information regarding amendments, restoration and changes in technology and which are clear, concise and easy for everyone to use and understand.

- Because of the urgency of California's power needs, this project was identified as a high priority program change in BCDC's program assessment.
- The study has not been updated since 1991. A new study is required to reflect the significant changes in energy demands and technology, amendments to Bay Plan priority use areas and new restoration sites since that time.
- BCDC is required by the legislature to update the study every five years.
- Will enable BCDC to respond in a timely manner to any proposals for power plants around the Bay.

**General Work Plan**

a. *July—September 2001.* Data Collection: review existing BCDC policies, conduct a literature search on power plants and energy issues, meeting with other state agencies (e.g. Department of Fish and Game, Energy Commission, State Lands Commission) and with power providers (e.g. Enron, PG&E) to discuss the project and obtain feedback. A background report describing existing conditions will be developed from this information gathered during this phase of the project.

b. *October 2001—February 2002.* Analyze information and data and develop conclusions and recommendations. Upon completion of the background report, analysis will begin and include changes since the last comprehensive update of the report, such as amendments to the Bay Plan, restoration work that changed habitat values and any other changes that may effect the areas that should or should not be designated as non-siting locations. Additionally, analysis of recent technology and changes to industry practices will be conducted to determine if any recent advances either increase or decrease the need for power plants to be sited adjacent to water resources such as the Bay. Analysis of public access opportunities and the possible social justice issues involved in siting power plants will also be conducted to determine the importance of including these topics in the update of the report. A draft of the report findings and language will be developed based on this research and analysis.

c. *October 2001—April 2002.* Update current maps and convert them to a digital format. Work on updating the existing power plant maps will be occurring concurrently with the analysis portion of the project. The existing paper U.S.G.S. Quad Sheet maps are out of date both in the information that is provided and the technology that was used to develop the maps. In order to provide a meaningful set of maps, the project will include digitizing both the old and the new information to improve the convenience and utility of the maps. The mapping portion of the project will include making an inventory of existing and required data layers, retaining the services of a consultant to digitize old and new natural and cultural resource information and creating new data layers that will be used and regu-

larly updated in BCDC's GIS. The result of the mapping portion of the project will be a series of digitized maps designating sites where the location of power plants would be inappropriate. The maps will also include data layers depicting the public and private open space lands and parks around the Bay, the public access around the Bay and other natural and cultural resource information.

d. *April—September 2002.* Produce a revised Power Plant Siting Study and a suite of digital maps. The final products that will result from the work done in the study will be a comprehensively updated *Thermal Power Plant Non-Siting Report* and new maps to accompany the report. The updated report will reflect current information regarding changes around the Bay and to the Bay Plan policies, as well as any new technology or industry practices that have been developed since the last comprehensive update. Additionally, the report will be re-written and re-formatted to be more concise and provide greater clarity. The maps will be updated using GIS and will be much easier for staff, other agencies, the public and applicants to use.

**Summary of Estimated Costs**

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|---|---|
| Staff time (.5 personnel year) | $80,000 |
| Consultant assistance (mapping) | 40,000 |
| Total project cost | $120,000 |

**Likelihood of Achieving the Program Change.** Due to the availability of staff resources and the importance of updating the power plant study in the face of the current energy crisis, there is a high likelihood of achieving the program change. In response to the current energy crisis, California Governor Gray Davis has proposed a strategy that could significantly increase the number of power plants in the state of California. In order to respond to any new proposals in a timely and accurate manner, it is critical that the Commission have updated information. BCDC has not updated the existing report since 1991 and has never comprehensively updated the report. A comprehensive update is necessary to reflect the significant changes in energy demands and technology, amendments to Bay Plan priority use areas and new restoration sites since the study was first developed in the 1970s. BCDC is required by the legislature to update the study every five years. Due to past funding constraints, the study has not been updated since 1991. To ensure that the information in the study and on the accompanying maps is accurate and up-to-date, BCDC must comprehensively update the study. Since BCDC has the staff resources available to undertake a comprehensive update to the study and maps and because such an update is critical to responding to any new power plants in a timely and accurate manner, there is a high likelihood that BCDC will achieve the proposed program change, which includes comprehensively updating the *Thermal Power Plant Non-Siting Report* and developing a set of accompanying maps using BCDC's GIS.

**Program Change #2: Public Access—Public Access Program Improvements.** To further its program to improve public access to the Bay, the Commission should explore ways to increase public access and refine its policies related to public access, through such avenues as:

- **Update Public Access Design Guidelines.** Siting, design and management strategies can be used to avoid or minimize adverse effects of public access on wildlife. The relative success of specific siting, design and management strategies will vary from site to site. Appropriate strategies depend on the habitat, species present and future species use of the habitat, adjacent land uses, types and frequency of users, specific management objectives of the site, public input and available funding. Because the relative advantages and disadvantages of many strategies will vary, they are most appropriately provided as guidelines for public access development to be incorporated in the Commission's *Public Access Design Guidelines* (Guidelines).

  The Guidelines provide recommendations to assist permit applicants, developers, and design professionals to design and develop attractive, usable and safe public access as part of their projects. Although the Guidelines are advisory, they have been adopted by the Commission and are based on the Bay Plan public access policies. In the 16 years since the Guidelines were adopted by the Commission in 1985, in addition to siting and design techniques to avoid or minimize the impacts of public access on wildlife, new information on materials and designs of public access has evolved, and important trends have emerged that are not incorporated in the current Guidelines.

  As discussed in the assessment, carrying out one of the major recommendations of the Commission's Public Access and Wildlife Program—inclusion of siting and design guidelines to avoid or minimize adverse effects of public access on wildlife and the incorporation of new design information to improve public access generally—would provide essential information to the public and BCDC permit applicants. The revision of the Guidelines would include the participation of other interested public agencies and non-governmental organizations, such as the Coastal Conservancy, Save San Francisco Bay Association, the Audubon Society, and the Association of Bay Area Government's Bay Trail Project. The Guidelines are well recognized, accepted and well utilized; it is important that they be kept at the cutting edge of providing guidance on public access siting and design.

  - Update of the Guidelines identified as a high priority public access enhancement area in BCDC's program assessment.
  - Incorporation of siting, design and management strategies that can be used to avoid or minimize adverse effects of public access on wildlife a primary recommendation of BCDC Public Access and Wildlife Compatibility Program funded by OCRM.

  **General Work Plan**

  a. *July—September 2001.* BCDC staff working group draft revision of Guidelines, and review of draft Guidelines with Technical Advisory Committee (including members Policy Advisory Committee for the Public Access and Wildlife Compatibility Project, and additional interested parties). Revise Guidelines and retain consultant services to add graphics.

b. *October—December 2001.* Addition of graphics to Guidelines and review of revised Guidelines with Technical Advisory Committee. Adoption of Guidelines by Commission, and preparation and printing of final version.

**Summary of Estimated Costs**

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|---|---|
| Staff time (.25 personnel year) | $40,000 |
| Consultant assistance (cartographer, graphic design, printing) | 30,000 |
| Total project cost | $70,000 |

**Likelihood of Achieving the Program Change.** There is a high likelihood of completing and implementing this proposed change. Revision of the Public Access Guidelines is one of the major recommendations of the Commission's Public Access and Wildlife Program, and the Guidelines are referenced in the recently adopted revisions to the public access findings and policies. Revision of the Guidelines will provide essential information to the public and BCDC permit applicants and is imperative for the successful implementation of the revised public access policies.

- **Landscaping Guidelines.** The *Bay Shoreline Landscape Guide: Planting Materials and Methods for San Francisco Bay Shoreline Projects* was originally prepared by BCDC in February 1984. The guide provides recommendations for suitable plants and planting techniques for development projects on the San Francisco Bay shoreline.

  Over the past 16 years, the landscape guide has been well received by private developers, design consultants, other public agencies, individuals and other groups conducting work along the Bay shoreline. However, the information in the document is outdated and insufficient for current development practices.

  The Commission could join with the San Francisco Estuary Project, the Friends of the Estuary, and the California Native Plants Society to update the native plant list, which is the foundation of the landscape guide. The proposed revision would include other objectives as well, such as a discussion on the use of native plants and design guidelines for the transition from marsh habitat and other native zones to ornamental plantings. An updated *Bay Shoreline Landscape Guide* would provide the public with a much needed informational tool, one that would aid in improving water quality and increased resource value for wildlife.

  - Update of the Guidelines identified as a public access enhancement area in BCDC's program assessment.

**General Work Plan**

a. *January–March 2002.* Form Technical Advisory Committee (TAC), outline and complete research for revised Guide. Obtain consultant services for Guide graphics. Develop draft Guide.

b. *April—June 2002.* Revise draft Guide with TAC, revise Guide and circulate for comments. Prepare final landscape guide and print.

**Summary of Estimated Costs**

| | |
|---|---|
| Staff time (.25 personnel year) | $40,000 |
| Consultant assistance (cartographer, graphic design, printing) | 30,000 |
| Total project cost | $70,000 |

**Likelihood of Achieving the Program Change.** There is a high likelihood of completing and implementing this proposed change. There is a great interest in revision of the document both within BCDC and from other agencies and members of the public. The revision of the Landscape Guide would succeed in advancing research concerning appropriate and ecologically sensitive commercial shoreline landscaping. Additionally, the revised guide would continue to be a fundamental part of the ongoing educational program that is required when working within the regulatory framework. By updating this educational and technical document, the relationship between commercial shoreline landscaping and its impact on wildlife value and the shoreline ecosystem will be better understood and managed.

- **Signage Program.** BCDC could improve its public access program by creating a standardized and improved approach to identifying public access areas and directing users to them, and by increasing the number and quality of interpretative signage in access areas. The program could be expanded to include: (1) a reexamination of the design of the public shore sign to determine whether it or another design best meets the intended purpose; (2) a more consistent approach to public shore parking signs; (3) an interpretative sign program that educates the public about Bay resources; and (4) a new directional sign program that includes signs on city streets and possibly freeways to direct the public to shoreline staging areas and access sites. This component of the program would require outreach to local planning, parks and recreation, and public works departments, and to the Department of Transportation and the Metropolitan Transportation Commission. Further, in light of elevated levels of a number of toxic pollutants in the Bay, the Commission could join with other efforts to educate the public, through the use of signage, of potential harmful effects of consuming high levels of fish and other aquatic species taken from Bay waters.

  The Commission would need to develop a policy basis for the regulatory authority required to undertake a new signage program. A Memorandum of Understanding would be pursued among BCDC, Bay Area cities and counties, the California Coastal Conservancy and Caltrans for the program's implementation. Program guidelines would be developed and possibly adopted as part of the Commission's *Public Access Design Guidelines*.

  - Shoreline Access Sign Program identified as a priority for improving BCDC's public access program in program assessment.
  - Shoreline Access Sign Program has been identified as a high priority project in BCDC's Strategic Plan for the past three years.
  - Shoreline Access Sign Program identified as a priority program change in BCDC's program improvement strategy.

**General Work Plan**

a. *July—September 2002.* Develop MOU with Bay Area cities and counties, the California Coastal Conservancy and Caltrans, to undertake a coordinated, comprehensive sign program to improve public access to the Bay shoreline from freeways and local streets and roads, and improve the quality and quantity of signage that interprets Bay resources, history and setting.

b. *October 2002—March 2003.* Develop a Bay-wide public access signage program.

c. *April—June 2003.* Incorporate signage program guidelines in *Public Access Design Guidelines*. Issue RFP to hire a consultant and obtain contract approval from the Commission for design of signage.

d. *July—December 2003.* Develop and publish an RFP for production of signs in the public access sign program. Hire a consultant and obtain contract approval from the Commission. Using specifications for signs in the program, contract for sign production.

**Summary of Estimated Costs**

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|---|---|
| Staff time (1.6 personnel year) | $260,000 |
| Consultant assistance (design, production) | 100,000 |
| Total project cost | $360,000 |

**Likelihood of Attaining the Program Change.** There is a high likelihood of completing and implementing this proposed change. The Commission has consistently identified this project for the past three years in its strategic plan as a high priority project. The potential for partnership with the State Coastal Conservancy, the Bay Trail Project and with Caltrans increases the likelihood of success, given the potential to pool resources in achieving mutual goals. The Coastal Conservancy and the Bay Trail have funded access improvements along the shoreline and would like to increase accessibility to, and awareness of these places by the public. Likewise, Caltrans has improved considerable public access around the Bay as part of its highway and bridge projects and seeks to improve the public's accessibility to these resources. Local governments also seek to increase public awareness of shoreline access opportunities and better utilize their waterfronts.

- **Identify Overlap of Existing and Planned Access with Sensitive Wildlife Habitat.** The Commission would expand its joint planning with other agencies and non-government organizations to identify and assess sensitive wildlife habitats and species around the Bay to better locate, design and manage public access that is required of projects in order to avoid the potential impacts of public access on these resources. This resource information could be mapped in combination with existing public access and the planned route for the Bay Trail, as well as proposed wetland restoration sites using a GIS mapping system, to determine whether there are existing access areas or planned trail routes that may affect significant habitat areas. This information would be used to site, design and manage public access required by Commission permits and would inform the appropriate routes for the Bay Trail.

  - Identification of sensitive habitat a high priority public access project in BCDC's program assessment.

- Identification of sensitive wildlife habitat that potentially could be impacted by public access a primary recommendation of BCDC Public Access and Wildlife Compatibility Program funded by OCRM.

**General Work Plan**

a. *July—September 2003.* Develop and post request for proposals for a consultant to facilitate a series of stakeholder meetings for developing a criteria for designating various Bay habitats. BCDC will convene a professionally facilitated forum of biologists, landscape architects, engineers and trail planners to continue the discussion on balancing Bay shoreline public access and wildlife protection that was begun by the Policy Advisory Committee as part of BCDC's recent *San Francisco Bay Plan* public access policy update. This project will expand the scope of the panel to include additional experts to develop a collective vision for public access and wildlife protection for San Francisco Bay that experts and advocates can support.

b. *October—December 2003.* Develop and post request for proposals for a consultant to prepare geographic information system (GIS) maps of existing habitats. Coordinate with Bay Trail Project to complete and ground truth GIS maps of existing and proposed public access and Bay Trail route. Continue facilitated meetings to develop criteria and designate habitats based on criteria.

c. *January—March 2004.* Present draft maps for portions of the Bay to the stakeholder group for feedback and revisions. Focus primarily on upcoming Bay wetland restoration sites where the Commission is likely to require public access and the potential to plan the public access, including the Bay Trail route around restoration sites so that adverse effects on wildlife can be avoided or minimized.

d. *April—June 2004.* Finalize criteria and maps, present maps to Commission for consideration and information.

**Summary of Estimated Costs**

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|---|---|
| Staff time (1 personnel years) | $160,000 |
| Consultant assistance (cartographer (GIS), printing) | 50,000 |
| Total project cost | $210,000 |

**Likelihood of Achieving the Program Change.** There is a moderate to high likelihood of completing and implementing this proposed change. The lack of map based information to make planning decisions about the route for the San Francisco Bay Trail has generated significant interest in this project among the resource and recreation agencies in the Bay Area. However, developing a consensus on the relative values or sensitivities of Bay wildlife habitats is a considerable challenge. Resource managers and non-governmental wildlife advocates are wary of any categorization scheme that might be interpreted as lessening the value of any of the habitats that remain in the Bay because of the significant historical losses of habitat. Participation of all the resource agencies is critical to the success of such a project, and is by no means a given at this point. If all relevant agencies were willing to engage in the project, the likelihood for success is high.

**Total Cost.** The projected costs over the five year grant period to undertake priority program change #2 would total $710,000.

**Program Change #3: Cumulative and Secondary Impacts—Bay Planning and Management Partnerships to Address Coastal Development Impacts.** The Commission should develop policies and programs to address impacts to the Bay created by growth and development by building on its successful track record in collaborating with agencies, interest groups and the public to better coordinate and manage planning efforts important to the Bay region. Refining a number of Bay Plan policy sections such as those listed below could contribute to this end.

- **Update Recreation Policies and Priority Use Area Designations.** It is necessary that the Commission update the Bay Plan recreation policies and priority use areas to address the increasing demand for waterfront parks and the need for revenue generating commercial recreation facilities to assist in managing these parks. To accomplish this, BCDC needs to work with local governments and park and open space districts to ensure that Bay Plan designated shoreline parks and recreation areas and park and recreation policies are incorporated into local governments plans and policies. The Bay Plan policies need to identify an appropriate mix of uses within larger recreation sites, particularly closed military facilities such as the Presidio of San Francisco and Fort Baker in the federal Golden Gate National Recreation Area. The Commission also will collaborate with the Bay Trail Project to identify gaps in the proposed Bay Trail system and update the Bay Trial Project Plan.

  BCDC will map recreational areas, such as marinas, trail systems (e.g., Bay Trail) and shoreline parks, using BCDC's geographic information system (GIS) system, to determine the suitability of specific shoreline sites for recreational purposes and the appropriate uses to be included at these sites. It is critical that the public be included in a participatory process, which would include facilitated meetings, during the course of this update. This study will provide the information needed to refine the Bay Plan policies and priority use area designations related to waterfront recreation.

  - Project identified as a high priority program change to consider and control the secondary impacts of coastal growth and development in BCDC's program assessment.
  - Current policies were developed in the late 1960s and do not reflect the increasing demands on waterfront parks due to population growth or contain the appropriate level of guidance for the redevelopment of closed military bases (e.g., Presidio of San Francisco), and are not considered relevant by local governments around the Bay.
  - Would enable BCDC to work closely with local governments and special park and open space districts, as well as the public, in developing strategies to better protect and manage land for recreation along the Bay.

**General Work Plan**

a. *July—September 2001.* BCDC will research existing shoreline park sites to establish an information inventory summarizing local land use designations, existing uses and physical conditions at each designated park site. Also during this period BCDC will devise, in consultation with local governments, interest groups, open space providers and other stakeholders a public process that will provide sufficient opportunities to gather necessary input to inform the policy update process.

b. *October—December 2001.* BCDC will convene a series of public workshops, held in conjunction with local government partners to solicit input on shoreline recreation needs and the degree to which these needs may be provided for by the Bay Plan recreation policies. BCDC will continue to gather information regarding the existing and planned for conditions at designated park priority sites.

d. *January—June 2002.* Commence development of Geographic Information System mapping of information gathered during earlier phases of the project and continue holding public meetings to solicit input on the appropriate sites to be designated for park priority use and the appropriate uses to be allowed within shoreline parks. Begin drafting background report(s) and make preliminary presentation to the Commission on the range of issues to be addressed in the amendments.

d. *July – September 2002.* Continue development of Geographic Information System mapping. Working with stakeholders, develop goals and objectives that will lead to draft policy proposals. Continue to develop background report and make a second presentation to the Commission on the goals and objectives.

e. *October-December 2002.* Draft proposed policy amendments and environmental assessment with input from stakeholders. Complete GIS maps for inclusion in staff report and environmental assessment.

f. *January –March 2003.* Prepare and present to the Commission at a public hearing proposed *San Francisco Bay Plan* amendments, adopt amendments and complete the approval by the State Office of Administrative Law, the Resources Agency and by OCRM.

**Summary of Estimated Costs**

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|---|---|
| Staff time (1.5 personnel years) | $240,000 |
| Consultant assistance (cartographer (GIS), printing) | 85,000 |
| Total project cost | $325,000 |

**Likelihood of Attaining the Program Change.** There is a high likelihood of completing and implementing this proposed change. The Commission has indicated that updating its *San Francisco Bay Plan* recreation policies is a very high priority project. Several stakeholders around the Bay agree that these policies, which have not been comprehensively updated since the Bay Plan was adopted in 1969, need to be updated. Moreover, as population in the Bay Area increases, the pressure on public open space increases dramatically, especially at those parks near the Bay's edge. The project will involve extensive outreach into the community and a stakeholder driven public process. Input from Bay Area open space providers and their constituents will ensure that policy revisions reflect the Bay Area's needs and desires for shoreline open space. In addition, the policy update will facilitate the federal consistency review process by updating the Bay Plan policies controlling appropriate uses in shoreline parks to respond to the unique situations in many of the closed military bases designated for shoreline park priority use.

- **Update Transportation Policies.** The booming economy in the San Francisco Bay Area has resulted in both high prices for housing and gridlocked freeways. A recent survey of Bay Area residents ranked traffic as the number one issue negatively affecting the quality of life in the region. Pressures to relieve this congestion have resulted in proposals to increase the number of bridge crossings over and/or BART tunnels under the Bay. An alternative potential solution that recently has gained a lot of support would increase ferry transportation in the region. In response, the state legislature created the Water Transit Authority (WTA) to expand ferry transportation on San Francisco Bay by significantly increasing the number of terminals and the number of vessels. BCDC needs to work with the newly formed WTA and the Metropolitan Transportation Commission to identify appropriate sites for terminals and to develop transportation policies to support the proposed expansion of Bay ferry transit. Siting efforts should consider such factors as the amount of dredging required to maintain water depths sufficient to accommodate ferries, proximity to wetlands and other sensitive habitats, proximity to landside transportation and potential effects on adjacent communities.

  - Project identified as a priority program change in BCDC's assessment to address impacts of coastal growth and development and aiding facility siting.

**General Work Plan**

a. *July—September 2002.* Data Collection: review existing BCDC transportation policies, conduct a literature search on ferry transportation and Bay Area transportation issues, assess existing ferry transit on the Bay and the landside development and transit options.

b. *October—December 2002.* Work closely with the Water Transit Authority and the Metropolitan Transportation Commission to assist in the development of a strategy for increased ferry transportation on the Bay. Determine the appropriate characteristics for new ferry terminal sites. Examples of appropriate characteristics would be located near existing medium to high density development, low cultural and natural resource value and existing or potential landside transit connections, such as rail or bus.

c. *Jaunary—June 2003.* Prepare a background report describing the existing conditions. Identify the necessary changes to the Bay Plan that would accommodate expanded ferry transportation on the Bay. Develop a draft of the report findings and language based on analysis of the issues and in close collaboration with the Water Transit Authority.

d. *July–Septemeber 2003.* Develop the final report findings and language and initiate the Bay Plan amendment process.

**Summary of Estimated Costs**

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|---|---|
| Staff time (1.5 personnel years) | $240,000 |
| Consultant assistance (cartographer (GIS), printing) | 50,000 |
| Total project cost | $290,000 |

**Likelihood of Attaining the Program Change.** There is a high likelihood of completing and implementing this proposed change. The San Francisco Bay Area is experiencing a significant amount of growth and increase in congestion, particularly along the bridges that span the Bay. The California State Legislature created the Water Transit Authority to develop a comprehensive plan for increasing the ferry transportation on the Bay. As the majority of the new ferry terminals will be located in BCDC's jurisdiction, it is important that the Commission have the appropriate policies to respond to these proposals. These policies should ensure that the new terminals are appropriately located and that the increased ferry transportation is sensitive to the natural and cultural resources of the Bay.

- **Water Quality, Fresh Water Inflow, Water Surface Area and Volume.** The Commission can work with the scientific community, resource agencies—notably the Regional Water Quality Control Board and the CALFED Bay-Delta Program—to refine Bay Plan policies that address water quality, fresh water inflow, water surface area and volume. These Bay Plan policies need to reflect current scientific knowledge in a number of areas, including nonpoint source pollution and the updated Regional Water Quality Control Board's Basin Plan for the Bay. Additionally, the Commission's policies should reflect the initiatives of the CALFED program, particularly as they relate to fresh water inflow.
  - Project identified as a high priority program change to address impacts of coastal growth and development in BCDC's program assessment.
  - Current policies were last reviewed in 1987, 1982 and not since original adoption in 1968, respectively.
  - BCDC a partner agency of CALFED Program.

**General Work Plan**

a. *July 2001—March 2002.* Prepare planning policy report and recommended revisions to the Bay Plan findings and policies related to water quality.

b. *April—June 2002.* Initiate Bay Plan amendment process.

c. *July 2002—March 2003.* Prepare planning policy report and recommended revisions to the Bay Plan findings and policies related to fresh water inflow and water surface area and volume.

d. *April—June 2003.* Initiate Bay Plan amendment process.

e. *July 2003—March 2004.* Prepare planning policy report and recommended revisions to the Bay Plan findings and policies related to fresh water inflow and water surface area and volume.

f. *April—June 2004.* Initiate Bay Plan amendment process.

**Summary of Estimated Costs**

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|---|---|
| Staff time (1.25 personnel years) | $200,000 |
| Consultant assistance (facilitator, cartographer, printing) | 50,000 |
| Total project cost | $250,000 |

**Likelihood of Achieving the Program Change.** There is a high likelihood of completing and implementing this proposed change. The Commission determined that updating the Bay Plan's water quality, fresh water inflow and water surface area and volume policies is a priority for BCDC, and included this activity in its Strategic Plan and Bay Plan Update Schedule. Additionally, this work will complement the Commission's upcoming nonpoint source pollution control program activities.

**Total Cost.** The projected costs over the five year grant period to undertake priority program change #3 would total $865,000.

**Program Change #4: Special Area Management Planning.** The Commission should build on its proven success in joining with local jurisdictions and others to foster greater coordination in developing policies and land use planning for the Bay and shoreline through such special area planning programs as:

- **San Francisco Waterfront Planning.** The *San Francisco Waterfront Special Area Plan* amendments recently completed with the Port of San Francisco and Save San Francisco Bay Association did not address the very important Fisherman's Wharf and Southern Waterfront areas of the San Francisco waterfront. The Port, Save the Bay and the tenants of the Fisherman's Wharf area agree that a special area plan for the Fishermans Wharf area is needed and should commence soon. This new work would specifically address and come up with a design and implementation program for the public plaza in the vicinity of Pier 43-1/2. In addition, continued pressure to redevelop historically industrial properties in San Francisco for housing and other commercial uses has begun to affect the San Francisco's southern waterfront. Updates to the Special Area Plan will be necessary to accommodate these changes.
  - San Francisco waterfront planning identified as a high priority special area management planning enhancement area in BCDC's program assessment.
  - San Francisco waterfront planning identified as a priority program change in BCDC's program improvement strategy.
  - Completing outstanding priorities identified by OCRM as a secondary section 309 focus in the final FY 2000 funding guidance.

**General Work Plan**

a. *July—September 2001.* Convene meetings with Port staff and community representatives to devise a public input process for the Southern Waterfront that includes involvement from the Commission. Outline an inventory of existing conditions and identify issues that need to be addressed during the planning process. Commence meetings with Fisherman's Wharf constituents and neighborhood groups to outline alternative planning process approaches and planning issues.

b. *October—December 2001.* Convene meetings with Port staff and Southern Waterfront community representatives to finalize scope of planning issues, prepare reports and graphics summarizing existing conditions and issues. Begin preparation of background report. Commence public process design for Fisherman's Wharf.

c. *January—March 2002.* Conduct public meetings with Port staff and community representatives to devise a list of issues to address in Fisherman's Wharf. Begin preparation of Southern Waterfront Background Report. Evaluate potential for eliminating Seaport Plan priority use designations from certain sites on the Southern Waterfront as part of broader update of the San Francisco Bay Area Seaport Plan update. Convene meetings of the Seaport Plan Advisory Committee to evaluate potential designation deletions.

d. *April—June 2002.* Finalize Background Report for Southern Waterfront Planning Area and prepare proposed amendments to the Seaport Plan and San Francisco Waterfront Special Area Plan, and present to the Commission at a public hearing. Prepare for and conduct public workshops to evaluate alternative approaches to developing a public plaza in Fisherman's Wharf, and begin preparation of Fisherman's Wharf Background Report. Submit amendments to OAL, Resources Agency and OCRM for approval.

e. *July—September 2002.* Continue public workshops with Fisherman's Wharf constituencies to resolve planning issues. Begin Drafting Background Report.

f. *October—December 2002.*Finalize Background Report prepare and present Special Area Plan amendments to Commission at public hearing for adoption. Submit amendments to OAL, Resources Agency and OCRM for approval.

**Summary of Estimated Costs**

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|---|---|
| Staff time (1.25 personnel year) | $200,000 |
| Consultant assistance (cartographer, printing | 50,000 |
| Total project cost | $250,000 |

**Likelihood of Achieving the Program Change.** There is a high likelihood of completing and implementing this proposed change. When the Commission and the Port jointly adopted the amendments to the Special Area Plan in July 2000, both agencies resolutions included recommendations to plan for the Fisherman's Wharf as soon as possible. The recent changes in the Southern Waterfront have elevated this component of the project to a critical stage, creating tremendous momentum for the project. Based on the Port and BCDC's success at completing the recent plan amendments, the commitment of staff resources from both agencies, the interest and motivation of the affected communities increase the likelihood for success for this project. Available funding could affect the Commission's ability to participate in this effort.

- **Oakland Waterfront Planning.** Beginning in 1996, the City and Port of Oakland and BCDC undertook a community based planning process to determine the waterfront public access priorities for Oakland and to develop a mechanism for transferring public access from the Port's development areas to other areas of the Oakland waterfront. During the public access planning process, the City and Port of Oakland, with the participation of an Oakland citizen advisory committee and BCDC staff, developed and adopted a new element of the Oakland General Plan, the *Oakland Estuary Policy Plan.* The Estuary Plan focused on a segment of the Oakland waterfront. During this planning process, the Port, the City, and the Commission

staff continued work on a public access plan. The Port assisted the Commission by funding BCDC staff participation in the planning effort during FYs 1996-98. Unfortunately, staff shortages among the partner agencies necessitated redirecting resources away from the Oakland public access plan during FY1999-00.

Because the joint planning effort offers a unique opportunity to develop policies and access guidelines for an urban industrial waterfront in accordance with BCDC policies, the Commission should work with the partner agencies to redefine and complete the project to advance common goals for improving shoreline public access in Oakland.

- Oakland waterfront planning identified as a high priority special area management planning enhancement area in BCDC's program assessment.
- Completing outstanding priorities identified by OCRM as a secondary section 309 focus in the final FY 2000 funding guidance.

**General Work Plan**

a. *July—September 2003.* Coordinate with Port of Oakland and City of Oakland staff to devise a public process for the project and identify the range of issues to be addressed in the project. Conduct public meetings to finalize issues. Convene Seaport Plan Advisory Committee to evaluate the potential to lift the Seaport and Bay Plan priority use designation from the 9th Avenue Terminal.

b. *October—December 2003.* Continue work with Seaport Plan Advisory Committee, possibly within the context of other Bay Area ports seeking amendments to Seaport Plan and Bay Plan port priority use designations, including updating the cargo forecast. Continue public input process, finalize goals and objectives for the plan, particularly addressing the type of public access to be provided within the planning area.

c. *January—March 2004.* Complete work with Seaport Plan Advisory committee and incorporate its recommendations into the draft background report. Finalize goals and objectives and begin preparation of draft findings and policies for background report.

d. *April—June 2004.* Present background report, findings and policies for new Oakland Waterfront Special Area Plan to the Commission at a public hearing for adoption. Submit Bay Plan amendments to OAL, Resources Agency and OCRM for approval.

**Summary of Estimated Costs**

| | |
|---|---|
| Staff time (1 personnel year) | $160,000 |
| Consultant assistance (cartographer, printing | 50,000 |
| Total project cost | $210,000 |

**Likelihood of Achieving the Program Change.** There is a high likelihood of completing and implementing this proposed change. The BCDC, Port of Oakland and City of Oakland staff have completed draft of a public access policy plan for the entire Oakland waterfront. Recent changes brought about by the Commission's approval of the Port's terminal development project for the reuse of the Navy's Fleet Industrial Supply Center and the consistency determination allowing for the reuse of the Oakland Army Base, as well as the desire to eliminate the priority use designation from the 9th Avenue Terminal substantially changed the assumptions underlying the existing draft plan. At this juncture, a considerable public outreach effort is required to cement a revised consensus on the appropriate vision for shoreline public access. Growing interest in Oakland's waterfront, brought about in part by recent development of thousands of dwelling units of housing near the waterfront, contributes to the momentum behind this project.

**Total Cost.** The projected costs over the five year grant period to undertake priority program change #4 would total $460,000.

**Program Change #5: Wetlands—Wetlands Program Improvements.** The Commission should expand protection of the Bay's wetlands and foster wetland restoration programs through refining its Bay Plan policies, such as by:

- **Mitigation Policies.** As part of its effort to develop and implement a comprehensive program for the use and restoration of Bay resources, the Commission should update its mitigation policies. BCDC's mitigation policies need to reflect current scientific knowledge, particularly in light of increasing demand for Bay mitigation sites to offset impacts of development in the region. The *San Francisco Bay Wetlands Ecosystem Goals Project* completed in 1999 provides significant new information for the Commission's review and update of its salt pond and managed wetlands policies as well as the policies related to mitigation for the loss of wetland habitat.
    - Identified as a high priority project in BCDC's program assessment to address impacts.

**General Work Plan**

a. *July—September 2001.* Working with BCDC staff working group, prepare draft background report and draft preliminary revised findings and policies.

b. *October—December 2001.* Circulate draft report and preliminary findings and policies to Advisory Committee, revise staff background report and findings and policies. Vote on proposed Brief Descriptive Notice for initiation of Bay Plan Amendment.

c. *January—March 2002.* Prepare final staff background report and preliminary recommendation, mail to Commissioners and interested parties, hold public hearing and vote.

d. *April—June 2002.* Submit revisions to OAL for approval, submit revisions to Resources Agency and OCRM for approval. Prepare, print and distribute final report with adopted findings and policies.

**Summary of Estimated Costs**

| | |
|---|---|
| Staff time (1 personnel year) | $160,000 |
| Consultant assistance (cartographer, printing) | 50,000 |
| Total project cost | $210,000 |

**Likelihood of Achieving the Program Change.** There is a high likelihood of completing and implementing this proposed change. The *Habitat Goals Project* has been completed and update of the mitigation policies is now a high priority for the Commission. There is much interest in revising the mitigation policies both from those agencies and organizations that worked on the *Habitat Goals Project*, and from other members of the general public.

- **Subtidal Habitat Goals Assessment Study.** The Commission will initiate a preliminary analysis of the feasibility of undertaking a project characterizing the subtidal habitats of the Bay and establishing a long-term regional vision for the protection and restoration of the Bay as a whole. The feasibility study would require outreach to key scientists knowledgeable in a variety of marine and estuarine topics in order to outline the scientific questions most pertinent to the endeavor. In addition, these scientists would help foster additional connections between BCDC and other noteworthy scientists with potential interest in participating in the project. Further, other state and federal agencies, such as the California Department of Fish and Game and the United States Environmental Protection Agency, would be critical partners in the initial scoping phase of the study, potentially assisting BCDC staff to secure additional funding, as well as assisting in outlining the management and intended goals of the undertaking.

  The overarching purpose of the feasibility study is to establish a process that would enable the successful completion of a subtidal habitat goals project for the San Francisco Estuary. This effort would bring together scientists with expertise on hydrology, geomorphology, benthic ecology, oceanography, and fish biology, among others, to address the functioning and long-term needs of the Bay in order to ensure an appropriate balance is achieved between human uses of the subtidal environment (e.g. sand dredging, ferry transit, port uses) and the long-term sustainability of the Bay's resources. Subtidal resources in need of further understanding include sediment and hydrodynamics, water chemistry, subtidal habitat restoration, the need for marine protected areas, the Estuary's ability to adapt to sea level rise, the impact of invasive species on the Bay's ecology, the interconnections between terrestrial habitats and subtidal habitats, and the long-term needs of native aquatic life and wildlife associated with the subtidal environment.

  - Specifically identified as a priority project in BCDC's program assessment.
  - This additional study was deemed desirable by OCRM in approving the FY2000 §309 grant.

**General Work Plan**

a. *July—September 2004.* Establish a San Francisco Bay subtidal habitat goals project steering committee of scientists and agency staff with expertise on subitdal habitat science and management concerns.

b. *October—December 2004.* Work with steering committee on the scope of the subtidal habitat goals project, including scientific and management questions to be answered, mapping requirements, timeline, and the completed product desired (document layout, maps, etc.).

c. *January—March 2005.* Assist steering committee in selecting potential project participants, funding sources, and linkages with other ongoing scientific studies on the Bay.

d. *April—June 2005.* Draft and circulate through steering committee a feasibility study and work program outlining steps necessary to complete a San Francisco Bay subtidal habitat goals project.

**Summary of Estimated Costs**

| | |
|---|---|
| Staff time (.5 personnel year) | $80,000 |
| Consultant assistance (mapping ) | 30,000 |
| Total project cost | $110,000 |

**Likelihood of Achieving the Program Change.** There is a high likelihood of completing and implementing this proposed change. The process of studying the feasibility of undertaking a subtidal habitat goals project is an extension of the subtidal habitat science panel held at BCDC in September 2000 and the update to the Bay Plan marshes and mudflats and fish and wildlife policies. Throughout these endeavors participating scientists expressed the need for and their continuing commitment to undertaking a subtidal habitat goals project. In addition, many scientists on the subtidal habitat panel, as well as federal and state agency staff who reviewed the proposed Bay Plan subtidal policies, expressed the belief that BCDC would be the appropriate organizer of such an undertaking due to the agency's regional focus. Thus, BCDC staff believes that the time is right to initiate such an endeavor because it is deemed to be a priority by both the scientific community and state and federal agencies with responsibility for managing San Francisco Bay.

- **Impacts to Wetlands Created by Change in BCDC's Bay Jurisdiction.** In 1994, the California Court of Appeal held in *Littoral Development Co. v. San Francisco Bay Conservation and Development Commission* that the upper limit of the Commission's "bay" jurisdiction, previously to the line of highest tidal action, extends only to the mean high tide line in areas that do not consist of tidal marsh and to five feet above mean sea level in areas that do consist of tidal marsh. This decision also applies to the upper limit of the Commission's certain waterways jurisdiction because the same statutory language applies.

  No complete or partial surveys of the Bay's shoreline have been conducted to determine the actual locations of the earlier line of highest tidal action or the current upland limit of the Commission's Bay and certain waterways jurisdiction. Moreover, no survey of the areas that were located in the Commission's "bay" or certain

waterways jurisdictions prior to the *Littoral* decision and are now excluded from the Commission's jurisdiction has been conducted to determine the quality and quantity of Bay-related resources that might no longer be adequately protected.

To better understand the area of Bay resources impacted by the Littoral decision, accurate measurements of the mean high water line at specific demonstration sites around the Bay could be made by using global positioning system (GPS) technology. Such data could inform the Commission as to the increased potential for impacts to Bay resources created by the Littoral decision, assist in making jurisdictional determinations, and could also assist the Commission in evaluating the impacts of natural and human-induced alterations to the shoreline, such as from erosion or sea level rise.

The information developed from investigating the extent of wetlands affected by the Littoral decision would provide the basis for the Commission to pursue legislation to protect these Bay resources.

- Identified as a priority project in BCDC's program assessment.

**General Work Plan**

a. *July—December 2005.* Recreate using GIS pre-Littoral location of Bay's shoreline using data developed by NOS. NOS instructs BCDC, the regulated community, and local surveyors on how to locate the mean high water line by using GPS. BCDC works with local jurisdictions to map current shoreline.

b. *January—May 2006.* Identify wetlands, local sources of pollution, and other data critical for resource protection planning.

c. *May—June 2006.* Draft legislation designed to protect resources identified as no longer within BCDC's "bay" jurisdiction.

**Summary of Estimated Costs**

| | |
|---|---|
| Staff time (1.25 personnel year) | $200,000 |
| Consultant assistance (GPS, cartographer) | 125,000 |
| Total project cost | $325,000 |

**Likelihood of Achieving the Program Change.** There is a high likelihood of completing and implementing this proposed change. An increase in available technology useful for conducting assessments of boundary changes has increased the feasibility of this project, as has the Commission's increased cooperative working relationship with the National Ocean Service division of NOAA. Furthermore, the local jurisdictions have expressed interest in cooperating with the Commission on this project as the results will greatly assist project review and long-term planning on the local level.

**Total Cost.** The projected costs over the five year grant period to undertake priority program change #5 would total $645,000.