

Section 3

Waterways and Facility Needs for Non-Motorized Boating

3. Waterways and Facility Needs for Non-Motorized Boating

This section of the report summarizes findings on waterways and facility needs for non-motorized boating in general, and for the ten (10) State regions. The discussion summarizes findings from several sources, including: the statewide and regional random telephone surveys; the active-user Internet survey; the commercial/institutional survey; the interest group meetings; interviews with waterway managers;¹ follow-up telephone calls with commercial and active-user survey respondents;² interviews with non-motorized boating organization representatives and experts;³ and comments on the draft report.⁴

This section is organized as follows:

- A. *Overview of Waterways and Facility Needs for Non-Motorized Boating*
- B. *North Coast Region*
- C. *San Francisco Bay Area Region*
- D. *Central Coast Region*
- E. *South Coast Region*
- F. *San Diego Region*
- G. *Northern Interior Region*
- H. *Sacramento Basin Region*
- I. *Central Valley Region*
- J. *Eastern Sierra Region*
- K. *Southern Interior Region.*

A. Overview of Waterways and Facility Needs for Non-Motorized Boating

Non-motorized boaters use many different types of waterways specific to the type of boating activity they are participating in. Whitewater rafters and kayakers frequent any of California's dozen-plus whitewater rivers. Sea kayakers frequent harbors, estuaries, the Pacific Ocean, and many lakes. Recreational kayakers and inflatable boaters typically use calmer waters such as certain rivers, small lakes, and harbors. Canoeists also typically favor calm lakes and rivers (unless they are whitewater or outrigger canoeists). Windsurfers and kiteboarders utilize specific locations on waterways that meet their wind and launch requirements.

In general, facility needs for non-motorized boating are significantly less than for motorized boating. Non-motorized boaters generally prefer "low-impact" facilities. Typically, non-motorized boating participants bring their boats to the water on top of, or in, their automobiles. The most important requirement is access points to the water. For any given access point, the key facility needs for non-motorized boating include: (1) a place

to unload vessels fairly close to the water; (2) a safe place to park; (3) restrooms; (4) a trail or access to the water; and (5) a beach, grassy area, or low freeboard dock close to water level from which to launch.

A facility need for non-motorized boats that is not shared by most motorized boats is a launching area that is close to the water level, such as a low freeboard dock. A standard motorized boat dock, which is 14 to 20 inches above the water level, does not provide convenient entry for non-motorized boats. Beyond the five basic needs identified above, there are many additional features that can improve the non-motorized boating experience. Such features include: signage, a freshwater boat wash, boating trails, overnight parking, camping, motor-boat free zones, and adequate water flow and/or water levels. **Table 3.1**, on the next page, summarizes the general facility needs and issues for eleven types of non-motorized boats.

The statewide and regional random telephone surveys and the active-user Internet survey asked respondents to identify why they chose to boat at the two waterways respondents use the most. **Table 3.2**, on page 3-4, summarizes the top five reasons why boaters chose a waterway for both the statewide random survey and the active-user Internet survey. For both groups of non-motorized boaters, “close to home” or “convenient” was the most frequent reason to boat at a favorite waterway.

The statewide and regional random telephone surveys and the active-user Internet survey also asked respondents about facility needs or issues at the two waterways they used most. **Table 3.3**, on page 3-4, summarizes the top five facility needs for the same surveys in Table 3.2. For both groups of non-motorized boaters, improved water access was the most frequently identified facility need.

The remainder of this subsection summarizes six (6) general issues related to non-motorized boating facilities and facility management.

1. DBW’s Boating Trails Programs

DBW’s Boating Trails Program is authorized to “pursue activities which will increase opportunities for recreational boating on designated waterways through the study and identification of recreational resources and potential boating trails routes.”⁵ Since 1994, the program has funded over sixty-five (65) access projects, primarily on rivers, ranging in amount from \$30,000, to over \$250,000. The boating trails program works with river managers to publish boating trail guides, and has twelve such guides available on DBW’s website. In addition, the Boating Trails Program is involved in a review of proposed hydropower and other projects that might impact recreational boating, as well as hydropower relicensing meetings. The Program has been actively involved in the San Francisco Bay Area Water Trail Plan.

DBW has also constructed four (4) aquatic centers located on waterways throughout the State (Crown Cove Aquatic Center, Coronado; Northridge Aquatic Center, Castaic Lake; Humboldt State University Aquatic Center, Humboldt Bay; and California State University Sacramento Aquatic Center, Lake Natoma). These aquatic centers, operated by universities, provide classroom and on-the-water boating safety education for all ages. Most aquatic centers provide training for both motorized and non-motorized boating, including canoeing, kayaking, sailing, and windsurfing. DBW also annually supports dozens of public and private non-profit organizations offering boating instruction and safety classes to the public by providing grants to purchase instructional equipment and class scholarships to underserved populations.

2. Water Trails

The concept of water trails is not new; however, development and promotion of water trails has recently gathered nationwide momentum. A water trail is essentially a network of non-motorized boating access locations along a waterway. Each access point is generally within at least a half-day’s paddle from one another.

Table 3.1
Overview of Key Facility Needs by Non-Motorized Boat Types in California (2006)

| Boat Type | General Facility Needs and Issues |
|--------------------------------------|---|
| 1. Canoes | <ul style="list-style-type: none"> ■ Gradual slope or long steps to the water (i.e. not steep) ■ Flat place to launch from, close to water level (such as low freeboard dock) ■ Parking and restrooms |
| 2. Outrigger canoes | <ul style="list-style-type: none"> ■ Storage for boats near water ■ Access for getting on and off a beach ■ Communication between boats and shore for emergencies |
| 3. Sea kayaks | <ul style="list-style-type: none"> ■ Gradual slope or long steps to the water (i.e. not steep) ■ Flat place to launch from, close to water level (such as low freeboard dock) ■ Parking and restrooms ■ Security at parking areas ■ Overnight parking for longer trips |
| 4. Whitewater kayaks and rafts | <ul style="list-style-type: none"> ■ Adequate water releases and flows ■ Security at parking areas ■ Access to water ■ Parking and restrooms |
| 5. Recreational kayaks | <ul style="list-style-type: none"> ■ Gradual slope or long steps to the water (i.e. not steep) ■ Flat place to launch from, close to water level (such as low freeboard dock) ■ Parking and restrooms |
| 6. Inflatable boats (non-whitewater) | <ul style="list-style-type: none"> ■ Gradual slope or long steps to the water (i.e. not steep) ■ Flat place to launch from, close to water level (such as low freeboard dock) ■ Parking and restrooms |
| 7. Small sailboats | <ul style="list-style-type: none"> ■ No significant needs, as many small sailboats use yacht clubs to launch from ■ Key need is a place to launch where they can carry, or wheel, boat on a dolly down to the water |
| 8. Rowing shells or sculls | <ul style="list-style-type: none"> ■ Storage for boats near water ■ Lighted buoys for early morning rowing ■ Shower facilities ■ Parking and restrooms |
| 9. Sailboards | <ul style="list-style-type: none"> ■ Grassy or paved area for rigging ■ Safe access to water in areas with adequate wind ■ Parking and restrooms |
| 10. Kiteboards | <ul style="list-style-type: none"> ■ Adequate space for launching ■ Areas with safe beach access ■ Signage for kiteboarders and those on-shore regarding safety ■ Parking and restrooms |
| 11. Dragon boats | <ul style="list-style-type: none"> ■ Storage for boats near water ■ Lighted buoys for early morning rowing ■ Shower facilities ■ Parking and restrooms |

3. Waterways and Facility Needs for Non-Motorized Boating

Table 3.2
Top Five Reasons to Boat at a Favorite Waterway in California (2006)

| Statewide Random Survey | Active-User Internet Survey |
|---|--|
| 1. Close to home or convenient | 1. Close to home or convenient |
| 2. Access to another activity (fishing, hunting, scuba/snorkeling, bird watching, etc.) | 2. Water and/or flow conditions |
| 3. Not crowded | 3. Facilities (parking, restrooms, launch areas, etc.) |
| 4. Facilities (parking, restrooms, launch areas, etc.) | 4. Not crowded |
| 5. Features or destinations (beach, shoreline amenities, etc.) | 5. Features or destinations (beach, shoreline amenities, etc.) |

Table 3.3
Top Five Facility Needs at a Favorite Waterway in California (2006)

| Statewide Random Survey | Active-User Internet Survey |
|--------------------------------------|---|
| 1. Improved access to the water | 1. Improved access to the water |
| 2. Restrooms | 2. Parking |
| 3. Parking | 3. Improved water conditions (water quality, hazards) |
| 4. Maintain water levels or releases | 4. Reckless boaters |
| 5. Floats or launch ramps | 5. Overcrowding |

Typically a management agency or organization will develop maps, signage and education materials for a water trail. Water trails can help water managers guide non-motorized boaters to particular locations, and can provide a more organized management structure for a waterway.

The American Canoe Association promotes the development of water trails throughout the country, and has developed a database of designated water trails, including two in California: Humboldt Bay Water Trail, and Lake Tahoe Water Trail.⁶ There are a number of less formal water trails in California, for example, those described in the boating trail guides published by DBW.

The San Francisco Bay Area Water Trail Act, signed into law by the Governor in 2005, established a formal planning structure for a San Francisco Bay Area Water Trail.

Formal legislation is not required in order to develop a water trail. However, in some cases, such as the San Francisco Bay Area, the formal

structure created by legislation may be necessary to move the water trail concept forward. Legislation was beneficial in the San Francisco Bay Area because there are many diverse groups and landowners with a stake in access points. Many survey respondents and special interest group meeting participants expressed interest in new boating water trails for California's waterways.

3. Non-Motorized Boat Launches

There are a number of different types of launches that are appropriate for non-motorized boating. These types of launches include: beach access, stairways, floating launches, and concrete ramps. In 2004, the National Park Service (NPS), in coordination with American Whitewater and over one dozen state and local agencies, developed a design guidance manual for canoe and kayak launches.⁷ This NPS document provides a reference guide for various types of launches, case studies, and plans for canoe and kayak launch ramps for different types of waterways and situations. The manual includes design considerations

for launches in environmentally sensitive areas and launches that meet American with Disabilities Act accessibility guidelines.

4. Waterway Management Approaches

A key issue related to waterways and facilities is management of California's diverse waterways to meet the needs of different types of recreational activities, while protecting the water and land environment. As non-motorized boating has grown over the last decade, conflicts, and potential conflicts, particularly between motorized boaters, non-motorized boaters, and fishermen, have grown. In addition, at many locations, there are concerns about the impacts of motorized and non-motorized boating activities on wildlife and sensitive natural habitats.

There are many management approaches that can be implemented on waterways. These management tools can enhance recreational experiences by reducing the potential for conflict between different types of waterway users. Management tools that have been implemented at some waterways across the country include: location zoning for certain waterway activities; time or day zoning for certain waterway activities; speed limits; noise regulations; watercraft horsepower limitations; boat permits and permit systems; rotational watercraft traffic patterns; speed lanes; commercial traffic lanes; and distribution of launch ramps and access points.⁸

One reason for the regulatory inconsistency is that California's waterways are managed by a number of different Federal, State, local, and regional public and private entities, including: Bureau of Land Management; National Park Service; National Forest; California State Parks; various counties and cities; water districts; and electric utility companies. Each management entity may have their own unique regulatory practices for a given waterway, and can regulate what types of boaters and activities are allowed on "their" waterway. Also, many

waterways are managed by more than one entity. Joint waterway management requires clear communication between agencies on management practices, education, and enforcement.

Launch ramps present a common waterway management problem. Several waterway managers commented on the challenges at launch ramps that are used by both motorized and non-motorized boaters. For launch ramps that are used by both motorized and non-motorized boaters, several waterway managers recommended providing signage to describe procedurally how non-motorized boats and power boats can safely and amicably launch from the same location.

5. Whitewater Parks

Whitewater parks are the most costly, and technically sophisticated, type of facility for non-motorized boating. They typically involve creating an artificial river, or enhancing an existing river, to create a whitewater boating course that includes specific hydraulic features. Whitewater parks are used for recreational boating; instruction; boating festivals and events; and competitive whitewater boating. The closest whitewater park to California is the Truckee River Whitewater Park at Wingfield, in Reno, Nevada.⁹

This city-owned, \$1.5 million Reno facility was completed in 2004, and funded by Nevada state bonds, with start-up loans from the City of Reno and area casinos.¹⁰ The project involved redevelopment of a stretch of the Truckee River that runs through the middle of the City of Reno into a 2,600 foot Class II and III whitewater course with boulders, pools, and drops.¹¹ The Reno whitewater park was part of an effort to attract tourists to the area for more than just gambling. One of the selling points of the project was the promise of a three-year payback due to economic contributions from visitors and event spectators, with the total economic impact of the

facility estimated at between \$1.9 million and \$4.1 million annually.¹²

There is considerable interest among California whitewater boaters to develop a whitewater park in the State. Such a development would require a significant amount of funding, and likely would need to be part of a broader redevelopment or recreational planning effort. As no one public entity is likely to be in the position to fund such a project alone, it would also require a coordinated effort, including private donors, and different levels of government entities.

6. Hydropower Relicensing

The hydropower relicensing process provides an opportunity for improving non-motorized boating alternatives for both flatwater and whitewater paddling. State and utility-owned dams typically have 30 to 50-year federal operating licenses from the Federal Energy Regulatory Commission.¹³ Between 2005 and 2020, 150 dams, controlled by 25 separate hydropower projects, will be due for relicensing.¹⁴

During the five-year relicensing process, the utility must examine and consider environmental and recreational water requirements of the project, as well as water requirements for agriculture and energy generation. Utilities conduct extensive studies of the recreational impacts of their projects.¹⁵ In final relicensing agreements, utilities may be required to remove dams, provide mandatory flow and reservoir levels, and/or develop facilities that support both motorized and non-motorized boating.

* * * * *

The remainder of this section summarizes waterways and facility needs for non-motorized boating in each of the State's ten (10) regions. Most regional subsections include an exhibit and two tables. The maps in Exhibits 3.1 through 3.10

identify many of the key waterways in each region that are discussed in this section. However, these maps are not inclusive of *all* of the major and minor lakes, rivers, streams, harbors, and bays in California.

The first table in each subsection identifies frequently used waterways and facility needs for those waterways. These region-specific tables combine responses from the statewide and regional random surveys, the active-user Internet survey,^a and the commercial/institutional survey. In addition, the tables incorporate comments from interest group meeting participants, as well as interviews with river managers; boating organization representatives; and telephone conversations with interested respondents from the commercial/institutional and active-user surveys.

In each table, the waterways were identified in priority order, with those waterways used most often and with the most facility needs, listed first in each table. When there were adequate data for a particular waterway, facility needs were ranked in numerical order. When there were not enough responses to provide a ranking, facility needs identified by the various respondents were indicated.

Specific locations for facility needs were identified whenever possible, but in most cases, responses were general in nature; for example, "improve access on the Russian River." These tables may be used for initial ranking and prioritization of potential future facility projects. However, the specific locations and designs of any particular project should best be developed collaboratively by local government agencies, local boaters, and DBW.

The second table in each subsection identifies waterways that survey respondents (statewide and regional random and active-user Internet)

^a Due to survey time constraints, we were limited to asking respondents about only their two most used waterways in the statewide and regional, and active-user, random surveys. Thus, usage data for specific waterways were conservative. As a result, we provided relative ranking of waterways in Section 3, combining data from random and active-user surveys, commercial surveys, and interest group meetings.

avoided using because of facility needs or other problems. Many of these waterways were the same waterways that other boaters identified as their most-used waterway. This result illustrates boaters' various levels of tolerance for a particular problem. For example, many boaters identified the Russian River as their most used waterway, but cited lack of access as a key facility need. Other boaters simply avoided using the Russian River because of lack of access.

For each region, these two tables, combined, can help identify those waterways with the greatest facility needs and problems. Similar to the first table in each subsection, the avoided waterways are listed in order, with those mentioned by the greatest number of respondents listed first. When there were adequate data, the problems were ranked numerically; otherwise problems were just indicated.

B. North Coast Region

The North Coast region is predominantly rural, with a population of just over 700,000. The region was historically devoted to forestry, fisheries, and agriculture. There are no large cities in the region, although Sonoma County contains the expanding northernmost suburbs of San Francisco. Medium-sized cities in the region include Santa Rosa, Petaluma, and Eureka.

Exhibit 3.1, on the next page, illustrates major waterways in the North Coast region.

Table 3.4, below, identifies frequently used waterways and facility needs identified for those waterways.

The Russian River is one of the most commonly used waterways for non-motorized boaters in the North Coast region. It is popular

Table 3.4
North Coast Region Facility Needs on Key Waterways Identified by Non-Motorized Boaters (2006)

| Frequently Used Waterway | Improved access | Maintain water level | Parking | Restrooms | Freshwater boat wash | Low-impact facilities | Boating trails | Docks | Floats/launch ramps | Beach area | Storage | Signage | Showers | Improved water quality | Picnic areas | Camping | Motor-boat free zones |
|--|-----------------|----------------------|---------|-----------|----------------------|-----------------------|----------------|-------|---------------------|------------|---------|---------|---------|------------------------|--------------|---------|-----------------------|
| 1. Russian River | 1 | 4 | 2 | 3 | 9 | | 6 | | | 5 | | 10 | | | | 7 | 8 |
| 2. Petaluma River | 1 | | 3 | 2 | | 7 | | 5 | | | 6 | 9 | 4 | 8 | 10 | 11 | |
| 3. Humboldt Bay | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | ✓ | | ✓ | ✓ | |
| 4. Bodega Bay | ✓ | | ✓ | ✓ | | ✓ | | | ✓ | ✓ | | | | | | | |
| 5. Lake Sonoma | 1 | | 3 | 2 | | | | | | ✓ | ✓ | | ✓ | | | | ✓ |
| 6. Gualala River | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | ✓ | ✓ | |
| 7. Stone Lagoon (North launch site) | | | ✓ | ✓ | | | | | | | | | | | | | |
| 8. Eel River | 1 | | 2 | | | | | | | ✓ | | | | ✓ | | ✓ | ✓ |
| 9. Estero Americano | 2 | | 1 | 3 | | | | | | | | | | | | | |
| 10. Big Lagoon | | | | ✓ | | | ✓ | | | | | ✓ | | | | | |
| 11. Trinity River | ✓ | | | | | | | | | | | ✓ | | | | | |
| 12. Sonoma Creek, Hudeman Slough, and adjacent waterways | ✓ | | ✓ | ✓ | | | | ✓ | | | | ✓ | | | ✓ | ✓ | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

Exhibit 3.1
North Coast Region Waterway Map



Table 3.5
North Coast Region Avoided Waterways and Reasons Identified by Non-Motorized Boaters (2006)

| Avoided Waterway | Lack of access | Overcrowding | Inconsistent water flows | Inadequate parking | Inadequate restrooms | Water conditions | Need for better signage | Poor water quality |
|------------------------------------|----------------|--------------|--------------------------|--------------------|----------------------|------------------|-------------------------|--------------------|
| 1. Russian River | 1 | | 2 | 4 | 3 | | | |
| 2. Petaluma River | 1 | | | | 4 | | 2 | 3 |
| 3. Humboldt Bay | ✓ | | | | ✓ | ✓ | | |
| 4. Estero Americano | | | | ✓ | | ✓ | | |
| 5. Eel River | ✓ | ✓ | ✓ | | ✓ | ✓ | | |
| 6. Rancheria Creek (Navarro River) | ✓ | | | ✓ | ✓ | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

with sea and recreational kayakers, as well as with rafters and canoeists. One of the key issues raised by non-motorized boaters for this river was the need for additional access points. For example, on the 30 mile stretch between Cloverdale and Healdsburg, there are no access points to get on and off the river, and no camping along the way. This is an extremely long stretch for a day’s paddle. Other locations with access needs were Duncan Mills (between Monte Rio and Jenner) and Anderson Valley. Inadequate water flow levels on the Russian River were also a concern among many boaters. Finally, park managers identified a need for additional signage on the river for portage locations, and to identify publicly available launch sites.

The Petaluma River feeds into San Pablo Bay, and will have an increased need for camping areas as the San Francisco Bay Area Water Trail is developed. Current needs on the Petaluma River include picnic areas, and improved signage, particularly in adjacent navigable sloughs.

The Gualala River has over 20 miles of navigable waterway, and may be underutilized due to lack of access and publicity. Facility needs on the Gualala River include improved access along the main stem and South Fork, parking, restrooms, low-impact facilities, boating trails, beach areas, signage, picnic areas, and camping.

Sonoma County Regional Parks has operated the Hudeman Slough Boat Launch facility, owned by the State Wildlife Conservation Board, for several decades. There are several dozen miles of interconnected navigable tidal waterways between Sonoma Creek, Hudeman Slough, and the Napa River. Non-motorized boating in these areas has increased, and will likely continue to do so. Hudeman Slough is recognized in the San Francisco Bay Area Water Trail Plan.

Table 3.5, above, identifies waterways that survey respondents (statewide and regional random, and active-user Internet) avoided using because of facility needs or other problems.

C. San Francisco Bay Area Region

The San Francisco Bay Area region is predominantly urban, with a population of 6.6 million. Historically devoted to trade, it has grown most in the manufacturing and service sectors. The large cities in the region include San Francisco, Oakland, and San Jose. San Francisco Bay provides numerous sheltered harbors adjacent to population centers. Inland waterways include the extensive Sacramento San-Joaquin Delta and many lakes. **Exhibit 3.2**, on the next page, illustrates major waterways in the San Francisco Bay Area region.

The focal point for non-motorized boating in the San Francisco Bay Area region is San Francisco Bay. The San Francisco Bay Area Water Trail Act, signed by the Governor in 2005, required the San Francisco Bay Conservation and Development Commission (BCDC) to develop a San Francisco Bay Area Water Trail Plan. The draft plan was published on July 6, 2007,¹⁶ and was presented to the BCDC Commission and State Coastal Conservancy, in July 2007. The draft plan is a detailed document describing policies, guidelines, and procedures for implementing the San Francisco Bay Area Water Trail.

As described in the draft plan, “the vision for the San Francisco Bay Area Water Trail is a network of launch and landing sites that allows people in human-powered boats and beachable sail craft to enjoy the historic, scenic, and environmental riches of San Francisco Bay through continuous, multiple-day and single-day trips on the bay. The trail will promote safe and responsible use of the Bay, while protecting and increasing appreciation of its environmental resources through education and coordinated, strategic access to the Bay. Water trail managers will work with trail users and other stakeholders, and partner with shoreline managers and businesses to design, develop, and manage trail

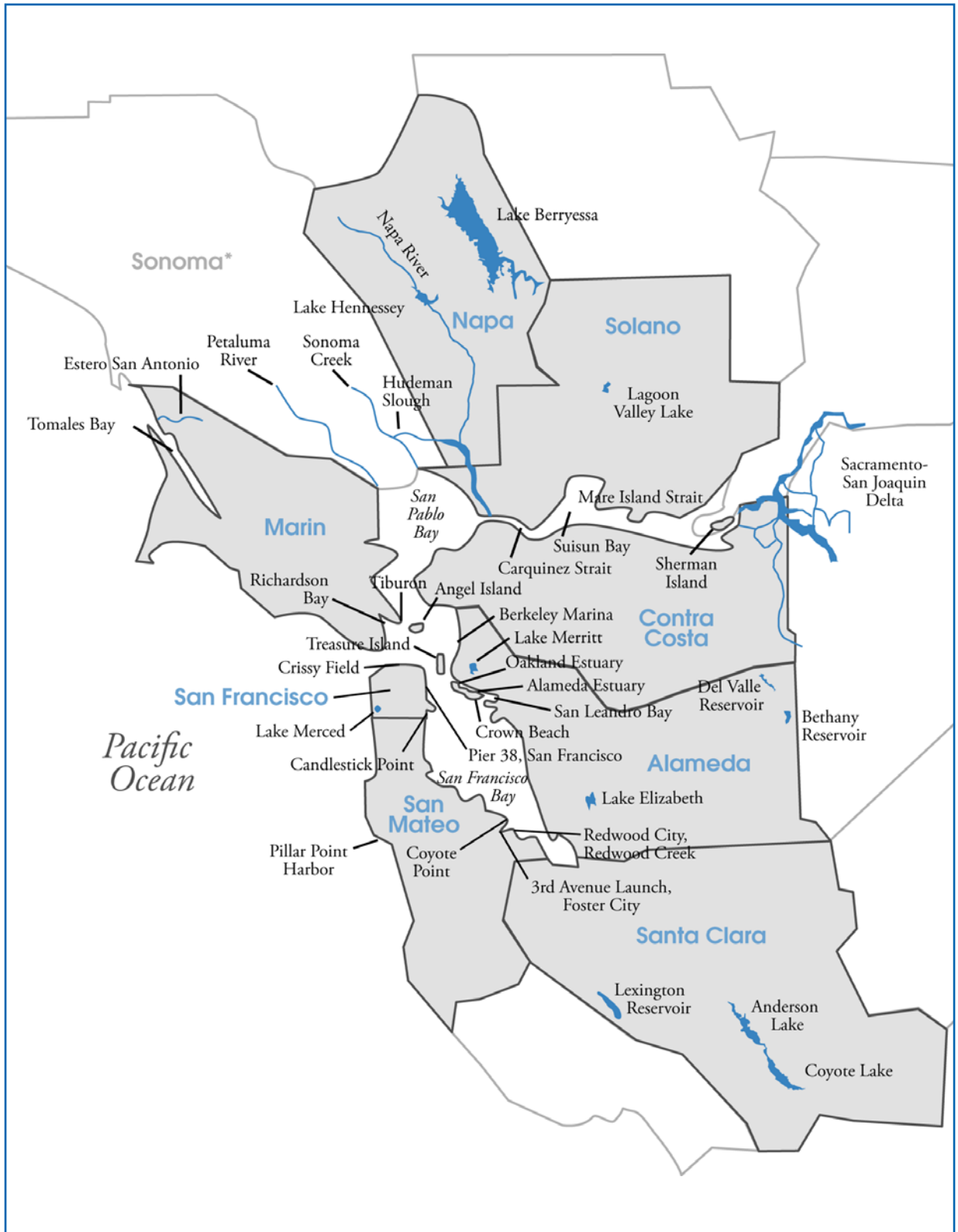
access that increases enjoyment of San Francisco Bay for generations to come.”¹⁷

The BCDC is the lead agency in developing the Water Trail Plan, while the State Coastal Conservancy will be the lead agency in implementing the plan. DBW is a managing partner in the development of the San Francisco Bay Area Water Trail. DBW has been integrally involved in the planning process, and will continue to work with these two agencies in implementing and funding aspects of the plan. The draft plan identifies eighty-nine (89) existing launch sites, seven (7) existing destinations, twelve (12) planned launch sites, and six (6) planned destinations.¹⁸ Upgrades to increase capacity or provide access for new types of users are proposed at many of the existing sites. There are fifty-seven (57) high opportunity sites, defined as sites that “require minimal assessment, planning, management changes and improvements (i.e. signage only) on which initial implementation should be focused.”¹⁹ Future non-motorized boating facilities within San Francisco Bay should be developed within the framework of the Water Trail Plan.

In addition to the Bay, there are other waterways within the San Francisco Bay Area region for which survey respondents and interest group participants identified facility needs. **Table 3.6**, on page 3-12, identifies these waterways and facility needs, including those in San Francisco Bay. Many survey respondents identified generic waterways, such as “Pacific Ocean” and “San Francisco Bay”.

Table 3-6 is divided into two sections. The top section of the table summarizes responses from kayakers and other paddling non-motorized vessels. The lower section of the table summarizes responses from sailboarders and kiteboarders. Sailboarding and kiteboarding are separated because they have unique facility needs and locations as compared to other types of non-motorized boating.

Exhibit 3.2
San Francisco Bay Area Region Waterway Map



* Sonoma County is within the North Coast Region; however, Sonoma County waterways on and around San Pablo Bay are included in the San Francisco Bay Area Water Trail Plan.

3. Waterways and Facility Needs for Non-Motorized Boating

Table 3.6
San Francisco Bay Area Region Facility Needs on Key Waterways Identified by Non-Motorized Boaters (2006)

| Frequently Used Waterway | Improved access | Maintain water level | Parking | Restrooms | Freshwater boat wash | Low-impact facilities | Docks | Floats/launch ramps | Beach area | Storage | Signage | Showers | Improved water quality | Camping | Motor-boat free launch |
|--|-----------------|----------------------|---------|-----------|----------------------|-----------------------|-------|---------------------|------------|---------|---------|---------|------------------------|---------|------------------------|
| Responses for Canoes, Kayaks, Inflatable Boats, Small Sailboats, Rowing Boats, and Other Boats | | | | | | | | | | | | | | | |
| 1. San Francisco Bay | 1 | | 2 | 3 | 4 | | 8 | 6 | 5 | | | 10 | 9 | 7 | |
| 2. Redwood City Area | 4 | | 1 | 3 | 7 | | 9 | 8 | | 5 | | 2 | 6 | | |
| 3. Lexington Reservoir | | 1 | 4 | 2 | 5 | | | | | | | 3 | | | |
| 4. Pacific Ocean | 1 | | 2 | 3 | | | | | | | | | | | |
| 5. Carquinez Strait | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | | | | |
| 6. Oakland Estuary | ✓ | | ✓ | ✓ | ✓ | | | ✓ | | | | ✓ | ✓ | | ✓ |
| 7. Lake Merced | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | | | | | |
| 8. Berkeley Marina | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | ✓ |
| 9. Sacramento – San Joaquin Delta | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | | | | ✓ | | |
| 10. Redwood Creek | | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | | | ✓ | | |
| 11. Tiburon | ✓ | | | | | | | | | | | | | | |
| 12. Tomales Bay | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | | | | |
| Responses for Sailboards and Kiteboards | | | | | | | | | | | | | | | |
| 1. San Francisco Bay | 1 | | 2 | 3 | | | | 6 | | | | 4 | 5 | | |
| 2. 3 rd Avenue Launch, Foster City | 3 | | 1 | 2 | | | | | 5 | | | 4 | | | |
| 3. Treasure Island | 1 | | 6 | 2 | 7 | | | 4 | 5 | | 3 | | | | |
| 4. Sherman Island | 1 | | 3 | 2 | | | | | 4 | | | | | | |
| 5. Coyote Point | 3 | | 2 | 4 | | | | 1 | 5 | | | | | | |
| 6. Crissy Field | ✓ | | ✓ | ✓ | | | | | | ✓ | | ✓ | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

Of the 100-plus launch locations identified in the San Francisco Bay Area Water Trail Plan, there are only about sixteen locations that provide suitable wind and launch conditions for sailboarders (windsurfers) and kiteboarders. One of the most popular locations, Treasure Island, is no longer available to windsurfers and kiteboarders during its major redevelopment project. Regaining and improving access on Treasure Island is a high priority for this group of non-motorized boaters.

One concern was that the existing launch is dangerous, particularly for kiteboarders.

Parking was a key concern of sea kayakers in the San Francisco Bay Area region. There were two issues raised. The first was the need for overnight parking at launch facilities to facilitate multi-day boating trips. Many facilities do not allow overnight parking. A second issue was parking security, as it is reported by respondents that cars have been vandalized and burglarized while the owner is boating.

Table 3.7
San Francisco Bay Area Region Avoided Waterways and Reasons Identified by Non-Motorized Boaters (2006)

| Avoided Waterway | Lack of access | Overcrowding | Need for water break | Inadequate parking | Inadequate restrooms | Water conditions | Reckless boaters | Need for sand, beach area | Security/safety | Lack of camping |
|--|----------------|--------------|----------------------|--------------------|----------------------|------------------|------------------|---------------------------|-----------------|-----------------|
| Responses for Canoes, Kayaks, Inflatable Boats, Small Sailboats, Rowing Boats, and Other Boats | | | | | | | | | | |
| 1. San Francisco Bay Area | 1 | | | 3 | 2 | | | | | 4 |
| 2. Sacramento – San Joaquin Delta | | 2 | | | | | 1 | | | |
| 3. Alameda Estuary | 1 | | | | 2 | | 3 | | | |
| 4. Lake Berryessa | | 2 | | | | | 1 | | | |
| 5. Berkeley Marina | | | | 1 | 2 | | 3 | | 4 | |
| 6. Estero San Antonio | 2 | | | 1 | | | | | | |
| 7. Tiburon | 1 | | | | | | | | | |
| 8. Angel Island | 1 | | | | | | | | | |
| 9. Pier 38, San Francisco | | | 1 | | | | | | | |
| Responses for Sailboards and Kiteboards | | | | | | | | | | |
| 1. Treasure Island | 1 | | | 3 | 2 | | | | | |
| 2. 3 rd Avenue Launch, Foster City | | 2 | | 1 | | 3 | | | | |
| 3. Candlestick Point | 2 | | | | | 1 | | | 3 | |
| 4. Palo Alto Harbor | 2 | | | 3 | | 1 | | | | |
| 5. Coyote Point | 2 | | | | | 1 | | 3 | | |
| 6. Crown Beach, Alameda | | 1 | | 2 | | | | 3 | | |
| 7. Point Emery | 2 | | | | 1 | | | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

Crissy Field, in San Francisco, was identified as an example of a location that satisfactorily meets the needs of a number of diverse user groups, including land-based and water-based activities. According to many area boaters, this location demonstrates the value of planning and designing to accommodate the needs of multiple user-groups, while minimizing conflicts between them.

Table 3.7, above, identifies waterways in the San Francisco Bay Area region that non-motorized boater respondents avoided using due to facility needs or other issues. In addition to these avoided waterways, there are some areas in the San Francisco Bay that require dredging, even to support non-motorized boating activities. For example, some boaters reported that the South Basin in Berkeley is silting in, as is the area around San Leandro Marina.

Table 3.8
Central Coast Region Facility Needs on Key Waterways Identified by Non-Motorized Boaters (2006)

| Frequently Used Waterway | Improved access | Parking | Restrooms | Freshwater boat wash | Low-impact facilities | Boating trails | Docks | Floats/launch ramps | Beach area | Storage | Signage | Showers | Improved water quality | Picnic areas | Camping | Motor-boat free zone | Boater/kayaker safety rules |
|----------------------------|-----------------|---------|-----------|----------------------|-----------------------|----------------|-------|---------------------|------------|---------|---------|---------|------------------------|--------------|---------|----------------------|-----------------------------|
| 1. Pacific Ocean | ✓ | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | |
| 2. Monterey Bay | | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | | |
| 3. Morro Bay | | ✓ | ✓ | ✓ | | | | ✓ | | 1 | | | | | | ✓ | |
| 4. Lake San Antonio | | ✓ | ✓ | | | | ✓ | ✓ | | | | | | | ✓ | | |
| 5. Santa Margarita Lake | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | | | | ✓ | | | ✓ | |
| 6. Carmel/Big Sur | ✓ | ✓ | ✓ | | | ✓ | | | | | ✓ | ✓ | | | | | |
| 7. Avila Bay/Port San Luis | | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | |
| 8. Point Lobos | ✓ | | | | | | | | | | | | | | | | |
| 9. Moss Landing | | ✓ | | | | ✓ | | ✓ | | | ✓ | | | | | | |
| 10. Pismo Beach | ✓ | | | | | | | | | | ✓ | | | | | | ✓ |
| 11. Pacific Grove | ✓ | | ✓ | | ✓ | | | ✓ | | | | | | | | | |
| 12. San Lorenzo River | ✓ | | | | | | | | | | ✓ | | | | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

D. Central Coast Region

The Central Coast region, with a population of almost 950,000, is predominantly rural. It was historically devoted to agriculture, fisheries, and defense, but recently has seen strong growth in the tourism and service sectors. The medium-sized cities in the region are Santa Cruz, Salinas, Monterey, and San Luis Obispo. Its navigable waterways include two large inland lakes, a few smaller lakes, Monterey Bay, and Morro Bay.

Exhibit 3.3, on the next page, illustrates major waterways in the Central Coast region. **Table 3.8**, above, identifies frequently used waterways and facility needs in the Central Coast region.

One of the most frequently identified facility needs in this region was improved signage to clarify access and safety issues. There was also interest in a boating trails system to link Santa Cruz, Monterey, Pacific Grove, Carmel, and Moss Landing.

Table 3.9, on page 3-16, identifies Central Coast waterways that active-user and random survey respondents avoided using. Unlike many regions, none of the avoided waterways were identified by a large number of respondents. Most waterways listed in Table 3-7 were identified by only a few respondents, perhaps indicating that there are not significant problems on Central Coast region waterways.

Exhibit 3.3
Central Coast Region Waterway Map

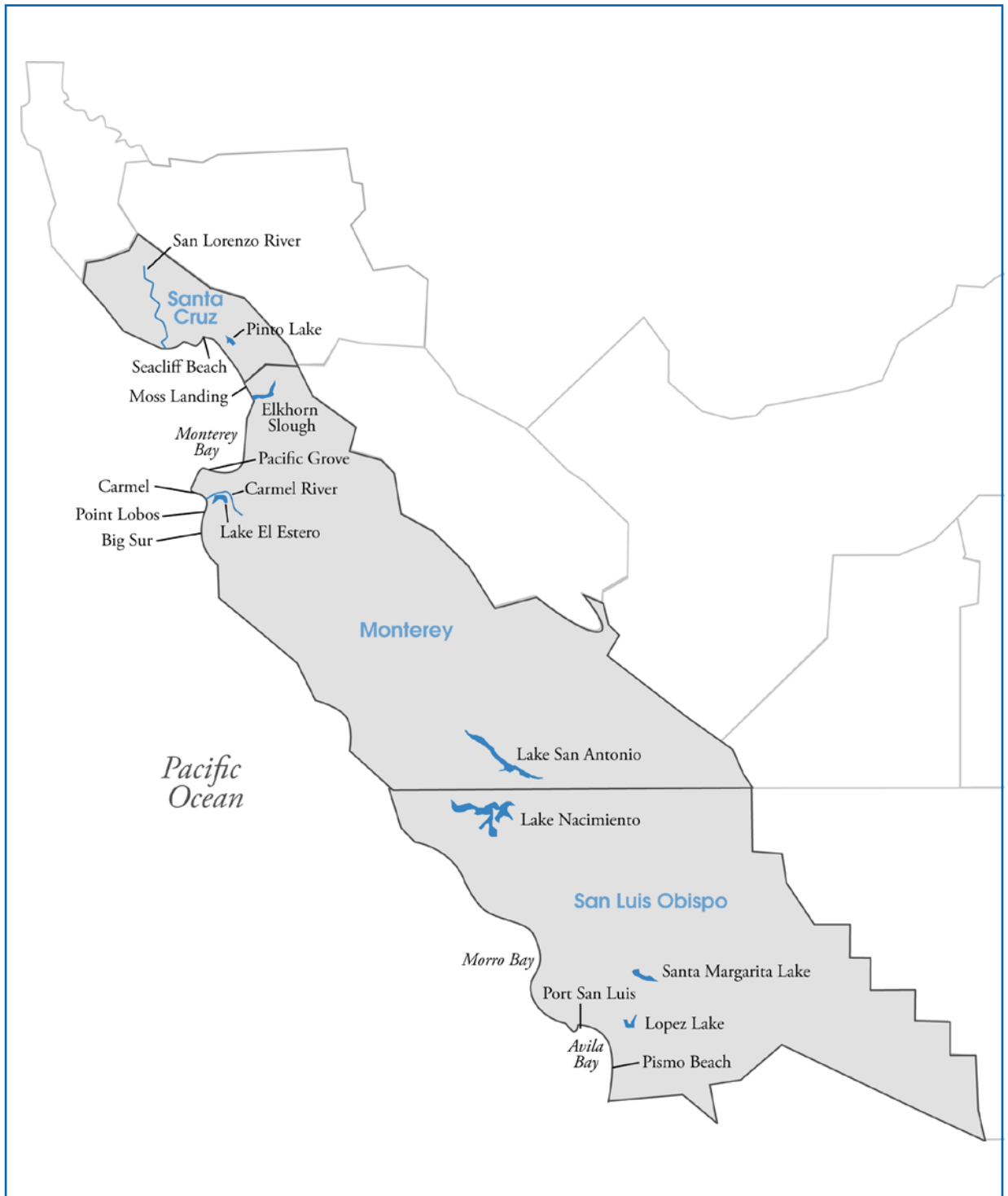


Table 3.9
Central Coast Region Avoided Waterways and Reasons Identified by Non-Motorized Boaters (2006)

| Avoided Waterway | Lack of access | Overcrowding | Inconsistent water flows | Inadequate parking | Inadequate restrooms | Reckless boaters | Security/safety | Need non-motorized zone |
|----------------------|----------------|--------------|--------------------------|--------------------|----------------------|------------------|-----------------|-------------------------|
| 1. Big Sur | ✓ | | | ✓ | ✓ | | | |
| 2. Lopez Lake | ✓ | | | | | | | |
| 3. Carmel River | ✓ | | ✓ | ✓ | ✓ | | | |
| 4. Seacliff Beach | ✓ | | | ✓ | ✓ | | | |
| 5. Elkhorn Slough | | | | | ✓ | | ✓ | |
| 6. Lake Nacimiento | | ✓ | | ✓ | | ✓ | | ✓ |
| 7. San Lorenzo River | ✓ | | | | | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

E. South Coast Region

The South Coast region is predominantly urban, with 14.6 million people and a diverse metropolitan economy. The large cities in the region include Santa Barbara, Oxnard-Ventura, Los Angeles and Anaheim metropolitan areas. Coastal waters are warm and sheltered by the orientation of the coast and the presence of offshore islands, but there are no natural harbors. Artificial harbors, such as the Los Angeles-Long Beach Harbor, which is largely pre-empted by shipping, are few and small. There are few lakes in the region.

Exhibit 3.4, on the next page, illustrates major waterways in the South Coast region.

Much of the non-motorized boating in Southern California takes place from beaches. Beaches are typically managed by cities, counties, and State Parks. Rules regarding launching non-motorized boats vary for each particular beach. Clear policies and signage would benefit both non-motorized boaters and other beachgoers. Conflicts between surfers (using surfboards) and surf kayakers were a concern on several South

Coast beaches. As surf kayaking is increasing in popularity, so are the number of conflicts between surfers and surf kayakers related to who has priority while waiting to catch waves in the surf lineup. This was another area where rules and enforcement were reportedly often unclear and inconsistent. For example, active-user survey respondents and interest group meeting participants noted that at some beaches, surf kayakers were discouraged or not allowed, while surfing with a surfboard was an approved activity.

When non-motorized boating is allowed on a particular beach, it is important to have a safe location for landing non-motorized boats, away from those playing in, or close to, the water. Kiteboarding poses particular hazards to beachgoers, as most people are unaware of the potential for injury when stepping in the path of a taut kite line. Some Southern California beaches have restricted kiteboarding on weekends, or limited the number of locations where kiteboarding is allowed.

Exhibit 3.4
South Coast Region Waterway Map



Table 3.10
South Coast Region Facility Needs on Key Waterways Identified by Non-Motorized Boaters (2006)

| Frequently Used Waterway | Improved access | Parking | Restrooms | Freshwater boat wash | Boating trails | Docks | Floats/launch ramps | Beach area | Storage | Signage | Showers | Improved water quality | Picnic areas | Camping | Motor-boat free zone |
|--|-----------------|---------|-----------|----------------------|----------------|-------|---------------------|------------|---------|---------|---------|------------------------|--------------|---------|----------------------|
| 1. Pacific Ocean (including Catalina Island) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| 2. Marina del Rey | 5 | 8 | | | | 4 | 6 | | 1 | | 3 | 2 | | | 7 |
| 3. Mother’s Beach | | | 1 | 5 | | | | | 4 | | 2 | 3 | | | 6 |
| 4. Alamitos Bay | 8 | 4 | 2 | 5 | | | | 7 | | | 3 | 1 | | | 6 |
| 5. Naples/ Long Beach | | 2 | 3 | | | | | | 4 | | 5 | 1 | | | |
| 6. Newport Harbor | 1 | 3 | 2 | 8 | | | | 6 | 7 | | 5 | 4 | | | |
| 7. Cabrillo Beach | | ✓ | | ✓ | | | | ✓ | | | ✓ | | | | |
| 8. Huntington Harbor | | ✓ | ✓ | | | | | ✓ | | | | | | | |
| 9. Santa Monica Bay | ✓ | ✓ | | ✓ | | | | | ✓ | | | | | | |
| 10. Dana Point Harbor | | ✓ | | ✓ | | | | | ✓ | | | | | | |
| 11. Malibu Beach | | | | | | | | | ✓ | | ✓ | | | | |
| 12. Channel Islands Harbor | | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

The South Shore Launch Ramp in Long Beach is reportedly an example of a well-designed launch ramp for non-motorized boats. The facility provides a circular drive-up area with ramp access into the sheltered harbor. The area is very popular with fishing kayakers. Seal Beach at First Street has a facility that works well for windsurfers, with a grassy rigging area. About ten years ago, the Southern California Windsailing Association worked with the City of Seal Beach to fund and provide the labor to develop the site.

There is growing interest among sea kayakers in Southern California to develop a Channel Islands Water Trail. Channel Islands is a National Park that consists of a chain of islands about ten miles from Ventura Harbor. While kayakers can land on the islands, camping is limited, and not available

near the water and/or within a normal day’s paddle. As part of a long-term planning process, the National Park Service is reportedly considering the creation of a Channel Islands water trail. Many Southern California non-motorized boaters would also like to see better mapping and/or development of a water trail along the Southern California coast, linked with access points and camping.

Two areas of concern that were more prevalent in the South Coast region than any other region were (1) water quality, and (2) overcrowding. These concerns reflect the dense population of the region and the small number of waterways. **Table 3.10**, above, identifies commonly used waterways and facility needs in the region. **Table 3.11**, on the next page, identifies South Coast region waterways that survey respondents avoided using.

Table 3.11
South Coast Region Avoided Waterways and Reasons Identified by Non-Motorized Boaters (2006)

| Avoided Waterway | Lack of access | Overcrowding | Inconsistent water flows | Inadequate parking | Inadequate restrooms | Poor water quality | Reckless boaters |
|-------------------------------------|----------------|--------------|--------------------------|--------------------|----------------------|--------------------|------------------|
| 1. Newport Harbor | ✓ | 1 | | ✓ | ✓ | ✓ | 2 |
| 2. Marina del Rey | 5 | 3 | | 4 | | 2 | 1 |
| 3. Mother's Beach/Long Beach | 2 | | | | | 1 | |
| 4. Piru Creek and Piru Lake | 1 | 4 | 3 | 2 | | | 5 |
| 5. Ballona Creek | ✓ | | ✓ | ✓ | | 1 | |
| 6. Malibu Beach | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| 7. Lake Casitas | ✓ | ✓ | | | | | ✓ |
| 8. Pyramid Lake | ✓ | | | | | ✓ | ✓ |
| 9. Santa Barbara Harbor and Beaches | ✓ | ✓ | | ✓ | ✓ | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

F. San Diego Region

The San Diego region is predominantly urban, with a population of three (3) million and a large rural hinterland. San Diego is the principal large city in the region which, though historically devoted to trade and defense, has recently become somewhat diversified. San Diego Bay and Mission Bay provide extensive protected water near population centers, and there are numerous small lakes in the interior part of the region, although many have use restrictions. **Exhibit 3.5**, on the next page, illustrates major waterways in the San Diego region.

The City of San Diego Water Department operates an extensive system of lakes east of San Diego.²⁰ These lakes provide water to the City, as well as recreational opportunities. The rules for water contact, particularly for windsurfing, canoeing, and kayaking, vary among the lakes. Some of these lakes do not allow canoeing and kayaking, except on scheduled paddle days.

Most of the non-motorized boating in the San Diego region takes place in Mission Bay, San Diego Bay, and several of the lakes just east of San Diego. **Table 3.12**, on page 3-21, identifies waterways and facility needs in the region. **Table 3.13**, following Table 3.12, summarizes waterways that respondents avoided within the San Diego region.

G. Northern Interior Region

The Northern Interior region, historically devoted to agriculture and forestry, is predominantly rural, with a population of 91,000. It contains hundreds of small to medium-sized lakes and numerous rivers. Whitewater rivers include the Klamath, Salmon, Scott, and Upper Sacramento. **Exhibit 3.6**, on page 3-22, illustrates the major waterways in the Northern Interior region.

Exhibit 3.5
San Diego Region Waterway Map

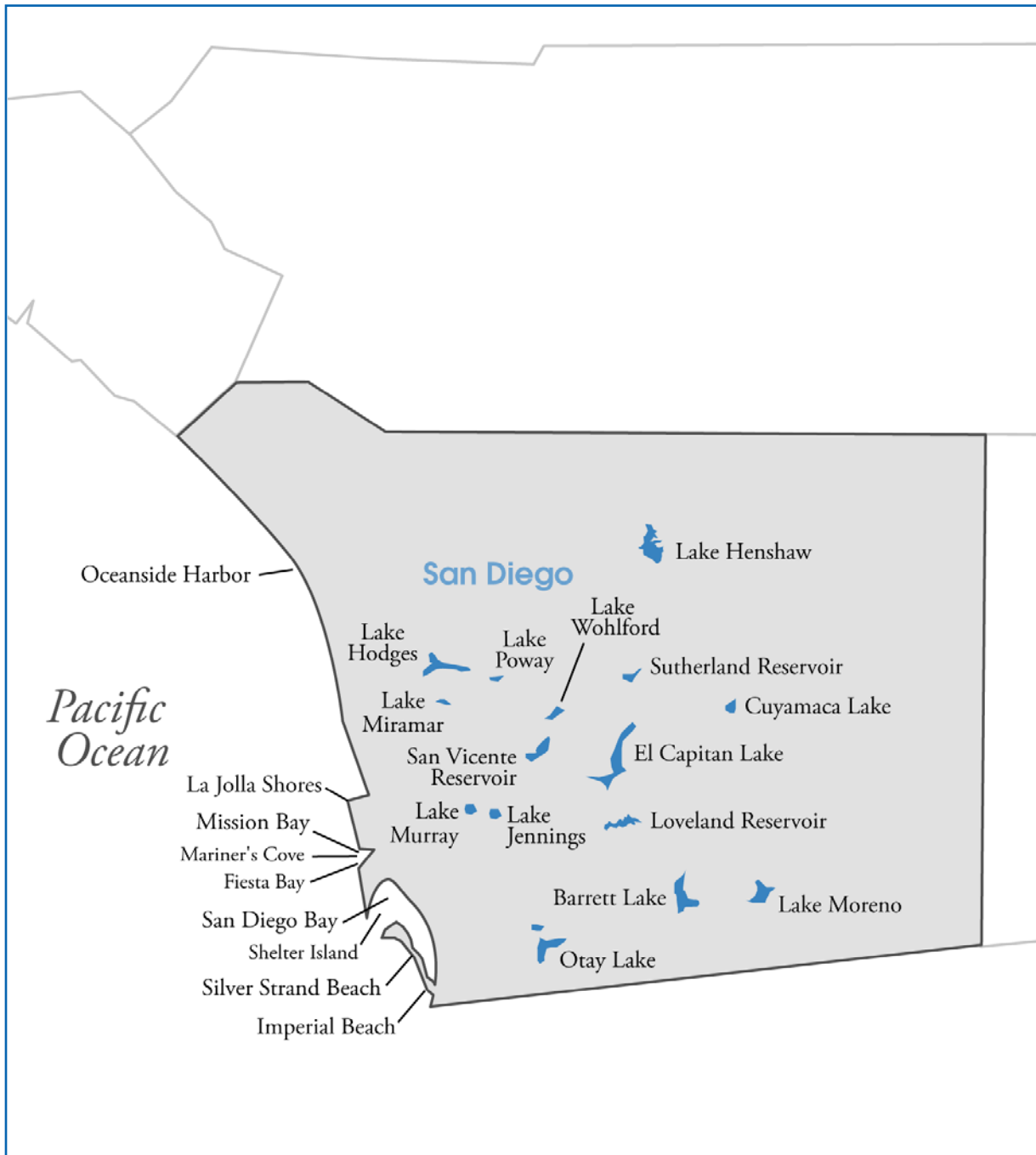


Table 3.12
San Diego Region Facility Needs on Key Waterways Identified by Non-Motorized Boaters (2006)

| Frequently Used Waterway | Improved access | Maintain water level | Parking | Restrooms | Freshwater boat wash | Kiteboarding area | Floats/launch ramps | Beach area | Storage | Signage | Showers | Improved water quality | Picnic areas | Motor-boat free zone | Boater/kayaker safety rules |
|--------------------------|-----------------|----------------------|---------|-----------|----------------------|-------------------|---------------------|------------|---------|---------|---------|------------------------|--------------|----------------------|-----------------------------|
| 1. Mission Bay | 6 | | 1 | 4 | 5 | | | 8 | 7 | 10 | 9 | 3 | | 2 | 11 |
| 2. Pacific Ocean | 2 | | 1 | 6 | | | | 3 | 5 | | 4 | | | | |
| 3. San Diego Bay | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| 4. Lake Hodges | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | | | | ✓ | ✓ | | |
| 5. Oceanside Harbor | ✓ | | ✓ | ✓ | | | | | ✓ | | | | | ✓ | |
| 6. La Jolla Shores | ✓ | | ✓ | | | | | | ✓ | ✓ | | ✓ | | ✓ | |
| 7. Silver Strand Beach | | | | | | ✓ | | | | | | | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

Table 3.13
San Diego Region Avoided Waterways and Reasons Identified by Non-Motorized Boaters (2006)

| Avoided Waterway | Lack of access | Over-crowding | Inadequate parking | Inadequate restrooms | Poor water quality | Reckless boaters | Launch Fees |
|------------------|----------------|---------------|--------------------|----------------------|--------------------|------------------|-------------|
| 1. Mission Bay | | 2 | 4 | | 3 | 1 | |
| 2. San Diego Bay | 2 | | | | 1 | 3 | |
| 3. Lake Hodges | 1 | | 2 | 3 | | | |
| 4. Lake Murray | | | | | | | ✓ |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

Whitewater boating, particularly guided rafting trips, make up a significant portion of non-motorized boating activity in the Northern Interior region. In addition, many residents participate in kayaking and canoeing, typically between the warmer months of May through October.

Table 3.14, on the next page, identifies waterways and facility needs in the Northern Interior region. Some commercial outfitters noted the need for an improved take-out ramp on the Scott River, up river of Scott Bar. The current take-out ramp is steep and treacherous. Outfitters

also identified the need for a take-out ramp on the Upper Sacramento River at Mosquito Creek, where again the walk-out is steep and rocky.

There was only one Northern Interior waterway that survey respondents avoided, the Klamath River. While this was also one of the most used waterways, there were several problems identified. The most significant problem was poor water quality, due to agricultural run-off into the river. Other problems included dangerous access roads, vandalism of parked cars, and inadequate parking and restrooms.

3. Waterways and Facility Needs for Non-Motorized Boating

Exhibit 3.6
Northern Interior Region Waterway Map

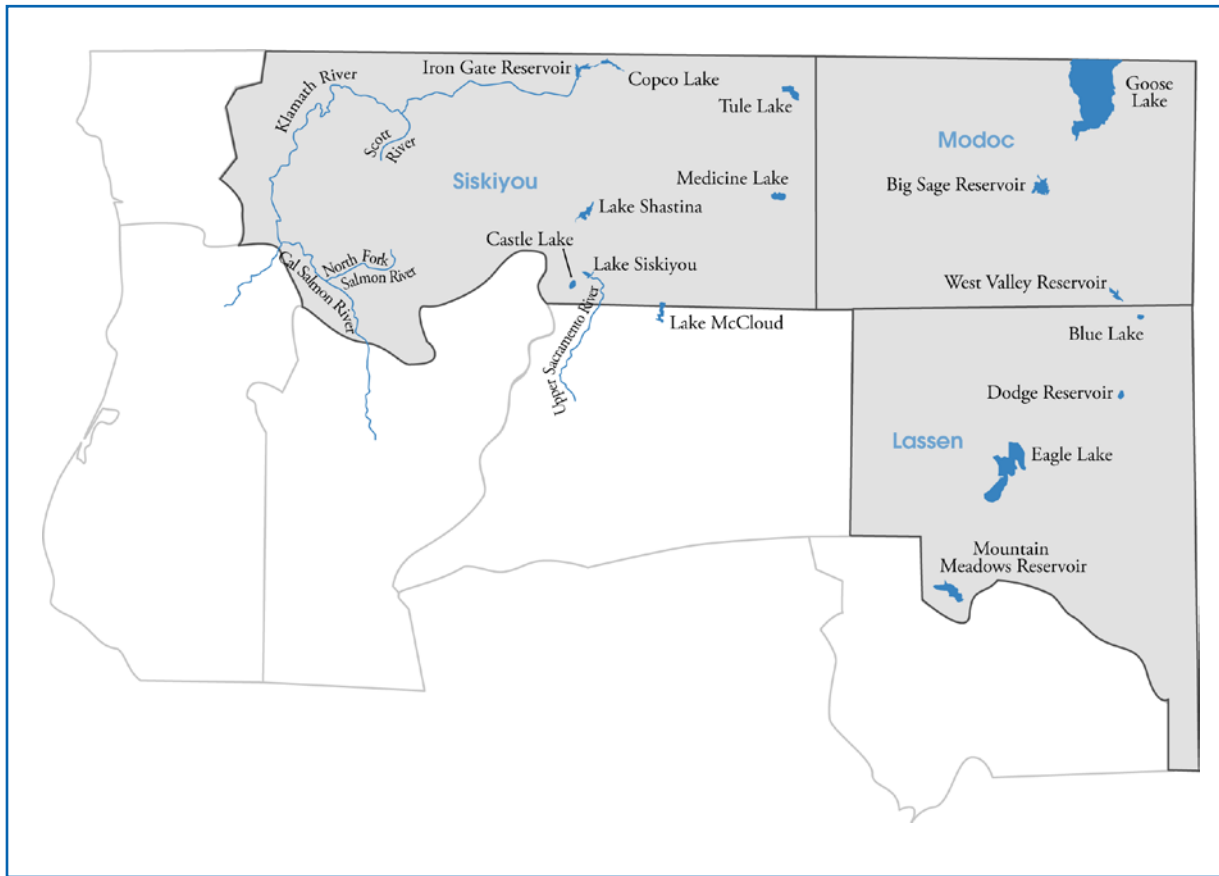


Table 3.14
Northern Interior Region Facility Needs on Key Waterways Identified by Non-Motorized Boaters (2006)

| Frequently Used Waterway | Improved access | Maintain water level | Parking | Restrooms | Boating trails | Floats/launch ramps | Signage | Improved water quality | Enforcement of Life Jackets | Improved road conditions | Whitewater park |
|--------------------------|-----------------|----------------------|---------|-----------|----------------|---------------------|---------|------------------------|-----------------------------|--------------------------|-----------------|
| 1. Lake Siskiyou | 1 | | | 3 | 5 | 2 | 4 | | | | |
| 2. Klamath River | 6 | 3 | | | 1 | 2 | | 4 | | 7 | 5 |
| 3. Eagle Lake | | | | 1 | 2 | 3 | | | | | |
| 4. Castle Lake | | | | | | ✓ | | | | | |
| 5. Lake McCloud | ✓ | | | | | ✓ | | | | | |
| 6. Upper Sacramento | ✓ | | | | | | | | ✓ | | |
| 7. Cal Salmon River | ✓ | | ✓ | | | | | | | ✓ | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

H. Sacramento Basin Region

The Sacramento Basin region, with a population of 2.9 million, is an intensively developed agricultural area served by the Sacramento metropolitan area, and several medium-sized cities, including Redding and Chico. It was historically devoted to trade, government, agriculture, and defense, and has recently grown most in the service sector. The region is traversed for most of its length by the Sacramento River, and has dozens of small lakes and several large ones, including Lakes Shasta, Almanor, and Oroville. The region includes Lake Tahoe and many mountain lakes, as well as several major whitewater rivers, including the North, Middle, and South Forks of the American River, the Yuba River, and the Feather River. The South Fork of the American River is one of the most popular whitewater destinations in the United States.

Exhibit 3.7, on the next page, illustrates the major waterways in the Sacramento Basin region. **Table 3.15**, on page 3-25, identifies waterways and facility needs in the Sacramento Basin region.

In addition to the waterways identified in Table 3.15, non-motorized boaters in the Sacramento Basin utilize many of the numerous lakes and reservoirs scattered throughout the region. Boaters using these waterways are primarily participating in flatwater paddling with inflatable boats, recreational kayaks, and canoes.

Lakes used by non-motorized boaters included: Blue Lake, Boca Reservoir, Bucks Lake, Gold Lake, New Hogan Lake, Jenkins Lake, Icehouse Lake, Sugar Pine Lake, Silver Lake, Stonyford Reservoir, Union Valley Reservoir, Lake Almanor, Lake Oroville, and Lake Shasta. Facility needs for these boaters included: improved signage to clearly identify launch areas, access to the water, parking, and restrooms. On the larger lakes and reservoirs, many survey respondents hoped that motorboat-free zones could be established.

Special interest group participants identified several specific locations for non-motorized boating facility improvements in the Sacramento Basin region. At Whiskeytown, the need for more parking was an issue at Whiskey Creek. And at Whiskey Creek and Oak Bottom locations, there were needs for non-motorized boat beach launching. The National Park Service, who manages the lake, is working to develop an aquatic center. Whiskeytown is also on a list of lakes for which the National Park Service is considering setting a 5 mph speed limit, although no changes are likely in the immediate future.

Boaters also identified a need for non-motorized launching on Lake Red Bluff, increased parking on the Fall River, improved safety signage at Turtle Bay on the Sacramento River, access signage on Trinity Lake, and river access on the Sacramento River in Redding under the Cypress Avenue bridge.

Paddling groups, the County of Lake, and the National Park Service are working to develop water trails and public access maps on Clear Lake. They are currently developing a series of brochures for a Clear Lake water trail. There are six separate draft maps available for different regions of the lake, and the organizations are developing a paddling map for Lake County.²¹

The Middle Fork of the American River, which stretches from Folsom Lake up to the old Highway 40 bridge in Auburn, is an area that will have facility needs in the near future. California State Parks will open this stretch of river, which would have been submerged by the Auburn Dam, in 2008. This stretch of the Middle Fork is easy to float and will likely attract a large number of rafters and inner tubers. Initially, State Parks may not allow commercial use on the river.

3. Waterways and Facility Needs for Non-Motorized Boating

Exhibit 3.7
Sacramento Basin Region Waterway Map



Table 3.15
Sacramento Basin Region Facility Needs on Key Waterways Identified by Non-Motorized Boaters (2006)

| Frequently Used Waterway | Improved access | Maintain water level | Parking | Restrooms | Low impact facilities | Boating trails | Docks | Floats/launch ramps | Beach area | Storage | Signage | Showers | Improved water quality | Camping | Motor-boat free zone | Whitewater park |
|--------------------------------------|-----------------|----------------------|---------|-----------|-----------------------|----------------|-------|---------------------|------------|---------|---------|---------|------------------------|---------|----------------------|-----------------|
| 1. South Fork of the American River | 2 | 1 | 4 | 5 | 6 | | | | | | | | 8 | 7 | | 3 |
| 2. American River | 2 | 1 | 4 | 5 | 7 | 8 | | | | | | | | 6 | | 3 |
| 3. Lake Natoma | 4 | | 2 | 1 | | | 6 | | 5 | | | | | | 3 | |
| 4. Lake Tahoe | 1 | | | | | 2 | | 5 | | | | | | 3 | 4 | |
| 5. North Fork of the American River | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | |
| 6. Sacramento River | ✓ | | ✓ | ✓ | | | | ✓ | | | | | | | | |
| 7. North Fork of the Feather River | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | |
| 8. Whiskeytown Lake | ✓ | | ✓ | ✓ | | | ✓ | | | | | | | | ✓ | |
| 9. Port of Sacramento | | | | ✓ | | | ✓ | | | | | ✓ | | | ✓ | |
| 10. Trinity River | ✓ | ✓ | ✓ | | ✓ | | | | | | | | | | | |
| 11. Trinity Lake | | | ✓ | ✓ | | | | | | ✓ | ✓ | | | | ✓ | |
| 12. Cache Creek | ✓ | | ✓ | ✓ | | | | | | | | | | | | |
| 13. Clear Lake | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | | | | | | | | |
| 14. Truckee River | | | | ✓ | | | | | | | | | | | | |
| 15. Folsom Lake | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| 16. Middle Fork of the Feather River | | | | | ✓ | | | | | | | | | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

The Lower American River receives heavy commercial and individual use, including self-guided inflatable boats, canoes, whitewater kayaks, and toy boats. There are large, well designed put-ins and take-outs at Watt and Howe Avenues with adequate restrooms. However, there are no restroom or trash facilities along the eight mile stretch of river in between these two locations, and no access between Howe Avenue and Discovery Park.

California rivers, particularly rivers within the Sacramento Basin and Central Valley regions, offer some of the best whitewater boating in the country. There are a number of facility improvements to support whitewater boating that survey respondents and special interest group meeting participants identified. Four issues apply to whitewater boating in general:

1. *Maintaining water flows* – If there is not adequate water flowing through a river, there is no whitewater boating. Rainfall and snowpack are important, but most California river flows are controlled by dams. Federal Energy Regulatory Commission (FERC) dam relicensing projects involve multi-year permitting processes that must take into account recreational use on the rivers, and reservoirs, that are part of any hydropower project.
2. *Establishing one or more whitewater parks within California* – There was strong consensus among whitewater boaters that California could easily support at least one whitewater boating park, similar to the facility in Reno, Nevada. Moving this concept to reality would require coordination among the various river managers, cities, counties, State Parks, DBW, and federal agencies involved to identify a location, secure funding, plan, and implement. Potential whitewater park locations include Natomas Flats on the American River (below the Nimbus Dam and near the California State University Sacramento Aquatic Center), and Riverside Whitewater Park on the Kern River.
3. *Improving parking security at river put-in and take-out locations* – A key problem identified by whitewater (and sea) kayakers was vehicle break-ins while boaters are on the water.^b The problem is worse when cars are parked along the roadsides in remote areas. According to Sacramento area kayakers participating in an interest group meeting, security at the Greenwood Creek parking site on the South Fork of the American River has improved significantly since the parking lot and access location were upgraded. With the upgrades, other land- and water-based recreationists are parking in, and using, the facility, reducing opportunities for vandals. More frequent ranger patrols also reduce break-ins. Sacramento area kayakers also

noted that another improvement for parking security would be to simply place signs at parking areas to identify who to call in the event of a break-in. Because multiple agencies have jurisdiction over the land and water surrounding many rivers, boaters often do not know who they should contact in the event of an automobile break-in.

4. *Providing reasonably priced shuttle services during busy periods on certain rivers* – Parking at put-in and take-out locations is often inadequate; however, in many cases there is simply no place to add parking at the river site. Developing off-site parking in suitable locations nearby, with shuttle services to the river, would help alleviate the parking shortages. This alternative may offer a lower-cost, and less environmentally damaging, alternative to providing parking immediately adjacent to a river.

Within the Sacramento Basin region, special interest group participants and commercial survey respondents identified a number of specific facility needs on whitewater rivers. One of the highest priority needs identified was access road improvements, parking, and restrooms at Yankee Jim's, on the North Fork of the American River. This location serves as both a put-in and take-out for two runs along the river, and has high traffic volume. Yankee Jim's is a location where the geography might make it difficult to add parking. However, an alternative might be to develop off-site parking and a shuttle. According to Sacramento area kayakers participating in an interest group meeting, on the North Fork of the American, narrow and bumpy conditions on Ponderosa Road, on the way to the Shirt Tail take-out, make this drive dangerous.

While the South Fork of the American River generally has well-developed facilities, some survey respondents identified facility needs such as: composting toilets at put-ins and take-outs; wheelchair access at Chili Bar, Marshall Gold, and Camp Lotus; and parking at Salmon Falls.

^b Although it was identified as a problem by a number of respondents, the random and active-user surveys did not specifically mention parking security. Thus, it is possible that this problem was underreported.

Table 3.16
Sacramento Basin Region Avoided Waterways and Reasons Identified by Non-Motorized Boaters (2006)

| Avoided Waterway | Lack of access | Overcrowding | Inconsistent water flows | Inadequate parking | Inadequate restrooms | Poor water quality | Reckless boaters | Launch Fees | Need non-motorized zone |
|-------------------------------------|----------------|--------------|--------------------------|--------------------|----------------------|--------------------|------------------|-------------|-------------------------|
| 1. Folsom Lake | | ✓ | | | | | ✓ | | ✓ |
| 2. Lower American River | | ✓ | | | | ✓ | ✓ | | |
| 3. Shasta Lake | | ✓ | | | | | ✓ | | |
| 4. North Fork Feather River | ✓ | | ✓ | ✓ | | | | | |
| 5. Cosumnes River | ✓ | | | ✓ | | | | | |
| 6. Lake Oroville | ✓ | | | ✓ | | | ✓ | | |
| 7. Lake Almanor | | ✓ | | | ✓ | | ✓ | | |
| 8. South Fork of the American River | | ✓ | | | | | ✓ | | |
| 9. North Fork of the American River | | | | ✓ | ✓ | | | | |
| 10. Sacramento River | ✓ | | | | | ✓ | ✓ | | |
| 11. Balls Ferry | | | ✓ | | ✓ | | | | |
| 12. Lake Tahoe | ✓ | ✓ | | ✓ | | | ✓ | ✓ | |
| 13. Cache Creek | | | ✓ | | ✓ | ✓ | | | |
| 14. South Fork Yuba River | | | ✓ | ✓ | ✓ | | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

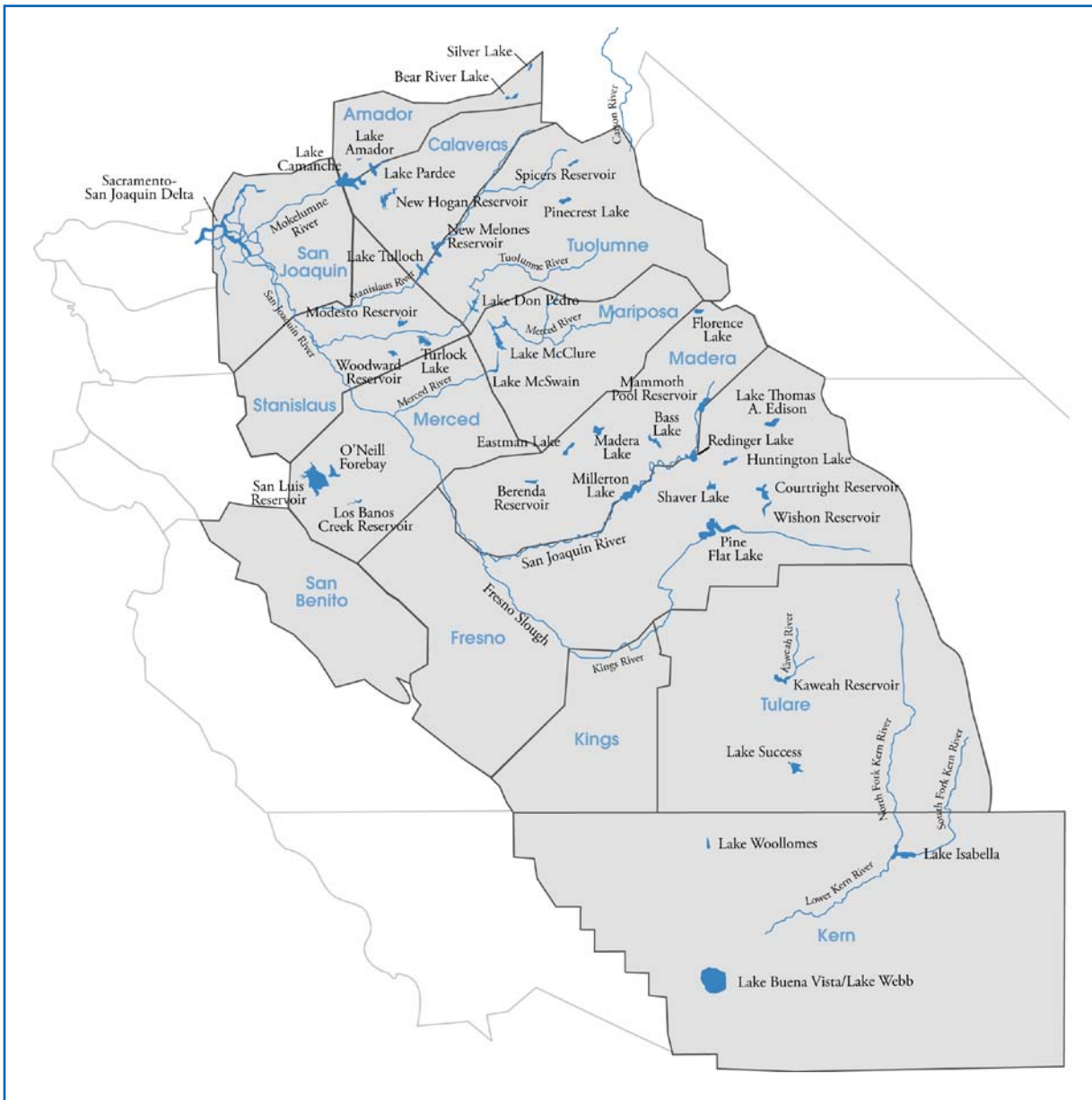
There are two locations on the North Fork of the Feather River with facility needs, Cresta Road and Rock Creek. Under the recently completed PG&E hydropower relicensing agreement, there is only a short time period when enough water is released on the river for whitewater boating. During these time periods when the river is flowing, there are a large number of boaters on the North Fork of the Feather River. At both the Cresta Road and Rock Creek put-ins, the trails down to the water are steep and hazardous. In addition, at Rock Creek boaters must park across Highway 70, and carry their boats and gear across the highway.

Parking is an issue on the Cosumnes River, near Highways 49 and 16. There is no parking within one quarter mile of the put-in or take-out locations on the river. As much of the land

alongside this river is privately owned, there are also trespass issues at a location that requires portaging in order to safely navigate the river.

Table 3.16, above, identifies avoided waterways in the Sacramento Basin region. With the exception of the Lower American River, which is known for rafting and tube floating, many of the avoided waterways were the larger reservoirs, which are widely used for motorized boating. On the Lower American and South Fork of the American, the issue of reckless boaters refers to other non-motorized boaters (or floaters). On the reservoirs, the issue of reckless boaters refers to motorized boats and personal watercraft. Whitewater rivers in the region with difficult parking or access were also among the avoided waterways identified by many boaters.

Exhibit 3.8
Central Valley Region Waterway Map



I. Central Valley Region

Like the Sacramento Basin, but with a larger (and rapidly growing) population of four (4) million, the Central Valley region is an intensively developed agricultural area served by several cities, including Stockton, Modesto, Fresno, and Bakersfield. This region was historically devoted to agriculture, petroleum, and defense, and

recently has grown in the service sector. Crossed by the San Joaquin River, the Central Valley region has many lakes and reservoirs, and several whitewater rivers including the Kings River, Kern River, Tuolumne River, Merced River, and Kaweah River.

Exhibit 3.8, above, illustrates the major waterways in the Central Valley region, while

Table 3.17, below, identifies waterways and facility needs for the Central Valley region.

Table 3.18, on the next page, identifies avoided waterways in the Central Valley Region.

Like the Sacramento Basin region, there are two major types of non-motorized boating: (1) recreational paddling in the many Central Valley lakes, reservoirs, and calmer rivers; and (2) whitewater boating on Central Valley rivers. Survey respondents did not identify any single lake or group of lakes for non-motorized boating, rather, respondents used a wide number of lakes throughout the region. Thus, with only one or two respondents identifying facility needs at any particular lake, it was difficult to identify those with the greatest needs. For whitewater rivers, there was consensus among a number of respondents regarding specific improvements on certain rivers in the region.

The Tuolumne River is a federally designated Wild and Scenic River that offers nationally recognized Class IV and V rapids. According to several outfitters and active-user survey respondents, the put-in and take-out locations on this river are in bad condition, making carrying boats in and out difficult. In addition, there have been problems with automobile break-ins and vandalism of restrooms. There was strong consensus among commercial and private whitewater boaters that developing facilities on this river should be a high priority. There are three locations with facility needs: (1) a boat launch ramp at Lumsden Road (Meral's Pool); (2) a safer take-out at Wards Ferry Road; and (3) restrooms and a trail to the water on Cherry Creek/Upper Tuolumne River. The Forest Service is working to develop facilities, but there is limited funding for planning, and progress has been slow. The Tuolumne River Trust has also completed some work at Ward's Ferry take-out.

Table 3.17
Central Valley Region Facility Needs on Key Waterways Identified by Non-Motorized Boaters (2006)

| Frequently Used Waterway | Improved access | Maintain water level | Parking | Restrooms | Low impact facilities | Boating trails | Docks | Floats/launch ramps | Beach area | Picnic areas | Camping | Motor-boat free zone | Whitewater park |
|-----------------------------------|-----------------|----------------------|---------|-----------|-----------------------|----------------|-------|---------------------|------------|--------------|---------|----------------------|-----------------|
| 1. Kern River | 3 | 1 | 4 | 5 | | | | | | | | | 2 |
| 2. Tuolumne River | 2 | 1 | 3 | 4 | 5 | | | | | | 6 | | |
| 3. Kings River | 1 | 4 | 3 | 2 | | 5 | 6 | | | | | | |
| 4. Bear River Lake | ✓ | | ✓ | ✓ | | ✓ | | | | | | | |
| 5. Mokulumne River | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | |
| 6. Sacramento – San Joaquin Delta | ✓ | | ✓ | ✓ | | ✓ | | | | | ✓ | | |
| 7. Lake Isabella | ✓ | ✓ | ✓ | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | |
| 8. New Melones Reservoir | ✓ | | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | |
| 9. Bass Lake (Madera County) | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | | | | |
| 10. Silver Lake (Amador County) | ✓ | ✓ | | ✓ | | | | | | | | ✓ | |
| 11. Stanislaus River | ✓ | ✓ | | | | | | | | | | | |
| 12. Merced River | ✓ | | ✓ | ✓ | | | | | | | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

Table 3.18
Central Valley Region Avoided Waterways and Reasons Identified by Non-Motorized Boaters (2006)

| Avoided Waterway | Lack of access | Overcrowding | Inconsistent water flows | Inadequate parking | Inadequate restrooms | Poor water quality | Reckless boaters |
|---------------------------------|----------------|--------------|--------------------------|--------------------|----------------------|--------------------|------------------|
| 1. San Joaquin River | ✓ | | ✓ | ✓ | | ✓ | |
| 2. Stanislaus River | | | ✓ | | | ✓ | ✓ |
| 3. New Melones Reservoir | ✓ | ✓ | | | | | ✓ |
| 4. Sacramento-San Joaquin Delta | ✓ | ✓ | | ✓ | | | ✓ |
| 5. Bass Lake | | ✓ | | | | | ✓ |
| 6. Bear River Lake | ✓ | | ✓ | | ✓ | | ✓ |
| 7. Kern River | ✓ | | ✓ | ✓ | | | |
| 8. Kaweah Reservoir | ✓ | | ✓ | ✓ | | | |
| 9. Merced River | ✓ | | ✓ | ✓ | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

According to several outfitters, another high-priority whitewater facility need in the Central Valley region is located on the Kings River, where there is need for a boat launch at the Garnet Dike put-in. This is another location where getting people and boats down to the water is difficult. The access road along the Kings River is also in need of improvement. Similar to the Tuolumne River, the Forest Service is aware of the problems, and facility improvements are currently in the environmental planning stage.

On the Kern River, located near Bakersfield, survey respondents identified the need for a launch ramp with a boat slide and/or stairs at the put-in near Johnsondale Bridge. Respondents also identified a need for restrooms at river access points (with the exception the wilderness area portion of the river), as well as established campsites on the Forks of the Kern, which is a multi-day rafting trip. The Kern River Alliance, a non-profit group in the region, is working toward developing a whitewater park along one stretch of the Kern River.

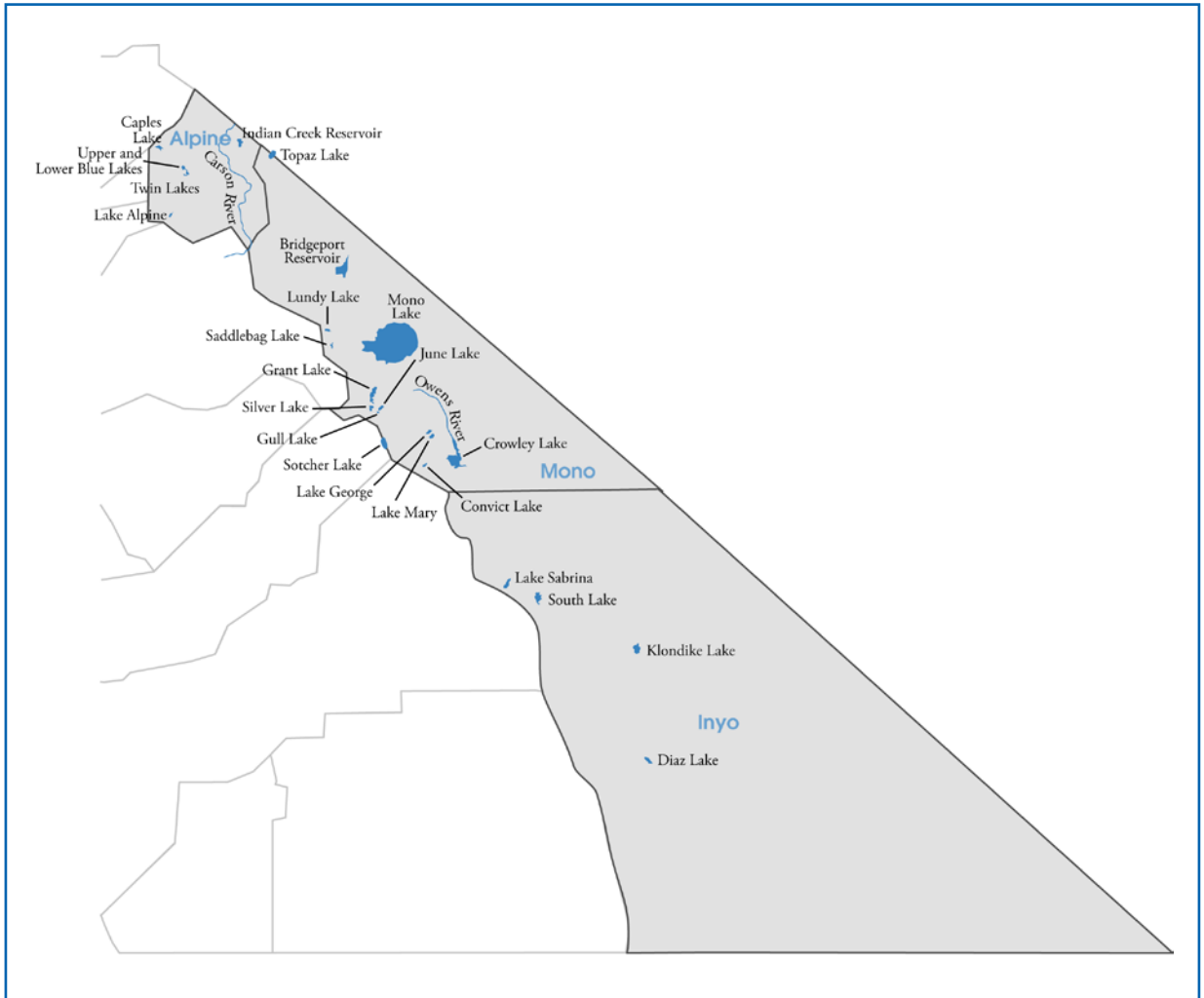
The Mokelumne River offers both easy (Class I and II) and challenging (Class IV) rapids. Improved access to the Class I and II portions, such as restrooms and parking along Middle Bar Road, would reportedly provide new boating opportunities for beginning-level rafting and recreational kayaking.

J. Eastern Sierra Region

The Eastern Sierra region is sparsely populated, with 33,000 people. It was historically devoted to mining and forestry, and now is primarily supported by tourism. Its terrain is mountainous but contains lakes of all sizes. Boating of any kind is largely curtailed during the winter months. **Exhibit 3.9**, on the next page, illustrates the major waterways in the Eastern Sierra region.

Special interest group participants in the Eastern Sierra region identified several facility issues on local waterways. Many boaters cited the need for a pamphlet that identifies access points on the numerous small lakes in the region, particularly in the Mammoth Lakes area. Specific access points and improved signage would be beneficial on area lakes.

Exhibit 3.9
Eastern Sierra Region Waterway Map



Respondents identified a need for more access points along the Owens River. Special interest group meeting participants also identified a need for National Weather Service recreation forecasts for lakes in the region such as Topaz Lake, Crowley Lake, and Mono Lake. Boating on these large lakes can quickly become hazardous in bad weather. However, there is not adequate warning about weather conditions for boaters, such as there is on Lake Tahoe.

Table 3.19, on the next page, identifies waterways and facility needs in the Eastern Sierra

region. **Table 3.20**, following Table 3.19, identifies avoided waterways in the region.

K. Southern Interior Region

The Southern Interior region is hot and arid with extensive unpopulated areas. Its population of 4.1 million is mostly concentrated in the San Bernardino-Riverside area, although development is moving further east. The region was historically devoted to mining, trade, and manufacturing, but it has recently grown in the service sector as it merged with the greater Los Angeles metropolitan complex. The

3. Waterways and Facility Needs for Non-Motorized Boating

Table 3.19
Eastern Sierra Region Facility Needs on Key Waterways Identified by Non-Motorized Boaters (2006)

| Frequently Used Waterway | Improved access | Parking | Restrooms | Docks | Floats/launch ramps | Improved water quality | Motorboat free zone | Remove trees & hazards |
|--------------------------|-----------------|---------|-----------|-------|---------------------|------------------------|---------------------|------------------------|
| 1. Crowley Lake | | | ✓ | | | | ✓ | |
| 2. Topaz Lake | | | ✓ | | | | | |
| 3. Owens River | ✓ | | | | | ✓ | | ✓ |
| 4. Twin Lakes | ✓ | ✓ | | ✓ | ✓ | | | |
| 5. Sotcher Lake | ✓ | | | | ✓ | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

Table 3.20
Eastern Sierra Region Avoided Waterways and Reasons Identified by Non-Motorized Boaters (2006)

| Avoided Waterway | Lack of access | Inconsistent water flows | Inadequate parking | Need freshwater boat wash | Launch Fees |
|------------------|----------------|--------------------------|--------------------|---------------------------|-------------|
| 1. Crowley Lake | | | | | ✓ |
| 2. Mono Lake | ✓ | | ✓ | ✓ | |
| 3. Owens River | | ✓ | | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

Table 3.21
Southern Interior Region Facility Needs on Key Waterways Identified by Non-Motorized Boaters (2006)

| Frequently Used Waterway | Improved access | Maintain water level | Parking | Restrooms | Freshwater boat wash | Boating trails | Grassy area | Signage | Improved water quality | Camping | Motorboat free zone |
|--------------------------|-----------------|----------------------|---------|-----------|----------------------|----------------|-------------|---------|------------------------|---------|---------------------|
| 1. Lake Perris | 1 | 3 | | | | | | | 4 | | 2 |
| 2. Big Bear Lake | ✓ | | | | | | ✓ | | | | |
| 3. Colorado River | ✓ | ✓ | ✓ | ✓ | | ✓ | | | | ✓ | |
| 4. Lake Elsinore | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | | | ✓ |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

Colorado River runs along the eastern boundary of this region. The lakes of the region are few and small. **Exhibit 3.10**, on the next page, illustrates the major waterways in the Southern Interior region.

There are three key concerns in the Southern Interior region: (1) interactions with motorized boaters on the region's few lakes, (2) limited

non-motorized boating access imposed by water districts, and (3) high launch fees at many lakes.

Table 3.21, above, identifies waterways and facility needs in the Southern Interior region. **Table 3.22**, on the next page, identifies avoided waterways in the region.

Exhibit 3.10
Southern Interior Region Waterway Map

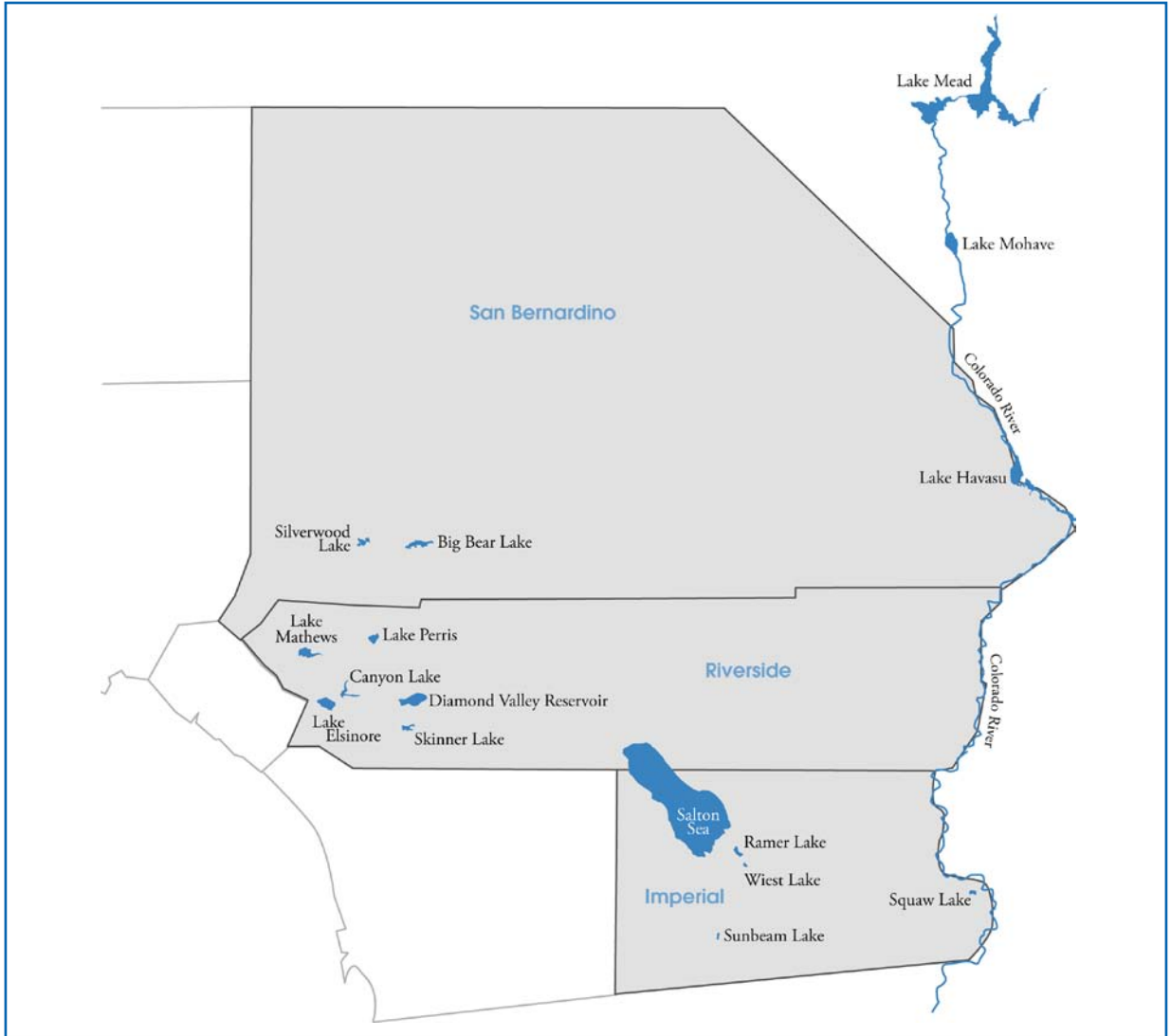


Table 3.22
Southern Interior Region Avoided Waterways and Reasons Identified by Non-Motorized Boaters (2006)

| Avoided Waterway | Lack of access | Overcrowding | Inadequate restrooms | Reckless boaters | Water conditions | Launch Fees |
|-----------------------------|----------------|--------------|----------------------|------------------|------------------|-------------|
| 1. Colorado River | ✓ | ✓ | | ✓ | | |
| 2. Diamond Valley Reservoir | ✓ | | ✓ | ✓ | | ✓ |
| 3. Lake Perris | | ✓ | | ✓ | | |
| 4. Skinner Lake | ✓ | | | | | |
| 5. Salton Sea | | | | | ✓ | |
| 6. Silverwood Lake | | ✓ | | | | |
| 7. Lake Elsinore | | ✓ | | ✓ | ✓ | |
| 8. Lake Havasu | | ✓ | | ✓ | | |

Note: A number indicates the priority ranking of the facility need or problem when enough data were available to rank. A check indicates that the facility need or problem was identified by survey respondents, interest group participants, or expert interviews.

Section 3 Endnotes

- ¹ Waterway managers interviewed for this project include: Gay Baxter, Klamath National Forest (Klamath, Salmon and Scott Rivers); Jeff Horn, Bureau of Land Management (South Fork American, North Fork American, Merced Rivers); Cheryl Bowen, Sequoia National Forest (Kern River); Lisa Emanuelson, Monterey National Marine Sanctuary (Monterey Bay); Noah Ruckert-Triplett, El Dorado County (South Fork American River); Kevin McKay, National Park Service, Point Reyes; Jim Micheals, California State Parks Folsom Unit (Folsom Lake, general information); Bill Deitchman, California State Parks Auburn Unit (Middle and North Fork of American River); Tom Jereb, PG&E Relicensing Project Manager (Feather River); John Swanson, Sierra National Forest (Tuolumne River); Matt Murphy, Corps of Engineers (Kaweah River); Terry Schumaker, Sierra National Forest (Kings River); and Jennifer Munn, Tulare County (Kaweah River).
- ² Commercial and institutional organization respondents interviewed for this project include: William McGinnis, Whitewater Voyages; Steve Welch, ARTA River Trips; Joel Robinson, Forebay Aquatic Center; Rick Stock, Feather River Community College; Hunter Merritt, Peak Adventures; Bob Ferguson, Zephyr Whitewater; DeDe Birch, Jack London Aquatic Center; Tom Harris, Living Waters Recreation; Marna Powell, Kayak Zak's; Marc Rowley, Bigfoot Rafting; Greg Hawkins, Motherlode River Center; Dan Crandall, Current Adventures; and John McDermott, River Dancers.
- ³ Non-motorized boating club and organization representatives interviewed for this study include: Joe Roth, Southern California Windsailing Association; Robert Van Creuningen, San Diego Windsurfing Association; Paul Wilkins, Southwest Program Coordinator, U.S. Rowing; Marilyn Steele, Northern California Outrigger Canoe Association; Steve Lowry, El Toro International Yacht Racing Association; Howard Adamson, Southern California Outrigger Canoe Association; Tom Newton, International Naples Sabot Association; Steve Sherman, United States Optimist Dinghy Association; Susan Dennis, United States Optimist Dinghy Association; Dave Steindorf, American Whitewater; Paul Sanford, American Canoe Association; and Jess Perales, Kern River Alliance.
- ⁴ The draft report was circulated to approximately 350 individuals and organizations that participated in the various surveys, interviews, and interest group meetings. We incorporated comments related to waterways and facility needs from: Ann Buell, State Coastal Conservancy; Holly Harris and Chuck Lamb, airkayaks.com; Todd Holmes, Sonoma County Regional Parks; Marty McDonnell, Sierra Mac River Trips; Chuck Seidler; Theresa Simsiman; and Michael Picker.
- ⁵ California Department of Boating and Waterways, Boating Trails Program (<http://dbw.ca.gov/boatrails.asp>).
- ⁶ American Canoe Association, "Water Trails" (American Canoe Association, <http://www.americancanoe.org>).
- ⁷ National Parks Service, Rivers, Trails and Conservation Assistance Program. *Logical Lasting Launches* (Washington D.C.: National Park Service, Spring 2004). Available at: http://www.nps.gov/nrcr/programs/rtca/helpfultools/ht_launch_guide.html.
- ⁸ National Water Safety Congress. *A Guide For Multiple Use Waterway Management, Second Edition* (Mentor, Ohio: National Water Safety Congress, 2004). Two additional water management resources are: United States Department of the Interior, Bureau of Reclamation. *Water Recreation Opportunity Spectrum User's Guidebook* (Lakewood, Colorado: Department of the Interior, July 2004); and Whittaker, Doug, Bo Shelby, and John Gangemi. *Flows and Recreation A Guide to Studies for River Professionals* (Washington DC: Hydropower Reform Coalition and the National Park Service, October 2005).
- ⁹ Truckee River Whitewater Park at Wingfield. http://www.cityofreno.com/res/com_service/whitewaterpark.
- ¹⁰ Mc Hugh, Paul. "New whitewater park in Reno." (San Francisco: San Francisco Chronicle, May 20, 2004).
- ¹¹ Ibid.
- ¹² Truckee River Recreation Plan. "Economic Impact of Recreation Use Expenditures." (Available at: <http://www.wwparks.com>).
- ¹³ Friends of the River and the California Hydropower Reform Coalition. "Rivers of Power, A Citizen's Guide to River Restoration Through Hydropower Reform." (Sacramento, California: Friends of the River).
- ¹⁴ Ibid.
- ¹⁵ Recent studies conducted for FERC relicensing projects include: SMUD's Camino Reach Whitewater Boating Flow Study Technical Report (March 2005); SMUD's Whitewater Boating Flow Study for Slab Creek Reach Technical Report (October 2004); SMUD's Whitewater Boating Feasibility Technical Report (September 2004); and PG&E's Poe Hydroelectric Project Application for New License, Recreational Resources section (December 2003).
- ¹⁶ Personal communication with Sara Polger, San Francisco Bay Conservation and Development Commission, and; San Francisco Bay Conservation and Development Commission. *DRAFT San Francisco Bay Area Water Trail Plan* (San Francisco, California: BCDC, July 6, 2007).
- ¹⁷ Ibid., p.11.
- ¹⁸ Ibid., p.62.
- ¹⁹ Ibid., p.45.
- ²⁰ City of San Diego Water Department. <http://www.sandiego.gov/water/recreation/index.shtml>.
- ²¹ See, <http://www.konoctitrails.com>.