

STAFF REPORT

RECREATION AND SAN FRANCISCO BAY

July 7, 2006

San Francisco Bay Conservation and Development Commission

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CONCLUSIONS AND GENERAL RECOMMENDATIONS

Recreation is a critical part of our Bay Area culture. The Bay is intrinsic to residents' perceptions of the region and their place in it, including their recreational choices. This helps drive the demand for water-oriented recreational pursuits. Speaking in support of the development of Central Park in New York City over 100 years ago, Frederick Law Olmsted noted that:

"...in the densely populated central portion of an immense metropolis, a means of certain kinds of refreshment of the mind and nerves which most city dwellers greatly need and which they are born to derive in large measure from the enjoyment of suitable scenery."

Today, the San Francisco Bay is the central feature in a densely populated, immense metropolis, and Bay Area residents need and desire respite from the pressures of crowding and everyday life, and most seek refreshment and amusement, at least occasionally, in the many recreational facilities that are provided on and along the shoreline of the Bay.

Certainly, things have changed in the 100 years since Mr. Olmsted uttered these words, and since the Commission completed the Bay Plan over 37 years ago, yet, in many ways, they remain the same. People still like to enjoy beautiful land and waterscapes; they still swim, hunt, stroll, fly kites, fish, picnic and paint natural scenes. For some in the Bay region, recreation means bicycling along public roadways through the hills and valleys. For others, recreation means an afternoon of model airplane flying or volunteering on a wetland restoration project. On-water recreation such as windsurfing, boating, fishing, or duck hunting are also very popular recreational pursuits. The Bay and its shoreline provide one of the most desirable recreational sites in the region with over 25,000 acres of waterfront parks, boat launching ramps, fishing piers, marinas and other water-oriented recreational facilities.

Although many traditional recreational pursuits remain popular, an entirely new suite of recreational activities has emerged. Most of them were recently developed while others were imported from other countries in the years since the Bay Plan was drafted. Dragon-boating, kite sailing, cricket, roller blading, or kayaking are just some of the more recently popularized activities that Bay Area residents enjoy at the Bay's edge or on its waters. Changing environmental, social economic, demographic, and technological trends, as well as changes in our settlement patterns will continue to affect how we provide recreational opportunities in the Bay Area during the 21st Century.

The *San Francisco Bay Plan* (Bay Plan) recreation policies have not been comprehensively reviewed and updated since the Commission in 1969 adopted the Bay Plan. Although certain recreation policies have been updated since that time (e.g., marina and live-aboard boat policies in the early 1980s and policies related to closed military facilities in 2002), these updates were specifically focused and did not address the remainder of the recreation policies, priority use area designations and map policies, many of which are outdated.

This staff report examines and addresses: (1) the increasing demand for waterfront parks and recreational uses in and around the Bay and assesses the supply of water-oriented recreational facilities; (2) the changing demand for recreational uses based on the changing Bay Area demographics and popularity of new kinds of water sports, such as the San Francisco Bay Area Water Trail and sports like windsurfing; and (3) certain park management issues, such as accessibility, interim use of park priority use areas and developing ferry terminals in or near water-oriented recreational facilities. The staff report also recommends that additional lands be designated for waterfront park priority use Bay Plan; and, explores the recreational potential of our urban wildlife refuges located in or adjacent to San Francisco Bay and the reuse of historic buildings in waterfront parks.

In its adopted 2005-2006 strategic plan, the Commission included review of a staff background report and proposed revisions to the Bay Plan recreation findings and policies. Consistent with this direction from the Commission, the staff applied for and secured a federal grant from the National Oceanic and Atmospheric Administration to carry out this work.

The following provides the overall conclusions based on information presented in the background report, and offers general recommendations for amendments to the Commission's Bay Plan recreation findings and policies, amendments to Resolution 16 (that establishes and sets the priority use area boundaries) for changes to waterfront park priority use areas and changes to the Bay Plan maps.

Conclusions

Recreation Demand. Although there remains no practical estimate of water-oriented recreational demand in the Bay region, certain conclusions about the nature of this demand can be drawn from both a quantitative and qualitative assessment of certain critical variables. Recreational demand is a function of population, cultural preference, settlement patterns and the supply of recreational opportunities. Other factors that contribute to a growing demand for recreational activities in the Bay region include income, levels of education, interest in health, greater mobility, consistent levels of leisure time, new parks and facilities, and a mild climate. Trends in these variables indicate that over time, Bay Area demand for recreation, at least

among many segments of the population, will continue to increase, creating greater pressure on existing recreational resources, and the need for additional opportunities to meet that demand. As the Bay Area population increases, so too will the demand for water-oriented recreation, and as the population becomes more diverse, recreational demand will reflect the varied preferences of a diversifying population.

For many years, the National Recreation and Park Association (NRPA) published population-based standards for the amount of open space that should be provided in a community or region. Prior NRPA standards recommend that the combination of local and community parks and regional parks should provide approximately 30 acres per 1,000 population. These standards provide only a gross measure of park and open space demand, but can serve as a starting point for the discussion of whether present and future conditions meet the needs and aspirations of the community for recreational opportunities. Currently, public parkland of all types covers 647,407 acres in the nine-county Bay Area, including state and federally owned beaches, mountains and forests and locally protected open space like Golden Gate Park.¹ At our Bay Area 2000 population of 6.8 million people, that allows over 95 acres of open space per 1,000 persons. Much of that land is located in regional parks in hills surrounding the Bay.

The relatively high amount of per capita park and open space land reflects the values of Bay Area residents. We have maintained a dense settlement pattern and an ongoing commitment to the provision of parks and preservation of open space that provides for the high quality of life we aspire to. The NRPA has reduced its reliance on population-based standards, instead recommending a performance-based approach for communities to use in determining the appropriate amount of type of recreational opportunities to provide to meet their needs. Although many Bay Area cities continue to rely on NRPA population-based standards for guiding local parkland decisions, the regional park and open space picture appears to be driven by a quality of life standard unique to the Bay Area. With the Bay as our largest, contiguous open space, and a character defining feature of the region, Bay Area residents enjoy one of the best open space environments in the country.

Surveys indicate that per capita recreational demand is increasing, but this trend is contradicted by increasingly sedentary lifestyles among young people. However, general trends indicate growing demand for water-oriented recreation, including some newer activities. Demand for recreational activities in the Bay Area mimics national and state preferences, although there are certain unique characteristics of recreational demand here compared to the

¹ John Woodbury in *The Bay Area's Space Tight-Rope*, by Fimrite, Peter, The San Francisco Chronicle, June 5, 2005

nation, driven by our unique geography. The San Francisco Bay is the largest estuary on the west coast of North America and is an exceptional recreational resource. The Bay provides for extensive boating of all types, fishing, swimming, hunting, biking, hiking and other water-oriented activities, which are more popular here than in other parts of the US.

Ethnicity, age, sex, income, available leisure time, mobility and education are demographic factors that can influence recreational demand. California and the Bay Area are important immigration portals, contributing to a populace that is comparatively racially, ethnically and culturally diverse. This diversity contributes to a richness and diversity in the demand for recreational activities. Recreation providers must respond to that demand by providing a diverse array of facilities and programs that are relevant to their constituents.

A person's age can affect the type of recreational activities they are likely to pursue, and their participation rate in recreational activities generally. For many active recreational pursuits, participation declines with age, especially for more strenuous activities. There is also great similarity between age groups regarding the types of activities that people prefer. In the Bay Area, the baby boom generation will engage in many water-oriented recreational activities in increasing numbers as they retire. The recreational patterns of California youth are mixed with many very active, and some sedentary. It is unclear what level and type of demand for recreation this generation will create as it ages, however California State Parks predicts that California youth will accelerate the rate of change in recreation.

The recreational research literature shows that personal income is positively correlated with participation rates in most forms of outdoor recreation. Also, income is a stronger predictor of outdoor recreational participation than sex, age, race or level of education. Compared to the rest of the country, Bay Area levels of disposable income are high. The Bay Area's high median income levels mask to some extent a growing disparity of income and wealth distribution in the region that is consistent with national trends. According to the California State Parks, "it is suspected that outdoor recreational needs of low income people are different, mostly due to the lack of discretionary income, time and transportation options for outdoor recreation."²

The level of education attainment affects recreational choices, in part by affecting the level of income. There is a strong correlation between educational attainment and level of income, and income is one of the strongest determinants of recreational participation. There is considerable similarity of recreational preference between those who have attained only a high school diploma, those with four-year degrees, and those with advanced degrees. However, in general, participation rates among those with higher educational achievement exceed the participation

² State of California, Parks and Recreation Department, *California Outdoor Recreation Plan 2002*, page 28.

rates of people with less education. Two separate "markets" for public recreational opportunities could emerge, one for the well educated, and typically economically more well off, and one for the less well educated, and often less well off economically.

The cost of travel to recreational sites does affect whether a person can or will visit a particular site. In the highly mobile, affluent Bay Area, access to recreational sites for many is not a significant issue. Availability of leisure time and information about recreational opportunities present greater barriers to recreation for the middle and upper income individual than does cost of travel, including the opportunity cost of travel time. Mobility is more of an issue for those with lower incomes, particularly if the cost of travel is high, trip length is long, or if one is transit dependent, or transit service is unavailable or inconvenient.

The length of the work week has been relatively constant over the past 35 years, although the number of two-earner households has grown dramatically as has the number of those working from home or telecommuting. These trends affect both the type of recreation people seek, the locations where they seek it, and the duration of their participation. This is particularly important from a public health perspective, as more and more professions require less and less physical activity, so that often the only physical activity that people engage in is through some form of recreation.

The importance of recreation to public health is growing. Physical inactivity is associated with obesity and increased risk for chronic diseases (e.g., cardiovascular disease, certain cancers, and diabetes) and premature mortality.³ In California, the State Parks Department predicts that baby boomers will get off the couch and pursue a wide variety of recreational activities to overcome the burgeoning belt-line and return to more healthy lifestyles. Whatever the future brings, ready access to a variety of recreational pursuits will be necessary to serve a growing population, particularly if activity levels are to increase over current levels.

The Bay Area has grown in a relatively dense settlement pattern in comparison to the rest of the country and the transit-oriented development policies embraced by the region will continue to concentrate density in the Bay Area, increasing the demand for open space and recreational opportunities. If current trends of population growth continue, this growth pattern could contribute to an overall degradation of the quality of life in the Bay Area, in part due to overcrowded or inaccessible public parks and open space.

³ US Department of Health and Human Services, *Physical Activity and Health: a Report of the Surgeon General*. Atlanta, Georgia: US Department of Health and Human Services, CDC, 1996

Environmental Justice. Environmental Justice in recreation should promote involvement by diverse and under-served communities in the planning for recreational projects to avoid disproportionate negative effects on these communities and to ensure that equal access to programs and facilities is provided. This includes making sure that the parks and other recreational facilities are provided for all income levels in the Bay Area and by catering to the needs and interests of diverse communities. Designating additional waterfront park priority use areas will protect and improve access to recreation for underserved communities.

Recreation Supply. The existing supply of waterfront parks, beaches, fishing piers, regional trails, launching lanes and marinas in the Bay Area comprises only a part of the large, complex web of our region's recreational opportunities. Several new waterfront parks have been acquired and developed over the years by federal, state, regional and local agencies. Also, some of the parks designated by the Commission in the Bay Plan have expanded since 1971. The combination of new and expanded parks increased the supply of waterfront parks designated in the Bay Plan for park priority use by approximately 7,000 acres, bringing the current total of regional-scale waterfront park acreage to approximately 25,000 acres.

The Bay Area (including the portions of the Delta and some freshwater lakes) provides 18 percent of the State's boating facilities, which is generally consistent with the number of boats here, comprising 19 percent of the statewide total. "Allowing for a five percent normal vacancy rate, surplus capacity is not likely to be absorbed until after 2020 under the low growth projections. Under the high boat population projections, there will be a need for an estimated 892 additional berths after 2005."⁴ The Commission's existing policies on marinas allow for construction of new marinas in the Bay at suitable locations.

In the Bay Area, there are 174 launching lanes (some ramps have multiple lanes) and 4,354 trailer parking spaces with a projected need of 20 additional launching lanes to meet the current and projected need. These Department of Boating and Waterways survey results include fresh water ramps outside the Commission's jurisdiction. Although the supply of launching lanes and associated parking may be limited, existing Commission policy does not prevent or frustrate adding new launching lanes within its jurisdiction. Launch ramps and marinas provide unique opportunities for joint use by motorized and non-motorized boats.

⁴ California Department of Boating and Waterways, *Facilities Needs Assessment*, Volume 5, 2005

There are approximately 75 public fishing piers in San Francisco Bay.⁵ Piers are dispersed throughout the Bay, but many are concentrated in the more populous central portions of the Bay. The Commission's existing Bay Plan policies do not inhibit the provision of additional fishing piers.

Only a few large, public sandy beaches exist along the shoreline of San Francisco Bay. The Bay Plan findings acknowledge the importance of sandy beaches for habitat and recreation. Bay Plan policies protect sandy beaches, both for habitat and recreation. Specific geomorphologic and hydrologic conditions are necessary to support beach creation, without excessive beach nourishment.

Amendments to Resolution 16 and Bay Plan Maps 1 through 7 to designate the approximately 7,000 acres of proposed new waterfront park priority use areas as described in Table 2.3 would protect and greatly expand water-oriented recreational opportunities. Retaining the Commission's existing policy approach for authorizing marinas, launching ramps and fishing piers is a prudent course. However, encouraging improvements at these facilities for a variety of users and boaters, including transient boating facilities would address a supply shortage. Certain waterfront park priority use areas are privately owned, are not zoned for park use and are not likely to be acquired by a public agency for park purposes within the next three years and should be deleted from the Bay Plan and Resolution 16.

Management Issues. Providing a diversity of recreational opportunities is important. Ensuring that these opportunities are accessible will facilitate greater water-oriented recreational participation by the widest range of Bay Area residents and visitors. Interim use of waterfront park priority use areas prior to their development as a park can facilitate eventual park improvement, provided that the nature of the use allows the site to be converted to park use and would not involve investment in improvements that would impair use of the site as a park. Ferry Terminals in recreational facilities, including waterfront parks, marinas and fishing piers, if not properly located, designed and managed, could disrupt recreational use of the site. Finally, providing more opportunities for environmental education in water-oriented recreational facilities is important because of the growing popularity of these activities. The Bay and its shoreline provide excellent locations for expanding the opportunities for environmental education.

⁵ California Coastal Conservancy *California's Public Piers*. A guide to public piers on California's coast and bays. 1993, 36 pp.

On-Water Recreation. Boating, including canoeing and sail boating, fishing, and windsurfing are all experiencing declining participation rates in the state. Kayaking, dragon boating, kite boarding, out-rigger canoes, and sculling are all increasing in popularity with growing rates of participation. Although there are no Bay Area-specific data sources for all of these activities, available data and reports of area experts confirm that the Bay Area experience is consistent with these trends.

In 2005, the legislature amended the Commission's law, the McAteer-Petris Act, and the California Coastal Conservancy's law to initiate planning and implementation of the San Francisco Bay Area Water Trail (Water Trail). The amendments to the McAteer-Petris Act direct the Commission to draft a plan for the water trail, in collaboration with the State Coastal Conservancy and the Association of Bay Area Governments, and to coordinate a collaborative partnership with other interested persons, organizations, and agencies and submit the plan to the Legislature. The bill designates the State Coastal Conservancy as the lead agency in the funding and development of projects to implement the Water Trail Plan, and authorizes the conservancy to undertake projects and award grants to advance the preparation or implementation of the plan.

The Water Trail, the Bay Area's third regional trail, will facilitate participation in on-water recreation for kayakers and those pursuing other on-water recreational activities throughout the Bay Area. Certain issues raised by on-water recreational activities can be addressed in part through the update to the Bay Plan recreation policies, including access and parking, overnight accommodations, equipment storage, site improvements, compatibility, education and stewardship, navigational safety, user conflicts, maintenance and water quality.

Providing access around the Bay at regular intervals in a variety of facilities will support participation in on-water recreation. Locating access near popular destinations, such as weekly farmers' markets, tourist destinations such as Sausalito or Pier 39, or waterfront restaurants is desirable to all boaters as a means of enhancing a day of paddling or sailing. Providing transient mooring or boat storage at or near these destinations can contribute to users' overall experience and perhaps expand the popularity of these activities and the destinations. Access to adequate parking is essential to those using non-motorized crafts. Parking needs vary for the different on-water recreational pursuits, but generally, participants want parking near the shoreline to reduce the distance that equipment must be carried to the launch and of sufficient duration to allow for extended excursions.

Non-motorized small boating can also be facilitated by the provision of improvements and services, including restrooms, equipment storage, public boat houses, transient docking, overnight accommodations, such as a hostel or campsite, education, rigging areas, fresh water for washing gear and signage. Launch sites with improvements that match the level of use expected at the site will accommodate visitor needs, reduce conflicts, and reduce the impacts of boating and other on-water recreation on the site. The appropriate degree of improvement is best determined by the projected use of the site for on-water recreation, the type and intensity of other uses of the site and the site managers' priorities. On-site equipment rental concessions can facilitate participation in on-water recreation, especially for beginners and visitors. Concessions can obviate the need to access the site by car, can provide classes for learning the activity and can rent boat storage.

The McAteer-Petris Act directs the Commission to identify "[l]ocations where the water trail can coordinate with landside trails and other recreational facilities to accommodate opportunities for multi-day, overnight travel."⁶ For on-water recreational enthusiasts in the urban Bay Area, opportunities for camping are limited. Currently, regional, state and federal parks provide the majority of the Bayside camping opportunities. Certain waterfront parks can accommodate additional camping, provided that the funding is available for managing the activity, it will not have impacts on wildlife and will be compatible with other recreational activities. Other opportunities for improving overnight accommodation include hostels, hotels, motels, houseboats and bed and breakfast accommodations.

On-water recreation presents unique challenges with regard to compatibility and wildlife disturbance. Because many of the human-powered craft can reach habitat areas that are inaccessible from land, or by other watercraft, the potential for impacts to wildlife may be significant. Disturbance of foraging, resting or nesting wildlife can have serious negative consequences for the wildlife. More research is needed to inform management decisions, but wildlife disturbance from incompatible on-water recreational activities can be avoided or minimized through education and management. Education can take the form of on-site, non-verbal messages on signs and maps, and in brochures, on-site verbal messages delivered by staff or volunteer docents and proactive education, both verbal and non-verbal, intended to reach participants at locations other than launch sites. Management can include closing areas to access, deploying rangers to ensure compliance and mete out sanctions, such as fines or imprisonment for causing a disturbance.

⁶ Cal Govt. Code §66694(a)2

Non-motorized recreation on San Francisco Bay is not without risk. Strong winds, waves and tidal currents, cold water, fog, dense vessel traffic and designated security exclusion zones are all important considerations for enthusiasts as well as for locating, designing and managing facilities serving non-motorized craft. It is important to supplement the navigational safety signage requirements in the Bay Plan with educational efforts that promote navigational safety and security.

Degraded Bay water quality is a health hazard for swimmers, anglers and others who recreate in the Bay. In the absence of effective measures to protect water quality, programs that inform the public of degraded water quality at popular beaches can prevent negative health impacts by discouraging contact with contaminated water. The "Healthy Bay Beaches" bill⁷ requires regular and consistent monitoring from April through October at the most heavily used Bay beaches, e.g., those with 50,000 or more annual visitors, or, if a beach is located on an area adjacent to a storm drain that flows in the summer. Providing signage at water-oriented recreational facilities that warns anglers of fish contamination levels and health advisories on consumption levels can help reduce health risks associated with eating contaminated fish.

Waterfront Parks with Historic Buildings. In 2002, the Commission established a new recreation policy that applied only in former Bayfront military installations designated for waterfront park priority use. The policy was intended to allow non-park uses in historic buildings and in areas remote from the shoreline, in order to preserve historic and cultural resources, provide revenue for land managers to assist in providing recreational benefits, and for other important public purposes. The policy was also intended to ensure that historic resources were preserved and that non-traditional park uses were developed in ways that preserved the park-like character of the sites.

Several waterfront parks and wildlife refuges designated in the Bay Plan for park or wildlife priority use have historic buildings that, under the right circumstances, could be improved or restored for uses not typically found in parks, without compromising the recreational values of the park. Since preservation of these historic resources is an important public purpose, land managers need some flexibility regarding the types of uses allowed, if they are to successfully rehabilitate historic structures. And since many parks and refuges, including those that were not formerly military installations have historic buildings, it is appropriate to expand application of this policy.

⁷ Sections 115875 and 115880 of the California Health and Safety Code

Recreation in Wildlife Refuges, Wildlife Areas and Ecological Reserves. The presence of sizeable wildlife refuges, wildlife areas and ecological reserves in a densely settled urban metropolis is unique to the Bay Area. These wildlife refuges provide wilderness experiences, such as wildlife watching, volunteer stewardship and environmental education in close proximity to one of the densest human settlements in the country. Protection of these lands is important to Bay Area residents, and many seek recreational opportunities there. Human recreation in these lands, unless carefully managed, could have significant adverse impacts on the wildlife residing in or migrating through these areas. Also, many of the existing and proposed waterfront parks designated in the Bay Plan contain important wetland and upland habitats, including lands that are managed for endangered animal and plant species.

Traditional consumptive recreational pursuits, such as hunting and fishing, are declining in popularity while participation in non-consumptive recreational activities, such as bird watching, photography, environmental education and volunteer stewardship are growing rapidly. Non-consumptive recreation may have adverse effects on wildlife. In some cases, recreational uses may conflict with each other, or with the wildlife and habitat conservation mission of a particular site. The juried scientific literature on the impacts of recreation on wildlife provides limited guidance on effective management strategies. Any recreational activities permitted in or adjacent to these important habitat areas must be managed to protect wildlife and endangered plants and avoid significant adverse impacts to them.

General Recommendations. Based on the above conclusions, the staff has the following general recommendations that are more fully described in the Staff Report and Preliminary Recommendation.

1. The Bay Plan recreation findings and policies should be amended to:
 - a. Acknowledge the importance of providing a diversity of recreational opportunities in all water-oriented recreational facilities, and encourage the provision of these diverse opportunities to meet the varied demand of Bay Area residents and visitors;
 - b. Identify the need for on-going regional planning for water-oriented recreation;
 - c. Clarify that interim use of waterfront park priority use areas can be permitted under certain circumstances;
 - d. Acknowledge the San Francisco Bay Area Water Trail and provide for the improvements that will be needed to facilitate implementation of the trail;
 - e. Encourage the provision of berthing or mooring opportunities for transient boaters;

- f. Acknowledge the popularity of Bay swimming and require the monitoring of water quality at popular beaches, consistent with the requirements of the Healthy Bay Beaches legislation;
 - g. Acknowledge that many waterfront parks include historically significant buildings, landscapes or districts and expand the application of the historic building use policy to all waterfront parks with these resources;
 - h. Acknowledge that some wildlife refuges, wildlife areas and ecological reserves can provide wildlife-compatible recreational opportunities;
 - i. Encourage the provision of recreational opportunities in wildlife refuges and recognize that these activities should be located, designed and managed to avoid significant adverse impacts on fish, other aquatic organisms, plants and wildlife;
 - j. Recognize that many waterfront parks include wild lands that have similar resource values that have recreational potential, provided the resources can be protected;
 - k. Recognize that waterfront parks can serve as buffers between wild lands and developed areas, and staging areas and gateways to wild lands, particularly if they provide educational opportunities describing wild land resources, and how they can be protected from human disturbance;
 - l. Acknowledge the importance of environmental education and encourage that it be provided where appropriate at water-oriented recreational facilities, including education related to boater safety and stewardship; and
 - m. Acknowledge that ferry terminals, if properly located, developed and operated can be located in water-oriented recreational facilities, but also acknowledge the potential for these facilities to disrupt recreational use, and the need to prevent that from occurring.
2. The Bay Plan Maps and Bay Plan Map policies, notes and suggestions should be amended to:
- a. Designate new waterfront parks;
 - b. Delete certain designated areas that will not be developed as waterfront parks; and
 - c. Reflect changed conditions and policy direction for the development and management of certain park and recreational facilities and sites.

CHAPTER 1

RECREATION DEMAND

Although there remains no practical estimate of water-oriented recreation demand in the Bay region, certain conclusions about the nature of this demand can be drawn from a quantitative and qualitative assessment of certain critical variables. Recreation demand is a function of population, cultural preference, settlement patterns and the supply of recreational opportunities. Other factors that contribute to a growing demand for recreational activities in the Bay region include increased disposable income, higher levels of education, growing interest in health, greater mobility, consistent levels of free time, new parks and facilities, and a mild climate. The Bay Area public has regularly voted in support of state and local bond measures that support acquisition and development of parks and preservation of open spaces and water areas, demonstrating considerable public willingness to pay for recreational benefits. In order to understand the nature and extent of demand for recreation in the Bay area, this chapter examines several factors and reports on existing conditions, trends and the circumstances that will likely determine how these factors could affect recreation demand in the future. There is no reliable quantitative method that can predict regional recreation demand based on these variables. However, this chapter provides a qualitative assessment to elucidate trends in recreation demand so that the Commission can determine how best to provide for the region's water-oriented recreation needs into the 21st Century.

In its 1968 recreation background report, the Commission staff stated that, "in the not too distant future, automation and other time saving innovations will provide a large increase in the amount of leisure time...leisure and recreation will become increasingly important, and vastly expanded opportunities for recreation will be needed...As work and recreation become more and more intermixed, entire urban areas can become more park-like."¹ "Average hours at work changed little from 1976 to 1993, *increasing* [emphasis added] by 1.1 hours to just 39.2 hours."² This slight increase is largely due to those workers who spent 49 hours or more on the job. Moreover, U.S. Department of Labor statistics reveal that in 1995, the average workweek for all nonagricultural wage and salary workers was 39.2 hours, while people who work full time

¹ San Francisco Bay Conservation and Development Commission, Staff Recreation on and Around San Francisco Bay, January 1968, Reprinted in June 1968. page 6

² Rones, Phillip L., Ilg, Randy E. and Gardiner, Jennifer M., Monthly Labor Review, US Department of Labor, April 1997, Vol. 120, No. 4, p.4

averaged 43 hours per week on the job.³ The Commission also projected that the Bay Area population would reach 6 million by 1980 and 10 million by 2020. In fact, the Bay Area population rose to 6 million by 1990, to 6.8 million in 2000 and, following a slight decline after the "dot-com boom" is currently projected to reach 8.4 million by 2020.

Despite the inaccuracy of the Commission's 1968 predictions, the level of demand for water-oriented recreation in the Bay Area projected by the Commission has arrived for different reasons and in different ways than envisioned almost 40 years ago. The Bay Area population has still grown dramatically, has aged and is more ethnically diverse, three trends that contribute to an overall increase in demand for park space. The Bay Area has grown in a relatively dense settlement pattern in comparison to the rest of the country, which places additional demand pressure on limited parkland and water recreation in the urbanized areas. The transit-oriented development policies embraced by the region also contribute to the density of the Bay Area settlement pattern, further concentrating the demand for recreation activities. In addition, the increasing popularity of certain water-oriented recreational activities, and the advent of new activities not foreseen years ago have also driven demand for waterfront parks and on-water recreation ever upward.

Several different methodologies for determining recreation demand have been developed over the years, but none can give exact quantifiable results.⁴ "Recreation demand models have become more complex...Simple...models have given way to systems of equations ... and many advanced statistical estimation techniques. While these advances overcome some unrealistic and technical flaws in the simpler models, they generally increase data requirements and make models more difficult for non-economists to understand or apply. The published literature, in particular tends to focus on theoretical, methodological, and statistical issues over practical ones."⁵

Several sources of information can, in combination, provide a reasonably good qualitative assessment of Bay Area recreation demand, and the nature of demand for water-related recreation here. The following summarizes population-based standards, participation rates, and preferences derived from surveys to describe the nature and extent of recreation demand. In combination with demographic data and trends, this information provides the best available measure of the demand for water-related recreational opportunities in the Bay Area.

³ Rones, Phillip L., Ilg, Randy E. and Gardiner, Jennifer M., *Monthly Labor Review*, US Department of Labor, April 1997, Vol. 120, No. 4. p. 4

⁴ Metropolitan Area Planning Council, Boston, Massachusetts *Assessing Recreation Demand*, 1979

⁵ Stynes, Danial J., *Economic Significance of Recreational Uses of National Parks and Other Public Lands*, Social Science Research Review, Volume 5, No. 1 Winter, 2005, Page 4

National Standards. Although national standards provide only a gross measure of the park and open space conditions in a community or a region, they can serve as a starting point for the discussion of whether present and future conditions meet the needs and aspirations of the community for recreational opportunities. In the Bay area, local governmental agencies have consistently used population-based standards for establishing general plan policies for the amount of park and recreation facilities that should be provided in a community. Regional park districts and regional planning agencies, including the Commission have not relied on these standards for determining the requisite amount of parks and open space that should be provided within their jurisdictions, but regional agencies, including the Commission do rely on population projections in their planning.

The National Recreation and Park Association (NRPA) first published national standards for park area and recreation facilities in 1971, which included specifications for various park types, sizes, access requirements, and site development guidelines. These guidelines were updated in 1983 and 1990 and became the gold standard in the country for planning for local park and recreation facilities. NRPA open space standards generally recommended 5 to 10 acres of neighborhood and community parks, 5 to 10 acres of metropolitan parks, and 10 to 20 acres of regional parks per 1,000 population. These standards are still used by a majority of communities for determining the amount of parkland needed for meeting a community's recreational needs. The national standards are intended as guidelines to be modified to fit local conditions. "Existing land use, housing densities, demographic characteristics, economic feasibility, topography, and perceived needs are among the local factors that should be considered in the establishment of the standards for any community."⁶

California State Parks Outdoor Recreation Plan (CORP) does not include any standards for the provision of park services to meet projected demand. The CORP recognizes that there is unmet demand for parks and recreation opportunities, due to a lack of investment in facilities and explosive population growth.⁷ The Department proposes to "develop a set of recommended statewide planning standards for outdoor recreation lands and facilities (e.g., acres of parklands and numbers of facilities needed per 1,000 population). Rather than attempt to create new standards, the department will work with the standards previously developed by the National Recreation and Park Association and the California Park and Recreation Society."⁸

⁶ Lancaster, R.A. (Ed.). (1990). Recreation, Park, and Open Space Standards and Guidelines. Ashburn, VA: National Recreation and Park Association

⁷ California State Parks, *California Outdoor Recreation Plan*. Sacramento, California Page 32

⁸ *ibid* P. 77

Regional parks demand is commonly evaluated separately from that of community parks, using a national standard (10 to 20 acres per 1000 people) because they provide for other recreational needs than do local parks.⁹ Regional parks draw people from a much larger area than do local parks and meet a type of demand for parks that cannot be met in local parks. The East Bay Regional Park District park acquisition policy requires the District to allocate resources based primarily on the population projections for the West Metropolitan, South Metropolitan and Diablo sectors. "The District will continue to acquire, develop, and operate areas and facilities and to provide programs and services with the primary goal of achieving a long-term balance throughout the park system. The District will continue to allocate resources based on the populations projected for the three sectors within the District."¹⁰

The Commission's Bay Plan designates primarily regional scale parks for waterfront park priority use. Although none of the federal, state or regional park providers currently use national population-based standards to assess demand for parkland, the State Parks initiative to create statewide standards will influence local and regional park providers planning over time as the grants provided to them for acquisition by California State Parks will be tied into the standards, once adopted. Therefore, it is useful to look at these population-based standards to develop one measure of demand for parks in the region.

Population. Population is the most important driver of the demand for recreational opportunities in the Bay region, including the demand for waterfront-oriented recreation. Since California's and the Bay Area's population will continue to grow, the region will continue to face the significant challenge of providing easy access to varied and enjoyable recreational experiences to preserve the quality of life we enjoy in the Bay Area. Bay Plan recreation policy number 1, states, in part, that "[a]s the population of the Bay region increases, more people will use their leisure time in water-oriented recreation activities...For parks, there is no practical estimate of the acreage that should be provided on the shoreline of the Bay, but it is assumed the largest possible portion of the total regional requirement should be provided adjacent to the Bay."

Table 1.1 shows that by 2020, the Bay Area's population will increase by almost 1 million persons to about 8.4 million and to just over 10 million by the year 2050. Population growth is driven mostly by births and immigration. As population grows, cities expand and become more dense, consuming open space both within and outside of their borders. Although the Bay Area

⁹ San Mateo County Parks and Recreation Department, *Mid-Coast Recreational Needs Assessment*, October 29, 2002 Page 48

¹⁰ East Bay Regional Park District, Master Plan, 1997

population will grow more slowly than other parts of the state, the dense settlement pattern here and the quantity and quality of public parks, water bodies and open spaces could be insufficient to maintain our quality of life, unless steps are taken to increase the supply.

Currently, public parkland of all types covers 647,407 acres in the nine-county Bay Area, including state and federally owned beaches, mountains and forests and locally protected open space like Golden Gate Park.¹¹ At our Bay Area 2000 population of 6.8 million people (See Table 1.1), that allows over 95 acres of open space per 1,000 persons. National open space standards recommend that the combination of local parks and regional parks should provide approximately 30 to 40 acres per 1,000 population. If we did not add any open space over the next 45 years, open space per 1000 residents would fall approximately 30 percent to about 64 acres. The Bay Area Open Space Council noted in its Regional Needs Briefing Book that, during the 1990's in the Bay Area, we increased permanently protected open space lands at a rate of about 1.3 percent per year while population was increasing at a rate of about 2 percent per year. Thus, under current rates of open space protection, the amount of per capita open space is decreasing.¹²

Table 1.1 Bay Area and California Population Projections Total Population				
	2000	2020	2050	Change 2000-2050
Alameda	1,451,109	1,864,145	2,315,045	59.54%
Contra Costa	954,504	1,327,081	1,848,177	93.63%
Marin	248,473	251,260	225,127	-9.40%
Napa	124,945	165,946	221,466	77.25%
San Francisco	781,174	820,545	706,192	-9.60%
San Mateo	710,493	786,740	826,342	16.31%
Santa Clara	1,691,183	2,006,992	2,325,538	37.51%
Solano	396,784	555,264	830,830	109.39%
Sonoma	461,347	602,783	796,792	72.71%
Bay Area	6,820,012	8,380,756	10,095,509	48.03%
California	34,043,198	43,851,741	54,777,700	60.91%
Source: State of California, Department of Finance				

¹¹ John Woodbury in *The Bay Area Open Space Tight-Rope*, by Fimrite, Peter, The San Francisco Chronicle, June 5, 2005

¹² Bay Area Open Space Council for the San Francisco Bay Area Conservancy Program, *Regional Needs Briefing Book*, April 15, 1999, P. 6

Table 1.2 provides a representative sample of Bay Area cities' compliance with their general plan policies for park acreage. This table shows that many communities in the Bay Area do not meet the standards that they have set for themselves in their general plans for parks. This reinforces the notion that local governments have come to rely more and more on federal, state and regional park providers to meet local park needs as funds for local provision of these services have diminished, due to the transfer of property tax revenue from local governments to the State government.

Table 1.2 ¹³ Comparative Park Acreage Standards for Certain Bay Area Cities		
City and Population	Existing Acres/ 1000 Population	General Plan Standard Acres per 1000 population (1)
Redwood City (75,900)	2.99	N/A
San Carlos (25,000)	2.0	5.0
Benicia (25,000)	4.4	5.0
Oakland (398,000)	9.3	10.0
San Leandro (68,000)	1.7	3.0
San Mateo (86,000)	3.3	10.0
Milpitas (63,000)	2.8	3.0
Belmont (25,000)	3.2	8.5
Foster City (30,000)	4.3	4.3 (3)
Menlo Park (28,000)	4.5	4.3 (3)
Tiburon	6.53	5.0
National Recreation and Park Association Standards		6 to 10.5 acres
(1) For a combined total of mini park neighborhood and community parks.		
(2) This amount includes both active and passive acres/1,000, totaling 11.6. Active is only 3.9 acres/1000.		
(3) No standard has been established by this city. The amount shown is the existing total.		

The popularity of standards among recreation planners results from the fact that they are easily understood and administratively convenient. Standards serve to indicate the adequacy or inadequacy of existing recreation supply in terms of geographically distinct segments of the population, and can be extremely useful in targeting specific neighborhood deficiencies. However, the "one size fits all" standards approach to park planning cannot provide the rich

¹³ San Mateo County Parks and Recreation Department, *Mid-Coast Recreational Needs Assessment*, October 29, 2002 Page 50 and various community General Plans

information that community-needs based planning can. Recently, the National Recreation and Park Association has reduced its reliance on population-based standards, instead adopting a performance based approach for communities to use in determining the appropriate amount and type of recreational opportunities to provide to meet their needs.

Performance-Based Standards. The most recent version of the national guidelines published by the NRPA calls for an individualized community planning approach expressed as a "level of service"(LOS). The LOS sets the community's standard for a minimum amount of open space required to meet the citizen recreation demand.¹⁴ The authors recommend that "each community should plan and program facilities based upon community need, reflecting its own unique blend of social, geographic and economic characteristics."¹⁵ The new LOS approach requires a quantitative assessment of community demand, or determining what recreational activities the public wants to do where and how often. This demand assessment has to be evaluated against a precise quantitative assessment of the community's supply of recreational opportunities, expressed in the number and size of parks, number of tennis courts, tot lots, recreational trails, etc., basically all available recreation facilities, to determine whether the LOS for the community meets the expressed demand.

Although the LOS approach is too fine-grained and time-consuming to implement Bay-wide or regionally, the concepts of planning for levels of service based on community expressed needs and desires can ensure that community parks and open spaces are more likely to serve community needs for recreation facilities. Using this approach, the level of service is still expressed in terms of acres needed per 1,000 population to meet the demand, but instead of being based only on population, it is derived from the components of recreation demand of the community and expresses whether both the park area and facilities provided meet that demand. "This is both an objective and subjective determination which is based on first-hand knowledge of the community and how community residents use the parks."¹⁶

The Bay Area currently has approximately 95 acres of open space per 1,000 persons, and much of that land is located in regional parks in hills surrounding the Bay. This apparent wealth of park and open space land reflects the values of Bay Area residents. We have maintained a dense settlement pattern and an ongoing commitment to the provision of parks and preservation of open space that provides for the high quality of life we aspire to. The NRPA

¹⁴ James D. Mertes and James R. Hall, *Park, Recreation, Open Space and Greenway Guidelines, A Project for the National Recreation and Park Association and the American Academy for Park and Recreation Administration*. December, 1995

¹⁵ *ibid*

¹⁶ James D. Mertes and James R. Hall, *Park, Recreation, Open Space and Greenway Guidelines, A Project for the National Recreation and Park Association and the American Academy for Park and Recreation Administration*. December, 1995

has reduced its reliance on population-based standards, instead recommending a performance-based approach for communities to use in determining the appropriate amount of type of recreational opportunities to provide to meet their needs. Although many Bay Area cities continue to rely on NRPA population-based standards for guiding local parkland decisions, the regional park and open space picture appears to be driven by a quality of life standard unique to the Bay Area. With the Bay as our largest, contiguous open space, and a character defining feature of the region, Bay Area residents enjoy one of the best open space environments in the country.

Waterfront Parks, including those currently designated in the Bay Plan and those purchased and developed for park use, but not designated comprise about 25,000 acres of regional supply, or slightly less than 4 percent of the total park acreage in the region. With greater population concentrations near the shoreline, the demand for useable, accessible waterfront parks will increase dramatically. According to East Bay Regional Park District staff, the limitations of the Commission's 100-foot shoreline band jurisdiction prevent it from ensuring that sufficient waterfront parks and public access are provided as the shoreline is redeveloped with denser settlement patterns.¹⁷

Participation and Preferences. Surveys that inquire about people's participation in and preferences for recreational activities provide another effective way of measuring recreation demand. Although these surveys are imprecise because it is impossible to survey every recreation participant, whether at the national, state or local level, typically the sample sizes are large enough to provide reasonable levels of confidence in the results as a measure of recreation participation and preference. "Despite the regional variety in topography, climate and vegetation, as well as cultural differences, the demand for certain recreational activities is fairly homogenous across the United States."¹⁸

Participation rates describe the frequency that members of the public engage in different types of outdoor recreational activities and provide the most direct measure of demand. Data reported here were gathered through surveys administered nationally, statewide, and at Bay Area regional parks. Participation rates are particularly helpful in discerning trends in recreation demand to assist providers of recreational opportunities to anticipate the facilities that may be needed in the future to meet demand.

¹⁷ Personal Conversation with several East Bay Regional Park District Staff at a November 17, 2004 meeting.

¹⁸ Cordell, Ken H., Principal Investigator, U.S. Forest Service, *Outdoor Recreation in American Life: A National Assessment of Demand and Supply*, 1999

National trends in recreation participation provide some context for our experience here in the Bay Area. The Nationwide Survey on Recreation and the Environment (NSRE), undertaken by the U.S. Forest Service, the most comprehensive survey of recreation activities, found that national participation rates for viewing and photographing birds and day hiking were the first and second fastest growing activities nationally between 1982 and 2001.¹⁹ "Viewing or photographing birds (i.e., birding) ... has added over 50 million participants to its 1982-83 base of 22 million, and grew over 231%."²⁰ The 10 most popular activities nationally in the 2000-2001 NSRE survey are described in Table 1.3.

Table 1.3 Ten Most Popular Activities Nationally- Percent Participating ²¹			
Activities	Percent of Population 16+ Participating (2000-2001)	Rank of Popularity (1994-95)	Percent of Population Participating (1994-1995)
Walking for Pleasure	83.0	1	66.7
Family Gatherings	73.5	2	61.8
Visiting Nature Centers	57.1	4	53.4
Picnicking	54.5	5	49.1
Sightseeing	51.8	3	56.6
Attending Outdoor Sporting Events	49.9	6	47.5
Visiting Historic Sites	46.2	8	44.1
Viewing/Photographing Wildlife	44.7	12	31.2
Swimming in Lakes and Streams	41.8	9	39.0
Swimming in Outdoor Pools	41.0	7	44.2

Most of the activities that are popular nationally are particularly suited to waterfront parks. Of the ten most popular activities nationally, only three activities: (1) attending outdoor sporting events, (2) swimming in lakes and streams, and (3) swimming in outdoor pools are not commonly pursued in Bay Area waterfront parks. In 1960, the Outdoor Recreation and Resources Review Commission found that "water has always been a major attractant for

¹⁹ Cordell, Ken, *Outdoor Recreation for the 21st Century*, Sagamore Publishing. Page 38.

²⁰ Cordell, Ken H. Principal Investigator, U.S. Forest Service. *Outdoor Recreation in American Life: A National Assessment of Demand and Supply*, 1999

²¹ *Ibid* Page 40.

outdoor recreation."²² Moreover, participation in other activities commonly enjoyed in waterfront parks including bicycling, hiking, fishing, boating, windsurfing and camping remain popular both nationally, and here in the Bay Area. Therefore, it is important for the Commission to continue to support those activities in its policies. Certain activities, such as family gatherings, visiting nature centers, and visiting historic sites are not specifically mentioned in the Bay Plan.

In addition to looking at those activities that are the most popular by number of participants nationally, the fastest growing activities are also important trendsetters that should guide policy makers and recreation providers. As mentioned above, birding, both viewing and photographing, has experienced dramatic growth in participation. Other waterside or on-water activities where national participation rates have grown substantially over the last 20 years include day-hiking (+194%) and primitive camping (+111%).²³ Looking at a shorter time period, from 1994/1995 to 2000/2001, the NSRE showed that kayaking was the fastest growing activity both nationally, and in the Pacific region of the U.S., with a national growth spurt of 186% while participation increased 146% in the Pacific region during this period.²⁴

Activity	Percent who Participated
1. Walking for fitness and fun	91.1%
2. Driving for pleasure, sightseeing, driving through natural scenery	90.2%
3. Visiting historic or culture sites, museums	85.5%
4. Attending outdoor cultural events (festivals, fairs, concerts, historical reenactments, outdoor theater)	82.6%
5. Beach activities (including sun bathing), surf play	82.2%
6. Visiting outdoor nature museums, zoos or arboretums	80.1%
7. Picnicking in Developed sites	76.7%
8. Wildlife viewing, bird watching, viewing natural scenery	75.1%
9. Trail hiking	68.7%
10. Using open turf areas (casual and unstructured activities –games, relax, sunning, etc.)	65.5%

²² Ibid Page 108

²³ Cordell, H. Ken [et al.], principal author Outdoor Recreation for 21st century America: A report to the nation, the National Survey on Recreation and the Environment. State College, Pennsylvania: Venture Publishing, 2004.

²⁴ Ibid. pages 76-78

²⁵ California State Parks *Public Opinions and Attitudes on Outdoor Recreation in California, 2002*. Sacramento, California.

Comparing California participation rates with the NSRE demonstrates that for most activities, Californians hew very closely to national trends, although in some cases, participation rates do vary. Some of the differences in the national and California data are due to certain recreation activities being excluded from each of the surveys such as driving for pleasure and sightseeing, and attending outdoor sporting events. Table 1.4 demonstrates that California participation exceeds the national average for walking for fitness or fun, visiting historical or culture sites, visiting nature centers, picnicking and viewing or photographing wildlife. Waterfront parks accommodate all 10 of the most popular recreation activities in California. Looking a little deeper, we find that the top 20 recreation activities in California as measured by participation include eight additional activities suitable for waterfront parks: camping, swimming, bicycling, walking a pet, using play equipment, such as tot lots, jogging and fitness running, fishing and motor boating.

Other water-oriented recreation activities which did not rank as high with Californians in the survey, but are important from the Commission's perspective include paddle sports (kayaking, canoeing, rowing, etc.), fishing, riding personal watercraft, water skiing, sail boating, hunting, and windsurfing (ranked in order of popularity). Although statewide, these recreational activities ranked between the 27th and 55th by the simple measure of the percentage of the population participating, this masks the actual level of participation. Many of these activities, such as windsurfing, kayaking, and hunting have a dedicated group of participants who engage in these activities for several days each year so that based on total participation days (number of days times number of participants) these activities move up the popularity scale. Furthermore, for many of these activities, the Bay is the perfect place to enjoy them, so that Bay Area residents engage in these activities at higher rates than the state as a whole.

National and state survey results regarding recreation participation demonstrate that water-oriented recreation is extremely popular. As population rises, it can be expected that demand for these activities will increase. Based on emerging trends, such as the increasing popularity of bird watching, paddle sports and visiting nature centers, participation in water-oriented recreation of all types can be expected to grow in the coming years.

California State Parks also surveyed the public to determine the latent or unmet demand for recreation activities and to determine which activities were "most important" to Californians. "A needs analysis based on the 2002 survey data revealed that camping in developed sites, trail hiking, walking for fitness and fun, and wildlife viewing were the four top activities that Californians would have done more often if facilities had been available and would support

government spending to improve those opportunities."²⁶ Once again, those are all water-oriented recreation activities for which there are insufficient facilities to meet expressed demand. Other water-oriented activities that respondents expressed a desire to have additional facilities or opportunity sites in which to pursue them in order of preference include bicycling on paved surfaces, picnicking in developed sites, visiting outdoor nature museums, zoos, or arboretums, visiting historical or cultural sites, beach activities, and paddlesports. These findings indicate that additional public space is needed at the Bay shoreline to provide land and water-based recreation opportunities to satisfy unmet demand.

When asked which activities were most important to them, Californians provided a slightly different ranking of activities than resulted from the rankings derived from participation rates (see Table 1.4). In general, the results were quite similar. Activities that climbed into the top twenty "most important" include golf, softball and baseball. These are not necessarily water-oriented activities, however many ball fields and golf courses are located along the Bay shoreline, and others are being planned. Local park providers often complain that they are unable to meet the demand for team sports, due to insufficient land. In some communities, sports fields and golf courses are seen as ways to raise revenue that can offset the costs of owning, operating and maintaining waterfront parks. It is likely that the Commission will see continued pressure to locate ball fields in waterfront parks because local governments lack the funding to acquire land inland, and some own or can acquire land at the waterfront. The Commission's current policy discourages waterfront playing fields and golf courses. By including a requirement that these facilities be designed for multiple uses, so that when they are not in use as playing fields, they can better accommodate passive recreation activities.

Examples of this trend include the City of Menlo Park, which recently considered a proposal to build a golf course on its Bayfront Park, in part to help defray costs of maintaining it as a closed landfill. The City of Mountain View derives some revenue from concessions at Shoreline Park that help defray the cost of operating the park. The City of Berkeley and the East Bay Regional Park District are partnering to purchase and construct playing fields on the Berkeley waterfront, and, Santa Clara County constructed the Twin Creeks ball field complex, a for-profit concession adjacent to Sunnyvale Baylands Park.

The nationwide and statewide surveys also uncovered some other important trends shaping the future of recreation demand. One such trend is the increasing popularity of viewing, learning and stewardship activities. These activities focus on some aspect of nature, history or prehistory through visits to recreation sites, or wildlife areas. Related activities include

²⁶ California State Parks, *Public Opinions and Attitudes on Outdoor Recreation in California* Sacramento, California December, 2003 page 2

watching, studying, identifying, photographing, and learning about natural processes or history. "The selection of developed nature oriented park and recreation areas as the favorite type by the largest percentage of Californian's in 2002 (35.4%) was a significant change from the 1997 survey."²⁷ Coupled with the meteoric rise in bird watching and growing participation in volunteer restoration activities, this trend has caught hold in the Bay Area and is growing.

Table 1.5, taken from the NSRE compares several different recreation activities with viewing/learning activities based on the percent of the population participating, and the mean (average) number of occasions of participation in 2001.

Table 1.5 ²⁸		
Percent of U.S. Population Participating and Mean Occasions of Participation by General Type of Outdoor Recreation Activity		
Activity Group	Percent of Population	Mean Number of Occasions
Viewing/learning Activities	88.4	136.1
Developed Site Activities	94.9	93.3
Trail Activities	40.4	40.3
Swimming/surfing/beach activities	62.8	36.6
Motorized Activities	62.0	31.3
Hunting and Fishing	38.1	26.9

Demographic Factors and Recreation. Ethnicity, age, sex, income, available leisure time, mobility and education are demographic factors, which can influence recreation demand. Past research into recreation choice tended to focus on one of these variables to explain variance in recreation choices. The social science literature abounds with different theories claiming to explain, to varying degrees, how each of these variables affects participation in recreation activities. Recently, social scientists have attempted to develop predictive models using a more holistic, multivariate approach, which has led to more complex models for predicting recreation choice, but these models have also failed to yield reliable results, but show more promise than more simplistic models. Despite these limitations, there is widespread agreement that these variables affect recreation demand; therefore, exploring the Bay Area conditions of each of these factors can inform our understanding of the forces driving recreation choices here.

²⁷California State Parks, *Public Opinions and Attitudes on Outdoor Recreation in California, 2002*. Sacramento, California.

²⁸Cordell, H. Ken [et al.], principal author *Outdoor Recreation for 21st century America: A report to the nation, the National Survey on Recreation and the Environment*. State College, Pennsylvania: Venture Publishing, 2004.

Ethnicity. The ethnic make up of California's and the Bay Area's population is changing fast and by 2050 will be significantly different than it is today. Population predictions indicate that the Bay Area's population will become more diverse, composed of three more equally sized, large ethnic groups (Asian, Caucasian, and Hispanic) and several other smaller ethnic groups. Unlike today, where there is one larger ethnic group (Caucasian), two mid-sized groups and several smaller ones (see Table 1.6).

Between 2000 and 2050, the Bay Area's population is projected to grow by 48%. By 2050 According to projections, the Bay Area's population of European descent will fall by 16%, while the Hispanic population will grow by 210% and the Asian and Pacific Islander population will grow by 74% and 115% respectively. The African American population will grow by 44% and the American Indian Population will grow by 938%. By 2040, Hispanics will be the Bay Area's largest demographic group, and by 2050 will comprise 38% of the region's population. These trends mirror statewide and national population trends, and they have significant implications for the different preferences, expectations, and ways of seeking and participating in outdoor recreation that recreation land and water managers will face in the coming decades.²⁹

Table 1.6 San Francisco Bay Area Population Ethnicity Total Population					
	2000	2020	2050	Percent of 2050 Total Population	Percent Change 2000-2050
American Indian	25,090	96,769	260,555	1.87%	+938%
Asian	1,316,891	1,966,962	2,207,022	21.54%	+74%
Black	502,072	563,053	637,765	5.98%	+44%
Caucasian	3,239,237	3,147,540	2,733,843	31.46%	-16%
Hispanic	1,264,059	2,319,229	3,915,083	37.92%	+210%
Multi-Race	142,925	228,603	268,412	2.47%	+88%
Pacific Islander	33,610	58,600	72,839	0.62%	117%
Total Population	6,811,566	8,380,756	10,095,519	100%	+48%
Source California Department of Finance					

²⁹ Winter, Patricia L., PhD; and Chavez, Deborah J. PhD (U.S. Forest Service, Riverside, California); Recreation in Urban Proximate Natural Areas in Outdoor Recreation Areas in American Life: A National Assessment of Demand and Supply Trends, Cordell, H. Ken, Principal Investigator, Sagamore Publishing, Champagne, Illinois, 1999 p. 302

It is important to keep in mind that one size does not fit all when it comes to predicting recreation demand for different ethnic groups. The challenge for social science modelers is to develop predictive models that describe ethnic recreation choices "in terms of the respective recreation [ethnic] group standards, rather than in relation to a normalized ideal."³⁰ As one researcher put it; "while ethnic groups will adopt middle-class white American cultural characteristics for some purposes (e.g., employment), their core cultural values will be maintained and expressed when it comes to recreation and leisure activities."³¹ Others go further and state that America is not a melting pot, it's a salad bowl and acculturation is no longer the force it once was a century ago.

Although reliable predictive models are unavailable, some generalizations about the impact of ethnicity on recreation choices can be gleaned from the national social science literature, which summarizes the results of surveys administered to a broad cross-section of Americans from various ethnic groups and with varying income levels. These results do not provide any guidance on causes of the trends observed, however the trends are important for policy makers and land managers to recognize as providers of recreational opportunities. The Bay Area Open Space Council summarized general areas of agreement in this way:

- "Demographic groupings based on gender, age and race tend to mask the tremendous variation of recreational choice within those groupings.
- Whites engage in wildland activities at a higher rate than do African Americans. Two frequently cited exceptions to this pattern are fishing and hunting.
- African Americans are often reported to show less concern for conserving land, and less preference for purely natural settings and nature-oriented recreational activities, than do whites. Stated differently, African Americans are said to favor more development in recreational areas than do whites.
- African Americans tend to stay closer to home when engaging in outdoor recreation.
- Many people of color, but especially African Americans are concerned about the potential for discrimination and bigotry in rural America, and are thus reluctant to travel and recreate there.
- Few African American children from low-income families have much experience with camping.

³⁰ Carr, Deborah S.; Williams, Daniel R., 'Understanding the role of ethnicity in outdoor recreation experiences.' *Journal of Leisure Research*. 1993, vol.25 (1): 22-38

³¹ Gramman, J. H., (1996). Ethnicity, race, and outdoor recreation: A review of trends, policy, and research (Miscellaneous Paper R-96-1) U.S. Army Corps of Engineers Vicksburg, MS

- African Americans resemble whites in their tendency to participate in recreational activities either as individuals or as a member of single-generation peer groups.
- Latino parks users tend to recreate in larger social groups than whites.
- Extended family activities are important for Latino park users.
- Latino culture does not isolate people from the natural environment; the ideal Hispanic landscape is "peopled and productive" and does not include the notion of an uninhabited wilderness.
- Latino park users do not so much seek a "wilderness experience" as an opportunity to recreate in a beautiful outdoor setting with family members, and tend to prefer more developed sites that can accommodate larger groups.
- Recent Latino Immigrants are quite different from those raised in the U.S. Recreational patterns of U.S. born Latinos more closely match those of the general population than do those born in Mexico or Central America.
- Native Americans typically recreate in much larger social groups (50-200 people) than non-Hispanic whites.
- Education of children and teens by their elders through traditional activities is an important purpose for Native American park use."³²
- "Asian American recreational participation tends to resemble that of whites. The Asian American population is extremely heterogeneous, and few studies of recreational participation and preference in this community have been done.
- Asian Americans are less likely than whites of similar socioeconomic status to participate in swimming at pools, bicycling, and softball and baseball.
- Some Asian groups will use hunting and fishing as a form of subsistence, rather than as a form of recreation."³³

Table 1 below, taken from a recent U.S. Forest Service publication provides a snapshot of national trends in Hispanic participation in viewing and learning outdoor recreational activities. "The statistics in Table 1 hint that as the composition of U. S. population changes even more in the future, it is highly likely that the composition of outdoor activities may also change,"³⁴ as the

³² Bay Area Open Space Council, *Parks, People and Change, Ethnic Diversity and its Significance for Parks, Recreation and Open Space Conservation in the San Francisco Bay Area*, September, 2004 San Francisco

³³ Gramann, J. H. (1996). "Ethnicity, race, and outdoor recreation: A review of trends, policy, and research." Miscellaneous Paper R-96-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS and Winter, Patricia L. et al in *Journal of Park and Recreation Administration*, Fall 2004, 'Outdoor Recreation Among Asian Americans: A Case Study of San Francisco Bay Area Residents' P.1

³⁴ Cordell, H. Ken, Recreation Statistics Update, Update Report No. 5, December, 2004 Hispanic Participation in Viewing-Learning Outdoor Recreation Activities. US Forest Service Bulletin, page 2

preferences of a growing Hispanic population determine an increasing percentage of the composition of recreation demand. Although the aging of the Baby-boom population will likely lead to a dramatic increase in passive recreational activities such as those described in Table 1, in California the shrinking of the Caucasian cohort of the population could diminish the overall participation in these activities, unless they become more important to Hispanics.

Table 1.—Comparison of percentages of 3 segments of the U. S. population participating in viewing/learning outdoor activities, 2000-2004.

Activity	White/ non-Hispanic Percent participating	Hispanic/ Mexican Origin Percent participating	Hispanic/ not Mexican Percent participating
View/Photograph Natural Scenery	67.3	42.1	47.3
Visit Nature Centers, etc.	60.6	49.8	53.1
Sightseeing	57.7	27.9	35.0
View/Photograph Other Wildlife	52.4	24.3	28.3
Visit Historic Sites	50.8	25.0	37.3
View/Photograph Wildflowers, Trees, etc.	50.1	30.9	37.0
Visit a wilderness or primitive area	37.6	21.2	22.3
View/Photograph Birds	37.1	18.3	23.1
Gather Mushrooms, Berries, etc.	33.3	18.1	18.6
View/Photograph Fish	27.4	15.0	19.9
Boat tours or excursions	22.1	8.2	13.4
Visit Prehistoric/Archeological Sites	21.5	15.9	21.6
Caving	5.2	3.2	1.4

Looking at statewide survey data on the effect of ethnicity on recreational participation and preference, California State Parks found that “[i]n California, the changes in ethnicity patterns are changing the character of outdoor recreation. Much of this change can be attributed to the rapid growth in the Hispanic population. In 1990, there were about 6 million Hispanics (20.1%) in California’s total population of 29.8 million, and by 1995, this figure had increased to about 8 million (25%) of the state’s total population of about 32 million people.”³⁵ Some differences and similarities emerged when comparing responses from Hispanic and non-Hispanic respondents to the State survey on public attitudes on outdoor recreation in 2002. For example:

- “Both Hispanics and other respondents indicated that developed nature-oriented parks and recreational areas were their most preferred types of areas. However, significantly fewer Hispanics said they visited natural, undeveloped areas than did members of other ethnic groups.

³⁵ California State Parks, *Public Opinions and Attitudes on Outdoor Recreation in California 2002* Sacramento, California page 55

- A significantly larger percentage of Hispanics strongly or moderately agreed that: (1) more community parks were needed near them, (2) more parks were needed in urban areas, (3) more recreational areas were needed by lakes, and (4) outdoor parks were too crowded.
- A significantly larger percentage of Hispanics support increasing taxes and use fees to fund park and recreational areas than members of the other ethnic groups.
- Changes in park and recreational facilities and services that were favored by a significantly higher percentage of Hispanics included more emphasis on: (1) buying additional parkland and open space for recreational purposes, (2) maintaining or caring for park and recreation areas, (3) providing educational programs, (4) building new facilities, (5) remodeling and improving existing facilities, (6) protecting natural resources, (7) protecting historic resources, and (8) providing more organized activities and special events.
- Four activities that a significantly larger percentage of Hispanics said they would do more often if opportunities were available and for which they would support government spending included (1) walking for fitness and fun, (2) driving for pleasure, (3) soccer, football or rugby, and (4) softball and baseball."³⁶

Twenty to 30 years ago, skate boarding and soccer were considered new activities. Today, cricket, tai chi, kite-surfing and large extended family gatherings are the newer activities being accommodated in Bay Area parks. The future demand for water-oriented recreation on the Bay and its shoreline will certainly be influenced by the changes in the ethnic make-up of the Bay Area population. These changes are already manifesting in our parks. Cricket pitches are being constructed in several South Bay cities, including one in a waterfront park in response to demand from a large and growing immigrant population.³⁷

In surveys conducted in the Bay Area, Hispanics expressed greater demand for larger group picnic and camping sites than other ethnic groups, lower participation in primitive camping and wilderness visits, and greater demand for additional playing fields for team sports and

³⁶ California State Parks, *Public Opinions and Attitudes on Outdoor Recreation in California 2002* Sacramento, California

³⁷ Personal Conversations with Curtis Black, Superintendent of Parks, City of Sunnyvale March 25, 2005, and Antonio Acosta, Assistant City Manager, City of Union City (Date)

similar demand for camping.³⁸ Furthermore, these surveys showed that Hispanics "visit highly developed parks in or near urban areas at approximately the same rate as the general population and indicate more preference for such parks...compared to the general population."³⁹

Although Hispanics here match national and state trends with preferences towards recreating within larger groups and a focus on family recreation, the similarities between ethnic groups regarding preferred activities, priorities for preserving land for open space and willingness to be taxed for these benefits, clearly outweigh the differences. The Bay Area Open Space Council recommends that future park acquisitions and improvements within parks should focus on the "potential to meet multiple purposes simultaneously...in ways that are compatible with resource protection goals."⁴⁰

The changing ethnic make up of the Bay Area population for water-oriented recreation will probably create a greater need for facilities that accommodate larger groups in parks both for picnicking and camping and incorporating facilities for families of all sizes in a wide variety of parks. Also, posting multi-lingual signs and providing multi-lingual programs will become increasingly important. The Hayward Area Recreation District offers classes in Spanish for school children at its shoreline interpretive center and many parks are installing multi-lingual signs. Many Bay Area park providers report that group picnic areas are booked well in advance and over-subscribed, in part because of the tendency for extended family recreation patterns of recent immigrants. Also, since many Hispanics, as well as other groups, support facilities and programs that involve families, programs for children and youth and family-oriented entertainment and events, it will be important to include facilities and programs to meet these needs in waterfront parks.

Over time, the demand for recreational activities that are new to the Bay Area and preferred by recent immigrants may diminish. First generation immigrants tend to hold more to their traditions while later generations are more likely to adopt recreational patterns that are common to where they live, in part, due to socialization, but more by choice.⁴¹ The State Park's 2002 survey found that "for most measures, Hispanic respondents were more similar than different from non-Hispanics respondents."⁴² Park managers will need to gauge the level of demand over time for recreational activities and ensure that park uses and facilities match up with the demand of their patrons.

³⁸ Bay Area Open Space Council, *Parks, People and Change, Ethnic Diversity and its implications for parks, recreation and open space conservation in the San Francisco Bay Area.*

³⁹ *ibid*

⁴⁰ *ibid*

⁴¹ Philipp, Steven F. 1995. 'Race and leisure constraints' *Leisure Sciences*. Vol. 17: 109-120

⁴² California State Parks, *Park and Recreation Trends in California 2005*, Sacramento, California

Age. A person's age can affect the type of recreational activities they are likely to pursue, and their participation rate in recreational activities generally. For most recreational activities, participation declines with age, especially for more strenuous pursuits. Remarkably, there is great similarity between age groups regarding the types of activities that people prefer. In general, young adults are the heaviest users of park and recreational facilities, both those with and without families. It is important to note that the strongest influence on future recreation behavior is one's experiences as a child and teenager.

Between 1990 and 2020, California's senior population will increase by 112%, primarily in the baby boom generation.⁴³ "Baby boomers are a diverse group. Although seven are turning 50 every minute until the year 2014, millions are still in their forties. They are entering their prime travel years; 80% of leisure travel is by people over 50 years old. As a group, they are wealthy; and in 2010, they will control 50% of disposable income (U.S. Forest Service)." The gradual aging of the U.S. population is reducing demand for traditional, higher intensity team sports (hockey, baseball, basketball, etc), and increasing demand for individual recreation, including golf, exercise walking, aerobics, yoga, and other fitness programs. The baby boom generation will "have an appetite for adventure and an aversion to slowing down. Boomer seniors will be drawn to conservation and heritage causes, adding much needed capacity to California's citizen-steward ranks."⁴⁴

In the Bay Area, the baby boom generation will engage in many water-oriented recreational activities in increasing numbers as they retire. They will be avid bird watchers, visitors to historical and cultural sites, walkers, hikers, cyclists, paddlers, volunteer docents and maintenance workers and teachers. Many will desire a certain level of amenity and comfort in recreational settings, such as convenience food, warming huts, equipment rental and other services.

The children are our future, and the activities that they engage in as children influence their participation in recreation later in life. A State Parks survey of California youth in 2002 showed that walking for fitness and fun, pool swimming, visiting water sites other than beaches, beach activities, and visiting outdoor nature museums, zoos or arboretums were the recreational activities with the largest percentage of youth participation. Walking for fitness and fun, jogging and fitness running, bicycling on paved surfaces, pool swimming, and using play

⁴³ California Department of Aging, Statistics and Demographics.
<http://www.aging.ca.gov/htmlstats/demographics.html>

⁴⁴ California State Parks, *Park and Recreation Trends in California 2005*, Sacramento, California

equipment were the youth activities with the highest average number of days of participation. The activities that California youth would like to do more often if opportunities were available included beach activities, swimming in freshwater lakes, rivers and/or streams, saltwater fishing, camping in developed sites, and bicycling on paved surfaces.

A more troubling aspect of California youth is the increasing incidence of obesity due to excessive caloric intake and inactivity. There are myriad causes for this "epidemic." A new survey of parents by *The San Jose Mercury News* and the Kaiser Family Foundation on childhood obesity found that in general, Bay Area parents say their children are physically active. Most say their children frequently get 30 minutes of physical activity a day and are involved in organized sports or activities. Very few say that their child never gets any physical activity.⁴⁵ It is unclear the level of recreation demand that this generation will create as it ages.

Providing a diversity of recreational opportunities in waterfront settings is the surest way to address the varying demands of different age cohorts in the population. Although there are considerable similarities between age groups regarding the most popular recreational activities, there are sufficient differences in their recreational appetites that require unique facilities such as skate parks, bird watching blinds or swimming opportunities to ensure that all age cohorts are satisfied.

Income. Studies have shown that those with higher incomes share common recreational interests: nature, saving time, willingness to pay to avoid waiting, and interpretation that adds value to an outdoor recreation experience. People with higher incomes prefer larger blocks of free time to achieve a real psychological release from work.⁴⁶ The recreation research literature shows that personal income is positively correlated with participation rates in most forms of outdoor recreation. Also, income is a stronger predictor of outdoor recreation participation than sex, age, race or level of education. Compared to the rest of the country, Bay Area levels of disposable income are high. NOAA has compiled national population data and projections for coastal counties, which demonstrate that median household income in San Francisco Bay Area counties is among the highest in the country. The 2000 U.S. Census found that median household income in the Bay Area was \$62,024.⁴⁷

The Bay Area's high median income levels mask to some extent a growing disparity of income and wealth distribution in the region that is consistent with national trends. Nationally, the income gap between high and low-income households is growing. "The share of the nation's income earned by the top 0.1 percent of households has more than doubled since 1980, to 7.4

⁴⁵ San Jose Mercury News Kaiser Foundation Survey on Childhood Obesity

⁴⁶ State of California, Parks and Recreation Department, California Outdoor Recreation Plan 2002, page 28.

⁴⁷ US Census Bureau, Census 2000

percent in 2002. The share of income earned by the rest of the top 10 percent rose far less, and the share earned by the bottom 90 percent fell. One way to understand the growing gap is to compare earnings increases over time for everyone in the lower 90 percent with those at the top, (those in the uppermost 0.01 percent -- about 14,000 households -- earning \$5.5 million or more in income last year). From 1950 to 1970, for every additional dollar earned by the bottom 90 percent, those in the top 0.01 percent earned an additional \$162. From 1990 to 2002, for every extra dollar earned by those in the bottom 90 percent, each taxpayer at the top brought in an extra \$18,000."⁴⁸ Census data released in August 2004 shows that the number and percentage of Americans living below the poverty line increased for the third consecutive year in 2003. The 2004 U.S. Census' American Community Survey reports that the number of Bay Area families living in poverty rose by almost 30 percent from 2000 to 2003, in the wake of the economic downturn here.

Table 1.7 U.S. Income and Poverty Levels 1979 through Present.				
	1979	1989	1999	2004 Projections
Median household income (dollars)	\$20,607	\$41,595	\$62,024	\$65,268
Median Family Income	\$24,731	\$48,532	\$71,333	\$76,547
Per Capita Income	\$9,368	\$19,716	\$30,934	\$32,472
Percent of Families Below Poverty Level	9.1%	10.3%	9.3%	10.2%
Source: U.S. Census Data 2000 and Projections				

Housing affordability is a proxy for income and wealth distribution. The income gap was the greatest in the San Francisco Bay area, where most potential homebuyers fall short of the qualifying income needed to buy a median-priced home.⁴⁹ A recent study by the National Low Income Housing Coalition shows that the San Francisco Bay Area is the least affordable area of the nation. The greatest housing gap is for low and moderate-income households - cashiers, teachers, bus drivers - who cannot afford to live and work in the same community. A minimum wage worker would need to work 106 hours per week to afford the average Bay Area two-bedroom apartment. This supports the notion that lower income households have less time to spend on recreation, and, therefore, choose television or recreation that is close to home,

⁴⁸ Johnston, David C., New York Times, June 5, 2005, "Richest are Leaving Even the Rich Far Behind"

⁴⁹ San Jose Business Times, August 3, 2005

because of cost, lack of time, and in some cases, lack of mobility to travel to more distant recreation options. According to California State Parks, "it is suspected that outdoor recreational needs of low income people are different, mostly due to the lack of discretionary income, time and transportation options for outdoor recreation."⁵⁰

Table 1.8 San Francisco Bay Area Mean Household Income by County Observed (2000) and Projected (2020)		
	2000	2020
Alameda	\$66,800	\$82,300
Contra Costa	\$79,000	\$99,300
Marin	\$100,600	\$124,200
Napa	\$66,600	\$81,300
San Francisco	\$68,500	\$86,400
San Mateo	\$89,700	\$109,100
Santa Clara	\$89,300	\$105,300
Solano	\$60,400	\$75,000
Sonoma	\$64,400	\$79,500

Education. The level of education attainment affects recreational choices in part by affecting the level of income. There is a strong correlation between educational attainment and level of income, and as stated above, income is one of the strongest determinants of recreation participation. There is considerable similarity of recreation preference between those who have attained only a high school diploma, those with four-year degrees, and those with advanced degrees. However, in general, participation rates among those with higher educational achievement exceed the participation rates of people with less education. National data show that participation in viewing and learning activities is among the top ten activities for those with advanced degrees, but not for those with less education.⁵¹

⁵⁰ California State Parks, *California Outdoor Recreation Plan 2002*, page 28.

⁵¹ Cordell, H. Ken [et al.], principal author *Outdoor Recreation for 21st century America: A report to the nation, the National Survey on Recreation and the Environment*. State College, Pennsylvania: Venture Publishing, 2004.

	Bay Area		NATIONAL
	Census 2000	2002 ACS Estimates	Census 2000
Population 25 and over	4,599,189 100.0%	4,570,345 100.0%	182,211,639 100.0%
High school graduate	813,743 17.7%	801,650 17.5%	52,168,981 28%
Bachelor's degree	1,068,649 23.2%	1,132,467 24.8%	28,317,792 15.5%
Graduate or professional degree	649,767 14.1%	708,695 15.5%	14,390,482 7.9%
Total Percent of Over 25 Population with at least High School Diploma	55%	57.8%	51.4%
Source: U.S. Census 2000 and American Community Survey 2002 Summary Tables			

The level of educational attainment in the Bay Area population is high in comparison to the rest of the country. According to a study by the Bay Area Economic Forum, the San Francisco Bay Area workforce, measured by the adult population over 25, is becoming more highly educated over time, and by at least one measure, the "knowledge economy ranking" the Bay Area ranks number 1 in the country.⁵² The education picture is complex because there is a considerable inflow of migrants with varying levels of education. For example, migrants from Asia, particularly China and India, are generally highly educated. Many recent immigrants from Latin America and other parts of the world are not attaining the levels of educational achievement of current residents or other groups of immigrants. However, ABAG reports that overall, education levels of in-migrants is higher than that of out-migrants and the existing population.⁵³

Despite our high overall levels of education in the Bay region, "as the immigrant population of the San Francisco Bay area has grown, disparities between ethnic minorities and whites have become more pronounced. For example, the percentage of local residents who have graduated from high school remained unchanged during the 1990s, reflecting the stagnation in educational

⁵² Bay Area Council, Bay Area Economic Forum, and Association of Bay Area Governments, Bay Area Economic Profile, January 2004

⁵³ Yang, Ching Ming Association of Bay Area Governments, Conference Presentation "Migration Patterns in the San Francisco Bay Region at "Measuring Metropolis" June 23, 2005, Metro Center, Oakland, California

level of an ever-growing minority population. As minorities lag behind their white counterparts educationally, so do they professionally, contributing to a racial gap in average household income."⁵⁴

If these trends continue, the highly educated baby boom generation will continue to demand increasingly varied recreational opportunities, perhaps at higher levels than past generations. However, if educational attainment stagnates in the Bay Area as some argue, then incomes could fall, and overall participation could decrease, and some changes in preference could emerge, with community service, viewing and learning activities and activities requiring expensive equipment declining. Also, two separate markets for recreational opportunities could emerge, one for the well educated, and typically economically more well off, and one for the less well educated, and often less well off economically. Whatever trend emerges in the coming years, the challenge for the Commission is to ensure that sufficient parkland is available to meet projected demand and that waterfront parks provide sufficiently varied recreational opportunities to meet demand and that the water-oriented recreational needs of all Bay Area income strata are met.

Mobility. The social science literature attempts to explain how the cost of travel, in both time and out of pocket expense to recreational sites affects recreation demand. There is considerable variation in the conclusions reached by various authors, but in general it is safe to say that the cost of travel to recreational sites does affect whether a person can or will visit a particular site. In the highly mobile, affluent Bay Area, access to recreational sites for many is not a significant issue. Availability of leisure time and information about recreational opportunities present greater barriers to recreation for the middle and upper income individual than does cost of travel, including the opportunity cost of travel time. Mobility is more of an issue for those with lower incomes, particularly if the cost of travel is high, trip length is long, or if one is transit dependent, trip length is long or transit service is unavailable.

"Surface transportation in the Bay Area relies on a complex network of roadways, bridges, conventional and light rail lines, bus lines, ferry routes, truck routes, high-occupancy vehicle lanes, pedestrian paths, and bicycle lanes to move people and goods within and through the region."⁵⁵ The Bay Area has invested billions of dollars in transportation infrastructure in the region to maintain or improve mobility for residents and visitors. As a result, access for most Bay Area residents to waterfront recreational opportunities has improved, while for others it has not changed, or has diminished. Completion of segments of the Bay Trail and Commission-

⁵⁴ Living Cities, The National Community Development Initiative.

http://www.livingcities.org/sites_cities_san_francisco_bay_area_neighborhoods.htm

⁵⁵ BCDC Staff, Transportation and the San Francisco Bay Area, July 29, 2005

required public access, improvement of several waterfront parks, provision of public transit, construction of pedestrian and bicycle crossings over freeway and rail lines near the Bay, and construction of pathways linking inland areas to the shoreline have all contributed to improved mobility for accessing waterfront recreational opportunities. Continued efforts to increase the supply of waterfront parkland can reduce travel times and crowding to maintain or improve both the accessibility and quality of the public's waterfront recreational experiences.

Although the Bay Area is blessed with ample open spaces, as population grows, mobility could decline resulting in crowding in certain parks near population centers, which could diminish demand or create latent demand for recreational opportunities. California State Parks' *California Outdoor Recreation Plan* notes that, "park and recreation lands, facilities and programs are not fully accessible to all Californians, further decreasing the relevancy of the services provided. Obstacles can be physical, environmental, socioeconomic demographic and administrative in nature."⁵⁶ The Commission has some limited control over access to waterfront parks, and the waters of the Bay. Physical obstacles that inhibit reasonable access to recreational opportunities include lack of proximity in distance and time to recreational opportunities, lack of reasonably convenient transit service to recreational sites, lack of sufficient safe walking or biking routes, inadequate access for people with disabilities, and inadequate parking.

The Commission amended the Bay Plan recreation policies in 2001 to include policies providing for transit stations, adequate, well-designed parking, and completion of segments of regional trails within parks, all to ensure access to waterfront parks. Moreover, the existing recreation policies in the Bay Plan call for waterfront parks to be dispersed around the shoreline to ensure that access is available to all Bay Area communities. If more waterfront parks were designated in the Bay Plan and if those parks are developed, generally, access to waterfront parks would improve.

The Bay Area Open Space Council notes in that most Bay Area residents are within a 30-minute drive of a variety of small and large developed and natural parks, such that mobility is not a significant barrier to recreational opportunities in the Bay Area. Although waterfront parks are well distributed throughout the Bay, the Napa, Santa Clara, Sonoma and Solano counties have relatively little parkland adjacent to the Bay, relative to the overall population of these counties. Local, state and federal governments should endeavor to increase water-oriented recreational opportunities in these counties. Accessibility of parks for persons with disabilities is addressed in the next chapter.

⁵⁶ California State Parks, *California Outdoor Recreation Plan*, 2002

Health Motives and Available Leisure Time. From 1900 to 1970, the average length of the workweek in the U.S. dropped by nearly one-third. Summarizing current trends in annual working hours spent by Americans, the U.S. Bureau of Labor Statistics notes that in 1997, "on an annual basis, Americans tend to work more than the most Europeans, but less than the Japanese" and "women faced an increasing likelihood of working and that women who work, tend to work year round," and finally, "men's work hours have changed little, on net, since the mid-1970's".⁵⁷ The amount of leisure time available impacts both the type of recreation people seek, the locations where they seek it, and the duration of their participation. This is particularly important from a public health perspective, as more and more professions require less and less physical activity, so that often the only physical activity that people engage in is through some form of recreation.

Table 1.10 ⁵⁸ U.S. Average Annual Work Hours (In Thousands)		
	Men	Women
1976 Work Hours	1,805 hours	1,293 hours
1993 Work Hours	1,905 hours	1,526 hours
1976-93 Change	+100 hours	+233 hours
Age Adjusted Change	+62 hours	+193 hours

Even though the work week length has remained fairly constant, and there are many more two-earner households now than in the 1960's, public attitudes about health and the importance of recreation in general translate into increasing public desires for access to outdoor recreational opportunities so that the limited leisure time available can be enjoyed in an invigorating or relaxing outdoor setting. Public attitudes about the importance of recreation contribute to the demand for water oriented recreational opportunities, particularly since many of the recreational activities that are growing fastest require a shoreline location or access to the Bay's waters.

In the statewide survey on recreation, "the percentage of respondents who reported participating in fitness-related activities, such as walking or jogging for fitness and fun, and pool swimming increased significantly in 2002 over 1997. This may be the result of an aging population that is becoming increasingly aware and concerned about weight gain and the need

⁵⁷ Rones, Phillip L., Ilg, Randy e., and Gardner, Jennifer M., *Trends in hours of work since the mid-1970's*. Monthly Labor Review, April 1997, US Department of Labor, page 13

⁵⁸ Ibid, page 11

for better fitness."⁵⁹ According to Newsweek Magazine, "changes in our surroundings have pushed Americans to lead less active lives. Automated factories and the rise of the service economy mean fewer strenuous jobs. Suburban sprawl discourages walking and television keeps us on the couch."⁶⁰

The U.S. population as a whole is experiencing an obesity epidemic. "During the past 20 years there has been a dramatic increase in obesity in the United States. In 1985, only a few states were participating in the U.S. Center for Disease Control (CDC) Behavioral Risk Factor Surveillance System (BRFSS) and providing obesity data. In 1991, four states had obesity prevalence rates of 15–19 percent and no states had rates at or above 20 percent. In 2003, 15 states had obesity prevalence rates of 15–19 percent; 31 states had rates of 20–24 percent; and 4 states had rates more than 25 percent."⁶¹

Physical inactivity is associated with obesity and increased risk for chronic diseases (e.g., cardiovascular disease, certain cancers, and diabetes) and premature mortality.⁶² Women, older adults and the majority of racial and ethnic minority populations have the greatest prevalence of leisure-time physical inactivity.⁶³ A recent CDC study found that, overall, the prevalence of no leisure time physical activity peaked in 1989 at approximately 32% and was stable until 1996, after which, it declined an average of 1% per year to 25% in 2002 and "the overall prevalence of no leisure time physical activity in 35 states and DC was at the lowest level in 15 years."⁶⁴

However, this CDC study also found that "the majority of U.S. adults were not physically active on a regular basis in 2000 or 2001." Population growth drives the increase in the number of people engaged in physical activity, but not as quickly as the level of inactivity grows in the total population. The reported decrease in leisure time physical inactivity conflicts with the fact that the majority of U.S. adults were not physically active on a regular basis in 2000 or 2001. The

⁵⁹ California Department of Parks and Recreation, *Public and Opinions and Attitudes on Outdoor Recreation in California 2002*, Sacramento, California 2002 P. 24

⁶⁰ Cowley, Geoffrey and Sprignen, Karen, 'Designing Health Healthy Communities', Newsweek Magazine, October 3, 2005

⁶¹ Division of Nutrition and Physical Activity, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, <http://www.cdc.gov/nccdphp/dnpa/obesity/trend/maps/>, April, 2005

⁶² U.S. Department of Health and Human Services, *Physical Activity and Health: a Report of the Surgeon General*. Atlanta, Georgia: US Department of Health and Human Services, CDC, 1996

⁶³ U.S. Department of Health and Human Services, *Data2010: The Healthy People 2010 data base*, Available online at <http://wonder.cdc.gov/data2010>.

⁶⁴ U.S. Center for Disease Control, *Prevalence of Physical Activity, Including Lifestyle Activities Among Adults—United States, 2000–2001* Page 1. Respondents to the study were classified as active at the recommended level, if they reported sufficient physical activities of moderate intensity (i.e., ≥ 30 minutes per day, ≥ 5 days per week) or of vigorous intensity (i.e., ≥ 20 minutes per day, ≥ 3 days per week).

CDC notes that the majority of adults “do not engage in physical activities consistent with the minimum recommendation of 30 minutes of moderate intensity activity on most days of the week. In 2001, a total of 54.6% of persons were not active enough to meet this recommendation.”⁶⁵

The importance of recreation to public health is growing. California State Parks predicts that baby boomers will get off the couch and pursue a wide variety of recreational activities to overcome the burgeoning belt-line and return to more healthy lifestyles. Whatever the future brings, ready access to a variety of recreational pursuits will be necessary to serve a growing population, particularly if activity levels are to increase over current levels. This bolsters the need to add waterfront parkland on the Bay shoreline, to improve trails for walking, to add launching sites for paddlesports and small wind-powered craft, and other water-oriented recreational activities as a matter of public health.

Density. The San Francisco Bay Area has five of the top seven most densely settled counties in the state. If we redevelop our urbanized areas at greater and greater densities by implementing transit oriented development⁶⁶ (TOD) concentrated where the majority of the region’s existing investments in transit infrastructure have been made, we will put greater pressure on the open spaces in these and other parts of the Bay Area. Conversely, TOD provides an excellent opportunity to preserve existing open space, because it reduces “green fields” development, which converts existing undeveloped land to urban or suburban uses. Some park managers have argued that the Commission’s 100-foot shoreline band jurisdiction is too narrow to effectively address the pressures that dense settlement patterns will place on open spaces in the central part of the Bay. Table 1.11 shows that San Francisco County is the densest County in the state, and one of the top five densest counties in the U.S. Alameda, San Mateo, Contra Costa and Santa Clara are in the top seven most urbanized counties in the state.

⁶⁵ Prevalence of Physical Activity, Including Lifestyle Activities Among Adults--United States 2000-2001, US Center for Disease Control, MMWR Weekly August 15, 2003, vol. 53, no. 32, pages 764-769.

⁶⁶ Peter Calthorpe who coined the term, defines a TOD as “a mixed-use community within an average 2,000-foot walking distance of a transit stop and a core commercial area. TODs mix residential, retail, office, open space, and public uses in a walkable environment, making it convenient for residents and employees to travel by transit, bicycle, foot or car.

Table 1.11 Most Urbanized Counties (Population per square mile)	
San Francisco	16,526
Orange	3,607
Los Angeles	2,344
Alameda	1,956
San Mateo	1,575
Contra Costa	1,318
Santa Clara	1,303
Sacramento	1,266

Source: U.S. Census Bureau

The fastest growing counties in the state are in Southern California and the Sierra Foothills because Californians are moving there from the crowded, expensive coastal areas. This and other factors has slowed the Bay Area's population growth below predictions from earlier years, however, real and projected population growth in the Bay Region will place extremely high pressure on all resources, including open space. A majority of Bay Area residents (69 percent) believe that growth and development along the coastline closest to them is a problem, slightly less than Californians as a whole (75 percent).⁶⁷

If current trends of population growth continue, in the next 20 years the Bay Area can expect up to 1 million new jobs, 1 million more people, 265,000 daily in-commuters to the region, and 150 percent increase in aggregate traffic congestion. This growth pattern could contribute to an overall degradation of the quality of life in the Bay Area, in part due to overcrowded, inadequate public open space as well as declining air quality due in part to longer commutes. TOD can diminish these effects, including preserving opportunities to provide open space. It is important to note that Bay Area residents are more in favor than are other Californians of restricting private development along the shoreline, even if it means less housing, and they are more in favor of protecting wetlands and natural habitats, even if it means there will be less commercial and recreational activities in natural areas.⁶⁸

⁶⁷ Public Policy Institute of California in collaboration with The David and Lucille Packard Foundation, PPIC Statewide Survey, February 2006, Californians and the Environment

⁶⁸ *ibid*

The fastest growing Bay Area counties, including Napa, Solano, Sonoma and Contra Costa are located in the northern part of the Bay Area and much of the future development in these counties will most likely occur at some distance from San Francisco Bay. However, population growth in these and other counties will place increasing pressure on existing and proposed waterfront parks and to some extent wildlife refuges. Sonoma, Napa and Solano counties surround the San Pablo Bay National Wildlife Refuge, and the State's Napa-Sonoma Marsh Wildlife Areas, and the Suisun Marsh is surrounded by Solano and Contra Costa counties. As population grows and demand for parkland increases, the public will look to these wild areas as potential places to recreate, creating the need for management efforts that protect the wildlife values and providing recreation that is consistent with that mission.

CHAPTER 2

RECREATION SUPPLY

The current supply of recreational facilities and opportunities represents the region's recreational potential at a given point. The supply of recreational opportunities can be generally defined as the opportunity to participate in a desired recreational activity in a preferred setting to realize the desired and expected experiences¹. This chapter evaluates the supply of waterfront recreational facilities over which the Commission has direct policy authority, by quantifying what public facilities are available, and assessing, in general terms, the activities that can be accommodated at those facilities within the context of all regional recreational opportunities. These facilities include, waterfront parks and beaches, fishing piers, launching lanes and floats, marinas, and regional trails.

Bay Area recreational facilities accommodate almost every imaginable recreational activity in a rich diversity of settings. The Bay Area is blessed with a wide variety of high quality recreational opportunities, ranging from local parks down the street to thousands of acres of regional, state and federal parks with diverse landscapes, topography and other geographic features that enrich our outdoor excursions. It is from this rich varied tapestry of landscapes and facilities that we choose each time we decide to recreate in the public realm when we choose whether it's a good day for a steep mountain hike, a day at the beach, a great day for sailing or time to go fishing.

"As noted in Chapter 1, public parkland of all types covers 647,407 acres in the nine-county Bay Area, including state and federally owned beaches, mountains and forests and locally protected open space like Golden Gate Park."² When combined with protected farmland and other types of non-park open space, almost a quarter of the region's 4.5 million acres are protected open space. Non-waterfront recreational facilities vary from large wooded and open grassland hilltop parks crisscrossed with trails to lakes providing fishing, swimming and boating access, or community centers with pools, classrooms and gathering spaces. Visitation to these facilities and participation in the programs they provide is very high and constitutes a significant portion of the time that people spend recreating in public recreational facilities in the

¹ Communities and Human Influences in Southern Appalachian Ecosystems: The Human Dimensions, Prepared by Federal and State Agencies, Coordinated through Southern Appalachian, Man and the Biosphere Cooperative, July 1996, P. 140

² Woodbury, John in San Francisco Chronicle Editorial June 5, 2005

region. These non-waterfront facilities are provided by the same agencies that provide waterfront recreational opportunities: local (city and county) governments, regional park districts, and state and federal park agencies.

The existing supply of waterfront parks, beaches, fishing piers, regional trails, launching lanes and marinas in the Bay Area comprises only a part of the large, complex web of our region's recreational opportunities. Regional waterfront parks, at 25,000 acres, comprise about four percent (4%) of all public open space in the region. In addition, the San Francisco Bay Trail links shoreline parks and open spaces with over 250 miles of trails while the Bay Area Ridge trail provides almost 300 miles of trail linking ridge top parks, with some segments in waterfront parks. Bay Area residents are more satisfied with the amount of shoreline public access near their homes (53 percent) than are other Californians (46 percent).³

Despite our wealth of recreational opportunities and settings here in the Bay Area, open space managers are concerned that we are unable to keep pace with a growing population. During the 1990's, while population grew at two-percent rate per year, the additions to our stock of open spaces did not keep pace, growing at 1.1 to 1.6 percent per year over the same period.⁴ Some recreational facilities, such as Miller Knox Regional Shoreline Park in Richmond, Inspiration Point Trail in Tilden Park in Contra Costa County, and the Third Avenue windsurfing site in Foster City are sometimes over capacity on weekends, as are several other recreational facilities around the region. As population grows, these resources will be strained further, unless we can increase the rate at which we acquire and develop access to open space.

Waterfront Park Priority Use Areas. Bay Plan recreation policy 3 states that "[t]he Bay Plan maps include about 5,000 acres of existing shoreline parks and 5,800 acres of new parks on the waterfront. In addition, 4,400 acres of military establishments (especially around the Golden Gate) are proposed as parks if and when military use is terminated.⁵ This policy has remained unchanged since 1968. When Resolution 16 was adopted by the Commission and subsequently by the Legislature in 1971, some major adjustments were made to the Bay Plan waterfront park designations, adding some areas, and deleting others, reducing the amount of designated parkland shown on the Bay Plan maps by an indeterminate amount, because there was no accounting of the acreages lost and gained made at that time, leaving the Bay Plan with an inaccurate assessment of waterfront parkland. Furthermore, the amounts originally specified in

³ Public Policy Institute of California in collaboration with The David and Lucille Packard Foundation, PPIC Statewide Survey, February 2006, *Californians and the Environment*

⁴ Bay Area Open Space Council *Regional Needs Briefing Book* 1999

⁵ San Francisco Bay Plan, Recreation Policies

policy 3 appear to have drastically understated the amount parkland designated, so that despite several amendments to delete parks from the plan, the amount of designated land currently exceeds the amounts specified in policy 3.

When the Commission adopted the Bay Plan in 1969 and subsequently adopted Resolution 16 in 1971 identifying water-oriented priority use areas, its practice was to designate for park use only those public and private lands that were identified by a local, state or federal government for waterfront park use or purchase in adopted policy plans with the concurrence of the agency adopting the plan. Most of the Bay Plan amendments that deleted park priority use designations were the result of changes to these plans to allow development of designated land for uses other than parks and open space, or an inability by the community to raise the funds necessary to acquire, develop and manage designated private lands for park use. In other cases, the Commission changed the priority use designation from park to another priority use, such as port, water-related industry, or wildlife refuge.

Some deletions of park priority use areas were simple map corrections to more accurately reflect the conditions on the ground, and actual ownership or plan designation of the lands designated for park priority use. Earlier designations included some tidal wetland areas that were removed from park designation by earlier corrections. Some salt ponds were incorrectly designated for park priority use. Since the Commission does not have shoreline band jurisdiction in salt ponds, recent Bay Plan amendments removed park designations from salt ponds. The net effect of all of these changes has been to decrease the amount of land designated for waterfront park priority use, despite the fact that recreation policy 3 understates the amount of waterfront parkland designated in the Bay Plan by more than 3,000 acres.

As summarized in Table 2.1, over the past 35 years, the Commission has adopted 13 Bay Plan amendments that reduced the acreage of parkland designated in the Bay Plan by approximately 1,300 acres. The Bay Plan maps and Resolution 16 currently designate 55 waterfront park sites comprising a total of approximately 18,000 acres. The majority of these designations were made in 1968 and the Commission, over the years, designated only a few additional parks.

Table 2.1		
Bay Plan Amendments Affecting Park Priority Use Areas		
Bay Plan Amendment	Priority Use Area	Acreage (Lost) or Gained
1-74	Oyster Point Park, South San Francisco	3.2 acres
8-78	North San Leandro	(32 acres)
1-79	South San Leandro	(145 acres)
2-79	Foster City Shoreline	(1.5 acres)
2-82	Sierra Point Brisbane	(2 acres)
5-82	Point San Pablo, Richmond	(17 acres)
6-83	North San Leandro	(6 acres)
1-85	Vallejo Waterfront and Independence Park	(75 acres)
3-85	Foster City Shoreline	(16.3 acres)
4-85	Tiburon Boulevard Shoreline	(2 acres)
2-91	Suisun City, Pierce Island	(35 acres)
2-99	Oyster Point Park	(37 acres)
1-01	Inner Bair Island, Redwood City	(324 acres)
3-04	Menlo Park, Bayfront Park; Union City, Coyote Hills North (correction of jurisdiction)	(610 acres)
Net (Loss)/Gain		+/- (1,300) acres

Eleven of the parks currently designated in the Bay Plan are undeveloped for park use. Some are proposed for park development, in part, as well as for other non-park uses, including Yerba Buena Island, Point Molate, Romberg-Tiburon Center and West Contra Costa County Landfill. Some undeveloped park sites (Brisbane Lagoon, Brisbane Causeway, East Creek Slough and Castro Point) will eventually be developed for park use. Some parks are land-banked for future park development, but provide an interim income stream to the land manager that helps offset costs of operating other parks. Others, including Coast Guard Island and the southern half of Yerba Buena Island are unlikely to be developed as parks as they remain in active military use.

Table 2.2			
Undeveloped Park Priority Use Areas			
Park Name	County	Acreage	Current Use
West Contra Costa County Landfill	Contra Costa	188	Active Landfill (closing soon)
Castro Point	Contra Costa	15	Vacant
Point Molate	Contra Costa	313	Closed Military Base, Local Redevelopment
Romberg Tiburon Center for Environmental Studies	Marin	34	California State University Field Station, National Estuarine Research Reserve Headquarters
Keil Cove	Marin	31	Residential
Bluff Point	Marin	15	Proposed Residential
Yerba Buena Island	San Francisco	92	Closed Military Base, Active Coast Guard Station, Local Redevelopment
Coast Guard Island	Alameda	68	Active Coast Guard Station
East Creek Slough (part of Martin Luther King Jr. Regional Shoreline)	Alameda	10	Industrial
Brisbane Lagoon	San Mateo	34	Closed Refuse Landfill
Brisbane Causeway	San Mateo	5	Open Space
Redwood Shores	San Mateo	15	Open Space
Turk Island North	Alameda	100	Open Space/Agriculture/Flood Control
Total		920 acres	

Several new waterfront parks have been acquired and developed over the years by federal, state and local agencies. Also, some of the parks designated by the Commission have expanded since 1971. The combination of new and expanded parks increased the supply of waterfront parks designated in the Bay Plan for park priority use by approximately 7,000 acres, bringing the current total of regional-scale waterfront park acreage to approximately 25,000 acres. These additional parklands should be designated in the Bay Plan for park priority use to ensure that development and management activities provide for growing recreational demand, and so that wildlife and habitat values in and near parks are protected. Table 2.3 lists the parklands recommended for waterfront park priority use designation.

Table 2.3			
Proposed Park Priority Use Areas			
Park Name	County	Acreage	Owner/Manager
Baypoint Wetlands	Contra Costa	10	East Bay Regional Park District
Vallejo Waterfront	Solano	10	City of Vallejo
Mare Island	Solano	160	U.S. Navy/City of Vallejo
Carquinez Strait Regional Shoreline	Contra Costa	3,136	East Bay Regional Park District
San Pablo Bay Regional Shoreline	Contra Costa	166	East Bay Regional Park District
Hercules Point	Contra Costa	7	City of Hercules
Point Pinole Regional Shoreline Park	Contra Costa	796	California State University Field Station, National Estuarine Research Reserve Headquarters
Breuner Property	Contra Costa	100	East Bay Regional Park District
Miller Knox Regional Shoreline Park expansion	Contra Costa	127	East Bay Regional Park District
East Shore State Park	Contra Costa and Alameda	100	State of California and East Bay Regional Park District
East Bay Gateway Park	Alameda	20	U.S. Army/East Bay Regional Park District/Caltrans
Middle Harbor Shoreline Park	Alameda	38	Port of Oakland/East Bay Regional Park District
Martin Luther King Jr. Regional Shoreline Park Expansion	Alameda	390	Port of Oakland/East Bay Regional Park District
Hayward Regional Shoreline Park	Alameda	1,102	East Bay Regional Park District
Hayward Area Recreation District	Alameda	200	Hayward Area Recreation District
Palo Alto Baylands Expansion	San Mateo and Santa Clara	250	City of Palo Alto
Coyote Hills Regional Shoreline Park	Alameda	73	East Bay Regional Park District
Alviso County Park	Santa Clara	17	Santa Clara County Parks
Total		6,700 acres	

Several potential waterfront park sites are currently designated in local general plans, or are the subject of active acquisition efforts, which could increase the supply of waterfront parks from 400 to 500 acres. Some of these sites could be suitable for designation in the Bay Plan for park priority use, once the plans for these areas are finalized. These areas include in Oakland, the Oakland Gateway development site (7 acres) and the Oak to 9th Avenue development (20 acres), the Alameda Point (160 acres), Hunters Point Naval Shipyard (150 acres), and the Terminal 4 and adjacent private property on Point San Pablo in Richmond (138 acres).

Requests for Priority Use Area Changes. One site designated in the Bay Plan in Marin County, between China Camp State Park and McNearns County Park is privately owned and locally zoned for residential use. The owner of the site has requested that the waterfront park priority use designation be deleted. Marin County and the State Parks Department have both indicated that they are not interested in acquiring this property, and therefore, it should be deleted from Bay Plan Map No. 4, and from Resolution 16.

The City of Vallejo has requested that the Commission (1) re-designate portions of the Vallejo waterfront for park priority use that were once so designated; (2) change a section of the shoreline portion of the water-related industry priority use designation of the Vallejo Waterfront to waterfront park priority use; and (3) delete a section of the inland portion of the water-related industry priority use area, because the site could not function as a water-related industry site and the City proposes housing and commercial use of the area. The site designated for water-related industry has historically been known as the Kaiser Steel yard and was developed in the 1970's for offshore oil platform fabrication and shipping. The Kaiser Steel operation has ceased, the site has been acquired by the City of Vallejo and is currently used for vehicular and miscellaneous storage.

The City of Vallejo (City) believes that developing the Kaiser site for water-related industry is infeasible and that developing a mixture of residential, commercial and open space uses is feasible and in the best interests of the City. The City has developed a plan for revitalizing its waterfront that includes establishing a continuous open space system along the waterfront from the Mare Island Causeway in the north to Solano Avenue in the South. The amendment would increase the area of waterfront park priority use on the downtown Vallejo waterfront by approximately 25 acres, eight of which are currently designated for water-related industry. The amendment would delete the water-related industry designation from 40 acres, all of which lies outside of the Commission's jurisdiction.

Section 66602 of the McAteer-Petris Act provides that "certain water-oriented land uses along the bay shoreline are essential to the public welfare of the Bay Area and that these uses include ports, water-related industries...water-oriented recreation...[and] the San Francisco Bay Plan should make provision for adequate and suitable locations for all these uses, thereby minimizing the necessity for future bay fill to create new sites for these uses..." If the Commission is to convert a portion of the water-related industry priority use designation to waterfront park priority use and delete a portion of this water-related industry designation at this site, it must determine that these lands are no longer needed for this use.

In 1969, the Commission reserved 240 acres for water-related industry and port priority use in Vallejo. At that time, 40 acres were developed for water-related industry and 200 acres were vacant. In 1971, at the request of the City of Vallejo, the Commission deleted 31 acres of undeveloped land from the water-related and port priority use area when it adopted Resolution 16, leaving a 209-acre priority use area.

In 1974 and 1981, the Commission issued permits for development of the Kaiser Steel Yard and Peter Kiewit metal fabrication yards on Mare Island Strait. These permits have been amended several times to address changes to the authorized projects. The Kaiser Steel yard was developed for the construction of off-shore oil-drilling platforms and bridge structural components. The Peter Kiewit yard was used for construction of pre-cast concrete pilings. Both operations involved shipping and receiving heavy, bulk items.

Since these projects were developed, Kaiser Steel has ceased operations. The site has been purchased by the City and is vacant, except for the aforementioned vehicular and miscellaneous storage uses. General Mills has closed its flour mill and its 40-acre site is vacant, and the City does not propose any changes to the existing approximately 169-acre priority use designation of General Mills or the adjacent Kiewit site, which is currently actively used for water-related industry in support of construction of the San Francisco-Oakland Bay Bridge East Span replacement project.

In its 1986 report entitled, "An Analysis of the Demand for Land to Support the Needs of Water-Related Industry Around San Francisco Bay", the Commission's economic consultant reported that,

"[o]ur overall conclusion is that the current and projected characteristics of water-related industry in the Bay Area could be accommodated without reserving land for this purpose. The deep-water sites around the Bay are a unique and limited resource and should be protected for uses requiring deep-water shipping terminals. Water related

industry has an important need for deep-draft terminals, but one which no longer requires a special land use category based upon its formerly central role in economic growth and large scale needs for undeveloped land.”⁶

In Bay Plan Amendment No. 3-86, the Commission deleted the water-related industry designation from those waterfront lands that were bordered by wetlands, were developed for uses other than water-related industry, or had other impediments to developing water-related industry. The Commission found that there will be little if any demand in the foreseeable future for large parcels of undeveloped land for use by water-related industries around the Bay. The Commission also determined that it was prudent to retain the water-related industry designation on those sites which were developed for water-related industry or were undeveloped, but well-suited to future development for water-related industry. It also added port designation to some of those water-related industry sites that were retained to increase the range of permissible uses.

The Commission retained its water-related industry designation on approximately 9,000 acres of waterfront land, mostly on sites already developed for such use and on about 3,000 acres of undeveloped land. Since that time, the Commission has deleted additional lands designated for water-related industry in Hercules and Martinez.

Until the mid-1990's, the federal government maintained the ship channel in the Mare Island Strait, making the designated site a deep-water site. Following closure of the Mare Island Naval Shipyard and the ongoing transfer of the land to the City for redevelopment, the channel is now maintained only to depths that provide flood protection, but not depths that would support deep-draft shipping. Although the designated area has good access to Interstate 80 and rail service, the deep-water channel was the key characteristic making the site desirable for water-related industry development.

Looking at the future of manufacturing in the State, the Bay Area Economic Forum states that,

“California leads the nation in manufacturing jobs, and its base ranges from metals to beverage production to high tech. However, manufacturers face extreme cost-related pressures, with high wage and benefits rates, as well as high input costs such as electricity. They must also deal with regulatory challenges that are greater than in other

⁶QED Research Inc., and the BCDC Staff *An Analysis of the Demand for Land to Support the Needs of Water-Related Industry Around San Francisco Bay*

states and are absent from many developing, low-cost countries. Hence many California manufacturers find the prospect of off-shoring or moving production to other states attractive."⁷

The Forum report proposes that in the future, the proportion of products for which the benefits of local production outweigh the savings from offshore production will be far higher, guaranteeing a place for manufacturing jobs in California's economy. It also found that declines in California manufacturing jobs were driven primarily by declines in demand, moves by manufacturers to close down in California and reopen either offshore or in other states, increased production efficiency and a loss of "market share" to manufacturers in other states or other countries.

Despite the positive state-wide picture for manufacturing, the prospect of developing manufacturing at this site is driven by the suitability of the site for industry, which is a function of cost, access, regulatory constraints and the willingness and interest of the community to support such development. As noted above, the water-side access conditions of the site have deteriorated, and improving this site for industry would be costly. In its Mare Island Base Reuse Plan, Vallejo has reserved land on Mare Island across the Mare Island Strait from this designated area for industrial uses that currently being used by water-related industrial businesses. In combination with the existing 169 acres, the City will retain sufficient land suitable for this use, if a water-related industry sought to locate there. The future of manufacturing in the Bay Area is unlikely to focus on heavy industry, with shipping raw materials to and finished products from shoreline sites, particularly because of the high cost of waterfront land.

The staff believes that although the site is suitable for water-related industry, the shoreline is more suitable for water-oriented recreation development, particularly as part of the City's plan for a continuous waterfront park and promenade along much of the eastern shoreline of Mare Island Strait. The City has acquired the site as part of an overall waterfront redevelopment program focused on mixed-use (housing, commercial and open space), transit-oriented development concentrated around the ferry terminal and proposed Vallejo Station multimodal facility. Furthermore, the site is not needed to meet the regional demand for water-related industry. Similar to the conclusions the Commission developed 20 years ago with Bay Plan Amendment 3-86, future water-related industry can be accommodated within the existing area designations, even with the deletion of the Kaiser site, due to the decline in heavy industry in

⁷ Bay Area Economic Forum (A Partnership of the Bay Area Council and The Association of Bay Area Governments) *One Million Jobs at Risk: The Future of Manufacturing In California*, March 2005, San Francisco, California, page 2

the Bay Area, the change in materials handling which favors the use of shared port terminals (rather than private marine terminals) and the fact that Bay fill associated with development of water-related industry in the future is highly unlikely.

Therefore, the Commission can remove its water-related industry priority use area designation from this site without compromising its legislative directive to set aside sufficient land for water-oriented uses to prevent future fill in the Bay for these uses. Also, since the re-designation of previously designated waterfront park priority use areas would further the Commission's goals of providing sufficient waterfront park space to meet the needs of a growing population, it appears that this re-designation could be supported by the Commission.

Environmental Justice. Environmental justice is a term that describes the desire to ensure that the impacts of decisions, such as where to invest park acquisition money, or where to provide transit to parks, do not result in disproportionate impacts on one community or group of people. California state law defines environmental justice as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations and policies." Since access to parkland can have a significant impact on quality of life, particularly because income can limit recreation options, environmental justice concerns are relevant in recreation planning. The issue of environmental justice is examined here to determine whether there are existing parkland distribution inequities whether additional parkland designations would address any inequities discovered.

The Commission has adopted a procedure to address environmental justice in its planning and regulatory process by directing staff to identify and analyze environmental justice issues where and when applicable in its proposed project permit application summaries and in its planning reports. Environmental justice concerns may arise with the designation of waterfront parks or the location and improvement of waterfront parks and other water-oriented recreational facilities within BCDC's jurisdiction.

Although the Commission does not control the acquisition and development of parklands to address environmental justice, it can present information to its partner agencies that describes the distribution of recreation resources relative to these underserved communities as a means of identifying any disparities and encouraging their redress. The Commission can also encourage the provision of recreation facilities in parks and along the shoreline that serve the needs of underserved communities, if they have unique needs. This can include making sure that transit

services can be accommodated, that bilingual signage or education programs are provided, or that safe pedestrian and bicycle access to parks is provided. The Commission can also designate additional parkland around the shoreline of the Bay, particularly if it is in close proximity to or reduces the travel distance from a geographic concentration of lower-income households.

Regional parks are much more accessible to those who live close to them than to those who live further away. While this seems obvious, it is important to examine the distribution of regional-scale open space in the Bay Area in relation to household income levels to determine whether households of all income levels have reasonably equitable access to regional open space and the unique recreational opportunities these parks provide. Income affects peoples' ability to travel and to some extent their perceptions of being able to visit open space and recreational settings. For some low-income people, the cost and time of travel to a regional park, especially for those who are transit-dependent on weekends when transit schedules are often curtailed can make a trip to the park difficult if not impossible. Providing equitable access for all income levels to recreational opportunities can ensure that the principles of environmental justice are addressed.

As shown in Figure 1,⁸ the majority of Bay Area regional open space and parkland is concentrated primarily in the surrounding hills, at the Golden Gate and in large tracts of relatively inaccessible baylands. The East Bay Regional Park District, Midpeninsula Regional Open Space District California State Parks and Recreation Department and the Golden Gate National Recreation Area own and manage hundreds of thousands of acres of hillside and coastal lands that provide excellent recreational opportunities (See Figure 1). Resource agencies own and manage tens of thousands of acres of wetlands, primarily for the benefit of fish and wildlife and limited recreation that is compatible with their primary mission. As noted earlier, the Bay Plan Maps currently designate about 18,000 acres of waterfront park priority use areas and the preliminary staff recommendation proposes increasing designated parkland to about 25,000 acres. Waterfront parks designated in the Bay Plan represent about four percent of the total acreage of Bay Area open space and parks.

The U.S. Census defines low-income as households with annual income below 200 percent of the official poverty line, or \$35,048 for a family of four. In 2000 the poverty line for a family of four was \$17,524. Figures 2 through 4 show Bay Area Census block groups where the number of low-income households exceeds 30 percent of households, and the locations of existing and proposed waterfront park designations. Figures 2 through 4, when read in conjunction with Figure 1 provide a qualitative assessment of the proximity of low income households to regional parks. Figures 2 through 4 reveal that concentrations of low-income households tend to

⁸ Bay Area Open Space Council, prepared by GreenInfo Network, San Francisco, 2005.

Figure 1
San Francisco Bay Area
Public and Privately Protected Land

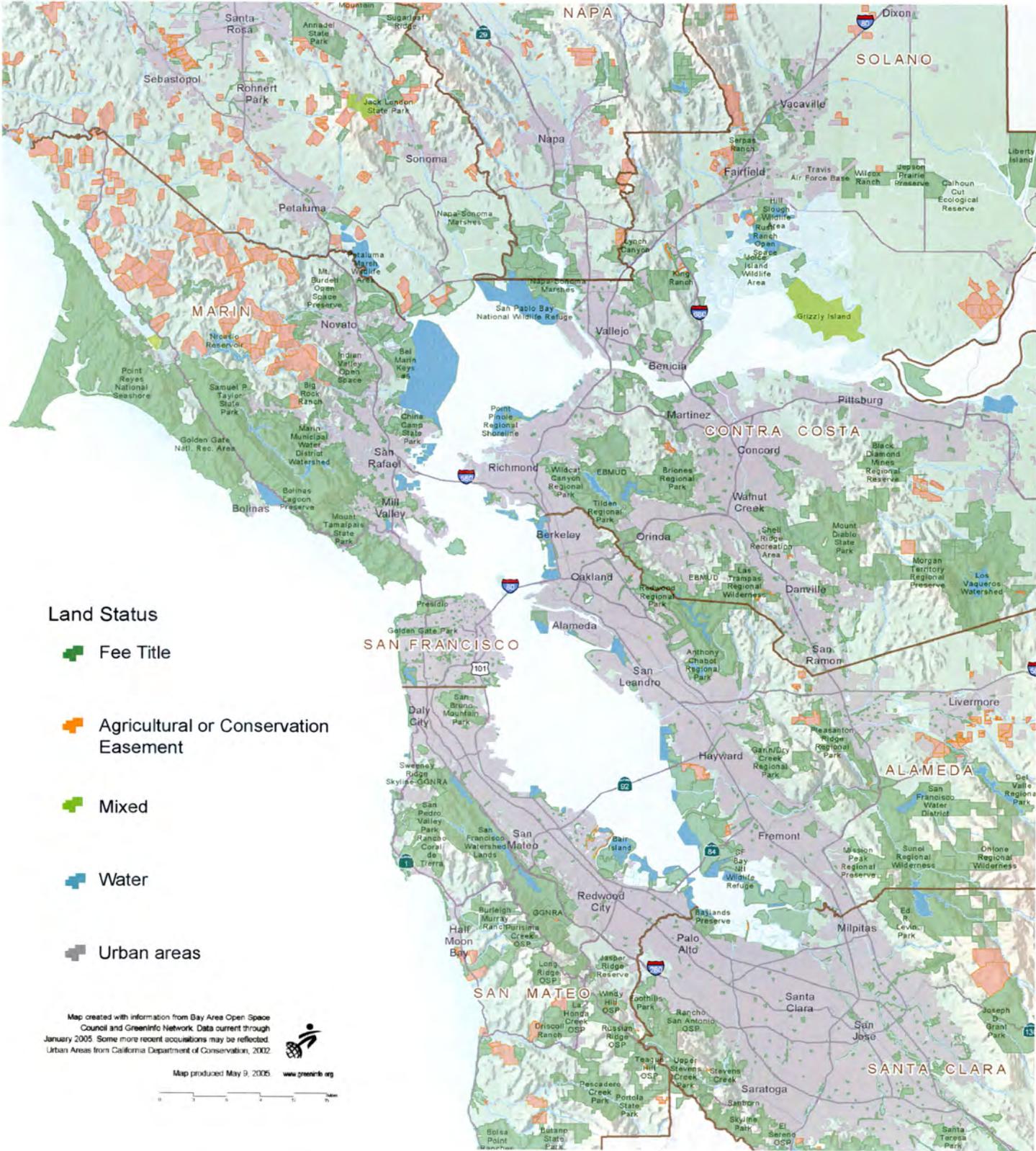


Figure 2

Waterfront Park, Beach Priority Use Areas and Bay Area Low-Income Households

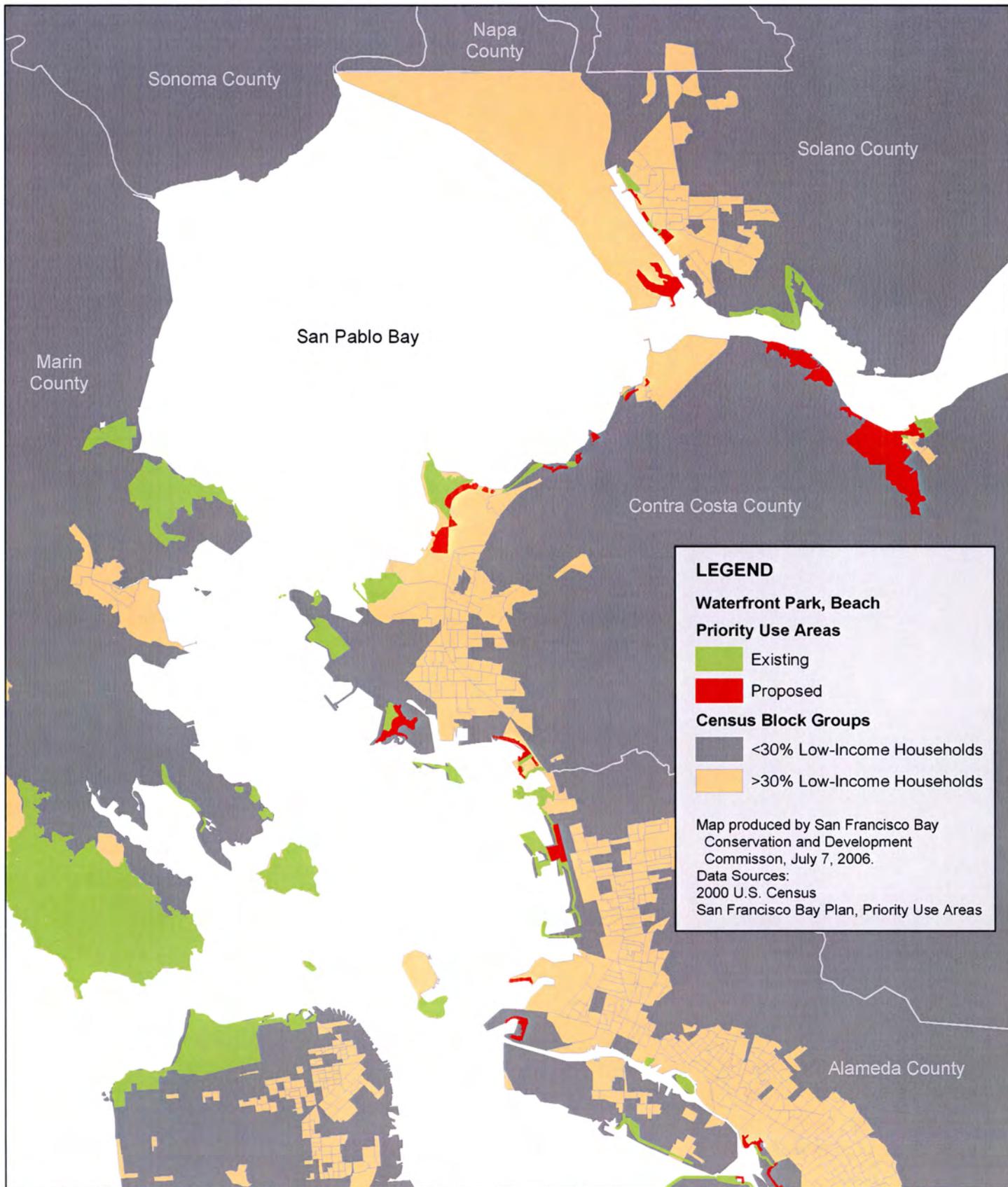
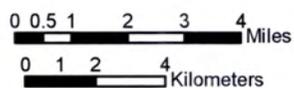
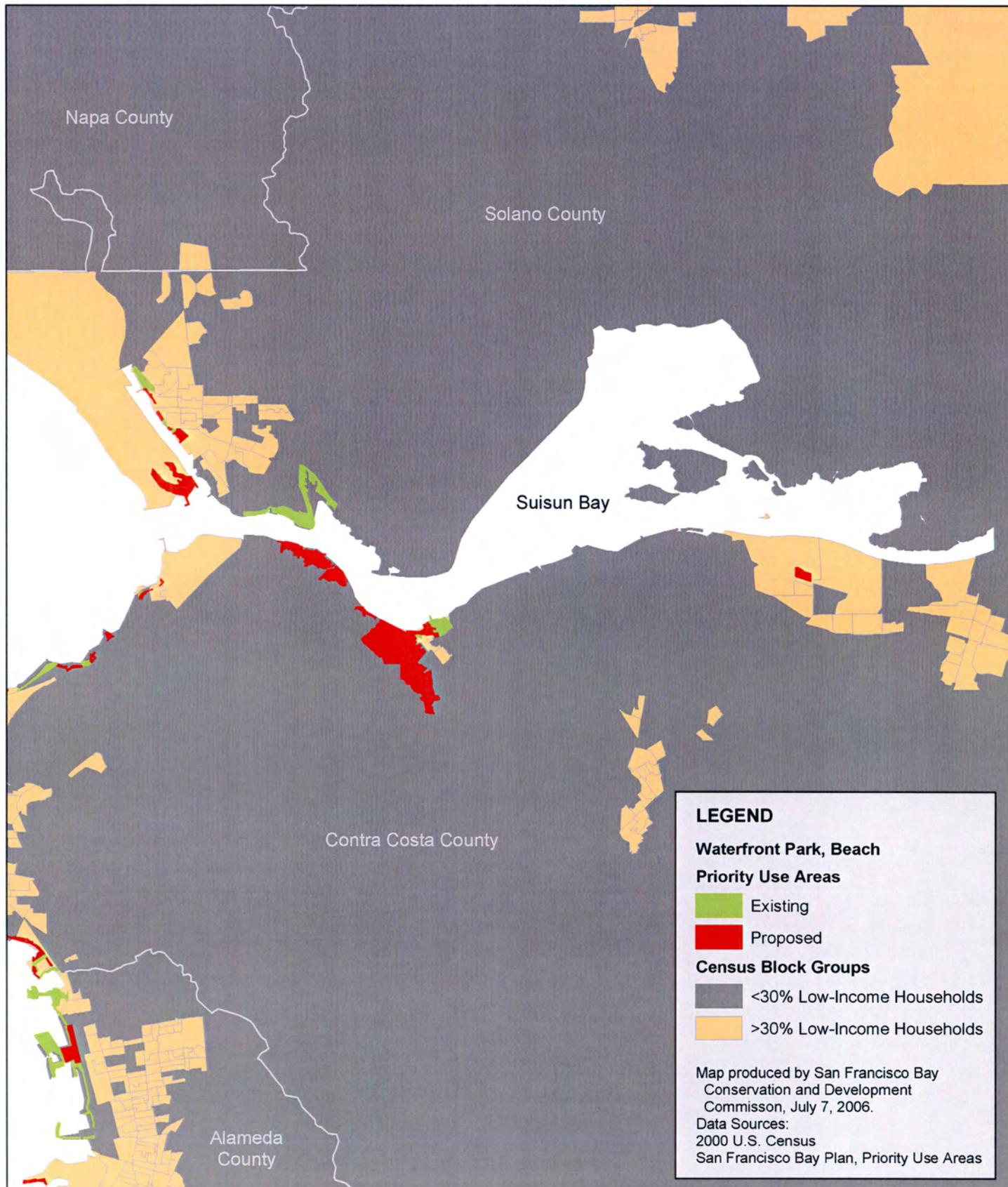


Figure 3

Waterfront Park, Beach Priority Use Areas and Bay Area Low-Income Households

0 0.5 1 2 3 4 Miles

0 1 2 4 Kilometers



LEGEND

**Waterfront Park, Beach
Priority Use Areas**

Existing

Proposed

Census Block Groups

<30% Low-Income Households

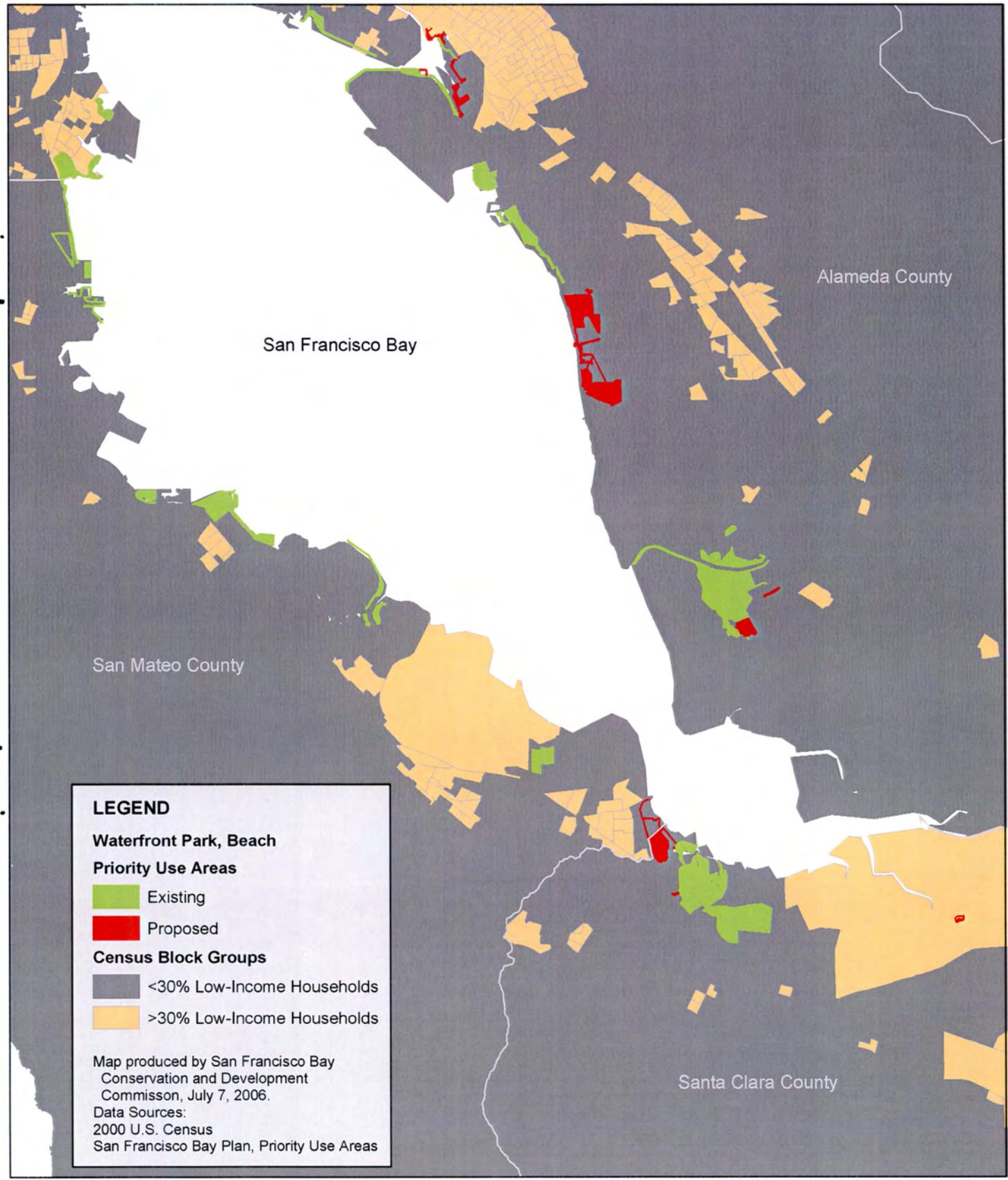
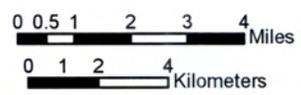
>30% Low-Income Households

Map produced by San Francisco Bay
Conservation and Development
Commission, July 7, 2006.

Data Sources:
2000 U.S. Census
San Francisco Bay Plan, Priority Use Areas

Figure 4

Waterfront Park, Beach Priority Use Areas and Bay Area Low-Income Households



be located in the lower lying areas nearer to the Bay than to the Bay Area hills. These maps also show that, in most areas, waterfront parks are located closer to the higher concentrations of low-income households than are hillside regional parks. They also show that adding the proposed park priority use areas to the Bay Plan will reduce the distance between some areas with high concentrations of low-income households and Bay Plan waterfront park priority use areas.

The recent efforts of the East Bay Regional Park District (EBRPD) and the State Parks Department to create and develop the East Shore State Park will expand recreational opportunities near several lower income neighborhoods which can improve access for these residents to recreational opportunities. Similarly the EBRPD's recent acquisitions along the Bay shoreline in Contra Costa and Alameda counties have added considerable parkland, which can translate into better access to recreation from low-income neighborhoods. Other open space providers, including local governments, districts and the state, have recently acquired or developed parkland in proximity to lower income neighborhoods such as Mare Island Park in Vallejo, Ryder Park in San Mateo and Middle Harbor Shoreline Park in Oakland. By adding park priority use areas in the Bay Plan, the Commission, in concert with these open space landowners and managers can help address inequities that may exist with regard to access to recreational opportunities for those with lower incomes.

Local Parks. Parkland in the Bay Area is made up of a mosaic of parks and open spaces ranging from small (1/2-acre) local pocket parks to national parks covering thousands of acres. This mix of park types provides for the recreational needs of communities and the region as a whole. Local (city) governments typically provide mini parks, neighborhood parks, and community parks. These three park types vary in size, content, natural features, and provide a broad range of space and facilities to each neighborhood and the larger community in which they are located.⁹ Most visitors can walk, ride a bike or drive a short distance to reach a city park. Schools are a sleeping giant of local open space providers in some communities. Many schools provide playing fields, play grounds and meet other open space needs. Many Bay Area cities, including Vallejo, Martinez, San Francisco, Tiburon, Berkeley, Richmond, Mountain View, Palo Alto, Sunnyvale, Oakland, Union City and Hayward have waterfront parks designated in the Bay Plan.

For the most part, the Commission has not designated waterfront neighborhood parks in the Bay Plan, although many are located along the Bay shoreline. Community and county parks are generally larger, serving one or several communities, providing open space with less developed

⁹ San Mateo County Parks and Recreation Department, *Mid-Coast Recreational Needs Assessment*, October 29, 2002

areas and programming. They are characterized by unique natural resources and relatively large size, and provide outdoor recreational opportunities of regional significance. While regional parks may accommodate some of the local passive recreation demand, they frequently entail user fees and do not provide facilities suitable for local needs, such as turf play areas, swimming pools, community centers, etc.

Regional Parks. The East Bay Regional Park District (EBRPD) manages over 96,000 acres in 65 regional parks, recreation areas, wilderness, shorelines, preserves and land bank areas. The Bay Plan currently designates about 3,000 acres of parkland owned or managed by the East Bay Regional Park District. However, the District now owns or manages a total of about 7,500 acres of Bayfront parkland, which is similar in size to the area of waterfront parks managed by GGNRA and more than what is owned and managed by the California State Parks. When wetland acres are included, EBRPD waterfront parks acreage totals approximately 11,000 acres in Alameda and Contra Costa counties. EBRPD is consistently expanding its waterfront park inventory. The Midpeninsula Regional Open Space District (MROSD) has preserved over 48,000 acres of open space in the District's boundaries in San Mateo and Santa Clara Counties, however only about 200 of those acres lie along the shoreline of the Bay and none of these parks are within the Commission's shoreline band jurisdiction.

State and Federal Parks. State and Federal Parks agencies manage some of the largest parks in the region and combine to provide the majority of the waterfront parkland acreage designated in the Bay Plan. The Golden Gate National Recreation Area owns and manages approximately 75,000 acres in the region; about 7,700 acres lie along the shoreline of the Bay. California State Parks manages 60 parks in the region with five waterfront parks, including Benicia State Recreation Area, East Shore State Park, China Camp State Park, Angel Island State Park and Candlestick Point State Recreation Area comprising approximately 4,300 acres of Bay waterfront parkland, excluding wetland acreage.¹⁰ Other waterfront parks totaling approximately 6,000 acres are owned and managed by Bay Area cities and counties. Clearly, the EBRPD, GGNRA and State Parks have provided the majority of the waterfront parklands in the Bay Area, but cities and counties have played an important role providing regional waterfront parks on San Francisco Bay.

Although the Bay Plan designated 4,400 acres of military installations in 1968 for waterfront park priority use, about 7,700 acres of former military installations have been transferred to the GGNRA and developed or will be developed as parks. Other bases, such as Coast Guard Island and portions of Yerba Buena Island, remain in active military use. Others have closed and are in

¹⁰ California State Parks, Planning Division, *California State Parks System Statistical Report 2002/3 Fiscal Year*, Sacramento, California

the process of being transferred to civilian control. Some of these, including portions of Yerba Buena island and Point Molate Naval Fuel Depot can be redeveloped to provide waterfront parks, while retaining and redeveloping historic buildings, and allowing some non-park development for uses that are not traditionally found in parks, including housing, offices, and institutional uses. Moreover, the Oakland Army Base, the Hunter's Point Naval Ship Yard, the Mare Island Naval Ship Yard, and the Alameda Naval Air Station have recently been closed and will also be redeveloped for a mix of civilian uses, including regional scale waterfront parks. In the end, significantly more waterfront parkland, approximately 450 acres over what is currently designated in the Bay Plan, could be provided as a result of the closing of military bases being transferred to local control.

Waterfront Park Settings. Settings or characteristics of waterfront parks determine the nature of activities and quantity of visitors that a park can support. The majority of waterfront parks that the Commission designates for park priority use tend to be regional scale waterfront parks. Regional parks tend to be large, emphasize passive recreational activities, provide access to natural areas, and accommodate specialized activities requiring a large setting. Bay Area regional waterfront parks provide a diverse mix of settings, which accommodate a myriad of activities. The Marin Headlands in GGNRA is largest designated waterfront park at 6,000 acres. The smallest park, The Brothers Islands in Contra Costa County is 1.8 acres in size. This diversity creates some limitations on the activities that can be accommodated in each park in the system. For example, a highly developed park with high visitation will not provide a solitary, natural experience, and a large, predominantly natural park with limited facility development may not accommodate a large family gathering for a picnic, if highly developed facilities are sought.

Some waterfront parks are defined by natural landscapes with a mix of native and introduced plants and wildlife with limited developed areas, such as Coyote Hills Regional Park, China Camp State Park, the Marin Headlands, and Carquinez Strait Regional Park. These parks range from 500 to 6,000 acres in size and provide access to large natural upland habitats adjacent to the Bay, Bay wetland habitats, and limited developed areas. Natural areas are accessible by trail systems or overlook platforms and boardwalks. Smaller examples of this type of Park include River Park in Vallejo and Bayview Park in San Francisco. Developed areas tend to consist of parking areas, picnic facilities restrooms, interpretive facilities, and campsites. Improved areas comprise a small percentage of the land area of these parks. Activities accommodated often include walking, hiking, viewing wildlife and plants, camping, picnicking, bicycling, historic or cultural sites, small boat launching and swimming.

Other waterfront parks are predominantly developed with some natural areas, such as Coyote Point Park in San Mateo, Shoreline at Mountain View, McGinnis Park and Paradise Beach County Park in Marin County and Glen Cove Park in Vallejo. Parks in this category tend to range in size from 15 to 700 acres, and provide opportunities for picnicking, family gatherings, swimming, golf, pier fishing, historic buildings, tennis courts, marinas and boat launches, bicycling, windsurfing, concessions for food, equipment rental and instruction, and other more highly developed facilities.

Waterfront parks that are entirely developed, or urban, include Independence Park in Vallejo, Robert Crown State Beach in Alameda, Middle Harbor and Estuary Parks in Oakland, Oyster Point Park in South San Francisco, and Fort Mason in San Francisco. In these parks, the entire landscape is developed and regularly managed for a variety of recreational activities. These parks range in size from 5 acres to 100 acres, with most urban parks in the 20 to 50 acre range. Some activities accommodated in these parks include walking, sitting, viewing, fishing, small boat launching, interpretive facilities, picnicking, swimming and cultural activities.

Several waterfront parks are developed entirely or partially on refuse landfills. Most of these parks have a mix of developed areas and ruderal and natural vegetation covering the site, such as Mountain View Shoreline Park, Palo Alto Baylands, Oyster Bay Regional Shoreline, and Menlo Park Bayfront Park. There are a total of 15 landfills designated for park use in the Bay Plan. Of these, 13 have been developed for park use, while two designated landfills have not yet been developed as parks. The expense of maintaining landfills, including methane gas production, leachate seepage, settlement and other management challenges drove many communities with parks atop landfills to develop part of the park with revenue generating recreational activities to offset management costs, such as golf courses or driving ranges, pay-to-play sports fields and firing ranges. These commercial uses charge fees for use, thus reducing the acreage of these parks available for unfettered public access. Some waterfront parks with these large commercial recreational facilities include Burlingame Bayfront Park, Shoreline Park in Mountain View, and Sunnyvale Baylands Park. Menlo Park was recently considering adding this type of revenue generating use to its Bayfront Park.

Several parks are currently undeveloped or the sites are being used for non-park uses either as land banks, or for the uses to which the land was being put when the Commission designated the site for park use. Land uses at these sites range from ongoing military use to shipping container storage to active landfill to closed military base poised for redevelopment. These sites do not currently accommodate recreational activities, but serve as an inventory of land that can in some cases produce revenue for current park operations and all can eventually be added to our supply of land developed for waterfront park use.

Not all park settings fit neatly into these categories, but they provide a general descriptive range of the various types of waterfront parks, the settings for activities they provide and the range of activities accommodated.

Some recreational activities accommodated in waterfront parks:

Walking for pleasure	Sculling
Bicycling	Visiting Historical or Cultural Sites
Picnicking	Swimming
Viewing wildlife	Jogging and Fitness Running
Kite flying	Play Equipment/Tot Lots
Windsurfing	Beach Activities (sun bathing, etc.)
Kayaking	Using Lawn Areas for Unstructured Activities
Model Airplane flying	Nature Study/Photography
Walking a Pet	Water Skiing
Camping	Personal Water Craft
Team Sports	Fishing
Golf	Guided Walks
Attending Cultural Events	Commercial Recreation
Sailing	Skating/Roller Blading
Power boating	Horseback Riding
Kite sailing	Environmental Education/Interpretation
Whale boating	Volunteer Stewardship

Beaches. As noted in Bay Plan Amendment (BPA) No. 1-02 to the Bay Plan recreation policies, only a few large, public sandy beaches exist along the shoreline of San Francisco Bay, such as at China Camp State Park, Robert Crown State Beach, Crissy Field in The Presidio, and Kirby Cove in GGNRA's Marin Headlands. Most other San Francisco Bay beaches are small, but heavily used recreational resources. "There used to be 23 miles of sandy beaches. Now, there are about 7 miles of beaches. Most of the present beaches occur in different locations than the historic beaches."¹¹

Many of the historic Bay beaches were located on the outer edge of tidal wetlands.¹² Since many of these wetlands and associated beaches were covered by fill, changing the shoreline profile in relation to the adjacent subtidal areas, new beaches have been slow to form adjacent to these filled areas. Another limiting factor to beach formation could be the composition of Bay

¹¹ Baylands Ecosystem Habitat Goals, A report of Habitat Recommendations Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project, U.S. EPA, San Francisco 1999

¹² *ibid*

sediments. Sand makes up as little as seven (7) percent of the sediment flowing into the Bay from its watersheds.¹³ The restoration of wetland habitats in the South Bay could lead to an increase in the number of beaches in this part of the Bay over time as historical geomorphology and patterns of sediment deposition are restored to these areas. Specific geomorphologic and hydrologic conditions are necessary to support beach creation, without excessive beach nourishment. In Bay Plan Amendment 1-02 the Commission noted that because of their scarcity, existing beaches provide important habitat for shorebirds, as well as valued recreation sites. To that end, the Commission amended the Bay Plan to add a finding acknowledging the importance of sandy beaches for habitat and recreation, and a policy that protects sandy beaches, both for habitat and recreation.

Marinas. The California Department of Boating and Waterways (DBW) reports that the Bay Area provides 18% of the State's boating facilities, which is generally consistent with the number of boats here, which comprises 19% of the statewide total. "Boat ownership in the region is average relative to population, with 158,000 boats or 2.45 boats per hundred people. Small outboards and inboard/outboards are the most popular types, followed by personal watercraft. There are 27,691 wet storage berths and moorings in the region, of which an estimated 25,287, or 91 percent, are occupied. Overall occupancy rates for both open and closed berths are high, over 90 percent for those facilities reporting. Almost one-half of the facilities reported 100 percent occupancy. Most facilities report vacancies in the under-26 feet and 26 feet to 39 feet ranges. Occupancy rates for boat slips, both open and covered are high, at over 90%. Most vacancies are for smaller boats in the 24-foot to 32-foot range."¹⁴ These numbers include marinas in freshwater bodies, and some Coastal marinas.

According to DBW, "allowing for a five percent normal vacancy rate, surplus capacity is not likely to be absorbed until after 2020 under the low growth projections. Under the high boat population projections, there will be a need for an estimated 892 additional berths after 2005."¹⁵ The Commission's existing policies on marinas allow for construction of new marinas in the Bay at suitable locations. Some new marinas and expansions of existing marinas are planned. Construction of additional marinas or rehabilitation of existing marinas can be successfully addressed by the existing marina policies.

¹³ Josselyn, Michael, *The Ecology of San Francisco Bay Tidal Marshes: A Community Profile*, Romberg Tiburon Center for Environmental Studies, Tiburon, CA. 1983. P. 31

¹⁴ California Boating Facilities Needs Assessment, Volume 1, California Department of Boating and Waterways, Sacramento, California October 15, 2002. This Survey includes portions of Napa County (Lake Berryessa), portions of Contra Costa County (Delta), portions of San Mateo County (Pacific Coast) that are outside the Commission's jurisdiction, thus, some numbers are slightly inflated over San Francisco Bay levels)

¹⁵ California Boating Facilities Needs Assessment, Volume 5, California Department of Boating and Waterways, Sacramento, California October 15, 2002.

Over half of the facilities responding to DBW's survey reported that they had turned away transient boaters seeking moorings and 13 percent of those turning away transient boaters did so on more than sixty days in one year.¹⁶ Some facility operators want more launch ramps, slips, better holding tank and bilge pump-outs, fewer live-aboard boaters, dredging, larger berths and transient docks. The facility needs mentioned most frequently in DBW's survey in the San Francisco Bay Region include: dredging, launching capacity, general facility improvements, dock repairs, more dry storage, gas pump facilities, better waste pumpout, boat slips, and ramp repairs.

All of the boating facilities identified as lacking in the survey can be permitted under the Commission's existing policies. However, one of the greatest needs in San Francisco Bay is for access to destinations for transient boaters. Transient mooring facilities near popular regional destinations, such as the northern San Francisco waterfront, Tiburon, Sausalito, Oakland, ATT Ballpark, and similar landings are a critical need.¹⁷ Moreover, representatives of the Pacific Inter-Coastal Yacht Association indicated that transient moorings was one of their members' primary concerns regarding boating facilities needed in the Bay.

Launching Lanes and Floats. In 1982, there were approximately 75 public and 44 private boat launch ramps and 9 public and 51 private boat hoists in San Francisco Bay.¹⁸ Today, boat launch ramps are concentrated primarily in the central Bay, from southern Marin and Contra Costa Counties south to Redwood City and San Leandro. Alviso in San Jose, provides the only public boat launch ramp in the south Bay.

The 2002 *California Department of Boating and Waterways Needs Assessment*, a survey of boating facility operators throughout the state, determined that boat launch ramp repairs were needed in Suisun Bay and the Mare Island Strait, and that some additional launching capacity was needed in San Francisco Bay. The Assessment reports that in the entire nine county Bay Area, there are 174 launching lanes (some ramps have multiple lanes) and 4,354 trailer parking spaces with a projected need of 20 additional launching lanes to meet the current and projected need.

¹⁶ California Boating Facilities Needs Assessment, Volume 1, California Department of Boating and Waterways, Sacramento, California October 15, 2002

¹⁷ Personal Communication, Steve Watanabe, Division Chief (acting) California Department of Boating and Waterways, February 15, 2005

¹⁸ San Francisco Bay Conservation and Development Commission, *Staff Report on Recreational Boating Facilities*. July 1982, P. 31

This inventory includes launch ramps on fresh water bodies in the region, such as Lake Berreyessa, Lake Del Valle and other inland lakes. "Pressure on launch ramps is relatively high, with over one-third of launch facilities reaching capacity more than 15 times per year."¹⁹

Although the supply of launching lanes and associated parking may be limited, existing Commission policy does not prevent or frustrate adding new launching lanes within its jurisdiction. The existing Bay Plan recreation policies regarding launching lanes state, in part that, "Additional launching facilities should be located around the Bay shoreline, especially where there are few existing facilities. These facilities should be available free or at moderate cost. Launching facilities should include adequate car and trailer parking, restrooms, and public access. In marinas, launching facilities should be encouraged where there is adequate upland to provide needed support facilities. Fill for ramps into the water, docks, and similar facilities should be permitted." The limiting factors preventing construction of additional launching lanes in San Francisco Bay include the high cost of shoreline land, construction costs, and limited local funding for operations and maintenance of launch ramps. Perhaps, if additional parkland were acquired in areas suitable for launching lanes, this could facilitate provision of additional launching capacity in the Bay.

The provision of sufficient parking and comfort stations at these launch ramps is important. At heavily used launch ramps, all available parking is occupied. Introducing non-motorized boat launching at launch ramps that are currently used at capacity at peak times will create competition for parking, unless additional parking is provided for the new use. The Commission's existing policy requires that launch ramps provide sufficient upland facilities, such as parking.

Launch ramps do provide a unique opportunity for joint use by motorized and non-motorized boats. Projects involving new ramps and repair or reconstruction of existing ramps could be designed to provide access for both boat types, thereby reducing the need for fill in the Bay by co-locating facilities, or by designing floats associated with launch ramps so that they serve a variety of launching needs. Heavily used launch ramps will require careful design and management to prevent conflict between user groups. The provision of non-motorized boat storage could reduce parking demand generated by this use.

¹⁹ California Boating Facilities Needs Assessment, Volume II, October 15, 2002, Sacramento, California, Pages 24-28

Fishing Piers. There are approximately 75 public fishing piers in San Francisco Bay.²⁰ Piers are dispersed throughout the Bay, but many are concentrated in the more populous central portions of the Bay. Most of these piers were constructed after the Commission adopted the Bay Plan in 1969. Almost all public fishing piers are heavily used. Some, such as the Municipal Pier in San Francisco and the closed Ravenswood and San Mateo Bridge Piers are in dire need of rehabilitation. Sufficient funds may not be available to rehabilitate piers on abandoned roadway bridges due to the extremely high cost of repairs. Point Molate, Treasure Island, and Romberg Tiburon Center for Environmental Studies all have piers that could be used as fishing piers, once the areas are developed for recreational use.

The Commission's existing Bay Plan policies do not inhibit the provision of additional fishing piers. The relevant Bay Plan policy states "The Commission should also allow additional ... fishing piers elsewhere on the Bay, provided they would not preempt land or water area needed for other priority uses and provided they would be feasible from an engineering viewpoint, would not have significant adverse effects on water quality and circulation, would not result in inadequate flushing, would not destroy valuable tidal marshes or tidal flats, and would not harm identified valuable fish and wildlife resources."²¹ These policies do not limit the construction of additional fishing piers in Bay.

Regional Trails. The Bay Area is blessed with several national, state and regional trails. Regional trails include the San Francisco Bay Trail, the Bay Area Ridge Trail, and the San Francisco Bay Area Water Trail. The statewide California Coastal Trail passes through four of the nine Bay Area counties, and the transcontinental American Discovery Trail, connects Point Reyes National Seashore with Cape Henlopen State Park on the Delaware coast, and the Juan Bautista de Anza National Historic Trail connects the San Francisco Bay Area with Nogales, Arizona on the Mexican border.

The San Francisco Bay Trail is a planned 500-mile non-motorized multi-use recreational trail around the San Francisco Bay that is currently about 280 miles long and more than 50 percent complete. The Bay Area Ridge Trail will be a 500-mile trail encircling the San Francisco Bay along the ridge tops, open to hikers, equestrians, mountain bicyclists, and outdoor enthusiasts of all types. So far, almost 300 miles of trail are available. In Bay Plan Amendment No. 1-02, the Commission added a finding acknowledging the importance of these regional trails as Bay Area recreational opportunities, and a policy requiring implementation of segments of these trails that lie within designated waterfront parks.

²⁰ California Coastal Conservancy *California's Public Piers*. A guide to public piers on California's coast and bays. 1993, 36 pp.

²¹ Bay Plan, Recreation policy 2.

In AB 1296, the legislature recently found that “[w]ith loss of public open space, the public increasingly looks to the bay, the region’s largest open space, for recreational opportunities.” Pursuant to this legislation, the Commission is leading a planning partnership with other agencies to develop policy and implementation recommendations for the Bay Water Trail. The San Francisco Bay Area Water Trail, “shall link access to the waters of the San Francisco Bay that are available for navigation by human-powered boats and beachable sail craft, and shall provide for diverse water-accessible overnight accommodations, including camping.”²²

Factors that Limit Supply of Recreation Opportunities

Urbanization. Urbanization ranks as the most significant factor that limits opportunities to increase, or at least maintain the supply of open space, and public access to it, in the region. According to the state’s Farmland Mapping and Monitoring Program (FMMP), the nine Bay Area counties urbanized about 40,000 acres of land from 1992 to 2000; about 62.5 square miles.²³ Rural estate development, which may account for more loss of habitat and open space than suburban subdivisions, is not measured by the FMMP. About 17 percent of the 4.75 million acres of the region have been urbanized, and 11 percent of the region is at a high to medium risk of further urbanization. On the other hand, the amount of protected land is also growing. The percentage of the region that is either secure greenbelt or at low risk of development rose from 66 percent in 1989 to 73 percent in 2000.²⁴

One prediction of regional urbanization by researchers is that “the urbanized land area of the nine-county San Francisco Bay Area will swell from just under 300,000 hectares (740,000 acres) in 1998 to 329,000 hectares (813,000 acres) in 2020 and 369,000 hectares (900,000 acres) in 2050 to as much as 417,000 hectares (1 million acres) in 2100. Half of the region’s urban growth will occur in the East Bay, South Bay and the other half will occur in the North Bay.”²⁵

Land Cost. Opportunities to expand the supply of parkland exist, but are extremely limited due to development and population pressures, and the extremely high cost of undeveloped land, especially land that is zoned for development. Park and open space managers frequently choose not to pursue waterfront acquisitions due to the high land cost. In some cases, this land

²² California Legislature, Assembly Bill 1296, Assembly member Loni Hancock, Coauthors: Assembly Members Cohn and Leno and Senator Alquist, February-September, 2005, Sacramento, California. Amendments to the McAteer-Petris Act, and the Coastal Conservancy legislation

²³ California Department of Conservation in the Resources Agency Farmlands Mapping and Monitoring Program <http://www.consrv.ca.gov/dlrp/FMMP/index.htm>

²⁴ State of the Bay Area: A Regional Report, *Pathways to Results* Measuring Progress toward Sustainability, Bay Area Alliance for Sustainable Communities Northern California Council for the Community Oakland, CA, January 2003 (revised May 2004) Page 38

²⁵ Landis, John D., *How We Will Grow: Baseline Projections for the Growth of California’s Urban Footprint through the year 2100*. Working Paper 2003-04, Institute of Urban and Regional Development, University of California, Berkeley. P.92

is valued at \$1 million to \$4 million per acre, depending on the current zoning and corresponding development potential.²⁶ Park providers must evaluate trade-offs when buying parkland. In Santa Clara County, which has little waterfront parkland, valley floor land, including land near the Bay is selling for \$3 million to \$4 million per acre, while hillside land is in the tens of thousands of dollars per acre. Agencies must give up considerable hillside acres for each acre purchased near the Bay. These high land values contribute to the difficulties local governments face when trying to provide parkland to keep up with population growth.

Funding. All Bay Area park managers interviewed identified a lack of sufficient funding as the primary cause of their inability to meet the demands of park visitors by preventing them from acquiring, developing or managing lands or to conduct sufficient maintenance. Lack of funding has prevented local governments from adding parkland at pace consistent with growing populations. As local governments fall behind on park provision, demand for local park uses, such as dog walking and playing fields are imposed on regional, state and federal parks, including waterfront parks, sometimes creating conflicts with passive recreational uses and crowding in all parks. Lack of sufficient funding for on-going maintenance can lead to the closing of facilities such as the Vallejo, San Mateo and Ravenswood fishing piers.

The Quimby Act, passed in 1975 by the California Legislature authorizes local agencies to establish an ordinance requiring new development to pay a fee or dedicate land for park and recreational facilities. In 1982, the act was substantially amended. The amendments further defined acceptable uses of or restrictions on Quimby funds, provided acreage/population standards and formulas for determining the exaction, and indicated that the exactions must be closely tied (nexus) to a project's impacts as identified through traffic studies required by the California Environmental Quality Act (CEQA).²⁷

Despite the fiscal benefits, Bay Area cities and counties have been slow to adopt Quimby Act ordinances. Only twelve Bay Area cities have such ordinances, although two of the other 34 cities are in the process of developing a Quimby ordinance for adoption. Several Bay Area counties also have Quimby ordinances. Those Bay Area local governments with Quimby ordinances have benefited substantially from their implementation, reaping significant

²⁶ Personal conversation with Jim Foran, Director, Santa Clara County Open Space Authority, October 26, 2004

²⁷ Westrup, Laura, 'Quimby Act 101, An Abbreviated Overview', *California Parks and Recreation*, Summer 2002 Volume 58, No. 3, Page 8

revenues for parkland acquisition and park development or land dedications. Revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities.

Impacts of Propositions 13 and 98. With the passage of Proposition 13 in 1978, Californian's amended their constitution to limit the allowable annual growth in property taxes to 1%, and required a 2/3 majority of votes for the passage of new taxes. "Prop 13", as it is commonly referred to, changed the funding landscape for parks throughout the state by shifting the authority over property tax allocation to the state from local governments. Over time, this has limited available funding for local services, such as public safety, schools, street repair and parks. "During the 1980's cities and counties had their revenues incrementally reduced by the state. None of these cuts was so severe, however, as the property tax shifts that began in 1992. Facing massive deficits in the state budget, the legislature and governor transferred nearly \$4 billion of property tax revenue from cities. These property tax shifts... continue growing on average at about 3 percent each year."²⁸ After paying debt service and funding user-fee supported programs, just two-thirds of the general fund remains available to local governments. "Of this discretionary amount, the typical full-service city spends three-fourths of these dollars on police and fire in order to meet federal requirements for matching dollars."²⁹ Confronted with parsing the remaining funds among many important city initiatives, many cities in the Bay Area have reduced parks funding dramatically in the last dozen years.

In 1988, voters passed Proposition 98, an initiative that required state government to allocate approximately 40 percent of its general fund revenues to public schools and community colleges.³⁰ The long-term effect of Proposition 98 was to induce the state government to transfer revenues away from cities and counties to school districts in order to cover the Proposition 98 education spending requirements.³¹ "Parks have been hit hard by recent cuts, the San Mateo County Parks budget has been cut about 40 percent in the last three years; County park staffing....cut by 38% from 94 full-time positions in 1990 to about 58 full-time positions in 2005; annual parkland use has increased by about 250,000 visits from 1990 to 2005."³²

²⁸ Coleman, Michael J. *Drafting a Blueprint for Reform, Why Local Government Fiscal Relief is Needed So Urgently in Western City*, September, 1997

²⁹ *ibid*

³⁰ Proposition 98 has a number of specific tests used to determine minimum levels of state funding for education, depending upon whether the state is in a period of economic growth or decline. In general, the requirement hovers at around 40 percent of the state budget.

³¹ Hoene, Christopher, *Fiscal Structure and the Post-Proposition 13 Fiscal Regime in California's Cities*, Public Budgeting & Finance, Volume 24 Issue 4, Page 51, December 2004

³² Carpenter, Edward, *The Examiner/Independent*, August 6-7, 2005, the Weekend Edition, San Francisco, California, page 4

"In 1992, the State of California found itself in a serious deficit position. To meet its obligations to fund education at specified levels under Proposition 98, the state enacted legislation that shifted partial financial responsibility for funding education to local government (cities, counties and special districts). The state did this by instructing county auditors to shift the allocation of local property tax revenues from local government to "educational revenue augmentation funds" (ERAFs), directing that specified amounts of city, county and other local agency property taxes be deposited into these funds to support schools. In fiscal 2005-06, the annual impact of the ERAF shift is a shortstopping of some \$7.2 billion from cities, counties, special districts and the citizens those entities serve. Since their inception, the ERAF shifts have deprived local governments of over \$58 billion. Counties have borne some 73 percent of this shift; cities have borne 16 percent."³³

The ongoing drought of local funding for parks caused by state transfers of property taxes was accompanied by dramatic population growth in the Bay Area. Since 1992, the Bay Area population grew by almost 1 million. At the same time that local governments were largely unable to acquire and develop parklands, except through exactions from new developments or by using state and federal funding. Many Bay Area regional park managers are frustrated because the burden to provide for activities typically accommodated by local parks are being shifted to them as the supply of local parks is insufficient to meet the demands of a growing population.³⁴ This shift has implications for regional shoreline parks, which were typically acquired and developed for primarily passive recreational use. The Bay Plan recreation policies prioritize passive recreational uses in waterfront parks over other uses that do not require a waterfront location such as team sports and golf. Thus, the Commission must determine to what degree to accommodate this shift of activities into waterfront parks on San Francisco Bay.

State Fiscal Problems. The state of California has confronted monumental, unprecedented budget deficits for the past three fiscal years, which have severely limited the states ability to meet its goals for parkland acquisition. In March of 2004, The State Public Works Board, an executive branch agency, placed a moratorium on land acquisition by the state, unless the acquisition imposes no additional staff or other costs on the state. Most state parkland acquisitions are large and come with some management costs. The administration may allow

³³ Coleman, Michael, League of California Cities, Fact Sheet: The ERAF Property Tax Shift, September 2005

³⁴ Personal Conversation with East Bay Regional Park District Staff, Bob Doyle, Brian Wiese, Mike Anderson, John Escobar, Dee Tillson, Brad Olsen and Terry Noonan, November 17, 2004; Brian Hickey, California State Parks, November 9, 2004 and Nancy Hornor, National Park Service, February 17, 2005

acquisitions, if they are accompanied by private donations to pay for operating costs. Because California State Parks' budget has been steadily cut over the past several years, little capacity exists in existing staff and other resources to absorb the management costs for new parklands. This moratorium has had the effect of preventing the acquisition of many large parks throughout the state. This has not only delayed state acquisition of thousands of acres of recently preserved land purchased by local non-profits and land trusts in Sonoma and Napa counties, but threatens to financially undermine acquisitions by open space land trusts that purchase properties in many instances to preserve them as public open space.³⁵ However, California State Parks continues to allocate Proposition 40 funds for park acquisition.

³⁵ Rosenfeld, Jordan, From the February 23-March 1, 2005 issue of the North Bay Bohemian, Sonoma, CA

CHAPTER 3

WATERFRONT PARK MANAGEMENT

In over thirty interviews, Bay Area waterfront park providers identified a variety of management challenges related to public use of their parks. Many waterfront parks are located on where landfills where the challenges associated with methane emissions, settlement, and leachate strain limited resources and in some cases curtail public access. In other parks, crowding and over use lead to conflicts between user groups and raise maintenance costs beyond available budgets. All park providers interviewed identified insufficient funding, due in large part to the state's ongoing fiscal crisis, as a major issue limiting their ability to provide for their constituents and properly manage their facilities. Although these issues are important to providers of waterfront parks, they cannot be successfully addressed by the Commission through its regulatory program. However certain issues identified by the managers, including accommodating diversity in improvements and programming, expanding opportunities for environmental education, interim, non-park uses, and accommodating ferry terminals can be addressed in the Bay Plan.

Diversity in Improvements and Programs. The American's with Disabilities Act (ADA) was enacted in 1990. The ADA prohibits discrimination and ensures equal opportunity for persons with disabilities in employment, state and local government services, public accommodations, commercial facilities, and transportation.¹ The National Park Service (NPS) policy regarding accessibility of its facilities states, in part that "all reasonable efforts will be made to make NPS facilities, programs, and services accessible to and usable by all people, including those with disabilities... In choosing among methods for providing accessibility, higher priority will be given to those methods that offer programs and activities in the most integrated setting appropriate. Special, separate, or alternative facilities, programs, or services will be provided only when existing ones cannot reasonably be made accessible."²

The State of California has addressed the ADA in Title 24 of its Code of Regulations, which is part of the California building code. California State Parks policy states that "it is the policy of the Department to meet the recreational needs of all the people of California and to provide an accessible environment in which all visitors to the State Park system units are given the opportunity to understand, appreciate and participate in the State's cultural, historical and natural heritage."

¹ Public Law 336 of the 101st Congress, 42 USC 12207 of the U.S. Code

² U.S. Department of the Interior, National Park Service, Management Policies 2001, page 86

In the Bay Area, federal, state, regional and local agencies providing shoreline recreational opportunities take the lead in addressing ADA requirements in shoreline parks and other recreational facilities. Most of these agencies have conducted thorough assessments of their facilities and drafted an ADA compliance plan with implementation priorities. Bay Area recreation providers have met with varying degrees of success in implementing their ADA access plans, based primarily on available funding. Some agencies have completed implementation of their plans, while others have substantial non-conformities that still need to be addressed. The Commission has a responsibility to ensure that the public facilities that it permits meet the requirements of the ADA and California's Title 24 regulations. Although the primary responsibility rests with the provider of shoreline recreational opportunities, the Commission's oversight role is important to ensure that shoreline recreational facilities provide reasonable accommodation to all Bay Area citizens and visitors.

As noted in Chapter 1, the Bay Area population will continue to diversify, and the new mix of cultures will change the nature of recreation demand, introducing new activities or changing the emphasis among existing activities. Park managers will have to respond to these changes by diversifying the facilities and programs offered, providing information in multi-lingual formats and other changes that are necessary to respond to these demographic shifts.

Interim Uses. Many park providers acquire lands being used for non-park uses. Often, these non-park uses can provide an interim revenue stream to the park manager that offsets unfunded operations and maintenance costs of other parklands. For example the East Bay Regional Park District leases waterfront parkland it owns for the storage of shipping containers. Eventually, this site will be developed as an extension of Martin Luther King, Jr. Regional Shoreline Park. The District leases other waterfront parklands for interim grazing purposes. These revenues assist the District in meeting its operations and maintenance cost over runs.

Some park priority use areas in the Bay Plan are private property, which can be developed for park use once the private use of the site is terminated. The West Contra Costa County Landfill site in Richmond and Contra Costa County is an active landfill, which will eventually be closed, although some recycling activities may continue there indefinitely. Similarly, portions of the Albany shoreline west of Golden Gate Fields racetrack is privately owned and either undeveloped or used for parking associated with the racetrack. As private uses of these sites cease they can be made available for recreational use.

Infrastructure is another type of non-park use that is often proposed for or located in waterfront parks. The City and County of San Francisco currently manages some sewage facilities within the GGNRA and has recently sought to add new facilities there. The Sewerage Agency of Southern Marin installed a pipeline beneath the multi-use pathway in Tiburon, and landscaped the park and installed the path. When California State Parks acquired Candlestick Point State Recreation Area, the City and County of San Francisco retained ownership of some "paper" streets bisecting the property, in part to retain the option of developing circulation improvements in the future. The City is currently evaluating alternatives for a new truck route in the area, including alternatives that would pass through the State Park. In many cases, infrastructure can be unobtrusive in waterfront parks, while in other cases it can usurp open space, interrupt shoreline access or detract from the visual character of the park.

Interim use of waterfront park priority use areas for non-recreational use prior to their development as a park can aid in eventual park improvement, provided that the nature of the use allows the site to be converted to park use and would not involve investment in improvements that would impair use of the site as a park. Infrastructure properly developed and constructed can be located in waterfront parks, if the disruption of parks uses is minimal, there are no long lasting visual impacts to the park or any diminishment in public recreational opportunities.

Environmental Education. As noted in Chapter 1, visiting nature centers and historic sites and viewing and photographing wildlife are some of the most popular recreational activities in the state. Interpretation of natural and cultural resources can enrich the experience of park visitors and build support for their protection. According to Bay Area park managers and experts, there is a need for more interpretive trails and staging areas improved with signage at key locations around the Bay to familiarize people with Bay natural processes, wildlife and historical and cultural resources. These could be located near bus routes to improve access for school children and other people reliant on transit, in part because the cost of hiring a school bus is one of the most significant barriers to school field trips. The ability to rely on public transit can eliminate this barrier to a Bay-related educational experience.

Currently, there are four interpretive centers located in park priority use areas, including Palo Alto Baylands Nature Preserve, the Coyote Point Museum in San Mateo, Crab Cove Visitor Center & Marine Reserve in Alameda and the Shorebird Interpretive Center at the Berkeley Marina. These centers provide education programs for students and adults and interpretive displays for viewing by the general public. There are five other interpretive centers that are not in park priority use areas, including the Hayward Shoreline Interpretive Center, the Audubon Center in Mill Valley on Richardson Bay, the San Francisco Bay National Wildlife

Refuge's education center in Alviso, the interpretive displays and classrooms at the Refuge headquarters. Additional interpretive centers are planned, including one at the San Pablo Bay National Wildlife Refuge Headquarters, one sponsored by the National Audubon Society in East Palo Alto, and an outdoor classroom at Menlo Park Bayfront Park as part of the South Bay Salt Pond Restoration Project.

In addition to interpretive centers, several non-profit organizations provide educational programs about the Bay. Save the Bay has a variety of educational program including in-classroom programs, an online classroom for information about the Bay, "Canoes in Sloughs," a program to provide on-water education, and volunteer restoration work days providing hands-on stewardship training. Save the Bay also teaches school teachers its Bay curriculum so that they can teach their students. The Marine Sciences Institute offers "Discovery Voyages" on the Bay and operates the Discover Classroom and Lab for hands-on, discovery-based marine education. Their programs serve approximately 12,000 students each year. During a Discovery Voyage, students use the scientific method to study the fish, bottom sediments and invertebrates, microscopic organisms and water quality of the San Francisco Bay Estuary. Wildlife Stewards is a non-profit organization that educates docents and provides guided educational tours of South Bay wetland areas. Other non-profits offering Bay-related environmental educational programs include the Bay Institute, the Center for Eco Literacy, the eight Bay Area chapters of the Audubon Society, The San Francisco Bay Bird Observatory, the Point Reyes Bird Observatory, The California Academy of Sciences, and the Sierra Club.

Many shoreline parks provide interpretive displays that describe the natural process, flora and fauna that characterize the Bay and shoreline at these parks. Some park staff offer formal and informal educational programs at the parks to inform visitors about the natural factors at the park. When the Bay Plan recreation policies were adopted in 1969, there were no interpretive centers or Bay-oriented educational programs available. Today, there is a growing wealth of facilities and programs to satiate the public appetite for understanding the natural world they inhabit. Certainly, there are opportunities to expand the educational offerings, particularly for children that can help them understand the values that motivated the public investment in open space preservation and habitat restoration around San Francisco Bay. As the Bay Area population continues to diversify, interpretive materials and programs provided in a variety of languages, such as Spanish, Chinese, Korean, Japanese, Tagalog, Vietnamese, Hmong, Farsi, etc., would ensure that the information provided is accessible to a wide audience.

Ferry Terminals and Stops. The Bay Plan findings and policies recognize that the Bay represents an important resource for transportation within the region and that a system of modern ferries may be able to provide the region with an important transportation alternative. However, the Bay Plan also notes that an increase in ferry traffic in the Bay will result in new routes that cross shipping lanes, water recreation areas or water areas used by birds, marine mammals, fish and other wildlife. The Bay Plan acknowledges that while ferry transit represents a great opportunity, it also has the potential to have significant impacts.

The San Francisco Bay Area Water Transit Authority (WTA), in its recent Implementation and Operations Plan (plan), identified potential ferry terminal locations that would fall within three existing waterfront park priority use areas, including Oyster Point in South San Francisco, the Berkeley Waterfront, and the Martinez Marina. In addition, a proposed park priority use area at Hercules Point is also a potential ferry stop identified in the WTA's plan. Although the WTA's plan does not specify exactly where these stops would be located at these sites, certainly berthing facilities and access to them would have to be developed within the Commission's jurisdiction and priority use areas. Furthermore, the National Park Service has long advocated for a recreational ferry system to service the many national parks within the Golden Gate National Recreation Area. The ferry stops for this recreational service would likely be of a similar intensity to the facilities provided at Angel Island, while more popular park destinations would have ferry terminals akin to the more heavily used facilities at Alcatraz Island.

For some parks, water access is the only way to reach the park. Alcatraz Island, Angel Island and East Brother's Island can only be reached by boat. Private concessionaires under contract provide access to these parks with the National Park Service or the State of California or other non-profit entity. Some parks are sufficiently isolated such that ferry access is as convenient as access by land-based surface transportation. Moreover, access between parks by ferry could in the future become an attractive recreational pursuit in itself. Currently the Commission's policies encourage linking commercial recreation centers and parks by ferry, but make very specific recommendations for the types of ferries to be used for waterfront parks. The policies also do not address whether or how to accommodate ferries in waterfront parks.

The Golden Gate National Recreation Area and the San Francisco Bay Area Water Transit Authority have expressed interest in potentially locating additional ferry terminals in certain existing marinas and waterfront park sites. GGNRA hopes to expand its ferry excursion operations between San Francisco and Alcatraz Island to include an inter-park ferry excursion

service, perhaps including parks or ferry terminals that are not part of the GGNRA. The WTA has developed preliminary plans for ferry terminals in Berkeley and Oyster Point in South San Francisco that could land in existing marinas at these sites, or in Berkeley, in the existing waterfront park.

Locating ferry terminals or ferry stops in waterfront parks or marinas can disrupt existing boating or park uses. Parking provided for park patrons could be usurped by ferry patrons. Potential competition between marina and park users and ferry patrons could be reduced, if bus transit service to the terminal is provided. The management and safety prerogatives of ferry terminals can interrupt shoreline access and can disrupt existing water-oriented recreation such as boating, fishing, windsurfing, kayaking, swimming or sailing. Therefore, if ferry terminals or ferry stops are to be located in waterfront parks or marinas, care must be taken in locating, improving and managing or operating these facilities to avoid disruptions to the waterfront park priority use of the site.

CHAPTER 4

ON-WATER RECREATION

San Francisco Bay is the single largest open space in the region. "The total area of San Francisco Bay at high tide, downstream of the Delta used to be about 516,000 acres. Now it is about 327,000 acres."¹ The California Legislature in the recent Water Trail bill found that "San Francisco Bay is the central feature in an interconnected open-space system of watersheds, natural habitats, waterways, scenic areas, agricultural lands, and regional trails."² The Bay has long been used for sailing, power boating, fishing, hunting, rowing and swimming along with other recreational pursuits. Improving access to the Bay shoreline, innovations in recreational equipment and a renaissance of some traditional means of navigation for recreation enable the public to recreate on the Bay in ways that were unforeseen when the Bay Plan was drafted, facilitating activities such as windsurfing, kite sailing, canoeing, rowing, kayaking, whale-boating, dragon boating, and triathlon swimming. These changes have essentially created a new supply of open space by making the Bay accessible to large numbers of people engaged in these new and emerging recreational activities.

Trends in On-Water Recreation. In the U.S., "over eleven million people sail and 1.7 million sailboard or windsurf...Sail boarding and windsurfing, ... require a relatively high amount of skill."³ Statewide data show that in 1997, 6.7 percent of the state's population participated in "sail boating and windsurfing", without providing separate amounts for windsurfing, and in 2002, the percentage participating in windsurfing had fallen to 3.4 percent of the population.⁴ A recent industry report indicates that nationwide, windsurfing participation has been declining steadily since 1997, falling from 1.15 million to about 500,000 participants in 2004.⁵

Although experts disagree on the degree of the decline, there is general agreement that participation in windsurfing has fallen, including here in the Bay Area. Local enthusiasts note that the mid-1990's marked the peak of windsurfing activity here, followed by a slow steady

¹ Goals Project 1999

² Section 66691(a), Cal. Govt. Code, McAtteer-Petris Act, as amended through 2005

³ American's Participation in Outdoor Activities: Results From NSRE (With weighted data) (Versions 1 to 13) from U.S. Forest Service Website: www.srs.fs.usda.gov/trends/Nsre/Rnd1t13weightrpt, visited November 9, 2005

⁴ California State Parks, Public Opinions and Attitudes, 1997 and 2002

⁵ The SGMA Report: Sports Participation Topline Report 2005 Edition, Statistical Highlights from the Superstudy® of Sports Participation from the website: www.sgma.com/reports/data/2005/p28b-05.pdf visited November 9, 2005

decline, although recently it appears that there has been a slight increase in participation.⁶ What caused the decline remains uncertain, but many speculate that the industry focused too much on highly skilled participants and neglected the entry-level market, particularly families. Recent industry efforts to broaden the appeal of the sport have focused on making windsurfing a family activity with equipment suitable for all age ranges and skill levels. If these efforts are successful, over time participation in windsurfing on the Bay could increase.

Over the past 10 years, kite sailing emerged as a new form of on-water recreation on the Bay. To a large extent, kite sailors come from the ranks of windsurfers, which may have reduced windsurfing participation. The number of kite sailors on the Bay remains small, in part because the skill level required creates a barrier to casual participation. The future popularity of kite sailing will likely be determined by the extent that skill barriers remain. Also, conflicts between kite sailing and other Bay and shoreline recreational activities may limit growth in the sport, particularly if suitable launch sites prohibit kite sailing.

Boat registrations for the nine Bay Area counties fell approximately 3 percent from 1995 to 2005, while population during the same period increased by over 500,000.⁷ Although boating on the Bay remains popular and most marina slips are occupied, many marinas have vacancies in the 24-foot to 32-foot slip range. The Commission has issued only one permit for a new marina in the past five years. That new marina is located in an area where a 400-slip marina was closed just prior to the issuance of the new marina permit.

"Cal Boating found that the demand for larger wet slips is prevalent throughout the state. The California Association of Harbor Masters and Port Captains is currently conducting a statewide berthing survey. Preliminary results show that surveyed marinas have current waiting lists for nearly 9,000 boats. Of these, 74 percent need slips 26 feet or larger while 26 percent need slips smaller than 26 feet. Coastal marinas show waiting lists for more than 3,000 boats. Of this demand, only 5 percent (157 slips) were for slips smaller than 26 feet; and, more than half of the 157 slips were in Santa Cruz harbor."⁸ Cal Boating believes that market forces will most efficiently determine the correct composition (slip size and distribution) of a marina and that they should not dictate the mix of small and large berths that should be provided in a marina. The demand for larger slips will likely lead to marina reconfiguration projects to meet this demand.

⁶ Personal communication with Jim McGrath, November 10, 2005

⁷ California Department of Boating and Waterways website reports California Department of Motor Vehicle boat registration data. Information also came from the U.S. Coast Guard boat registration data.

⁸ More than 88 percent of the small (under 26 feet) slip demand is at two locations: Folsom Lake and a single marina on Lake Tahoe. If the Folsom Lake numbers are dropped, 81 percent of the total slip demand is for slips larger than 26 feet. Tsuneyoshi, Raynor, Director, California Department of Boating and Waterways, May 3, 2005 memorandum

Fishing on the Bay remains popular, however, fishing is declining in popularity as measured by the number of fishing licenses sold. The Department of Fish and Game reports that sales of fishing licenses statewide declined by over 20 percent in the past 10 years. This trend was repeated in California State Parks' survey data, where the percentage of the state's population participating in saltwater fishing fell from 22.7% in 1995 to 17.8% in 2002.⁹

Over the past several years, the introduction of triathlons - sporting events with three events, swimming, running and bicycling - has increased interest in open-water swimming in the Bay. Although these events are infrequent, participants must train for them, and this has increased the number of Bay swimmers. State and national surveys indicate that participation in saltwater swimming remains one of the most popular recreational activities with participation rates remaining relatively constant over the past five years. Since participation rates are constant and the population has grown, the number of in-Bay swimmers has increased accordingly.

Non-Motorized Small Boating. There is a tremendous variety of non-motorized small boating on the Bay and there is a long history for certain of the activities. The Dolphin Club and the South End Rowing Club were founded in San Francisco in the 1870's to advance the sports of rowing and swimming, and continue these traditions today. For more than a century, the Oakland Estuary has been the home of the University of California crew team. The Estuary offers 11 miles of protected waters and is one of the few courses in the nation where a straight three-mile sculling race can be held.¹⁰ The U.C. Berkeley and Stanford University crew teams both recently completed construction of new larger boathouses to accommodate growth in their programs. In addition, there are several amateur rowing clubs located throughout San Francisco Bay. The City of Oakland, in partnership with the Jack London Aquatic Center, Inc., recently completed the Jack London Aquatic Center, which provides a variety of programs for children and adults for rowing, kayaking, and dragon boating. Similarly, the Marin Rowing Association recently completed a new boathouse in Greenbrae, with programs similar to those provided at Jack London Aquatic Center and the East Bay Regional Park District is pursuing development of a boathouse on San Leandro Bay.

There are over 20 groups that organize and promote paddlesports and recreational paddling on the Bay and they are widely dispersed from Petaluma to San Jose. There is great variety in the types of paddling these groups engage in and promote, including canoeing, kayaking,

⁹ California State Parks Department, Public Opinions and Attitudes, 1997 and 2002.

¹⁰ <http://calbears.collegesports.com/trads/cal-ky-ebright.html> visited November 2, 2005

whale-boating, dragon-boating, out-rigger canoes, sculling, and row-boating. There are also several groups who promote windsurfing and kite sailing, two activities that have emerged in the last twenty-five years and grown dramatically in popularity. The rapid rise in popularity of these activities demonstrates the need for the Commission's policies to respond to these changes and facilitate these forms of recreation in ways that protect important Bay resources.

As noted in Chapter 1, kayaking is one of the fastest growing recreational activities in the nation and in California. Although we do not have participation data specific to the Bay Area for on-water recreational activities, California State Parks' surveys show that between 1997 and 2002, statewide participation in paddlesports grew from 18.3% to 23% of the state's population. The Outdoor Industry Association (OIA), which tracks the sale of outdoor recreational equipment nationwide reports that 49% of the people nationwide participating in paddlesports identify themselves as beginners and that this group is growing. OIA's research also shows that the highest participation rates in paddlesports measured in number of participation-days are for people over 45.¹¹ With the aging of the baby boomers who are likely to seek out active retirement lifestyles, it is likely this trend will continue.

A 1996 U.S. Forest Service Survey found that "over 24.9 million people went paddling each year in a canoe, kayak or raft. While whitewater canoeing and kayaking experienced large growth in participation during the 1970s and 1980s, the 1990's saw growth shift to recreational, touring and sea kayaking. A recent survey by the Outdoor Recreation Coalition of America indicated that recreational kayaking almost doubled in participation from 1995 to 2000 with over 5.1 million current participants. Examination of paddlesport boat construction mirrors these trends, indicating that in the year 2000, over 500,000 recreational kayaks (i.e. sit-upons) and 200,000 touring/sea kayaks (i.e. those with spray skirts) were built. This compares with only 160,000 whitewater kayaks and canoes over the same time period. By 2050, canoeing and recreational kayaking is projected to experience a 73 percent growth in activity day participation of paddlers (USFS, 1996). These trends are motivating recreation managers to develop and market water trails to service this growing segment of the paddling market."¹²

In San Francisco Bay, there are several local shops that rent and sell kayaks and offer kayaking classes. It appears that kayaking in San Francisco Bay, as measured by the number of people taking classes, the number of boats sold, and the general sense of our local experts is steadily increasing after a few years of decline. In the wake of the "dot.com bust", local shops saw sales decline by as much as 20%, but sales have since stabilized. Class attendance is steadily

¹¹ Outdoor Industry Association, *Exploring the Active Lifestyle*, 2005, Denver Colorado

¹² Settina, Nita and Kaufmann, Robert, *Water Trails - travel industry*, Parks and Recreation, National Recreation and Park Association September 2001

increasing and the rental market for beginners is expanding. These trends indicate that "kayaking is established in the Bay" and is becoming a mature sport, following a similar trajectory as river rafting did over the past 20 years.¹³

Canoeing on San Francisco Bay is not extremely popular because other craft are more stable in the wind and waves that are common here. Recent data on boat sales indicate that canoeing is declining in popularity, most likely due, in part, to the increased popularity of kayaking. There are canoeing clubs in the Bay Area and some of these groups do occasionally paddle on the Bay, but tend to keep to the quieter waters of tributary rivers and creeks.

Whaleboats and dragon boats require groups of people to maneuver these craft. These groups represent a relatively small population of recreational boaters who train and compete in races and events. These sports have shown dramatic increases in participation over the past 10 to fifteen years, but remain a fairly small segment of the Bay Area human-powered boating population.

The introduction of dragon boat racing on the Bay, whose roots go back over 2,000 years to the southern provinces of China, led to the formation of several groups dedicated to promoting the activity. The California Dragon Boat Association (CDBA), based in the Bay Area, has at least seven clubs that practice weekly, year-round with about 1,000 members, and an additional approximately 700 non-members participating in events. CDBA has about twenty boats in several locations, including Lake Merced, Bair Island Aquatic Center and the Oakland-Alameda Estuary. There are also non-CDBA boats at Lake Merritt, the Berkeley Marina and the Foster City Lagoon. Most Dragon Boat clubs are focused on sprint racing. CDBA staged the 10th annual San Francisco International Dragon Boat Festival at Treasure Island in of August 2005.¹⁴ The Pacific Dragon Boat Association (PDBA) is the official regional championship organizer and representative of California, Hawaii, Oregon, Washington, Nevada, and Alaska to the United States Dragon Boat Federation.

There are several whaleboat teams in the Bay Area with sponsors ranging from Anchor Steam Beer™, to the Port of San Francisco to the American President Lines (APL) shipping company. The Bay Area Whaleboat Rowing Association (BAWRA) sponsors and organizes the races. The racing season consists of around 10 races and lasts from May through October. The

¹³ Personal conversations with Keith Miller, California Canoe and Kayak, Oakland, CA; and Bob Licht, SeaTrek Kayaking, Sausalito, CA; November 19 and November 22, 2005

¹⁴ Dragon Boats have a dragon's head on the prow and a tail at the stern with 20 paddlers 10 to a side. A drummer sets the pace and the 22nd team member is responsible for steering
http://www.inetours.com/Pages/SFNbrhds/Dragon_Boats.html visited November 2, 2005

aces vary in duration, from about 8 minutes for the shortest to about 1 hour for the longest. The longest race is the Bridge to Bridge, a race from the Golden Gate Bridge to San Francisco/Oakland Bay Bridge. Teams practice year round in preparation, using boats rowed historically for life saving and whale hunting.

The San Francisco Boardsailing Association claims that it has 1,600 members and represents the interests of windsurfers on San Francisco Bay. The Association's goals are: to promote safety, provide education, ensure access and improve facilities. "Kitesurfing has [taken] off in the Bay area and around the world. The San Francisco Boardsailing Association (SFBA) recognizes kitesurfing and windsurfing as two different sports that both fall within the definition of boardsailing. SFBA fights to maintain and improve access for both windsurfers and kite surfers.¹⁵ The San Francisco Kitesurfing Association (SFKA) was formed to "develop and promote safety guidelines, create unity among riders, distribute safety and access information to visiting kites and to protect beach right access of individual kites."¹⁶ They do not post membership numbers, and as a fairly new sport have relatively few participants. Some kite surfers came from the ranks of windsurfers, and some pursue both activities.

San Francisco Bay Area Water Trail. In September of 2005, Gov. Arnold Schwarzenegger signed AB 1296, authored by Assemblywoman Loni Hancock, establishing the San Francisco Bay Area Water Trail. The legislation amended the Commission's law, the McAteer-Petris Act, and the California Coastal Conservancy's Law to initiate planning and implementation of the Water Trail. The amendments state, in part that:

"Water-oriented recreational uses of the San Francisco Bay, including kayaking, canoeing, sailboarding, sculling, rowing, car-top sailing, and the like, are of great benefit to the public welfare of the San Francisco Bay Area. With loss of public open space, the public increasingly looks to the bay, the region's largest open space, for recreational opportunities. Water-oriented recreational uses are an integral element of the recreational opportunities that span the San Francisco Bay Area and add to the community vitality and quality of life that the citizens of the region enjoy."¹⁷

The amendments to the McAteer-Petris Act direct the Commission to draft a plan over the next two years in collaboration with the State Coastal Conservancy and the Association of Bay Area Governments, and to coordinate a collaborative partnership with other interested persons,

¹⁵ <http://www.sfba.org/kite.html>, San Francisco Board Sailing Association Website, visited Wednesday, November 23, 2005

¹⁶ <http://www.sfkitesurfing.com/>, San Francisco Kitesurfing Association website, visited Wednesday, November 23, 2005

¹⁷ Section 66691(b) Cal. Govt. Code, McAteer-Petris Act, as amended through 2005

organizations, and agencies and submit the plan to the Legislature. The bill designates the State Coastal Conservancy as the lead agency in the funding and development of projects to implement the San Francisco Bay Area Water Trail Plan, and authorizes the conservancy to undertake projects and award grants to advance the preparation or implementation of the plan.

The Water Trail legislation resulted largely from the advocacy work of Bay Access, Inc., a non-profit organization whose mission is "to protect and increase access to the waters of the San Francisco Bay for small boats by creating a water trail according to the principles of the North American Water Trails (NAWT)."¹⁸ The San Francisco Bay Area Water Trail will become a network of launching, landing and camping spots for kayakers, canoeists and others in small, non-motorized craft seeking recreational use of San Francisco Bay. As envisioned by Bay Access, and consistent with Assembly member Hancock's bill, the Water Trail will increase access for human-powered boats and beachable sail craft to the Bay; avoid or minimize impacts to sensitive wildlife; promote stewardship and volunteerism to achieve wildlife protection and public education; and increase opportunities for overnight stays at trail heads by improving camping and lodging opportunities nearby.

Non-Motorized Small Boating Issues. The Water Trail, the Bay Area's third regional trail, will facilitate participation in on-water recreation for kayakers and those pursuing other on-water recreational activities throughout the Bay Area. Although planning for the Water Trail is underway, there are certain issues generated by non-motorized small boating that can be addressed in part, through the update to the Bay Plan recreation policies. These issues include access and parking, overnight accommodations, equipment storage, site improvements, compatibility, education and stewardship, navigational safety, user conflicts and water quality.

Access and Parking. Article 10, Section 4 of the California Constitution provides that "*[n]o individual, partnership, or corporation, claiming or possessing the frontage or tidal lands of a harbor, bay, inlet, estuary, or other navigable water in this State, shall be permitted to exclude the right of way to such water whenever it is required for any public purpose, nor to destroy or obstruct the free navigation of such water; and the Legislature shall enact such laws as will give the most liberal construction to this provision, so that access to the navigable waters of this State shall be always attainable for the people thereof.*" Although the state constitutional protection of the people's right to navigation is subordinate to federal laws regarding the use of federal property, security, habitat protection, and safe navigation, and to state laws for similar purposes, it creates substantial rights of access to navigable waters of the state, including San Francisco Bay.

¹⁸ Bay Access, Inc. Prospectus for

Physical access to the waters of the Bay for on-water recreation is mostly a challenge from the landside. Once on the water, there is little in the way of limitations to where one can navigate. Of course cargo ports, active military facilities, airports, petroleum terminals, endangered and protected species habitats and certain other areas are off limits, but these exclusion zones constitute fairly limited portions of the Bay. Waterfront parks, some marinas, most launch ramps, beaches, and certain public access areas required by the Commission provide opportunities to gain access to the waters of the Bay. Basic access to the water consists of parking and a place to launch, whether it is a beach, a dock, a float or other means of providing access. This access can be enhanced with a variety of improvements.

Since the Bay has relatively few beaches, only about nine miles along the entire 400-plus-mile shoreline (see Chapter 2), and since much of the Bay shoreline is armored with riprap or seawalls, access to the Bay for on-water recreation often requires some constructed elements, such as piers, docks, gangways, floats or ramps. In many Bay Area waterfront parks, beach access to the Bay for on-water recreation is provided. Other waterfront parks have floats, stairs or ramps for access while others have shoreline configurations, such as riprap, tidal wetlands or steep slopes that limit access opportunities.

Some marinas and public boat launch ramps provide publicly accessible floats or ramps that can be used for landing and launching human-powered craft. Certain existing public access areas provide physical access to the Bay via launching ramps, floats or beaches. In some locations, informal use of public and private lands for landing and launching occurs where the shoreline is not too steep to preclude ingress and egress. Bay Access, Inc. and BCDC staff have identified over 100 existing landing and launch sites suitable for small human-powered craft, such as kayaks, sail boards, dragon boats, kite boards and canoes that are currently used for access.

There are over 25 sites throughout the Bay Area where windsurfers and kite sailors regularly launch and land sail and kite boards. Windsurfing and kite sailing require steady winds and the San Francisco Bay is one of the world's premier windsurfing sites because of the consistent thermal winds created by the temperature differences between Pacific Ocean outside the Golden Gate and the Sacramento Valley. Thermal winds occur regularly from March through September providing one of the longest windsurfing seasons in the world. Basic access for windsurfing and kite sailing requires parking and rigging areas--large level areas for assembling sails or kites and laying out long lines in the case of kites. Although beach launches are ideal for kite sailing and windsurfing, there are several sites where ramps through riprap or launching floats provide serviceable access to the Bay waters.

Sculling generally requires calm water. The Bay is often windy and sites that are shielded from the wind are limited, although morning and evening hours are sometimes calm on the Bay making for good rowing opportunities. Most in-Bay sculling is done early in the morning when the Bay is calm, although some rowers have boats specifically designed to cut through waves on the Bay. Most boathouses storing sculls are located in the Oakland Estuary, Richardson Bay or in the calmer waters of San Mateo County in Redwood City. Access to the Bay for sculls typically requires a float, dock, or a beach to allow careful placement of the craft in the Bay and for safe entry into the craft. Public launching sites for sculls include Estuary Park in Oakland, Aquatic Park in San Francisco, most public beaches and floats in marinas. Most launches used by rowers are owned by clubs, who promote the sport and provide education, boat storage and for other boating access needs.

Dragon boats can be launched at a beach, a ramp or a float, provided that the facility is large enough to accommodate the boat. Since dragon boats are about 40 feet long with a crew of about 20 people, the space requirements for launching are somewhat generous. Similarly, outrigger canoes require a launching area of adequate length and width to accommodate boats of up to 40 feet in length, with six paddlers. Whaleboats tend to be stored in the water because they weigh about one ton, but occasionally must be out-hauled for maintenance. Whaleboats are rowed by crews of up to 10 people, so adequate circulation space is required for embarkation when they are dry launched.

The California Department of Boating and Waterways publishes the "Layout, Design and Construction Handbook for Small Craft Boat Launching Facilities" that addresses the design of launch ramps and associated floats, parking lots and rest rooms. These guidelines were written primarily for trailered powerboats, not for hand carried craft. Developing standards for human-powered boat access improvements could ensure that public and private investments maximize the utility of those facilities to prospective users. Access improvements should provide reasonable accommodation to people with handicaps and should be durable to minimize maintenance. Floats that are low in the water provide for easy launching of all craft, and ramps through riprap that are designed to withstand the waves and provide good traction for walking are safe and durable.

The 2000 U.S. Census reports that over 49 million Americans have one or more disabilities and that a significant number of these individuals participate in outdoor recreational activities including canoeing, kayaking, and other boating activities. The Americans with Disabilities Act (ADA) mandates that individuals with disabilities must be given an equal opportunity to access public facilities and that reasonable accommodations must be made to account for physical and mental limitations of individuals with disabilities. Guidelines for newly designed, constructed,

and altered recreational facilities issued by the ADA in 2002 require that all public boat launches, which include fixed and floating structures of all sizes, comply with ADA Accessibility Guidelines (ADAAG) standards. Standards for launching facilities for human powered craft are emerging, but there are no widely adhered to standards.

The National Park Service has developed guidelines to help address ADA guidelines when designing a launch facility for paddlesport enthusiasts. In general, these facilities should include an accessible route leading to them, a level and stable landing/launching area, transfer assistance (a box, bars or other devices to assist those with limited mobility to get into the craft), and surface textures that provide good traction. Designing landside facilities, such as parking lots, restrooms, campsites, etc., to meet accessibility guidelines will ensure that all visitors can use landing and launching facilities.

Providing access around the Bay at regular intervals in a variety of facilities will support participation in on-water recreation. Locating access near popular destinations, such as weekly farmers' markets, tourist destinations such as Sausalito or Pier 39, or waterfront restaurants is desirable to those using small craft on the Bay as a means of enhancing a day of paddling or sailing. Providing transient mooring or boat storage at or near these destinations can contribute to one's overall experience and perhaps expand the popularity of these activities and the destinations.

One of the nicest places to launch a kayak in San Francisco Bay is in Aquatic Park, which is part of the San Francisco Maritime National Historical Park. However, it is virtually impossible to find a place to park near enough to the launch site for a long enough period to paddle for more than 30 minutes to an hour. Access to adequate parking is essential to those using non-motorized crafts. Parking needs vary for the different on-water recreational pursuits, but generally, participants want parking near the shoreline to reduce the distance that equipment must be carried to the launch and of sufficient duration to allow for extended excursions. For windsurfing and kite sailing, the time spent rigging, sailing and de-rigging is often a minimum of three hours, so parking with a two-hour time limit is not workable. Also, since the equipment is heavy, awkward to carry and consists of many parts, frequent access to one's vehicle is often required for rigging and de-rigging.

Kayaks, canoes and other small boats can be long and heavy and difficult to carry alone or for long distances. Parking needs for small boaters are similar to those for windsurfers, although some kayakers pursue multi-day trips, which require over-night parking. Many parks and public access areas have prohibitions for overnight parking, which severely limits the locations where one can launch a multi-day trip. Some sites require parking for trailers, if boats

are not stored on site. For example, several kayaks, or windsurfers may be brought to a launch for a class, a trip or other outing. Similarly a dragon boat or outrigger canoe may be brought to a site on a trailer.

Site Improvements. In addition to access and parking, non-motorized small boating can be facilitated by the provision of improvements and services, including restrooms, equipment storage, public boat houses, transient docking, overnight accommodations, such as a hostel or campsite, education, rigging areas, fresh water for washing gear and signage. Launch sites with improvements that match the level of use expected at the site will accommodate visitor needs, reduce conflicts, and reduce the impacts of boating and other on-water recreation on the site. The appropriate degree of improvement is best determined by the projected use of the site for on-water recreation, the type and intensity of other uses of the site and the site managers' priorities.

Currently, there is considerable variation in the level of improvement at shoreline sites that are used for non-motorized small boating. The most intensively developed sites, such as Jack London Aquatic Center in Oakland, include a public boathouse with equipment storage, classrooms, meeting rooms, rest rooms, parking, in addition to the landing and launching facilities at the shoreline. Many less developed sites have a beach, a float or other launching facility, parking and a restroom. Some have only informal parking and a shoreline configuration that allows for ingress and egress to and from the Bay.

Equipment Concessions. On-site equipment rental concessions can facilitate participation in on-water recreation, especially for beginners and visitors. Concessions can obviate the need to access the site by car, can provide classes for learning the activity and can rent boat storage. Concessions can also be disruptive in existing parks, because passive recreation space might be converted to concessionaire storage, display, equipment handling and teaching. Concessions can help realize the recreational potential of San Francisco Bay, provided they are located, designed and managed to avoid conflict with other recreational uses and sensitive wildlife and their habitats.

Overnight Accommodations. A directive of AB1296 regarding the Commission's water trail planning effort is to identify "[l]ocations where the water trail can coordinate with landside trails and other recreational facilities to accommodate opportunities for multi-day, overnight travel." For on-water recreation enthusiasts in the urban Bay Area, opportunities for camping are limited. Currently, regional, state and federal parks provide the majority of the Bayside camping opportunities. Certain waterfront parks can accommodate additional camping, provided that the funding is available for managing the activity, it will not have impacts on

wildlife and will be compatible with other recreational activities. If funding for campsite management is not available, effective volunteer stewardship can be a viable alternative, based on the experience of other water trails around the country.¹⁹ Developing a model for appropriate location, design and management of overnight campsites based on "Leave no Trace"²⁰ will be necessary to ensure that costs and environmental impacts associated with camping are minimized.

Other opportunities for improving overnight accommodation include hostels, hotels, motels, houseboats and bed and breakfast accommodations. Some waterfront parks currently have hostels while others have plans to construct them. If indoor overnight accommodations such as hostels or small hotels are clearly incidental to and do not conflict with the primary recreational uses of a park, they can help meet the demand for multi-day overnight trips for human powered craft.

Compatibility and Disturbance. The Commission has grappled with the compatibility of human recreation with wildlife protection since its inception. Chapter 6 on Wildlife Refuges addresses recreation compatibility and disturbance issues more comprehensively, but a discussion of the potential impacts of non-motorized small boating is warranted here. On-water recreation presents unique challenges with regard to compatibility and wildlife disturbance. Because many of the human-powered craft can reach habitat areas that are inaccessible from land, or by other water craft, the potential for these activities to impact wildlife may be significant. Disturbance of foraging, resting or nesting wildlife can have serious negative consequences for the wildlife. "Nesting seabirds and shorebirds...pupping harbor seals and sea lions and other pinnipeds are sensitive to human disturbance and may abandon their nests or pups,"²¹ and thus can be particularly sensitive to disturbance.

The literature on boating impacts on water birds and shore birds is not extensive, but accumulating in recent years. These studies, conducted in a variety of widely dispersed geographical areas indicate that motorized and non-motorized boating introduce a potential source of disturbance to water birds and other aquatic animals, and can have adverse impacts

¹⁹ The Maine Island Trail Association (MITA) monitors use of campsites on islands with fragile habitat, conducts annual clean ups of the trail and campsites, provides volunteer stewards to inform visitors of proper trail use, and publishes the "Stewardship Handbook and Guidebook that informs users about the proper use of the trail, and provides detailed route information.

²⁰ Leave No Trace" practices are techniques that visitors can use to help reduce their impacts on the land, and to lessen the sight and sound of their visit. Leave No Trace, Inc. is a non-profit organization dedicated to establishing a nationwide code of outdoor ethics by which to shape a sustainable future for natural lands.

²¹ Watson, Tom, *Viewing Birds & Other Wildlife* on website paddling.net at: <http://www.paddling.net/guidelines/showArticle.html?167#author> visited November 2, 2005

on wildlife. California State Parks is amidst the second year of a three-year study assessing the impacts of kayaks on rafting water birds in an enclosed water basin in the East Shore State Park in Berkeley. Although there are no conclusive results from the study at this point, the researchers report that the level of disturbance to waterfowl from watercraft appears to be highly dependent on the configuration of the water body, flock size, and time of year. Without considering other potential effects, some preliminary conclusions are that larger water bodies may have fewer disturbance episodes; larger flocks, are more likely to flush than smaller ones; and, flushing is more pronounced when disturbance occurs closer in time to migratory periods.²²

More research is needed to inform management decisions, but wildlife disturbance from incompatible on-water recreation activities can be avoided or minimized through education and management. Education can take the form of on-site, non-verbal messages on signs and in brochures, on-site verbal messages delivered by staff or volunteer docents and proactive education, both verbal and non-verbal intended to reach participants in locations other than launch sites. Management can include closing areas to access, deploying rangers to ensure compliance and mete out sanctions, such as fines or imprisonment for causing a disturbance. These and other strategies will be necessary to ensure that those pursuing on water recreation have the information they need to recreate in a manner that avoids impacts, and for those who choose to ignore the information, appropriate sanctions to ensure that they do not repeatedly disturb wildlife.

Navigational Safety and Security. Non-motorized recreation on San Francisco Bay is not without risk. Strong winds, waves and tidal currents, cold water, fog, dense vessel traffic and security exclusion zones are all important considerations for enthusiasts as well as for locating, improving and managing facilities catering to non-motorized craft. The Bay is the fifth busiest harbor in the U.S. and is home to seven ports with 58 marine terminals accounting for over 11,000 vessel trips per month. In addition to the 85,000 powerboats and sailboats on the bay, there are ferries, fishing boats, construction and dredging barges and a host of non-motorized craft.

The U.S. Coast Guard's Vessel Transit Service (VTS) provides timely and accurate information to mariners to promote navigational safety. They gather and distribute information around the clock and broadcast it over channel 14 on VHF radio. Each year, there are over 1,000 organized marine events permitted by the VTS on the Bay. Large ships must stay in shipping channels to avoid running aground, and have very long stopping and turning distances. The

²² Personal Conversations with Jules Evens, Avocet Research Associates. January 18-20, 2006.

Coast Guard's Rule 9 prohibits smaller vessels from impeding the right of way of these large vessels. Federal regulations require that small craft stay at least 100 yards from deep draft ships on the Bay and identify security exclusion zones near marine terminals and military facilities with even greater exclusion distances. With the advent of the water trail, the promulgation of security exclusion zone regulations and the potential increase of ship and ferry traffic on the Bay, it is important to supplement the navigational safety signage requirements in the Bay Plan with educational efforts that promote navigational safety and security.

Education and Stewardship. Tourists, beginners and others who do not have local knowledge of the hazards of navigating on San Francisco Bay, or of the wildlife and habitat values present here need orientation for a safe, responsible experience. Most on-water recreationists need to be educated about the potential for their activity to damage habitat and disturb wildlife and how to avoid these impacts, such as informing them of flushing distances of mammals or birds that are likely to be encountered, or identifying areas that are off limits. Those unfamiliar with the winds, tides, currents, fog and vessel traffic are particularly at risk unless they are properly educated to deal with these challenges. The U.S. Coast Guard and its Vessel Transit Service, the National Oceanic and Atmospheric Administration, the San Francisco Bar Pilots, the Water Transit Authority and other agencies develop and disseminate public information regarding safe navigation on the Bay. Small craft navigators seldom seek out this public information and funding for educational programs are limited; therefore, other methods of informing the public must be pursued to address this concern. Information on the disturbance of wildlife is limited, but resource agencies, the scientific literature and local experts are the best information sources for addressing this issue. There is a need to develop successful, succinct curricula that can convey the important information quickly to beginners and visitors to protect wildlife, and more in depth information for classes to instill in regular participants a stewardship ethic and awareness of safe navigation practices.

Currently, for-profit and non-profit equipment sales and rental shops and nonprofit advocacy groups provide the majority of the information to beginners and visitors seeking first-time on-water recreation experiences. This education focuses primarily on safety and self-protection, but almost all teachers provide some basic information about stewardship. There is general agreement among these service providers that more could be done, but all recognize that people renting equipment have limited patience for education, and a strong desire to get out on the water. For one-time renters, the teaching opportunity is very limited. For those seeking to learn a new activity and sign up for classes, the teaching opportunities are much greater. Strategically located signage with clear, understandable messages covering safety and stewardship topics can provide bountiful information that reaches the majority of the public.

Volunteer docents or stewards can also disseminate safety information and guidance about how to avoid impacts on nearby wildlife. A guidebook and folding waterproof maps for the Bay Area Water Trail could include Leave No Trace practices and guidelines.

Studies have shown that the effectiveness of signage can be limited as a tool for changing behavior. These studies indicate that signage placed closest to the location where one wants participants to change their behavior is most effective. For example, buoys located near a haul out site indicating it is an area closed to navigation is much more effective than signage including a map at the launch site indicating that the haul out and water around it is off limits. Therefore, signage that is posted to educate paddlers and sailors about navigational safety and wildlife disturbance needs to be well designed and strategically placed to have the greatest effect.

In addition to the education provided by retail and rental shops, certain volunteer and advocacy organizations educate boaters about safety and stewardship. The Bay Area Sea Kayakers, with a membership of about 800, published a brief booklet on kayaking safety and offers skills building workshops to teach more advance boating and safety skills. Other groups providing similar training include the Western Sea Kayakers located in the south Bay. A point of sale video distributed by retailers could expand the dissemination of this important information.

TeamOCEAN (Ocean Conservation Education Action Network), is a grassroots, seasonal field program that puts knowledgeable naturalists out on the water in kayaks in the Monterey Bay National Marine Sanctuary to greet and interact with fellow day kayakers. These environmental docents promote respectful wildlife viewing and protect marine mammals from disturbance.²³ A similar program in the Bay could supplement current educational efforts.

Swimming Beaches and Water Quality. Swimming remains a popular form of recreation in the Bay, despite the cold water temperatures. In addition to several annual swim events, such as the annual "Escape from Alcatraz" swim to San Francisco and several triathlons, swimming at Aquatic Park in San Francisco and in other parts of the Bay is a daily activity for many. Although the water is cold, Bay Area residents visiting public beaches frequently frolic in the water.

Degraded Bay water quality is a health hazard for swimmers and others who recreate in the Bay. In the absence of effective measures to protect water quality, programs that inform the public of degraded water quality at popular beaches can prevent negative health impacts by

²³ Masters, Ryan, Monterey County Weekly, "Paddling Preachers Team Ocean Volunteers Act As Sanctuary Missionaries in Kayaks" June 9, 2005

discouraging contact with contaminated water. Public concern about water quality at recreational sites, particularly beaches, led to the passage of AB 1876 in 2005. The "Healthy Bay Beaches" bill requires regular and consistent monitoring from April through October at the most heavily used Bay beaches, e.g., those with 50,000 or more annual visitors, or if a beach is located on an area adjacent to a storm drain that flows in the summer. This extends a water quality testing requirement to Bay Area beaches that has been in place for ocean beaches for some time.

Save the Bay reports that there are more than 50 beaches and recreational areas along the Bay shoreline. According to Heal the Bay, another non-profit advocacy group, dry weather water quality at San Francisco beaches for the 2004-2005 rain year was fair. "The locations with the poorest dry-weather water quality were seen at Aquatic Park Beach, Crissy Field Beach and Baker Beach at Lobos Creek. Much like every other coastal county, wet weather water quality for San Francisco beaches were poor. Baker Beach East and China Beach at the end of Sea Cliff Avenue were among the few California beaches to exhibit very good water quality year round despite weather conditions. There were approximately 59 combined sewer overflows this past year that closed portions of San Francisco beaches. This was 20 more than the prior year. However, the increase in the number of spills was due in large part to the tremendous amount of rainfall experienced by California during the '04-'05 winter season. For example, 100% of the overflows took place between October and February. The two areas not impacted heavily by combined sewer overflows were Candlestick Point region, with only 3 closures, and Aquatic Park Beach/Crissy Field Beach with zero. Summer dry weather water quality at most beaches in Marin County was excellent."²⁴

The implementation of the AB 1876 monitoring requirement in the Bay is contingent upon available state funding for county health departments responsible for monitoring. Currently, the state funds \$1 million annually for monitoring at coastal beaches, mostly in Southern California. The next three-year cycle for appropriations begins in the 2007 fiscal year.

Bay Plan recreation policy 4-f currently includes a recommendation that "[s]ome new beaches could be planned adjacent to power plants or other industrial plants that warm the nearby waters as they discharge heated water that has been used to cool industrial machinery." At the time the Bay Plan was drafted, it was expected that substantial water-related industry would be constructed along the shoreline of the Bay and that power generating plants supporting these industries would be needed as well, and that Bay waters would be relied on to cool these plants.

²⁴ Heal The Bay, website: <http://www.healthebay.org/>

In 1986, the Commission obtained a report from its consultant and staff that indicated that the potential for new water-related industry on the Bay shoreline was very limited.²⁵ Moreover, in 2001, the Commission adopted its "Siting Thermal Power Plants" study, which recommended, in part, that power plants no longer require shoreline locations, except in certain cases and that in most cases, there are feasible alternatives to once-through cooling.²⁶ Based on these conclusions, and concerns about water quality for swimmers, it is imprudent for the Bay Plan to advocate for locating swimming beaches near cooling water outfall pipes.

Health Advisories for Anglers. The water quality and health of the San Francisco Bay is affected by past and present activities that have occurred in watersheds that drain into the Bay, by in-Bay disposal of wastes from municipal and industrial sources and by the atmospheric deposition of air pollutants. Activities within the Bay, such as filling, dredging, recreational and commercial boating and shipping, wetland restoration, the restoration of tidal action to diked areas, can also affect water quality conditions in the Bay. The primary focus of water quality protection programs has been on preventing additional contaminants from entering the Bay. Elimination of certain chemicals, use of best management practices to limit runoff into the Bay and other pollution prevention techniques have reduced the number and amount of harmful substances that enter the Bay. In spite of the success of a number of these programs in reducing the harmful pollutants that enter the Bay, Bay water and sediment quality remains impaired. As a result, some Bay species contain dangerous levels of contaminants that impede successful breeding and the recovery of healthy population numbers, therefore, fish consumption limits are necessary to protect public health..

The most challenging contaminants to address are those that persist in the environment, such as mercury, polychlorinated biphenyls (PCBs), organochlorine insecticides (DDT, chlordane, dieldrin), dioxins, selenium and a possible persistent contaminant-polybrominated diphenyl ethers (PBDEs). These contaminants are:

- slow to degrade;
- toxic to humans and other species;
- found in many Bay species in concentrations high enough to threaten individual and population health and reproduction;
- are often a result of past activities;

²⁵ QED Research, Inc. and the BCDC staff, "An Analysis of the Economic Demand for Land to Support the Needs of Water Related Industry around the San Francisco Bay. October 1986, San Francisco.

²⁶ *Siting Thermal Power Plants in the Jurisdiction of the San Francisco Bay Conservation and Development Commission.* December 5, 2002, BCDC Staff

- biomagnify (increase in concentration) as they move up the food chain,
- reduce the uses for and health of the Bay; and
- are often found buried in Bay sediments rather than in the water column.

Although it is important to reduce the amount of persistent toxins that enter the Bay, this approach alone fails to address the contaminants that are already in the Bay and its sediments. Since much of these contaminants are most often a result of past activities and practices, they are commonly referred to as "legacy contaminants".

High levels of mercury can be found in the San Francisco Bay. While mercury in its inorganic form is essentially harmless to humans and other species, mercury in its organic form, known as methylmercury, poses a serious health threat to humans and ecosystems of certain estuaries. When ingested, mercury in its inorganic form passes through a body quickly. In contrast, methylmercury stays in an organism for long periods and accumulates in muscle tissues. As a result, techniques such as removing fish skins or cooking out fats that are used to eliminate other types of pollutants are not effective for reducing methylmercury exposure. Methylmercury not only stays in a body longer, it also biomagnifies with each step up the food chain. When plankton take mercury in, mercury levels in the plankton increase 10,000 fold over that of the source water. From that point, each step up the food chain results in a three-fold increase of mercury levels. Once ingested, mercury has impacts on the immune system and is a neurotoxin even at low levels. Mercury has also been identified as a reason for low hatch rates among certain birds. Embryos are five to ten times more sensitive than adults to the effects, which are similar across species. The Center for Disease Control and Prevention found that 1 in 12 women of child-bearing age have been exposed to dangerous levels of mercury. More than 60,000 children in the US are born with dangerously high levels of mercury in their tissues. A recent study found that approximately 170,000 people a year around the Bay Area eat fish they caught in the Bay. The consumption of fish is the primary pathway for bird, fish and mammal exposure to mercury.

When PCBs become available in the active sediment layer they are taken up by small organisms and fish. PCBs are highly fat soluble and collect in the fatty tissues of the organisms and are passed along to each animal in the food chain, biomagnifying along the way. As with mercury, PCBs remain in organisms for long periods and can reach levels in fish and mammals that are thousands of times greater than those found in the source water. Human exposure to PCBs can occur from using old electrical devices and appliances, breathing air near hazardous waste sites and drinking contaminated well water and through work or accidents involving PCBs transformers. However, human exposure occurs predominantly through diet from eating

fish and other aquatic organisms. People with the highest levels of PCBs are commonly recreational or subsistence anglers and hunters who eat large amounts of locally caught fish and meat and organ tissues of marine mammals.

Dichloro-diphenyl-trichloroethane (DDT), dieldrin, and chlordane are all organochlorine insecticides. While most have been banned for several decades, these insecticides were once widely used in agricultural and residential settings. Like mercury and PCBs, many organochlorine insecticides take decades to degrade and readily accumulate and biomagnify in aquatic food webs. Like PCBs, these pesticides also accumulate to fatty tissues in organisms. Since most of these insecticides have been banned for decades, the primary sources to the Bay are likely occurring from the continuing transport of soils and sediments from agricultural and urban areas where they were once used and from the re-suspension of contaminated Bay sediments. Many organochlorine insecticides have negative effects on health and the environment, including birth defects, probable human carcinogen, toxicity to wildlife and affects on neurological and reproductive systems. Like mercury and PCBs, human exposure comes primarily from eating foods that are contaminated with these pesticides. Reducing human exposure includes consumption and preparation guidelines for certain species of fish and aquatic organisms caught in the Bay. By removing the skin of contaminated fish, exposure to the pesticide can be reduced by approximately 30 to 35 percent.

Although preventing, reducing and cleaning up contamination would be the optimal solution to the vexing problem of persistent or on-going pollution in the Bay, this is beyond the scope of the Bay Plan recreation policies. Fish consumption advisories can be an effective tool in a broader suite of management responses to this threat to public health. It is important to note that the effectiveness of fish advisories is limited, in part because those consuming contaminated fish may not have access to food sources of equal nutritional value, or may prefer to eat fish due to long-standing traditions.

The California Office of Environmental Health Hazard Assessment (OEHHA) has issued general guidelines for fish consumption and specific advice for a number of water bodies in California where chemical contamination in fish poses a health concern. OEHHA's site-specific guidance, consumption advice is given in terms of meals for a given period such as a meal a week. For San Francisco Bay, OEHHA has issued an interim advisory. A final advisory will be issued when data collected have been completely evaluated. These advisories have been prepared in English, Spanish, Cambodian, Chinese, Korean and Vietnamese languages, and have been posted at some locations in San Francisco Bay. By requiring that fish advisories be posted at fishing piers and other recreational facilities where anglers are likely to catch contaminated fish, the Commission can play an important role in promoting public health.

CHAPTER 5

HISTORIC BUILDINGS IN WATERFRONT PARKS AND WILDLIFE REFUGES

In Bay Plan Amendment No. 1-02 (BPA 1-02), the Commission established new policies that applied only in former Bayfront military installations designated for waterfront park priority use. The policies were intended to allow non-park uses in historic buildings and in areas remote from the shoreline, in order to preserve historic resources, provide revenue for land managers to assist in providing recreational benefits, and for other important public purposes. The policies were also intended to ensure that historic resources were preserved and that non-traditional park uses were developed in way that preserved the park like character of these sites.

At that time, the Commission found that "many former Bayfront military installations are located on the Bay shoreline and contain beautiful historic structures and landscapes, vista points and other features that provide exceptional opportunities for compatible water-oriented recreation" and that these sites... "include substantial improvements and numerous buildings that have significant potential for *appropriate and compatible* reuse as public recreational facilities. Most have historic structures or historic landscapes that can be preserved and their contribution to the Bay Area's history and the role of the military can be interpreted for park visitors."

BPA 1-02 also made some changes to the general policies that applied to waterfront parks to address issues that had arisen from the analysis of the recreation potential of the military base sites. The analysis did not explore whether the policy allowing non-park uses in historic buildings and encouraging historic preservation could apply more broadly to all parks designated for waterfront park use or in wildlife refuges. As a result of the staff's current analysis, it is clear that this policy should be extended to cover all parks designated for waterfront park use and wildlife refuges as defined in the Bay Plan.

Several waterfront parks designated in the Bay Plan for park priority use have historic buildings that contribute to the history of the region, and could, under the right circumstances, be improved or restored for uses not typically found in parks, without compromising the recreational values of the park. For example China Camp State Park has several historic structures related to the Chinese shrimping industry and Angel Island State Park has several important military and immigration service buildings that have been preserved. East Brother's Island has an historic light house being used as a bed and breakfast inn and Mountain View Shoreline Park houses the Rengstorff House, a 19th century Victorian that can be rented for weddings and other functions.

Some of the waterfront parks proposed for designation in this Bay Plan amendment house historic structures that can be reused for recreational or other uses, while contributing to the overall recreational values at the site. The Carquinez Strait regional shoreline includes wharves that were used during the 19th century for wheat and hay export and small ancillary structures with historical significance. Point Pinole Regional Shoreline includes ruins from the historic munitions and explosives manufacturing operations there and Miller Knox Regional Shoreline includes the Ferry Point Pier, an historic ferry landing with important historical transportation structures. At the Bay Bridge touch down in the proposed East Bay Gateway Park, the historic Key Route System building represents a great opportunity for creative reuse that could include some non-traditional park use.

Wildlife refuges, as defined in the Bay Plan include State Wildlife Areas, Ecological Reserves and federal wildlife refuges. Many of these wildlife refuges have historic structures that can be preserved and interpreted as part of wildlife-compatible recreation program. In the Eden Landing Ecological Reserve, considerable remnants of historic salt works are proposed for preservation and interpretation as part of the South Bay Salt Pond Restoration Project. Similarly, the town of Drawbridge on the Don Edwards San Francisco Bay National Wildlife refuge has been accessible for guided tours led by refuge staff for many years.

Clearly, there is a variety of historic structures located in waterfront parks throughout the region and, like historic buildings on former military bases, these buildings are extremely important to the region's history. Typically, restoring these buildings consistent with the Secretary of the Interior's standards for any use is extremely expensive. Often the cost of rehabilitation requires that the use of the building generate sufficient revenue to offset the rehabilitation costs, or the land manager will be unable to rehabilitate and reuse the structure for any purpose. In some cases, only non-traditional park uses are able to generate the income needed to offset these costs. Since preservation of these historic buildings in parks is an important public purpose, land managers need some flexibility regarding the types of uses allowed, if they are to successfully rehabilitate historic structures. And since many parks, including those that were not formerly military installations have historic buildings; it is appropriate to extend application of this policy to all parks.

CHAPTER 6

RECREATION IN WILDLIFE REFUGES, ECOLOGICAL RESERVES, WILDLIFE AREAS AND HABITAT AREAS IN WATERFRONT PARKS

As the popularity of viewing and photographing wildlife, volunteer restoration and environmental education grow, visitation to wildlife refuges for recreational purposes will continue to increase. Land managers must reconcile their sometimes competing missions of conserving wildlife and their habitats and providing compatible wildlife-dependent recreation. Wildlife refuges are places where wildlife is protected or sheltered from danger or harm, except during hunting season. There are over 100,000 acres of wildlife refuges, wildlife areas and ecological reserves within or adjacent to the Commission's jurisdiction that are managed by the U.S. Fish and Wildlife Service or the California Department of Fish and Game. Although the primary purpose of these lands is the conservation of wildlife and their habitat, providing opportunities for wildlife compatible recreational activities is an important part of the wildlife refuge manager's mission.

In addition to wildlife refuges, wildlife areas and ecological preserves, many of the existing and proposed waterfront parks designated in the Bay Plan contain important wetland and upland habitats, including lands that are managed for endangered animal and plant species. The Bay Plan designates 18,000 acres of land area for waterfront parks that are adjoined by 4,000 acres of wetlands (about 6.25 square miles). These wetlands and many acres of upland habitats in waterfront parks contribute significantly to the region's wildlife habitats by providing important foraging, breeding and resting areas, as well as corridors connecting to other habitat areas. These areas also represent limited recreational opportunities, provided that recreational activities do not have significant adverse effects on wildlife, their habitats or endangered plants.

Wildlife Refuges. The U.S. Fish and Wildlife Service operates its refuges under the National Wildlife Refuge System Improvement Act of 1997, which states that the "mission of the System [of refuges] is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."¹ Section 5 of this law states that "compatible wildlife-dependent recreation is a legitimate and appropriate general public use of the System, directly related to the mission of the System and the purposes of many refuges, and which generally fosters refuge management

¹ Public Law 105-57—Oct. 9, 1997 U.S.C. 16 §668 National Wildlife Refuge System Improvement Act of 1997, §4(a)(2).

and through which the American public can develop an appreciation for fish and wildlife..."² The Act also provides for certain priority wildlife-dependent recreational uses, including hunting, fishing wildlife observation and photography, and environmental education and interpretation. When these activities are compatible with the species protection goals (as determined by the Service), they are welcome on refuges and are prioritized over other uses.

The U.S. Fish and Wildlife Service manages three National Wildlife Refuges in San Francisco Bay that are part of a complex of six federal Bay Area wildlife refuges. The Don Edwards San Francisco Bay National Wildlife Refuge, the first urban National Wildlife Refuge established in the United States, is dedicated to preserving and enhancing wildlife habitat, protecting migratory birds, protecting threatened and endangered species, and providing opportunities for wildlife-oriented recreation and nature study for the surrounding communities. As of 2004, the Refuge spans 30,000 acres of open bay, salt pond, salt marsh, mudflat, upland and vernal pool habitats located throughout southern San Francisco Bay. As a "wildlife island in an urban sea," refuge managers and biologists work hard to balance different land use practices - habitat and wildlife conservation, public recreation, and commercial salt production - so that both the Refuge and the community benefit. Today, hundreds of thousands of people visit the Refuge each year to enjoy its diverse wildlife and habitats,³

San Pablo Bay National Wildlife refuge conserves 13,190 acres of wildlife habitat, including uplands, open bay, salt marshes and mud flats, freshwater wetlands, and agricultural lands that are being restored to wetlands. The San Pablo Bay Refuge is accessible by motor vehicle and foot mostly over gentle terrain. At Tolay Creek, several miles of foot trails meander through brackish marsh, open water, pickleweed marsh and adjacent hay fields and other Refuge habitats near Sonoma Creek and the Petaluma River. Boating is another excellent way to view wildlife at the refuge. Current visitor activities in the Refuge include bird watching, limited seasonal hunting, fishing, hiking, and photography.

The 340-acre Marin Islands Refuge consists of two small islands off the Marin County shoreline. The Refuge supports one of the largest heron and egret colonies in northern California. The primary purpose of the Refuge is to protect an important existing egret and heron rookery on West Marin Island and to increase colonial nesting bird use on East Marin Islands. The site is owned in part by the U.S. Fish and Wildlife Service, the California State Lands Commission and the California Department of Fish and Game, and is managed under an MOU by the U.S. Fish and Wildlife Service. Although no authorized access onto the islands is

² Ibid, §5(b)

³ The 30,000 acres managed by the refuge includes lands leased from State Lands, all of Bair Island including about 1,200 acres Fish and Game land managed under an MOU and the lands that Cargill still retains the right to make salt on. (Source, Clyde Morris, Refuge Manager, Don Edwards San Francisco Bay National Wildlife Refuge, email, January 3, 2006)

available due to concerns about safety and disturbance to the rookery, sea kayaking, fishing, and wildlife observation is permitted in the waters around the islands from a safe distance. Environmental education on the Refuge/Reserve will be available through interpretive materials and guided tours in the future and by information provided through the new San Pablo Bay National Wildlife Refuge Headquarters at Sears Point in Sonoma County.

Wildlife Areas and Ecological Reserves. The California Department of Fish and Game (Fish and Game) owns and manages over 50,000 acres of wildlife areas and ecological reserves in and around San Francisco Bay, which include subtidal, tidal marsh, tidal flats, former salt ponds, and upland habitats. Ecological Reserves are intended to "provide protection for rare, threatened or endangered native plants, wildlife, aquatic organisms and specialized terrestrial or aquatic habitat types."⁴ Public entry and use of ecological reserves must be compatible with the primary purpose of the reserve.⁵ "The department may construct facilities and conduct programs in ecological reserves it selects to provide natural history education and recreation if those facilities and programs are compatible with the protection of the biological resources of the reserve."⁶ Ecological reserves in or near the Bay include Albany Mudflats Ecological Reserve, Bair Island Ecological Reserve, Corte Madera Marsh Ecological Reserve, Eden Landing Ecological Reserve, Fagan Marsh Ecological Reserve, Marin Islands Ecological Reserve, Peytonia Slough Ecological Reserve, and Redwood Shores Ecological Reserve.⁷

State wildlife areas are established for the purposes of "propagating, feeding and protecting birds, mammals and fish, and establishing wildlife management areas or public shooting grounds...Multiple recreational use of wildlife management areas is desirable and that use shall be encouraged..."⁸ Hunting and trapping are allowed on state wildlife areas during regular open seasons, and as specified by the regional manager of the area. State wildlife areas on or near the Bay include Grizzly Island Wildlife Area, Hill Slough Wildlife Area, Napa-Sonoma Marsh Wildlife Area, Petaluma Marsh Wildlife Area, Point Edith Wildlife Area, and San Pablo Bay Wildlife Area. In addition, there are three other Fish and Game properties around the Bay that do not fall into any distinct management category. These are Gallinas Creek, Oro Loma Marsh and New Chicago Marsh.⁹

⁴ 14 CA Code of Regs, 630.

⁵ 14 CA Code of Regs, 630.

⁶ CA Fish and Game Code, Chapter 5, §1585

⁷ BCDC, *San Francisco Bay Ecology and Related Habitats* July 2002, P. 159

⁸ State Interagency Marine Managed Areas Workgroup, 2000. P. B-23 from CDC, *San Francisco Bay Ecology and Related Habitats* July 2002 P. 159

⁹ BCDC, *San Francisco Bay Ecology and Related Habitats* July 2002, P. 159-160

Waterfront Parks. Waterfront parks with significant wildlife habitats are located throughout the entire Bay. In the South Bay, Sunnyvale Baylands Park, Mountain View Shoreline Park, Palo Alto Baylands Nature Preserve, Alviso County Park and Coyote Hills Regional Shoreline Park include substantial tidal and seasonal wetland areas, including endangered species habitats. In the Central Bay, Hayward Regional Shoreline Park, East Shore State Park, and Martin Luther King, Jr. Regional Shoreline Park also include substantial wetland areas and endangered species habitats. Similarly in the North Bay, China Camp State Park, Benicia State Recreation Area, and Point Pinole Regional Shoreline Park include important wetland habitat areas. In many waterfront parks, managers are restoring or enhancing habitats for Bay species.

In addition to conserving habitats and wildlife and providing recreational opportunities, waterfront parks can serve as gateways to wildlife refuges, wildlife areas and ecological reserves. Waterfront parks can provide staging areas, education and in other ways support wildlife compatible recreational use of wild lands. The Hayward Shoreline Interpretive Center is planned to serve as a staging and educational portal to the Eden Landing Ecological Reserve. Sunnyvale Baylands Park, Menlo Park Bayfront Park, Shoreline Park at Mountain View, Coyote Hills Regional Park and Alviso County Park are some of the local and regional parks that already serve or will serve as gateways to the Don Edwards San Francisco Bay National Wildlife Refuge. Similarly, in the North Bay, China Camp State Park and McInnis County Park provide access to the San Pablo Bay Wildlife Area.

The interface between waterfront parks and wildlife refuges represents a significant opportunity to support the wildlife conservation and recreation missions of refuge managers. Since much of the wildlife refuge land areas are tidal or managed wetlands, most access is limited to levee-top trails. Also, refuge managers lack funding for construction or maintenance of recreational facilities or for managing substantial education and stewardship programming. Waterfront parks can supplement the limited recreation provision capability of wild land managers by providing staging, education and buffers between developed areas and the wild lands. By absorbing active recreational uses, waterfront parks enable the Bayside wildlife refuges to be more easily managed as the urban wilderness that was part of the original vision for these areas.

Recreation in Wildlife Refuges, Wildlife Areas and Ecological Reserves. Wildlife refuges, wildlife areas and ecological reserves adjoining the San Francisco Bay currently provide substantial recreational opportunities. The Don Edwards San Francisco Bay National Wildlife Refuge has approximately 650,000 visitors per year.¹⁰ The Refuge includes a visitor's center and

¹⁰ Personal Conversation with Clyde Morris, Refuge Manager, Don Edwards San Francisco Bay National Wildlife Refuge, January 4, 2006

an environmental education center, both providing extensive environmental education, interpretive programs and volunteer opportunities. The Refuge is crisscrossed by miles of hiking trails and provides opportunities for hunting, fishing and boating. Waterfowl hunting season extends from approximately mid-October to mid-January. During the season, hunting is permitted daily from one half-hour before sunrise until sunset.

Wildlife refuges are not parks and many activities commonly pursued in parks, such as off-leash dog walking or mountain bike riding are not appropriate in a wildlife refuge. The level and type of activity supported is determined, in part, by the extent and nature of facilities provided. At the Don Edwards Refuge, the staff prefers to provide very limited facilities to limit support for inappropriate recreational activities and to reduce capital and maintenance costs.

Potential habitat and recreational opportunities at the Refuge have expanded dramatically with the advent of the South Bay Salt Pond restoration project. The purchase of the Cargill salt ponds expanded the refuge by adding the Alviso and Ravenswood complexes, which contain 9,615 acres of former salt ponds with a mix of other habitats surrounding the ponds, including salt marsh. The restoration project mission is to "restore and enhance a mix of wetland habitats; provide for flood management; and provide public access and recreational opportunities compatible with wildlife and habitat goals."¹¹ The restoration project planning process has developed preliminary project alternatives and phase 1 project alternatives that propose to:

Provide segments of the Bay Trail Spine and other trail connections to link the South Bay with the surrounding region. Coordinate the development and management of new facilities and associated infrastructure within the project area and allow for visual and physical connections to adjacent open space and parks. Provide wildlife-oriented public access opportunities to foster environmental education, interpretation and stewardship. Provide education and/or public access opportunities relative to important South Bay historical and cultural landscape features. Restore recreational boating opportunities.¹²

¹¹ California Coastal Conservancy, U.S. Fish and Wildlife Service, California Department of Fish and Game South Bay Salt Pond Long-Term Restoration Project Mission, Goals, Guiding Principles and Objectives, February 19, 2004

¹² California Coastal Conservancy, U.S. Fish and Wildlife Service, California Department of Fish and Game South Bay Salt Pond Long-Term Restoration Project, Initial Opportunities and Constraints Summary Report, July 2004, prepared by Phillip Williams & Associates, Ltd, et al. Ps. 25-26

The following constraints have been identified for public access and recreation as part of the South Bay Salt Pond Restoration Project:

*Biological goals and associated factors may limit the ability to provide public access and recreation. Landowner and managing agencies (CDFG and USFWS) have limitations related to staffing, public access, recreation management and enforcement. Physical barriers such as water control structures and existing infrastructure may inhibit the ability to provide public access or recreation in a given area.*¹³

The South Bay Salt Pond Restoration Project also expanded the Eden Landing Ecological Reserve, adding 5,450 acres of salt pond and associated fringe habitats to the 835 acres already being restored to tidal action. Currently, the only recreational use of these areas is a limited hunting season administered by lottery. Access for hunting during the 2005-2006 season will occur on four weekends and two weekdays. Fifty permits are drawn for each of these one-day hunts and each permit is good for two hunters.¹⁴ Opportunities for expanding non-consumptive recreational activities at Eden Landing are much the same as for the Don Edwards San Francisco Bay National Wildlife Refuge. The projects are being planned and implemented together.

In its permit authorizing habitat restoration work at the Napa Sonoma Marshes Wildlife Area, the Commission found that "multiple users, including bicyclists, hikers, anglers and duck hunters visit the project area and surrounding area....While the area is open to the public, access is limited because of the lack of all weather trails....and...Ponds 2, 2A, 3, 4 and 5 are on islands and are inaccessible by land...Restoration activities...will increase the recreational potential of the site." The permit required the provision of improved trails, boat launches, parking and signage.

Grizzly Island Wildlife Area, Hill Slough Wildlife Area and the Peytonia Slough Ecological Reserve are located within the Suisun Marsh. These areas support endangered plant species and several endangered wildlife species, such as the California Clapper Rail, the Salt Marsh Harvest Mouse, the Black Rail, and the Suisun Shrew. Grizzly Island attracts nature lovers, hunters, anglers and others. The facilities provided include access roads, parking areas, restrooms, public phone, maps and literature, disabled access for nature viewing, angling, and waterfowl hunting. Self-guided hiking trails are being planned. Common recreational activities include

¹³ Ibid, Ps. 33-34

¹⁴ California Department of Fish and Game website: <http://www.dfg.ca.gov/news/news05/05060.html>, visited on January 10, 2006

nature viewing, hiking, photography, dog training, fishing, and hunting of waterfowl, dove, pheasant, tule elk, and rabbit. At Hill Slough Wildlife Area, recreational angling is the number one public use, with more than 10,000 annual anglers. There is no vehicle access, but several miles of levees are easily accessible on foot. Bird watching, hiking and sight seeing are other popular uses. An interpretive center and museum is planned. Because of its limited access, Recreational opportunities and activities at Peytonia Slough are confined to hunting, boating, fishing and wildlife viewing.

Recreational opportunities and activities at San Pablo Bay National Wildlife Refuge include hunting, fishing (from a boat only), environmental education, hiking, interpretation and wildlife observation and photography. There are no improvements for recreation on the Refuge, except a small parking lot, levee trails and some interpretive signage. Visitation is active in the fall and spring months as birders come to observe migrating birds. In January, the Refuge hosts the annual San Francisco Bay Flyway Festival. Hunting is allowed on a few limited parcels during the fall, winter and spring months in the Refuge.

The San Pablo Bay Wildlife Area includes 11,040 acres of mudflats and surrounding San Pablo Bay waters in Marin County, between the mouths of the Petaluma River and Gallinas Creek. This Wildlife Area is accessible by boat only via the Petaluma River and is used primarily for hunting and fishing, although wildlife observation and recreational boating are also allowed.

As these refuges, ecological reserves and wildlife areas expand and restoration projects are completed, opportunities for recreation in areas managed primarily for wildlife will increase. Increases in human recreation in Bay wild lands presents land managers with new challenges to fund and develop facilities to meet this demand, to reconcile public recreation demands with those of wildlife conservation, and to respond to the changing nature of recreation demand in wildlife refuges.

Trends in Consumptive and Non-Consumptive Recreation. Consumptive recreation includes hunting and fishing, which are traditional uses at wildlife refuges, wildlife areas and ecological reserves. Non-consumptive recreation includes uses such as bird watching, camping, environmental education, hiking, and photography. The 2001 National Survey of Fishing, Hunting and Wildlife Associated Recreation, prepared by the U.S. Departments of the Interior and Commerce showed that nationally, between 1991 and 2001, the number of hunters decreased by 7 percent and the number of anglers decreased by 3 percent. The percent of the 2001 U.S. population over 16 that are anglers declined from 19 percent to 16 percent and hunters

declined from 7 percent to 6 percent. In the Pacific region (California, Oregon, Washington, Nevada, Alaska and Hawaii), the percent of the adult population who hunted was only 2 percent in 2001, considerably less than the national rate of 6 percent.¹⁵ Factors that contribute to declines in hunting and fishing include urbanization and difficulty in gaining access to hunting and fishing sites.

*"While states around the West have seen a drop in the number of hunters, no state has had a plunge like California, despite enormous population growth. Between 1991 and 2001, the number of hunters dropped 39 percent, from 446,000 to 274,000, according to the census. Tracing hunting licenses over a lengthier period shows a bigger decline. California license sales fell from 690,790 in 1970 to 248,190 in 2004. The state grew by about 16 million people during that period."*¹⁶

Between 1997 and 2001, the percentage of Californians who participated in wildlife viewing and nature study climbed from 54 percent to 75.1 percent, moving it from the 11th to the 8th most popular activity.¹⁷ As noted in Chapter 1, the National Survey on Recreation and the Environment showed that between 1982 and 2001, viewing and photographing birds grew by 231.4 percent with 72.9 million annual participants, or a growth of over 50 million participants.¹⁸ From 1997 to 2002, the percentage of Californians who hunted remained relatively flat, at 8.7 percent and 9 percent respectively, but the popularity rank of hunting fell from 38th place to 49th place overall relative to other activities.¹⁹

Volunteer stewardship is an emerging recreational activity that is a hybrid between work, exercise and recreation, providing a unique form of enrichment for peoples' unpaid work time. At the 2005 State of the Estuary Conference, four presenters described stewardship programs that coordinate volunteer efforts to restore wetlands, uplands and streams. Mendel Stewart, Director of the San Francisco Bay National Wildlife, said that in the Bay Area National Wildlife Refuge Complex, "volunteers are the equivalent of 19 full time staff people at a dollar value of \$470,000 annually. A Save the Bay representative reported that over the past five years, "30,000

¹⁵ 2001 National Survey of Fishing, Hunting and Wildlife Associated Recreation, U.S. Departments of Interior and Commerce, U.S.F.W.S. and the U.S. Census Bureau

¹⁶ Melley, Brian of the Associated Press in the San Diego Union-Tribune, February 7, 2005 "Interest in hunting plummets in West, especially California"

¹⁷ State Parks Public Opinions and Attitudes on Outdoor Recreation 1997 and 2002.

¹⁸ U.S.D.A. Forest Service, National Survey on Recreation and the Environment, 2004, Ken Cordell, Principal Investigator. Sagamore Publishing, Champagne, Illinois, P. 44

¹⁹ State Parks Public Opinions and Attitudes on Outdoor Recreation 1997 and 2002.

volunteers contributed over 150,000 hours to work on habitat restoration with her organization."²⁰ Much of this work is done in wildlife refuges, wildlife areas and ecological reserves. This trend exemplifies the strong Bay Area tradition of volunteerism. The volunteer Golden Gate National Recreation Area Habitat Restoration Team conducts regular habitat restoration/exotic vegetation removal projects throughout the GGNRA. Local chapters of the Audubon Society, and other non-profit organizations stage informative hikes and walks to identify birds, plants, to learn about natural processes, or historic or cultural information.

Disturbance, Compatibility and Conservation. Non-consumptive recreational activities are increasing in popularity and expanding in diversity, replacing some of the traditional consumptive uses on Bay Area wild lands. However, these non-consumptive recreational uses can have adverse effects on wildlife and land managers confront the challenge of balancing the sometimes competing missions of protecting and conserving wildlife, and providing wildlife compatible recreational opportunities.

Park and refuge management decisions can generally be directed towards one of two goals, recreational use or habitat and wildlife preservation. In many instances, visitor use of parks and refuges can be managed to avoid or minimize impacts to wildlife resources and to preserve or expand recreational experiences valued by visitors.²¹ However, in some cases, recreational uses may conflict with each other, or with the wildlife and habitat conservation mission of a particular site. Park providers and wildlife refuge managers interviewed noted that their mandate to conserve wildlife resources requires them to regularly assess and balance the compatibility of recreation with wildlife and habitat conservation.

The BCDC staff report entitled "*Public Access and Wildlife Compatibility*" completed in 2001 notes that "based on the studies available, there is clear evidence that [non-consumptive recreation] may have adverse effects on wildlife. Adverse effects on wildlife from human activities may include both direct (such as harassment or harvest) and indirect (such as habitat modification), and effects can be both immediate and long term. Immediate effects may include nest abandonment (which may increase the risk of predation of eggs or young), flushing and increased stress, which can lead to reduced feeding or site abandonment. Long-term effects may

²⁰ Owens Viani, Lisa, *Carol of Alarm Bells*, in *Estuary*, Vol. 14, No. 6 December 2005, P.5

²¹ Freemuth, John, *The National Parks: Political versus Professional Determinants of Policy*, in *Public Administration Review*, Vol. 49, No. 3 (May-June 1989) (278-286)

include decreased reproductive success, decreased population size within species, or decreased number of total species. As more scientific data are produced, managers can continue to expand and refine management strategies to avoid or minimize potential adverse effects from [human recreational activities].²²

The "limits of acceptable change" (LAC) can be a useful strategy for making management decisions to determine the appropriate balance between use and preservation.²³ LAC involves setting standards for acceptable physical, biological and social factors and monitoring to determine whether the standards are met or violated. The notion behind limits of acceptable change is that despite attempts to establish carrying capacities for individual areas or species, the great demand for public use of park and wild land areas will inevitably generate some degree of impact or change. Management limits are typically based on a desired future condition, and contain indicators to be monitored, require the formulation of monitoring techniques, and the development of specific management actions to ensure that established limits of acceptable changes are not exceeded.²⁴

LAC was originally developed for use in mountainous wilderness areas, but represents a useful construct for Bay Area park and wildlife refuge managers charged with balancing recreation and wildlife conservation. The scientific literature indicates that determining whether a particular regime of recreational activity has adverse impacts on resident and migratory wildlife requires a localized determination of the impacts.²⁵ For example, LAC can be used to determine flushing distances for avian species of concern, and boating and trail use can be managed to achieve minimization or avoidance of flushing by establishing buffers or through other management strategies.

LAC can also be used to assess social parameters. Setting standards and monitoring for the number of conflicts between kite sailors and windsurfers using the same equipment rigging area can be used to determine whether group sizes are too large, or new rules for sharing equipment rigging areas are needed to provide a quality experience at launching sites. For physical site characteristics, LAC can be used to assess the impacts of unauthorized "social" trails on important habitat areas to determine if areas should be closed to use, or new trails and fences constructed to focus use in a limited area.

²² BCDC Staff Report Public Access and Wildlife Compatibility, March 2001, P. 27

²³ McCool, Stephen F.; Cole, David N., comps. 1998. Proceedings—Limits of Acceptable Change and related planning processes: progress and future directions; 1997 May 20–22; Missoula, MT. Gen. Tech. Rep. INT-GTR-371. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

²⁴ *ibid*

²⁵ Rodgers, J.A., Jr. and S.T. Schwikert. 2003. Buffer zone distances to protect foraging and loafing water birds from disturbance by airboats in Florida. *Water birds* 26:437-443.

The South Bay Salt Pond Restoration Project will likely employ some form of LAC for managing the public access that is part of the project, however in this project, LAC is referred to adaptive management. The project managers will develop "restoration targets... for example, the percent of time specific shorebird species forage without human disturbance could be a behavioral restoration target applied throughout the study area." Performance measures will be used to "assess progress towards the restoration targets."²⁶ Management decisions, including potential revisions to the restoration targets for public access and wildlife interaction, can be informed by the information developed through this process.

The juried scientific literature on the impacts of recreation on wildlife provides limited guidance on effective management strategies. Reliable findings regarding flush distances is available, but additional research is being conducted and more is needed to expand our understanding of how to manage the interaction of recreation and wildlife. In addition to wildlife refuges, wildlife areas and ecological reserves, many waterfront parks have significant habitat and wildlife values. Some waterfront parklands are managed primarily for wildlife and habitat conservation, with human recreation as a subordinate or secondary consideration. Successful management of these lands requires an analysis of the compatibility of recreation and wildlife to determine the appropriate management approach to protect these resources.

The State Parks Department recently established new rules for recreation on State beaches because of concerns raised by the U.S. Fish and Wildlife Service about impacts to Snowy Plovers, an endangered species. "Objects such as hovering kites or Frisbees resemble predators, such as hawks, and may cause nest abandonment. Or, the continual presence of kites can lead some plovers to learn to "tune them out," and to, therefore, not be aware of natural predators, making them an unnaturally easy target. [Visitors] may be asked to move [their] activities to another part of the beach to avoid impacts on shorebirds."²⁷ Here in the Bay, the development of the San Francisco Bay Area Water Trail has raised concerns about increased disturbance from boaters to wildlife. Wildlife advocates want to ensure that on-water access points are "legitimized" with no "social trails" onto the Bay, especially in and near sensitive habitat areas. These examples demonstrate the need for an adaptive management framework, including monitoring and research to document the effects of recreation use so that managers can respond to changing conditions and provide visitors with sound guidance on allowable activities.

²⁶ Trulio, Lynne, *Science Synthesis for Issue 9: Understanding the Effects of Public Access and Recreation on Wildlife and their Habitats in the Restoration Project Area*, San Jose State University, Department of Environmental Studies May 15, 2005

²⁷ California State Parks Website http://www.parks.ca.gov/default.asp?page_id=22542, visited December 7, 2005.

Relevant Bay Plan Findings and Policies. The Bay Plan designates wildlife refuges, wildlife areas and ecological reserves that are in, or adjoin San Francisco Bay for wildlife priority use. Within these designated areas, the Commission cannot authorize non-wildlife oriented uses, such as residential or commercial uses. The Bay Plan does not include any findings or policies that address the recreational use of wildlife refuges, wildlife areas or ecological reserves. The Bay Plan recreation policies regarding waterfront parks state, in part, that "where open areas include ecological reserves, access via catwalk or other means should be provided for nature study, provided to the extent that such access does not excessively disturb the natural habitat." The Bay Plan does not include findings that guide its implementation of this policy, nor is it clear whether "open areas" includes only waterfront parks, or other wild lands.

Other Bay Plan recreation policies that address wildlife and recreation compatibility include:

"The Commission should also allow additional marinas, boat-launching lanes, and fishing piers elsewhere on the Bay, provided they... would not destroy valuable tidal marshes or tidal flats, and would not harm identified valuable fish and wildlife resources... Water-oriented recreational facilities, such as waterfront parks, marinas, fishing piers, boat launch facilities and beaches, should be sited, designed and managed to be compatible with and to prevent significant adverse effects on Bay resources."

The Bay Plan findings for public access state, in part, that "studies indicate that public access may have immediate effects on wildlife (including flushing, increased stress, interrupted foraging, or nest abandonment) and may result in adverse long-term population and species effects. Although some wildlife may adapt to human presence, not all species or individuals may adapt equally, and adaptation may leave some wildlife more vulnerable to harmful human interactions such as harassment or poaching. The type and severity of effects, if any, on wildlife depend on many factors, including physical site configuration, species present, and the nature of the human activity... Potential adverse effects on wildlife from public access may be avoided or minimized by siting, designing and managing public access to reduce or prevent adverse human and wildlife interactions"

Recreation in waterfront parks, wildlife refuges, wildlife areas or ecological reserves will continue to expand. Human recreation could have adverse effects on wildlife. Therefore, any recreational activities permitted in or adjacent to these important habitat areas should be compatible with wildlife and must be managed to protect wildlife and endangered plants and avoid significant adverse impacts to them and their habitats.