

March 21, 2006

**TO:** San Francisco Bay Area Water Trail Steering Committee  
**FROM:** Sara Polgar, Water Trail Project Manager (415/352-3645 [sarap@bcdc.ca.gov](mailto:sarap@bcdc.ca.gov))  
**SUBJECT: Water Trail Access Issues, Opportunities and Management Strategies**  
(For Committee consideration on April 5, 2006)

### Recommendation

Staff recommends that the Steering Committee: (1) review the following background report; (2) discuss the access issues for Bay Area Water Trail (Water Trail) users, potential trail head improvement options and management strategies; (3) revise and adopt the preliminary strategies for trail head improvement and management; and (4) identify improvement and management issues that require additional stakeholder discussion in focused workshops.

### Introduction

The staff background report introduces Water Trail development and management issues and options. It begins with an overview of current, non-motorized small boating activities in the Bay and opportunities to access the water in these craft. Next, we discuss access issues and options for improving launch sites. The final section is staff's preliminary recommendations for potential trail head improvements and management strategies to address access issues and needs of Water Trail users. Subsequent staff reports will address safety, and wildlife, habitat and environmental quality issues.

### Background

In September 2005, Gov. Arnold Schwarzenegger signed AB 1296, authored by Assemblywoman Loni Hancock, establishing the San Francisco Bay Area Water Trail. As described by the legislation, the Water Trail should be a network of access sites that enables people in non-motorized boats, such as kayaks, canoes, sailboards and dragon boats, to safely enjoy continuous single and multiple-day trips in San Francisco Bay. Implementation of the trail should advance navigational safety, 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 nearby.

Informally, a water trail already exists in the Bay. Non-motorized small boaters currently enjoy point-to-point access in some portions of the Bay and they have a handful of options for multi-day excursions. However, to create the linked access envisioned for the trail and to fulfill the mandates of the legislation, trail managers need to actively and strategically "build" the



trail by improving existing launch sites, developing new trail heads, and coordinating and supporting operation and maintenance of these sites. In this process, managers have to consider the appropriateness of different locations – in their existing condition, with additional improvements, or with entirely new access – for incorporation into the trail. This suitability depends on the access issues and needs of the expected users, navigational safety and homeland security issues and wildlife, habitat and environmental quality protection issues. To address these factors, managers can implement a variety of potential improvements for launch sites and tools for managing trail heads and on-water use.

### Non-Motorized Small Boating Activities in San Francisco Bay

**Non-Motorized Small Boating User Groups.** A variety of non-motorized small boating takes place on San Francisco Bay. Paddlesports include canoeing, kayaking, whaleboating, dragon boating, outrigger canoeing and sculling. The Bay is also a popular location for windsurfing and kitesurfing (also called kiteboarding), two sailboarding activities that emerged in the last twenty years.

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 recreation activities, the State Parks Department's 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 recreation 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 years of age.<sup>1</sup> With the aging of the baby boomers who are likely to seek out active retirement lifestyles, it is likely that this trend will continue.

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 now 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 or risen slightly. Class attendance is steadily increasing and the rental market for beginners is expanding.<sup>2</sup>

Bay Area Sea Kayakers (BASK) and Western Sea Kayakers (WSK) are two regional clubs dedicated to safe enjoyment of the sport. Both clubs focus on helping members improve kayaking skills, learn safety techniques, and stay informed about local marine conditions and hazards. BASK has a membership of about 800 and holds monthly meetings in San Francisco. Members also interact through organized kayaking trips (in the Bay and elsewhere around the world) and through the club's actively used email list server. WSK has a membership of about 200 and meets monthly in Mountain View. The club offers trips as well as a week-long sea kayaking skills workshop every year. Throughout the Bay region, several local shops rent and sell kayaks and offer classes for building skills. For many beginners and tourists, these outfitters are the only source of information about safe, responsible kayaking on the Bay.

Canoeing on San Francisco Bay is not very 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, partly due to the increased popularity of kayaking. There are canoeing clubs in the Bay Area. Some of these groups occasionally paddle on the Bay, but they tend to keep to the quieter waters of tributary rivers and creeks.

<sup>1</sup> Outdoor Industry Association, *Exploring the Active Lifestyle*, 2005, Denver Colorado

<sup>2</sup> Personal conversations with Keith Miller, California Canoe and Kayak, Oakland, CA; and Bob Licht, SeaTrek Kayaking, Sausalito, CA; November 19 and November 22, 2005

Dragon boats have a dragon's head on the prow and a tail at the stern with twenty paddlers, ten to a side. A drummer sets the pace and the 22<sup>nd</sup> team member is responsible for steering. The introduction of dragon boat racing on the Bay led to the formation of several groups dedicated to promoting the activity.<sup>3</sup> The California Dragon Boat Association (CDBA), based in the Bay Area, has at least seven clubs that practice year-round on a weekly basis with about 1,000 members, and an additional 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.

An outrigger canoe is a long, narrow boat featuring one or more lateral support floats that provide stability for the canoe. The most popular sized canoe is propelled by six paddlers. Outriggers are pulled up on the beach by hand, and do well in rough water. There are about a dozen outrigger canoe clubs around the Bay that promote the recreational and cultural values of the sport, and train crews year-round for international races that range from 500m sprints to 30-mile marathon events. Outrigger canoe racing, along with dragon boat racing, has experienced rapid growth in the Bay Area in the last five to ten years.

People have been rowing sculls on the Bay for over 100 years. Sculling is usually done early in the morning when the Bay is calm and flat, although some open water rowers have boats specifically designed to cut through waves on the Bay. Most launches used by rowers are owned by clubs that promote the sport and provide education, boat storage and other boating access needs. There are about ten flat and open water-rowing clubs around the Bay, and most store their sculls in boat houses located in the Oakland Estuary, Richardson Bay or in the calmer waters of San Mateo County in Redwood City. Public launching sites for sculls include Estuary Park in Oakland, Aquatic Park in San Francisco, most public beaches and public floats in marinas.

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 shipping company. Using heavy, open-water boats rowed historically for life-saving and whale hunting, teams of ten (eight rowers, a coxswain and a bowhook) practice year round in preparation for the racing season, which consists of around ten races, and lasts from May through October. The races vary in duration, from about eight minutes to one hour. The longest race is the Bridge to Bridge, a race from the Golden Gate Bridge to San Francisco/Oakland Bay Bridge. The Bay Area Whaleboat Rowing Association (BAWRA) sponsors and organizes the races.

A recent industry report indicates that nationwide, windsurfing participation has been declining steadily since 1987, falling from 1.15 million to about 500,000 participants in 2004.<sup>4</sup> Local enthusiasts note that the mid-1990's marked the peak of windsurfing activity here, followed by a slow steady decline, although recently it appears that there has been a slight increase in participation.<sup>5</sup> 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, participation in windsurfing on the Bay could increase.

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<sup>3</sup>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 22<sup>nd</sup> team member is responsible for steering [http://www.inetours.com/Pages/SFNbrhds/Dragon\\_Boats.html](http://www.inetours.com/Pages/SFNbrhds/Dragon_Boats.html) visited November 2, 2005

<sup>4</sup> 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](http://www.sgma.com/reports/data/2005/p28b-05.pdf) visited November 9, 2005

<sup>5</sup> Personal communication with Jim McGrath, November 10, 2005

Over the past ten years, kitesurfing 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 partly 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.

The San Francisco Boardsailing Association claims 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 for both windsurfers and kiteboarders.<sup>6</sup> 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."<sup>7</sup> The group does not post membership numbers, and as a fairly new sport it has relatively few participants. Some kitesurfers came from the ranks of windsurfers, and some pursue both activities. Although windsurfers and kitesurfers are unlikely to make point-to-point trips, they launch and sail at sites that are suitable for the Water Trail. Moreover, these user groups have similar access needs as other non-motorized small boaters.

**Existing Access Onto the Bay.** Access onto San Francisco Bay for non-motorized small boats consists of more than 130 launch and landing points in waterfront parks, marinas and harbors, sites with public launch ramps or floats, public access areas, wildlife refuges and privately owned sites. The sites vary in terms of level of development and management that supports these types of boating activities. Geographically, the launches are clustered primarily around the central Bay, from southern Marin and Contra Costa Counties south to Redwood City and San Leandro. Most of these sites are in, or near, urban areas, and this portion of the Bay is heavily used for commercial shipping, ferry transportation and all types of recreational boating. Comparatively, the South Bay, San Pablo Bay and Suisun Marsh have fewer access points. Partly this reflects the management priorities and limitations of the major land owners in these regions (U.S. Fish and Wildlife Service and California Department of Fish and Game) to protect and preserve wildlife and habitat, and their limited funding for recreation. However, access is also physically limited because the Bay is very shallow in these areas, and trips require careful coordination with the tides to avoid becoming stranded in mudflats at low tides.

Many launch sites are located within parks owned or managed by cities, counties, regional park districts, California Department of Parks and Recreation and the National Park Service. These waterfront parks offer access via beaches, floats, stairs and ramps. Some waterfront parks such as China Camp State Park in San Rafael and Ninth Street Park in Benicia have launch access and additional improvements that are well-suited for non-motorized small boating use. At other park sites, launching hand-carried watercraft is possible, but current access or facility conditions are less conducive to supporting these types of activities. Examples of this latter case include Benicia State Recreation Area and Schoen Shoreline Park in San Rafael where access onto the water is poor, and Islais Creek Park in San Francisco that has limited parking and lacks restrooms.

Some marinas such as Oyster Point Marina in South San Francisco and Richmond Municipal Marina provide publicly accessible floats or ramps that are regularly used for landing and launching non-motorized small boats. Marina sites are usually highly developed for boating activities with on-site management by a harbormaster. At public boat launch ramps, levels of facility improvements such as provision of floats (in addition to the ramp), parking and bathrooms vary considerably. Some launch ramps require a fee to park or launch, but most do

<sup>6</sup> <http://www.sfba.org/kite.html>, San Francisco Board Sailing Association Website, visited Wednesday, November 23, 2005

<sup>7</sup> Ibid.

not have on-site management staff. Examples of public boat ramps include Beldon's Landing in Suisun Marsh which has floats, extensive parking (including trailer parking), bathrooms and charges a fee, and Pier 52 Boat Ramp in San Francisco which lacks all of these land-side amenities except a few public parking spots. Certain public access areas provide physical access to the Bay via launching ramps, floats or beaches. Most of these public access areas (e.g. Shelter Point Business Park and Marin Rowing Association) do not have additional improvements beyond the access itself, and lack active management or maintenance efforts. 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.

Currently, public access for boating on lands managed by U.S. Fish and Wildlife Service is available at Sonoma Creek (San Pablo Bay National Wildlife Refuge (NWR)). With the restoration of the South Bay Salt Ponds, additional access is likely to become available at one or more sites in the Don Edwards San Francisco Bay NWR. The restoration plan also includes a launch ramp within Eden Landing Ecological Preserve (in Hayward), which is owned and managed by California Department of Fish and Game. Although the primary purpose of wildlife refuges and ecological reserves is the conservation of wildlife and their habitat, providing opportunities for wildlife compatible recreation activities is an important part of the land manager's mission. Similarly, many existing and proposed waterfront parks protect important wetland and upland habitats, including lands that are managed for endangered animal and plant species.

### Access Issues and Trail Head Improvements

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. This access can be enhanced with a variety of improvements and services, such as restrooms, boat drop-off parking zones, equipment storage, public boat houses, transient docking, overnight accommodations, such as a hostel or campsite, rigging areas and fresh water for washing gear.

**Access Onto the Water.** Since the Bay has relatively few beaches – only about nine miles along the entire 400-plus-mile shoreline – 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, ramps or steps. In general, 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 for launching. Some non-motorized small boating activities have specific access requirements that must be met if a site is to be successfully used for these activities.

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. There are at least 25 sites throughout the Bay Area where windsurfers and kitesurfers regularly launch and land their boards. In addition to parking and a launch, basic access for sailboarders requires 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 kitesurfing 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. Access to the Bay for sculls typically requires a float or dock, or a beach to allow careful placement of the craft in the Bay and for safe entry into the craft. 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 up to 22 people, the space requirements for launching are somewhat generous. Similarly, outrigger canoes require a launching area of adequate length and width to accommodate boats 40 feet long with six paddlers. Whaleboats tend to be stored in the water due to their weight (about one ton) and launched from a dock or float.

Relative to other Water Trail users, kayaks are versatile in terms of launch site requirements. In almost all cases, launches developed for other non-motorized small boat types or for trailered boats can serve kayaks as well. While multiple uses of a launches are generally favorable, these situations can lead to conflicts among user groups at the launch facility itself or once on the water. At launches shared by kayakers and kitesurfers, these groups might interfere with each other at the staging area or on the water. Conflicts between kayakers and motor and sail-boaters can occur at popular public launch ramps where ramp and dock space are scarce or in narrow waterways where maneuvering options are limited. Kayakers usually need some time on the launch ramp or dock to prepare their equipment.

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 recreation 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. Accessibility standards for launching facilities for human-powered craft are emerging, but currently there are no widely adhered to standards. The National Park Service has developed guidelines to help address ADA requirements 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 landing and launching facilities can be used by all visitors.

An objective of the Water Trail is to link access points around the Bay. Providing access at regular intervals in a variety of facilities will support this purpose by facilitating safe point-to-point travel. Kayakers are the most likely Water Trail users to embark on multi-site and multi-day trips on the Bay. They travel about two to four miles per hour depending on boater skill level, tides, currents and winds. This generally limits their range to eight to ten miles without a break. A lack of intermediate landing sites could cause a safety risk for boaters and lead to emergency landings in areas where access is not suitable.

All launch sites require some active management to maintain and operate the launch access and facilities. Without sufficient funding and staff resources devoted to up-keep, launch sites tend to degrade, becoming unusable or unsafe. Examples of this include Higgins Dock, where the city of Corte Madera removed the dock, and Paradise Beach County Park (Tiburon) where park staff closed the launch ramp, both due to deterioration. Insufficient resources for enforcement at launch sites can also leave site managers with little choice but to remove or restrict launching access. For example, vandalism of the Hudeman Slough Launch Ramp forced the Sonoma County Parks and Recreation Department to curtail access to avoid further problems.

**Parking.** One of the nicest places to launch a kayak in San Francisco Bay is in Aquatic Park, which is part of the Golden Gate National Recreation Area. 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 will be essential to Water Trail users. Parking needs vary for the different on-water recreation 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 are 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 that 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. At some sites parking for trailers is needed 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.

**Restrooms.** Construction and maintenance of restrooms at launch sites can be expensive. Regardless, provision of restrooms (flush or portable) will be necessary for most trail heads to prevent human waste exposures for visitors, and to protect Bay habitats and water quality.

**On-Site Equipment Storage.** Storage for non-motorized small boats and equipment at a launch site increases "real access because it removes the requirement to own both the watercraft and the means to transport it to the site."<sup>8</sup> Boaters can share usage of equipment through "alternative ownership models"<sup>9</sup> such as cooperative arrangements and boating clubs. This could decrease economic barriers to participation, and facilitate trail usage among urban residents who lack space for storing equipment in their homes. A variety of storage facilities can serve non-motorized small boaters: boat houses for all boat types including sculling shells; fenced outdoor areas for outrigger canoes; modified shipping containers for kayaks and sailboards; and provision of inside dock ties at marinas for in-water storage of dragon boats and kayaks. The feasibility of storage facilities is limited by availability of trail head space and funds for development, maintenance and equipment insurance. Furthermore, storage structures might disrupt visual access to the Bay, or detract from the character of a trail head setting.

**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 parks, because passive recreation space might be converted to concessionaire storage, display, equipment handling and teaching.

**Overnight Accommodations.** A directive of AB1296 regarding the Bay Conservation and Development Commission's (BCDC) 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 state and federal parks provide the majority of the Bay-side 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 recreation activities. If funding for campsite management is not available, effective volunteer

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<sup>8</sup> Kamen, Paul. (September 2004). "What is Access?" Retrieved on March 10, 2006 from <http://www.well.com/user/pk/waterfront/BayAccess/What-is-access-1.htm>

<sup>9</sup> Ibid.

stewardship can be a viable alternative, based on the experience of other water trails around the country.<sup>10</sup> Developing a model for appropriate location, design and management of overnight campsites based on “Leave no Trace”<sup>11</sup> 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 that 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.

**Other Site Improvements.** Additional improvements and services such as guest docking, rigging areas, fresh water for washing gear and trail head signage can facilitate non-motorized small boating activities. 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.

### Trail Head Improvement and Management Strategies

Staff presents a preliminary set of recommended strategies for trail head improvement and management in the following matrix (see Table A). To lay a foundation for the Steering Committee’s future work on protection of wildlife, habitat and environmental quality, safety, education and other trail topics, staff recommends that the Steering Committee first review, revise and adopt these proposed improvement and management strategies that can address Water Trail user issues, and identify improvement and management issues that require additional stakeholder discussion in focused workshops. The Steering Committee will refine and build on its list of recommended strategies as it covers other trail-related issues at subsequent meetings.

Most of the proposed strategies are derived from the access issues and needs of non-motorized small boaters that are described in the background report. Additionally, staff drew strategies from the Public Access and Wildlife Compatibility Background Report (December 2000) prepared for the updates made to the public access policies in the BCDC Bay Plan.

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<sup>10</sup> 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.

<sup>11</sup> 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.

**TABLE A.**  
**Non-Motorized Small Boating (NMSB) Access**  
**Trail Head Improvement and Management Strategies Matrix**

STRATEGY	ADVANTAGES	CHALLENGES
<p><b>1. Site Analysis</b>            Conduct an inventory and analysis of a site prior to design and development</p>	<ul style="list-style-type: none"> <li>• Can generate useful information on potential impacts of NMSB uses, safety issues, and wildlife, habitat and environmental quality concerns</li> <li>• Can be used to design access features that avoid or minimize adverse effects and meet user needs</li> </ul>	<ul style="list-style-type: none"> <li>• Thorough site data gathering and analysis requires time, staff and funds</li> </ul>
<p><b>2. Linking Access Points</b>            Provide NMSB access at regular intervals</p>	<ul style="list-style-type: none"> <li>• Facilitates point-to-point excursions</li> <li>• Promotes safe boating conditions</li> <li>• Facilitates varied and interesting access experiences</li> </ul>	<ul style="list-style-type: none"> <li>• Greater density of trail heads increases the chances of a site being near sensitive wildlife or habitat</li> </ul>
<p><b>3. Improvements Consistent With Site Characteristics</b>            Match the type and design of improvements to the site conditions, giving priority to facilities serving NMSB activities that are uniquely suited to the location and ensuring that launches are ADA accessible</p>	<ul style="list-style-type: none"> <li>• Avoids uses of the site that are incompatible with safe boating, wildlife, habitat and environmental quality protection</li> <li>• Helps preserve the character of the trail head setting</li> <li>• Ensures access is available to a broad spectrum of NMSB recreational users</li> </ul>	<ul style="list-style-type: none"> <li>• Accommodating activity-specific requirements can require additional site development and be costlier than other development options</li> <li>• Site manager may not have flexibility in spending project funds for different types of launch facilities</li> </ul>
<p><b>4. Site Carrying Capacity</b>            Match the level of trail head improvements to the site's carrying capacity (i.e. number of users that can be supported for recreation while not exceeding acceptable levels of impacts to wildlife, habitat and environmental quality)</p>	<ul style="list-style-type: none"> <li>• Avoids NMSB uses of the site that are too intense and thus degrade the facilities</li> <li>• Protects valuable resources and promotes safety</li> <li>• May increase the quality of boaters' experiences</li> </ul>	<ul style="list-style-type: none"> <li>• Optimal design might not be compatible with development requirements that are attached to project funding</li> <li>• Unacceptable impacts may be difficult to agree upon or predict</li> </ul>

TABLE A, Cont.

STRATEGY	ADVANTAGES	CHALLENGES
<p><b>5. Management Resources</b> Match the improvements to the available management resources for the site</p>	<ul style="list-style-type: none"> <li>Helps ensure that the managing organization can successfully operate and maintain the site long-term</li> <li>Good site management prevents most problems that can arise</li> </ul>	<ul style="list-style-type: none"> <li>Almost all parks and other public lands are severely limited in terms of management resources; if improvements are limited at every site by management resources, many types of public access onto the Bay would be severely curtailed</li> </ul>
<p><b>6. Maintenance Provisions</b> Ensure sufficient maintenance is available and design consistent with available maintenance</p>	<ul style="list-style-type: none"> <li>Maintains public safety</li> <li>Maintains public satisfaction with access opportunities and decreases creation of informal access</li> </ul>	<ul style="list-style-type: none"> <li>Requires long-term staff and funding resources</li> </ul>
<p><b>7. Parking</b> Provide sufficient parking or drop-off zones near to launch points, and extend parking time limits to a minimum of 4 hours Provide sufficient overnight parking to accommodate point-to-point excursions</p>	<ul style="list-style-type: none"> <li>Facilitates utilization by people in NMSBs for single and multi-day trips on the Bay</li> </ul>	<ul style="list-style-type: none"> <li>Launches may not have space to expand parking to accommodate additional demand from WT users</li> <li>Extending the parking time limits may reduce overall visitorship to a site because available spots remained filled with long-term visitors</li> </ul>
<p><b>8. Restrooms</b> Provide flush or portable restroom facilities</p>	<ul style="list-style-type: none"> <li>Avoids degradation of environmental quality factors at trail heads</li> <li>Protects visitors and wildlife from exposure to human waste</li> </ul>	<ul style="list-style-type: none"> <li>May be very expensive to construct</li> <li>Requires regular maintenance</li> <li>Cannot be provided at every launch</li> <li>Overnight parking increases management costs</li> </ul>
<p><b>9. On-Site Equipment Storage</b> Provide storage facilities for NMSB equipment (e.g. boat house, modified shipping container, fenced areas, inside ties at marinas)</p>	<ul style="list-style-type: none"> <li>May decrease economic barriers to participation</li> <li>May facilitate trail usage among urban residents</li> <li>If the site is accessible by public transportation, can obviate need for access to the site via car and reduce demand for scarce parking</li> </ul>	<ul style="list-style-type: none"> <li>Depending on the type of storage, construction may be expensive</li> <li>Can increase liability risks for site owner</li> <li>Insurance coverage for equipment may be expensive or difficult to obtain</li> <li>Storage structures may be unattractive, incompatible with the site characteristics and block visual access to the Bay</li> </ul>

TABLE A, Cont.

STRATEGY	ADVANTAGES	CHALLENGES
<p><b>10. On-site Equipment Rental Concessions</b> Provide on-site concessions where feasible site</p>	<ul style="list-style-type: none"> <li>• Facilitates WT usage by beginners and visitors</li> <li>• Makes the Bay more accessible to residents in urban areas for NMSB activities</li> <li>• If the site is accessible by public transportation, can obviate need for access to the site via car, and reduce demand for scarce parking</li> <li>• May help with launch facility management, thereby reducing staffing needs at the site</li> </ul>	<ul style="list-style-type: none"> <li>• Concessions can be disruptive to other activities at a site</li> <li>• Concessions can over-run site facilities</li> <li>• May require support structures (e.g. for equipment storage) that may be unattractive, incompatible with the site characteristics and block visual access to the Bay</li> </ul>
<p><b>11. Overnight Accommodations</b> Provide overnight accommodations, including camping, at trail heads where sufficient management resources are available</p>	<ul style="list-style-type: none"> <li>• Facilitates multi-day trips</li> <li>• Focuses activity where management resources are available</li> </ul>	<ul style="list-style-type: none"> <li>• Require ongoing management (e.g. staff for a hostel, reservation system for campsites)</li> <li>• Require regular maintenance</li> <li>• May lead to site security problems</li> <li>• Camping facilities may encourage improper usage (e.g. homeless encampment)</li> <li>• If accommodations are available to all users, WT users may not be able to utilize the site because demand is too high</li> <li>• Restricting use of accommodations to people in NMSBs might unfairly exclude the other members of the public from enjoying the site</li> </ul>

TABLE A, Cont.

STRATEGY†	ADVANTAGES	CHALLENGES
<p><b>12. Limits on Number of Users</b> Limit the number of NMSB users to the carrying capacity of the site</p>	<ul style="list-style-type: none"> <li>• May increase the quality of boaters' experiences</li> <li>• Should reduce adverse effects on wildlife, habitat and environmental quality factors</li> <li>• Decreases wear and tear on facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Requires ability to monitor / manage visitor numbers (staffed entrance, permitting, etc.)</li> <li>• May be difficult to define appropriate visitor numbers</li> <li>• May not substantially reduce impact, particularly if the targeted impacts are at sites on the water that are accessible from multiple launches</li> </ul>
<p><b>13. Visitor Activity Restrictions</b> Limit access at a trail head or on the water to specific types of NMSB uses (e.g. windsurfing only)</p>	<ul style="list-style-type: none"> <li>• Can reduce conflicts among different user groups</li> <li>• Can promote safety</li> <li>• May avoid or reduce wildlife impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Enforcement of regulations is desirable for maximum compliance</li> <li>• Education on rationale behind restrictions increases compliance</li> <li>• Requires adequate staff resources to implement</li> </ul>
<p><b>14. Visitor Behavior Restrictions</b> Establish land-side and on-water rules for visitors in NMSBs</p>	<ul style="list-style-type: none"> <li>• Direct and easily implemented management tool to limit potentially destructive user behaviors</li> <li>• Widely appropriate behavior restrictions can be derived from the Leave No Trace ethic for visitor use</li> </ul>	<ul style="list-style-type: none"> <li>• Enforcement of regulations desirable for maximum compliance</li> <li>• Education on rationale behind restrictions increases compliance</li> <li>• Requires adequate staff resources</li> </ul>

†Strategies 12, 13 and 14 are “bridge” strategies to the Steering Committee’s discussion at the next meeting. The Committee will be addressing wildlife, habitat and environmental quality concerns and ways to address these issues. Examples of strategies that may be considered in this future discussion include:

- Locating trail heads that are away from sensitive wildlife and habitat
- Periodic closures based on time of day, season or tidal regime
- Offering docent-led trips in sensitive wildlife areas to minimize impacts
- Prohibiting access in sensitive wildlife areas
- Monitoring wildlife where Water Trail users access the Bay to assess management needs
- Educational and interpretive signage at trail heads
- Education and stewardship program for trail head maintenance and boater-to-boater education on the water