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3 This chapter describes the environmental setting and study area for recreation resources; analyzes
4 impacts that could result from construction, operation, and maintenance of the project; and provides
5 mitigation measures to reduce the effects of potentially significant impacts. This chapter also
6 analyzes the impacts that could result from implementation of compensatory mitigation required
7 for the project, describes any additional mitigation necessary to reduce those impacts, and analyzes
8 the impacts that could result from other mitigation measures associated with other resource
9 chapters in this Draft Environmental Impact Report (Draft EIR).

10 **16.0 Summary Comparison of Alternatives**

11 Table 16-0 provides a summary comparison of important impacts on recreation resources by
12 alternative. The table presents the CEQA findings after all mitigation is applied. If applicable, the
13 table also presents quantitative results after all mitigation is applied. This table provides
14 information on the magnitude of the most pertinent and quantifiable recreation impacts that are
15 expected to result from implementation of the alternatives. Important impacts to consider include
16 displacement of existing recreation facilities and the reduction of recreation opportunities.

17 As shown in Table 16-0, none of the alternatives would result in a significant effect or increase in the
18 use of existing neighborhood and regional parks or other recreational facilities.

19 Table ES-2 in the Executive Summary provides a summary of all impacts disclosed in this chapter.

1 **Table 16-0. Comparison of Impacts on Recreation by Alternative**

Chapter 16—Recreation	Alternative								
	1	2a	2b	2c	3	4a	4b	4c	5
Impact REC-1: Increase the Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities Such That Substantial Physical Deterioration of the Facility Would Occur or Be Accelerated	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Impact REC-2: Include Recreational Facilities or Require the Construction or Expansion of Recreational Facilities That Might Have an Adverse Physical Effect on the Environment	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS

2 LTS = less than significant.

16.1 Environmental Setting

This section describes the environmental setting for recreation in the project study area.

16.1.1 Study Area

The study area evaluated for potential effects on recreation includes portions of Alameda, Sacramento, Yolo, San Joaquin, and Contra Costa Counties containing the statutory Delta and other areas directly adjacent to the statutory Delta. The study area is described in the following sections to support later discussions of environmental impacts associated with potential effects on recreation resources and users. Predominantly, the areas where recreation impacts would occur coincide with the temporary and permanent footprints of disturbance associated with construction of all Delta Conveyance Project features and related facilities. There is the potential for some recreationists to frequent other nearby recreation areas during construction to avoid construction activities. Other potential indirect impacts on recreation stemming from the long-term operations and existence of facilities in the study area are also evaluated. Although the study area includes some recreation resources within the statutory Delta's broader geography, recreation impacts are analyzed only in nearby waterways and within or adjacent to the temporary and permanent footprints of disturbance associated with the construction of each project alternative. Areas further away from construction were considered for potential operational effects, including upstream reservoirs in northern areas of the state; however, based on operational modeling, no changes would affect recreation use or resources.

16.1.1.1 Description of Existing Conditions in the Study Area

The Delta contains numerous parks, extensive public lands, and many interconnected rivers, sloughs, and other waterways that offer diverse recreation opportunities. Privately owned commercial marinas and resorts allow access to the waterways and a variety of other recreation opportunities and services. Private lands also provide several recreation opportunities, particularly nature watching, walking, biking, and hunting. Figure 16-1 identifies public and private recreation facilities in and near the study area, and are categorized as developed recreation facilities (i.e., formally designated recreation areas with amenities). Developed recreation areas identified during the public scoping process are also evaluated in terms of potential for effects. Other recreation areas or recreation use areas exist in and around the Delta and are categorized as informal use areas, or dispersed recreation areas. These dispersed use areas do not have developed recreation facilities and are open space areas, often on or near shorelines and include angler trails and paths or some primitive beach areas.

Recreation Activities and Opportunities in the Study Area

The Delta region is home to numerous public and private developed recreation facilities. Table 16-1 provides information about developed recreation areas as identified in Figure 16-1.

1 **Table 16-1. Developed Recreation Areas Nearest to Proposed Project Features**

Ownership	Facility Name	Facility Address	Recreation Amenities
Federal	Stone Lakes National Wildlife Refuge	1624 Hood-Franklin Road Elk Grove, CA 95757	Wildlife viewing, sightseeing, paddle tours, waterfowl hunting
Federal, County, and Private	Cosumnes River Preserve	13501 Franklin Boulevard Galt, CA 95632	Interpretive Programs, wildlife viewing, picnicking, angling, hiking, water sports, nonmotorized boating
State	Bethany Reservoir State Recreation Area	13638 Christensen Road Byron, CA 94514	Boating, bicycling, fishing, picnicking, and sailing
State	Delta Meadows River Park	13971 River Rd, Walnut Grove, CA 95690	Boating, hiking, and angling (temporarily closed)
State	Brannan Island State Recreation Area	17645 CA-160 Rio Vista, CA 94571	Camping, angling, boating (ramps), other day use
State	Locke Boarding House Museum Park	13916 Main St Walnut Grove, CA 95690	Interpretation/museum sightseeing
State	Franks Tract State Recreation Area	Willow Road Oakley, CA 94561	Boating, angling, waterfowl hunting
State	Rhode Island State Wildlife Area	CDFW Bay Delta Region 825 Cordelia Road Fairfield, CA 94534	Boating, wildlife viewing
State	White Slough State Wildlife Area	CDFW Bay Delta Region 825 Cordelia Road Fairfield, CA 94534	Wildlife viewing, bird hunting
State	Woodbridge Ecological Preserve	7730 W Woodbridge Road Lodi, CA 95242	Wildlife viewing, nature tours
State	Clifton Court Forebay	5200 Clifton Court Road Discovery Bay, CA 94505	Shoreline angling, walking/sightseeing
Yolo County	Clarksburg Public Boat Launch	38125 S River Road Clarksburg, CA 95612	Boating (ramps), angling, general day use
San Joaquin County	Westgate Landing Regional Park	Glasscock Road Lodi, CA 95242	Camping, boating, angling, general day use
Private	Cliff's Marina	8651 River Road Sacramento, CA 95832	Boating (marina facilities), restaurant
Private	Boat House Marina at Locke	13900 River Road Walnut Grove, CA 95690	Boating (marina facilities with ramp), restaurant
Private	New Hope Landing RV Park	13945 W Walnut Grove Road Walnut Grove, CA 95690	Camping, boating (ramp), trailer park
Private	Wimpy's Marina & RV Park	14001 W Walnut Grove Road Walnut Grove, CA 95690	Boating (marina), restaurant
Private	Blossom Vineyards	26600 N Blossom Road Thornton, CA 95686	Agri-tourism
Private	Tower Park Marina/Resort	14900 W Highway 12 Lodi, CA 95242	Boating (marina facilities with ramp), restaurant, camping, general day use
Private	Korth's Pirate's Lair Marina	169 W Brannan Road Isleton, CA 95641	Boating (marina facilities with ramp), restaurant

Ownership	Facility Name	Facility Address	Recreation Amenities
Private	Riverboat Marina	106 Brannan Island Road Isleton, CA 95641	Boating (marina facilities), restaurant
Private	Willow Berm Marina	140 Brannan Island Road Isleton, CA 95641	Boating (marina facilities), restaurants
Private	Lighthouse Marina Resort	151 Brannan Island Road Isleton, CA 95641	Boating (marina facilities), restaurant, camping, general day use
Private	King Island Resort	11530 W Eight Mile Road Stockton, CA 95219	Boating (marina facilities with ramp), restaurant, camping
Private	Paradise Point on the Delta	8095 Rio Blanco Road Stockton, CA 95219	Boating (marina facilities), restaurant
Private	Turner Cut Resort	12888 Neugebauer Road Stockton, CA 95206	Boating (marina facilities with ramp), restaurant, camping
Private	Tiki Lagoon Resort & Marina	12988 W McDonald Road Stockton, CA 95206	Boating (marina facilities with ramp), restaurant, camping
Private	Windmill Cove Marina & RV Park	7600 Windmill Cove Road Stockton, CA 95206	Boating (marina facilities with ramp), restaurant, camping, general day use
Private	River Point Landing Marina/Buckley Cove Boat Launch	4950 Buckley Cove Way Stockton, CA 95219	Boating (marina facilities with ramp), restaurant, RV camping, general day use
Private	Holland Riverside Marina	7000 Holland Tract Road Brentwood, CA 94513	Boating (marina facilities with ramp), restaurant, camping, general day use
Private	Bullfrog Landing Marina	17251 Bacon Island Road Stockton, CA 95219	Boating (marina facilities), restaurant, general day use
Private	Whiskey Slough Marina	3401 S Whiskey Slough Road Holt, CA 95234	Boating (marina facilities with ramp), restaurant, camping
Private	Cruiser Haven Marina	7000 Orwood Road Brentwood, CA 94513	Boating (marina facilities), general day use
Private	Orwood Resort	4451 Orwood Road Brentwood, CA 94513	Boating (marina facilities with ramp), restaurant, camping
Private	Union Point Marina Bar & Grill	14201 Marengo Road Stockton, CA 95206	Boating (marina facilities), restaurant
Private	Discovery Bay Yacht Harbor	5901 Marina Road Byron, CA 94514	Boating (marina facilities), restaurant
Private	Lazy M Marina	5050 Clifton Court Road #C Byron, CA 94514	Boating (marina facilities), restaurant
Private	Rivers End Marina & RV Park	6020 Lindeman Road Byron, CA 94514	Boating (marina facilities with ramp)

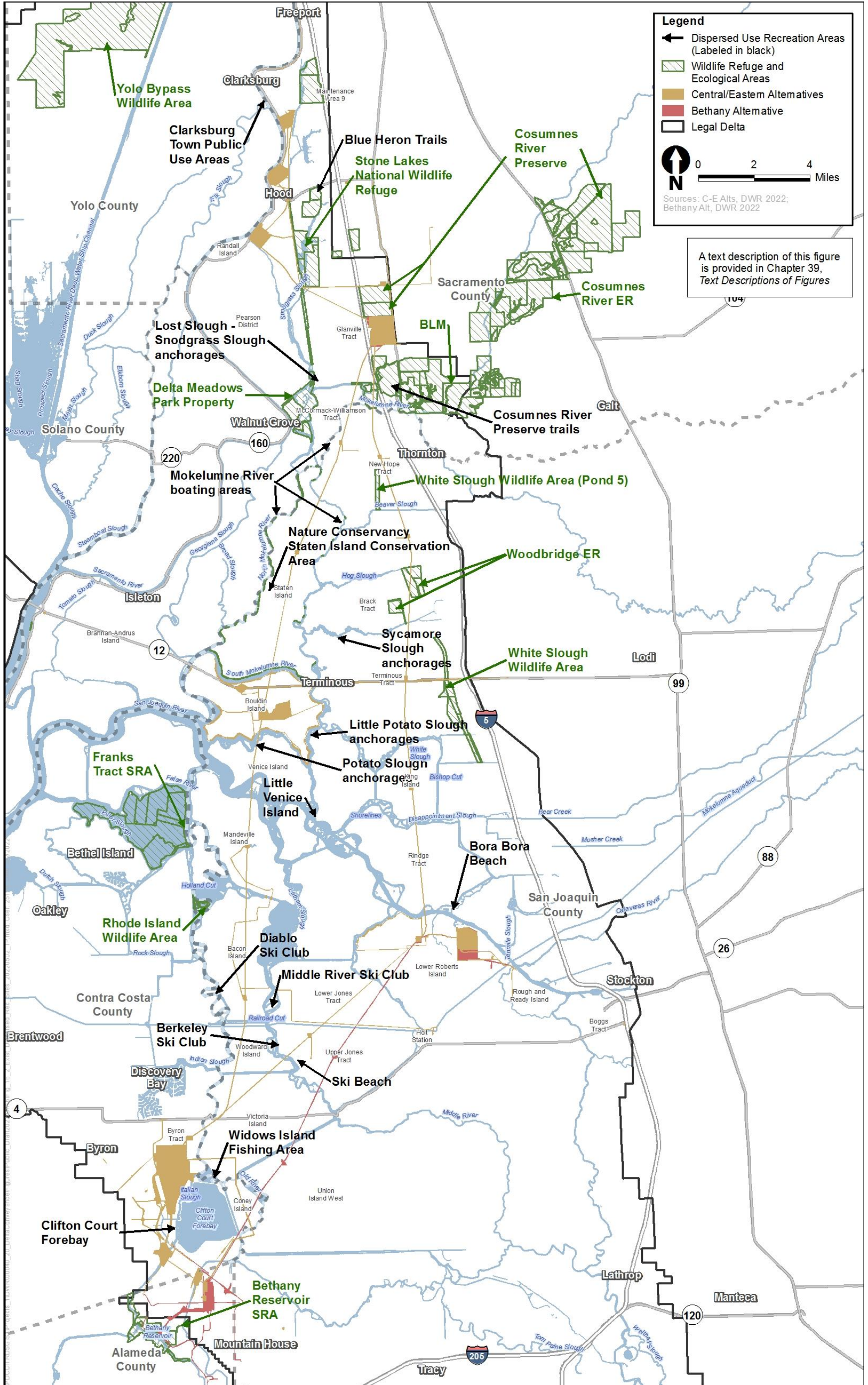
1 CDFW = California Department of Fish and Wildlife; RV = recreational vehicle.
2

1 The Delta is a maze of channels and islands at the confluence of the Sacramento and San Joaquin
2 Rivers. It encompasses the largest estuary system on the West Coast. The Delta region is a 1,150-
3 square-mile area that provides more than 500 miles of navigable waterways, equaling more than
4 57,000 navigable surface acres (California Department of Parks and Recreation’s Division of Boating
5 and Waterways 2003:2-1). This vast network of rivers, channels, sloughs, and islands provides a
6 unique recreation resource in California. Outside the Delta, Bethany Reservoir is an off-channel State
7 Water Project reservoir used by recreationists, including boaters.

8 Based on a 2008 statewide survey, California boaters spent an average of 21 to 25 days on the Delta
9 per year. Similarly, for all boaters surveyed, about 18 to 27% of them spent their time on the Delta at
10 least once a year. The Delta was the third most popular and used location by Californian boaters in
11 2008 (California Department of Parks and Recreation, Division of Boating and Waterways
12 2011:140).

13 Delta recreationists often participate in multiple activities during a daily visit; some of the most
14 frequent activities include hiking, boating, wildlife viewing, and dining (Delta Protection
15 Commission 2019:8). Users also frequently continue to use the Delta for recreation; a 2016 survey
16 found that 76% of Delta users participated in similar activities over the prior 2 years (Delta
17 Protection Commission 2017:37). There are also concurrent activities, such as hunting, fishing,
18 wildlife viewing, and sightseeing, can be both water- and land-based. This overlap creates an
19 interconnected web of users and activities and leads to an appreciation and enjoyment of the Delta
20 for the variety of recreation opportunities available on each trip. Figure 16-2 identifies many of the
21 important dispersed, or popular informal use areas that recreationists, boaters, and shoreline users
22 frequent.

23 This section describes recreation activities and facilities in the study area, discusses study area
24 recreation users, and estimates participation in recreation activities. A recreation reconnaissance
25 survey was conducted in February 2021 along with interviews of recreation providers, or managers
26 who observe recreation use in the area on a yearly basis. The reconnaissance survey was a method
27 of verifying locations as, due to the COVID-19 pandemic, field and survey work has been limited and
28 recreation use patterns have not been typical. The reconnaissance survey was undertaken to verify
29 public access routes, and locations or physical evidence of recreation use at dispersed recreation
30 sites. Survey and interview documentation is provided in Appendix 16A, *Recreation Resources*
31 *Inventory Update and Data Collection Documentation*, and is referenced herein.



1
2 **Figure 16-2. Existing Dispersed/Informal Recreation Use Areas**

1 **Water-Based Recreation Activities**

2 The Delta is a regional destination for water-based recreationists because of its climatic conditions,
3 variety and abundance of fish, large maze of navigable waterways, and favorable water levels during
4 summer, when most regional reservoirs experience substantial drawdown. Activities in the Delta
5 include cruising, water-skiing, wakeboarding, using personal watercraft, sailing, windsurfing, and
6 kiteboarding, as well as fishing and hunting (from land and by boat).

7 **Boating**

8 Most recreational boating use is by powerboats (Delta Protection Commission 2017:37), although
9 larger cruising boats and houseboats are components of boating use in the Delta, which includes
10 recreational boating along the Sacramento River. Common powerboating activities in the Delta are
11 cruising (exploring the maze of Delta channels), water-skiing, wakeboarding, and using personal
12 watercraft. Opportunities for these activities can be found throughout the Delta, with suitable
13 locations depending on wind, water temperature, channel width, orientation, depth, and proximity
14 to facilities. The Delta provides facilities for boaters including ramps, yacht clubs, and marinas,
15 which often have amenities such as fuel, supplies, waste pump-out facilities, and guest docks.
16 Restaurants and other businesses in the Delta, as well as the towns of Walnut Grove and Isleton, also
17 offer guest docks for temporary boat tie-up. Several water ski clubs have courses in and around
18 islands in the Old and Middle River waterways near Discovery Bay where a lot of water-skiing
19 recreationists reside. Other water-skiing takes place in various channels around Terminous, White
20 Slough, Bishop Cut, Holland Cut, Disappointment Slough and the Mokelumne River reaches as
21 identified in scoping comments, interviews (see Appendix 16A, Attachment 16A.1, *Interviews with*
22 *Recreation Providers*) as well as by California Delta Chambers and Visitor's Bureau (California Delta
23 Chambers and Visitor's Bureau 2021).

24 The summer months from Memorial Day to Labor Day are the peak times for powerboating
25 activities in the Delta, with the Fourth of July typically the single highest peak-use event of the year,
26 followed by other summer weekends and special event days (California Department of Parks and
27 Recreation's Division of Boating and Waterways 2003:3-2).

28 Non-powered boating activities in the Delta include sailing, windsurfing, kiteboarding, canoeing, and
29 kayaking. All three wind-related activities (sailing, windsurfing, and kiteboarding) are conducted on
30 the main Sacramento and San Joaquin Rivers, with windsurfing and kiteboarding most common on
31 the Sacramento River from Rio Vista to Sherman Island, and on the San Joaquin River from Twitchell
32 Island to Little Sherman Island (California Department of Parks and Recreation's Division of Boating
33 and Waterways 2003:3-8). Sailing activities are conducted more widely on the main rivers as well as
34 in Bethany Reservoir. Motorized sailboats can use those Delta waterways that are sufficiently deep.
35 In the eastern and northern Delta, canoeists and kayakers can find tranquil, isolated waterways that
36 provide abundant wildlife-viewing opportunities and shelter from strong winds. Many canoeists and
37 kayakers will paddle the Mokelumne River branches, often leaving from the Cosumnes River
38 Preserve. As noted in scoping comments, power boaters also moor in Mildred Island waters and in
39 channels such as Little Potato Slough (and area referred to as "The Bedrooms" in scoping
40 comments) and often do so in the evenings or overnight for quiet relaxation in the slough and
41 backwater environments.

42 Weather conditions make the summer months a preferred time for boating generally, and
43 particularly for water-skiing and wakeboarding, as well as some sailing and non-power boating,
44 with peak use on summer weekends and holidays. Paddle boaters sometimes prefer spring and fall

1 off-seasons because of cooler air temperatures, less boat traffic, and more wildlife-viewing
 2 opportunities (California Department of Parks and Recreation’s Division of Boating and
 3 Waterways 2003:3-9). As discussed in Chapter 9, *Water Quality*, the central and southern Delta
 4 waters can have algal blooms that can cause areas of oxygen depletion. High nutrient
 5 concentrations, warm temperatures, and low flow are conditions shown to be conducive to toxic
 6 cyanobacteria with cyanobacteria harmful algae blooms (CHABs) becoming more prevalent in these
 7 central and southern Delta regions. These blooms can cause unpleasant odors and limit enjoyment
 8 and safety of water contact sports and recreation activities.

9 *Water- and Land-Based Activity Participation*

10 In 2016, the Delta Protection Commission surveyed boat owners in the Delta region. Among boaters,
 11 bank fishing and beach play were the most popular water-related activities (Delta Protection
 12 Commission 2017:3-11). The most frequent nature-oriented recreation activities among boaters
 13 were fishing and wildlife viewing. Table 16-2 compares Delta participation rates for different
 14 recreational boating uses, including both land-based and water-based activities together.

15 **Table 16-2. Boat Owners’ Participation in Water- and Land-Based Recreation Activities in the Delta**

Activity	Use (%)
Cruising	20%
Fishing	19%
Sightseeing	11%
Camping	6%
Watersports	11%
Swimming	9.5%
Destination Boating	9.3%
Wildlife Viewing	8%

16 Sources: Delta Protection Commission 2017:17.
 17

18 *Boat Fishing*

19 Boat fishing is a popular activity in the Delta. Game fish found in the Delta include catfish; sturgeon;
 20 steelhead; American shad; Chinook salmon; crappie; bluegill; and striped, largemouth (black),
 21 smallmouth, and spotted bass (California Department of Fish and Wildlife 2020:15–16). Boat fishing
 22 is a year-round activity in the Delta, with peak-use seasons varying by species, species abundance,
 23 and angling regulations. Striped bass are prevalent fall through spring, sturgeon winter through
 24 spring, Chinook salmon late summer through fall, and black bass fall through spring (California
 25 Department of Parks and Recreation’s Division of Boating and Waterways 2003:2-7; SacDelta.com
 26 2020). The Delta is one of the most productive trophy bass fisheries in the nation, and numerous
 27 bass tournaments are held in the Delta throughout the year, including several corporate-sponsored
 28 tournaments (California Department of Fish and Game 2007:3.6-2). Fishing is an important
 29 recreation activity in the Delta and supports commercial guiding and charter boat opportunities. In
 30 scoping comments, it was noted eel and sturgeon are also sought in Delta waterways.

1 *Boat Hunting*

2 Hunting has long been a recreation activity in the Delta, with waterfowl hunting being the primary
3 type. Hunting by boat (typically used as a floating blind) is popular at the larger flooded islands, such
4 as Franks Tract and Sherman Island, because hunters seek open, shallow waters and marsh areas
5 where waterfowl congregate (California Department of Parks and Recreation's Division of Boating
6 and Waterways 2003:3-9). Licenses and duck stamps to hunt waterfowl are required by the
7 California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS).
8 CDFW manages hunting in California, including the public hunting programs at Sherman Island and
9 other smaller wildlife areas. The California Department of Parks and Recreation (DPR) allows
10 hunting at Franks Tract, designated as Franks Tract State Recreation Area. Boat hunting is also
11 allowed at Big Break, which is managed by the East Bay Regional Park District (EBRPD). Late fall
12 through early winter is the designated waterfowl hunting season, with starting and ending dates
13 varying each year by species and by hunting method.

14 *Other Boating-Related Activities*

15 Boaters also participate in other related activities, such as boat camping (typically in houseboats or
16 other large boats with sleeping accommodations), swimming, wildlife viewing, and sightseeing as
17 secondary activities.

18 *Commercial Boat Tours and Fishing Guides*

19 Commercial tours and guides operate throughout the Delta and provide fishing and sightseeing
20 opportunities. There are guided fishing and charter opportunities throughout the Delta. Boat tours
21 include cruises, private charters, and ecotours through different outfitters, some of which operate
22 year-round (California Delta Chambers and Visitor's Bureau 2009a).

23 **Land-Based Recreation Activities**

24 Land-based activities are also provided in the Delta and include hunting, shoreline fishing, wildlife
25 viewing, camping, picnicking, hiking and walking on trails, sightseeing, winery tours and festivals,
26 and visiting historic sites.

27 **Hunting**

28 Private duck clubs, primarily in Yolo County, along with several state wildlife areas and one federal
29 wildlife refuge, provide hunting opportunities in the Delta. Generally, hunting on land is for
30 waterfowl and pheasant; hunting for rabbit, dove, and quail is also allowed at several of the state
31 wildlife areas. Hunting blinds are provided at the Yolo Bypass Wildlife Area and Stone Lakes
32 National Wildlife Refuge (NWR).

33 There is also considerable waterfowl hunting on Franks Tract, where DPR manages use of blinds for
34 the seasonal hunt. The designated hunting season for waterfowl is generally late October through
35 January; for upland game birds such as pheasant, the season ranges from August through January,
36 with opening and closing days varying each year by species, geographic zone, and hunting method
37 (California Department of Fish and Wildlife 2019:17, 26-28). Licenses and duck or upland game
38 stamps are required.

1 ***Shoreline Fishing***

2 Public fishing piers and public parks in the Delta provide shoreline, or bank, fishing access. Some
3 marinas also provide fishing piers. Shoreline anglers may gain access to Delta waterways at
4 numerous locations along Delta roads (California Department of Parks and Recreation, Division of
5 Boating and Waterways 2003:2-7). Striped bass has been one of the most popular game species
6 among shoreline anglers. Bank fishing is a year-round activity, with peak seasons varying by fish
7 species. Other species, like crayfish and frogs, with limitations, can also be taken by hand, line, or
8 trap with a valid fishing license (California Department of Fish and Wildlife 2020:84–85).

9 ***Wildlife Viewing/Botanical Viewing/Nature Photography***

10 Opportunities for birding and other wildlife viewing, as well as nature photography, are widespread
11 throughout the Delta; however, only a few locations provide facilities for wildlife viewing. Most
12 wildlife viewing is informal or is secondary to another activity (e.g., fishing, boating). The Delta is a
13 critical stopover for migratory birds, which can be viewed and photographed at the Yolo Bypass
14 Wildlife Area, Stone Lakes NWR, Cosumnes River Preserve, and Woodbridge Ecological Reserve,
15 among other locations. Wildlife viewing and nature photography opportunities are available year-
16 round in the Delta, although opportunities to see and photograph particular migratory bird species
17 vary and generally occur in fall and spring. The arrival of overwintering sandhill cranes in the Delta
18 each fall provides viewing opportunities on public and private lands, and special events and tours
19 are held each year while the birds are present. Botanical viewing opportunities are available in
20 spring at the Jepson Prairie Reserve, where hundreds of plant species have been identified. The
21 facilities at the Delta Meadows River Park are closed to the public and the park currently provides
22 no visitor services (California Department of Parks and Recreation 2021a).

23 ***Camping***

24 Camping opportunities, including both tent and recreational vehicle (RV) camping sites, are
25 available in the Delta, mostly at large public parks and private resorts and marinas. Some private
26 resorts and marinas provide access to tenants and guests only and are not open to the general
27 public. Camping opportunities for the general public, including tent, RV, and group sites, are
28 available at a few public parks, in particular the Brannan Island State Recreation Area. Camping is
29 associated with general public recreational use of the Delta, particularly boating and fishing, and
30 therefore peaks during summer.

31 ***Picnicking***

32 The generally fair weather, potential for viewing wildlife, and scenic vistas make the Delta a setting
33 for picnicking. Many public day-use areas and marinas throughout the Delta provide picnic sites.
34 Some areas also offer group picnicking opportunities. Picnicking use is often combined with boating,
35 fishing, swimming, and wildlife viewing because of the location of many picnic sites in the Delta
36 along the water's edge. Picnicking, along with boating and fishing, is tied to general public use of the
37 Delta and is higher in summer.

38 ***Hiking/Walking/Biking***

39 Hiking, walking, and biking trail opportunities are fairly limited in the Delta, with only a few widely
40 scattered trails available for hiking/walking, and only a few trails available along the shoreline in the
41 Pittsburg, Antioch, and Oakley areas for hiking/walking and biking. The 6.5-mile Marsh Creek Trail
42 is accessible from the Big Break Regional Shoreline in Oakley. Several Delta parks have short, paved

1 walkways or footpaths; however, these are not considered trails for the purpose of this discussion.
2 The Delta Protection Commission (DPC) is leading the planning process for the Great California
3 Delta Trail System. The system will link the San Francisco Bay Trail and trails planned along the
4 Sacramento River in Yolo and Sacramento Counties to present and future trails in and around the
5 Delta and along shorelines in several counties (Delta Protection Commission 2021a). This includes
6 the Mokelumne Coast to Crest Trail, which is anticipated to pass through the Delta (Mokelumne
7 Coast to Crest Trail 2021). Trail use in the Delta occurs year-round.

8 Bicycle trails are also provided along some existing water conveyance features. Starting at the main
9 entrance to Bethany Reservoir State Recreation Area (SRA), the California Aqueduct Bikeway is a
10 paved route for maintenance vehicles that bicyclists can use year-round. This trail starts near the
11 main Bethany Reservoir SRA parking area, adjacent to the boat ramp at the lake. One can ride along
12 the east side of the reservoir and follow the aqueduct to the southeast, leading 44 miles to San Luis
13 Reservoir. In addition to pedestrian use, the dikes forming Clifton Court Forebay offer some bicycle
14 use, shoreline fishing opportunities, and walking for pleasure.

15 ***Sightseeing***

16 There are few formal facilities in the Delta specifically for sightseeing (i.e., signage, markers), so this
17 activity typically is informal and self-led. Six recommended driving tours found on the California
18 Delta Chambers and Visitor's Bureau website (California Delta Chambers and Visitor's Bureau
19 2009b) lead visitors past historic sites, sloughs, rivers, marinas, resorts, ferries, and bridges in all
20 areas of the Delta. These driving tours combine travel and sightseeing on the main highways in the
21 Delta (State Routes [SRs] 160, 12, and 4) with viewing sites on smaller roads along sloughs or across
22 islands. The Sacramento County and Contra Costa County portions of SR 160 (River Road) are
23 designated as State Scenic Highways. The SR 4 Bypass from SR 160 near Antioch to SR 84 near
24 Brentwood (about 9.5 miles) is eligible for designation as a State Scenic Highway (California
25 Department of Transportation 2021). A 28-mile portion of SR 160 in Sacramento County is also
26 designated as a County Scenic Highway (County of Sacramento 2020:33). Scenic highway
27 designations are discussed further in Chapter 18, *Aesthetics and Visual Resources*.

28 ***Winery Tours and Festivals***

29 The Delta produces about 25% of the wine grapes grown in California. While much of the crop is
30 sold to winemakers in other regions, the Delta is becoming known for its own wines. Clarksburg and
31 Lodi have established their own appellations, and the Delta Farmer's Market in Isleton sells more
32 than 300 varieties of Delta wines. The Delta's winery vineyards and tasting rooms have grown in
33 popularity, with winery tours and festivals hosted in places like Clarksburg, Isleton, Lodi, and Rio
34 Vista (California Delta Chambers and Visitor's Bureau 2010; Delta Farmer's Market 2021).

35 ***Visiting Historic Sites***

36 The Delta has a long and varied history of human use and, therefore, has many historic sites, several
37 of which are associated with legacy towns, such as Isleton, Locke, and Walnut Grove. (The term
38 *legacy town* is applied to several small, historic towns along the Sacramento River in the Delta that
39 were originally established as riverboat ports.) Self-guided walks, available in both Locke and
40 Walnut Grove, take visitors past old sites and buildings, including residences, a market, gambling
41 museum, blacksmith shop, butcher shop, and bank. Visitors can stop at historic sites in the Delta
42 year-round. DPR and the Sacramento Housing and Redevelopment Agency have restored a former
43 Chinese immigrant boarding house in Locke to preserve its history (California Department of Parks

1 and Recreation 2021b). The boarding house also includes a visitor's center and interpretative
2 exhibits (Locke Foundation 2021).

3 **Recreation Users in the Delta**

4 As noted previously, due to the COVID-19 pandemic, recreation use patterns were not typical in
5 2020. To better understand recreation use patterns, previous reports of the last two decades
6 represent the best available information to offer insight into recreation use areas and long-term
7 patterns that can help determine probable typical use patterns in non-pandemic conditions.
8 According to the Delta Boating Needs Assessment (California Department of Parks and Recreation's
9 Division of Boating and Waterways 2003:4-3), 75% of surveyed boat owners who had recently
10 boated in the Delta lived within 75 miles of the Delta. This area is referred to as the *Primary Market*
11 *Area* and consists of 13 counties: Alameda, Calaveras, Contra Costa, Marin, Napa, Sacramento, San
12 Francisco, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Solano, and Stanislaus. The next largest
13 source of boaters who use the Delta is referred to as the *Secondary Market Area* and represents an
14 additional 10% of Delta boaters. The Secondary Market Area consists of the following 14 counties:
15 Amador, Colusa, El Dorado, Lake, Mariposa, Mendocino, Merced, Monterey, Placer, San Benito,
16 Sonoma, Sutter, Tuolumne, and Yolo (California Department of Parks and Recreation's Division of
17 Boating and Waterways 2003:4-7).

18 **Recreation Participation**

19 There are a variety of recreation activities undertaken in the Delta and at Bethany Reservoir SRA.
20 Some of the popular recreation uses in the Delta have historically been fishing and boating. Results
21 from past studies that evaluated recreation use and recreation user characteristics showed that
22 boating and fishing were among the most popular recreation uses at that time (Delta Protection
23 Commission 2021b:i). Estimates of recreation use in the Delta from a 2002 study (Plater and Wade
24 2002:32), which used 1997 as the baseline year, reinforce that recreational boating and fishing are
25 two of the main Delta recreation activities. The study estimated that total 1997 Delta recreation use
26 consisted of almost 6.4 million visitor-days (Table 16-3). More recent estimates show visitor
27 baseline days increasing by 35%, or 3.4 million days within the next 40 years (Delta Protection
28 Commission 2012:148).

29 *The Economic Sustainability Plan for the Sacramento–San Joaquin Delta* estimated a total of 12
30 million visitors a year for recreation in the Delta (Delta Protection Commission 2012:147). A 2020
31 update to the Economic Sustainability Plan for the Sacramento–San Joaquin Delta, indicates that
32 there are still roughly 12 million recreation visitors a year but that the number of marinas in the
33 Delta has decreased since 2008, from 112 to 97 in 2020 (Delta Protection Commission 2021b:ii).

34 In fall 2020, the California Department of Water Resources (DWR) launched an environmental
35 justice community survey to gather information from disadvantaged and severely disadvantage
36 communities in the Delta region about how they work, live, recreate, and experience the Delta. Of
37 917 survey respondents, nearly two-thirds (65%) visit Delta waterways and natural areas at least
38 monthly. The survey found that water activities was the most frequently chosen activity among all
39 survey participants with hiking, walking, or running as a close second. Survey participants also
40 frequently noted the community of Locke as being a special place for history and ethnic community
41 appreciation and participants also noted Bethel Island as a place where they frequent for fishing and
42 other outdoor activities (California Department of Water Resources 2021:77).

1 **Table 16-3. Past Estimates of Boating, Fishing, and Day Use in the Delta**

Activity	Visitor-Day ^a Use Estimate (1997) ^b
Boating	4.71 million
Fishing (from shore and by boat)	1.00 million
Day Use ^c	0.66 million
Total Annual Recreation Use	6.37 million

2 Source: Delta Visitation Forecasting by Plater and Wade 2002:32.

3 ^a Visitor-day is equivalent to 12 hours of recreation activity. This activity may represent one visitor recreating for 12
4 hours or more than one visitor recreating for shorter periods.

5 ^b At the time the Draft EIR was prepared, there was no data more current than 1997.

6 ^c Day use includes all nonboating or fishing activities.
7

8 Hunting was described above as a seasonally popular activity in the Delta. Most public hunting use
9 in the statutory Delta occurs at the Yolo Bypass Wildlife Area and Grizzly Island, with more than
10 10,000 people participating in the 2018–2019 season (Table 16-4). Additional hunting activity
11 occurs during more limited, reservation-only hunts on DWR lands of Sherman and Twitchell Islands
12 and at Stone Lakes NWR. In addition to the Yolo Bypass Wildlife Area, CDFW allows hunting at
13 several other small wildlife areas in the Delta where no special permits or reservations are required;
14 no hunter use data are available for these locations.

15 **Table 16-4. Waterfowl Hunting Participation in the Delta at Select Public Hunting Locations**

Location	Number of Hunters Participating (2018 Season)
Yolo Bypass Wildlife Area	6,696
Grizzly Island	4,956

16 Sources: California Department of Fish and Wildlife 2019.
17

18 Although recreation occurs year-round in the Delta, the most use occurs in summer. Concentrations
19 of recreation activity in the Delta often are related to special events. The most common of these
20 events are bass fishing tournaments, which occur year-round but are particularly prevalent during
21 spring and early summer. As an example, Russo's Marina near Oakley hosts a bass tournament
22 nearly every weekend throughout spring and summer. In a large bass tournament, participation can
23 be as high as several hundred anglers.

24 The number of sturgeon fishing tournaments are less numerous; however, an annual 2-day
25 tournament hosted by a Bay Point Marina has been attended by more than 1,000 anglers in recent
26 years (Burgarino 2009). The city of Rio Vista, on the Sacramento River, hosts a 3-day bass derby
27 with a carnival, parade, and other activities each October. This event is among the annual
28 community-hosted events in the Delta that draw heavy boat traffic to these communities
29 (Table 16-5).

1 **Table 16-5. Annual Community-Based Delta Recreation Events**

Month	Events/Locations
February	Clarksburg Port Wine and Chocolate Weekend Isleton Chinese New Year celebration Woodbridge Ecological Reserve Sandhill Crane Tours
March	Clarksburg Carnival Lodi Wine Festival Stockton Bob McMillen Memorial Fish Tournament Locke Asian Pacific Heritage (Spring - varies)
April	San Joaquin Asparagus Festival Bethel Island San Joaquin Yacht Club Opening Day Lodi Beer Festival and Barbeque Competition Stockton San Joaquin Asparagus Festival
May	Clarksburg Shrimp & Crawfish Boil Clarksburg Portuguese Festa Festival
June	Bethel Island 50's Bash Isleton Cajun Festival Isleton Summer Fest Run4Salmon Teach Week
July	Courtland Pear Festival Mandeville Island Point County Park Baron Hilton Fireworks Show (also noted in scoping comments) Run4Salmon Prayer Journey
August	Stockton Brew Fest Stockton Annual Taste of the Delta
September	Byron Bass Derby Clarksburg Rendezvous Winery Crush Festival Lodi Grape Festival Stockton Bass Derby
October	Bethel Island Heart of the Delta Festival Byron Bass Derby Clarksburg Wine and Art Faire Festival Locke Harvest Moon Festival Stockton Bass Derby
November	Bethel Island Fishing Derby Lodi Sandhill Crane Festival
December	Lodi Sandhill Crane Festival

2 Source: Delta Conveyance Design and Construction Authority 2019.
3

4 Numerous fireworks shows and other events are sponsored by Delta towns and marinas each
5 Fourth of July, and many hundreds of boats congregate at favored anchoring locations during that
6 holiday weekend.

7 *The Economic Sustainability Plan for the Sacramento–San Joaquin Delta* (Delta Protection
8 Commission 2012, 2021b:41–44) provides a summary of actual visitation numbers to several Delta
9 recreation sites in 2009 and 2020 (Table 16-6).

1 **Table 16-6. Summary of Actual Visitation to the Delta**

Site	Number
Brannan Island SRA (day use, 2009)	88,459
Brannan Island SRA (day use, 2020)	27,688
Brannan Island SRA (camping, 2009)	36,069
Delta Meadows State Park (day use, 2009)	18,933
Delta Meadows State Park (day use, 2017)	6,547
Franks Tract SRA (2009)	24,305
Stone Lakes NWR (USFWS) (2009 approx.)	7,000
Stone Lakes NWR (USFWS) (2020 approx.)	30,000
Cosumnes River Preserve (2009 and 2020 approx.)	70,000
Lower Sherman Island (CDFW) (2009 approx.)	5,000
Lower Sherman Island (CDFW) (2020 approx.)	8,000
White Slough Wildlife Area (CDFW) (2009 approx.)	12,000
White Slough Wildlife Area (CDFW) (2020 approx.)	3,650
Sherman Island (Sacramento County, 2009)	25,000
Sherman Island (Sacramento County, 2020)	24,944
Hogback Island Fishing Access (Sacramento County, 2009)	10,800
Hogback Island Fishing Access (Sacramento County, 2020)	4,080
Clarksburg Boat Launch (Yolo County, 2009)	1,713
Clarksburg Boat Launch (Yolo County, 2016 as reported in Delta Protection Commission 2021b)	19,183
Westgate Landing (San Joaquin County, 2009)	10,283
Westgate Landing (San Joaquin County, 2020)	13,477
Isleton Crawdad Festival (approx.) ^a	200,000
Rio Vista Bass Derby and Festival (approx.)	12,000

2 Source: Delta Protection Commission (2021b:41–44) and as cited from personal communication with DPR in 2010 in
3 Delta Protection Commission 2012.

4 approx. = approximate; CDFW = California Department of Fish and Wildlife; NWR = national wildlife refuge;
5 SRA = state recreation area; USFWS = U.S. Fish and Wildlife Service.

6 ^a Isleton Crawdad Festival and Rio Vista Bass Derby and Festival are not analyzed as recreation sites in this chapter.
7

8 **Recreation Participation Trends and Projections**

9 A 2012 report by the Delta Protection Commission predicted an increase in visitors within the next
10 40 years by about 35% or 3.4 million days (Delta Protection Commission 2012:194). The 2020
11 update to that report notes that since 2012, the population in the Market Area is estimated to have
12 increased by approximately 1,200,000 or 10%. The increased Market Area population offset
13 declining participation rates and the 2020 forecasted visitation shows increases of 1.9 million
14 visitor-days, or about 18 percent, over 40 years (excluding urban parks visitation) (Delta Protection
15 Commission 2021b:41–44). Past analyses predicted steady growth in Delta recreation participation
16 over the past decade (2000–2010), and continued, but slowing, growth in the next decade (2010–
17 2020), although boat registrations have not reflected this trend. The past *Delta Boating Needs*
18 *Assessment* (California Department of Parks and Recreation’s Division of Boating and Waterways

1 2003:1-3) identified a projection of 6.4 million boating-related visitor-days in 2000, and projected
2 that annual visitation would increase at the rate of 0.79% per year from 2000 to 2010 (no published
3 data are available to establish whether the 2010 use projections were realized) and at the rate of
4 0.46% per year from 2010 to 2020 to reach 8.1 million annual boating-related visitor-days by 2020.
5 According to DPR analysis, the number of registered boats in the Primary Market Area counties fell
6 5.3% between 2002 and 2009. Boats originating in the Primary Market Area account for more than
7 75% of Delta boating trips (California Department of Parks and Recreation’s Division of Boating and
8 Waterways 2003:4-3), which suggests that predicted boating activity increases for the period 2000
9 through 2010 have not occurred. According to recreation provider interviews, boat sales
10 temporarily increased in 2020 as a result of coronavirus 2019 (COVID-19) pandemic restrictions
11 and closures. This led more families and recreationists to choose their own recreational experiences
12 rather than use public facilities (Hicks pers. comm. 2021).

13 **16.2 Applicable Laws, Regulations, and Programs**

14 The applicable laws, regulations, and programs considered in the assessment of project impacts on
15 recreation are indicated in Section 11.3.1, *Methods for Analysis*, or the impact analysis, as
16 appropriate. Applicable laws, regulations and programs associated with state and federal agencies
17 that have a review or potential approval responsibility have also been considered in the
18 development CEQA impact thresholds or are otherwise considered in the assessment of
19 environmental impacts. A listing of some of the agencies and their respective potential review and
20 approval responsibilities, in addition to those under CEQA, is provided in Chapter 1, *Introduction*,
21 Table 1-1. A listing of some of the federal agencies and their respective potential review, approval,
22 and other responsibilities, in addition to those under NEPA, is provided in Chapter 1, Table 1-2.

23 **16.3 Environmental Impacts**

24 This section describes the direct and cumulative environmental impacts associated with recreation
25 that would result from project construction, operation, and maintenance of the project. It describes
26 the methods used to determine the impacts of the project and lists the thresholds used to conclude
27 whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce,
28 eliminate, or compensate for) significant impacts are provided. Indirect effects are discussed in
29 Chapter 31, *Growth Inducement*.

30 **16.3.1 Methods for Analysis**

31 Effects on developed and dispersed recreation areas were assessed by identifying recreation use
32 areas that fall within the surface construction footprint and in areas potentially affected by
33 operations to evaluate whether developed and dispersed recreation sites or facilities would be
34 physically altered by construction or affected such that users might be displaced. A site
35 reconnaissance survey supplemented with interviews of recreation providers or managers in the
36 recreation business provided more information about observed dispersed recreation use patterns in
37 the area. Because of the COVID-19 pandemic, recreation use patterns have been altered, and direct
38 observation or survey of users would likely result in atypical conditions not representative of typical
39 recreation use patterns, levels, and conditions. In addition, effects on recreation sites or uses within
40 proximity of construction activity and facility locations were evaluated as those areas would be most

1 likely to have the potential for changes in recreation use due to construction and operation effects.
2 The construction and operation impact areas were determined using spatial analysis; in particular,
3 geographic information system (GIS) sources helped to evaluate the potential for effecting
4 recreation resources due to construction or operations and maintenance of the project alternatives.

5 **16.3.2 Thresholds of Significance**

6 The criteria used for determining the significance of an effect on recreation resources are based on
7 Appendix G of the CEQA Guidelines (Environmental Checklist) and professional standards and
8 practices. Effects on the environment due to effects on either water-dependent or water-enhanced
9 recreation opportunities may be considered significant for the purposes of CEQA when evaluated
10 using the following considerations which build upon the CEQA Guidelines, Environmental Checklist
11 criteria to evaluate the specific attributes of the project with respect to recreation in and around the
12 Delta region.

- 13 • Would the project increase the use of existing neighborhood and regional parks or other
14 recreational facilities such that substantial physical deterioration of the facility would occur or
15 be accelerated?
- 16 • Does the project include recreational facilities or require (or indirectly cause) the construction
17 or expansion of recreational facilities which might have an adverse physical effect on the
18 environment?

19 Other impact considerations regarding effects on recreation, such as those related to the potential
20 for diminished quality of recreation experiences due to construction, are discussed further in
21 Chapter 17, *Socioeconomics*.

22 **16.3.2.1 Evaluation of Mitigation Impacts**

23 CEQA also requires an evaluation of potential impacts caused by the implementation of mitigation
24 measures. Following the CEQA conclusion for each impact, the chapter analyzes potential impacts
25 associated with implementing both the Compensatory Mitigation Plan and the other mitigation
26 measures required to address potential impacts caused by the project. Mitigation impacts are
27 considered in combination with project impacts in determining the overall significance of the
28 project. Additional information regarding the analysis of mitigation measure impacts is provided in
29 Chapter 4, *Framework for the Environmental Analysis*.

30 **16.3.3 Impacts and Mitigation Approaches**

31 Impacts for recreation resources include impacts associated with the act of construction and
32 operation of the project. As described in Section 16.3.2, *Thresholds of Significance*, the evaluation of
33 recreation effects considers areas where project facilities would require construction or expansion
34 of recreation facilities or if existing neighborhood and regional parks or other recreational facilities
35 would experience increases such that substantial physical deterioration of these recreation facilities
36 would occur or be accelerated. Acreages and areas of the proposed features and facilities described
37 in the impact analysis below are detailed in Chapter 3, *Description of the Proposed Project and*
38 *Alternatives*, and Chapter 14, *Land Use*. Project features that would not result in a direct or indirect
39 physical change to recreation resources are not discussed under the impact analysis.

1 Project features that would result in aboveground physical changes to the environment that
2 potentially would be near existing recreation facilities and use area are listed below.

- 3 • Intake structures (all alternatives).
- 4 • Geotechnical and field investigations.
- 5 • Southern Complex on Byron Tract, including South Delta Pumping Plant and Southern Forebay
6 (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c).
- 7 • Southern Complex West of Byron Highway (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c).
- 8 • Bethany Complex, including pumping plant and surge basin, and discharge structure
9 (Alternative 5).
- 10 • Reusable tunnel material (RTM) areas (all alternatives).
- 11 • Shaft sites (all alternatives), Lower Roberts Island levee improvements (under Alternatives 3,
12 4a, 4b, 4c, and 5), and Bouldin Island levee improvements (under Alternatives 1, 2a, 2b, and 2c).
- 13 • Temporary and permanent access roads (all alternatives).
- 14 • Aboveground transmission lines (all alternatives).
- 15 • Temporary concrete batch plants and fuel stations (all alternatives).
- 16 • Compensatory mitigation (all alternatives).

17 The analysis also considers a No Project Alternative at 2040, which is presented in Appendix 16B,
18 *Recreation 2040 Analysis*.

19 **16.3.3.1 No Project Alternative**

20 As described in Chapter 3, *Description of the Proposed Project and Alternatives*, CEQA Guidelines
21 Section 15126.6 directs that an EIR evaluate a specific alternative of “no project” along with its
22 impact. The No Project Alternative in this Draft EIR represents the circumstances under which the
23 project (or project alternative) does not proceed and considers predictable actions, such as projects,
24 plans, and programs, that would be predicted to occur in the foreseeable future if the Delta
25 Conveyance Project is not constructed and operated. This description of the environmental
26 conditions under the No Project Alternative first considers how recreation could change over time
27 and then discusses how other predictable actions could affect recreation.

28 **Future Recreation Conditions**

29 For recreation, future conditions are not anticipated to substantially change compared to existing
30 conditions because recreational uses in the primary and secondary Delta are not expected to change
31 if the Delta Conveyance Project does not proceed beyond additions to the Delta trails system and
32 improvements to existing recreation facilities. These additions include development of the Great
33 California Delta Trail System which will link the San Francisco Bay Trail and trails planned along the
34 Sacramento River in Yolo and Sacramento Counties to present and future trails in and around the
35 Delta and along shorelines in several counties (Delta Protection Commission 2021a). However,
36 indirect impacts on recreation uses within the Delta may occur under the No Project Alternative
37 from changes in upstream hydrologic conditions, sea level rise, and continued seismic risk to Delta
38 levees. Water-based recreationists in the Delta are typically accustomed to varying water levels and
39 flow conditions and can adapt to changes in water levels when boating. However, shoreline

1 recreation facilities could be affected by varying water levels. Immediate and potentially long-term
 2 changes in land or shoreline use could occur under the No Project Alternative because of seismic
 3 events, levee failure, and the inundation of Delta lands. Depending on their location, recreational
 4 facilities such as marinas, boat launches, and parks could be subject to disruption in the event of a
 5 levee failure and may not be economically viable to be placed back in use if a severe inundation
 6 event were to occur.

7 **Predictable Actions by Others**

8 A list and description of actions included as part of the No Project Alternative are provided in
 9 Appendix 3C, *Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions*.
 10 As described in Chapter 4, *Framework for the Environmental Analysis*, the No Project Alternative
 11 analyses focus on identifying the additional water supply-related actions public water agencies may
 12 opt to follow if the Delta Conveyance Project does not occur.

13 Public water agencies participating in the Delta Conveyance Project have been grouped into four
 14 geographic regions. The water agencies within each geographic region would likely pursue a similar
 15 suite of water-supply projects under the No Project Alternative (see Appendix 3C).

16 Many of these projects, such as desalination plants or water recycling facilities, would require
 17 construction activities which may conflict with existing recreation opportunities occurring at or
 18 near where the facilities would be located. Depending on location and size, some water-supply
 19 facilities may permanently affect existing recreation opportunities.

20 Table 16-7 provides examples of potential effects that would have to be evaluated for most water
 21 supply-reliability projects.

22 **Table 16-7. Summary of Activities Occurring under the No Project Alternative and Potential Recreation**
 23 **Effects**

Project Type	Region	Potential Construction Effects	Potential Operation Effects
Increased/ accelerated seawater desalination	Northern Coastal, Southern Coastal	Exhaust emissions and fugitive dust, temporary traffic congestion as well as increased noise from construction equipment, vehicles, employee commutes required for facility construction and pipeline installation could disrupt recreationists in adjacent areas or disrupt recreation access routes (road or trails). This could lead to a reduced quality of experience or short-term displacement of some users who would choose to participate in recreation activities at other locations.	Possible changes in nearshore exclusion zones but otherwise unlikely to be noticeable effects for recreationists as sites slated for potential development are typically already off-limits for recreation.

Project Type	Region	Potential Construction Effects	Potential Operation Effects
Groundwater management	Northern Coastal, Southern Coastal	Exhaust emissions and fugitive dust, temporary traffic congestion as well as increased noise from construction equipment, vehicles, employee commutes required for possible well drilling or water conveyance facilities. These activities in specific locations that happen to adjoin recreation use areas or parks could disrupt recreationists in these adjacent areas or disrupt recreation access routes (road or trails). This could lead to a reduced quality of experience or short-term displacement of some users who would choose to participate in recreation activities at other locations.	Unlikely any impacts on recreation resources.
Water recycling	Northern Coastal, Northern Inland, Southern Coastal, Southern Inland	Exhaust emissions and fugitive dust, temporary traffic congestion as well as increased noise from construction equipment, vehicles, employee commutes required for facility construction and pipeline installation could disrupt recreationists in adjacent areas or disrupt recreation access routes (road or trails). This could lead to a reduced quality of experience or short-term displacement of some users who would choose to participate in recreation activities at other locations.	Unlikely any impacts on recreation resources.
Water Use efficiency measures	Northern Coastal, Southern Coastal, Southern Inland	Minor amounts of exhaust emissions and fugitive dust, temporary traffic congestion as well as increased noise from construction equipment, vehicles, employee commutes if water conveyance facilities are constructed. This could disrupt recreationists in adjacent areas or disrupt recreation access routes (road or trails). This could lead to a reduced quality of experience or short-term displacement of some users who would choose to participate in recreation activities at other locations. exhaust emissions and fugitive dust is pipeline or canal construction is required.	Some park lands could have lawn areas curtailed or reduced, but unlikely large changes in park lands or offerings would occur.

- 1
- 2 Desalination projects would most likely be pursued in the northern and southern coastal regions.
- 3 The southern coastal regions would likely require larger and more desalination projects than the
- 4 northern coastal region in order to replace the water yield that otherwise would have been received
- 5 through the Delta Conveyance Project. These projects would be sited near the coast. Groundwater
- 6 recovery (brackish water desalination) would involve less construction activities and could occur
- 7 across the northern inland, southern coastal, southern inland regions and in both coastal and inland
- 8 areas, such as the San Joaquin Valley. Grading and excavation at the desalination and groundwater
- 9 recovery plant sites would be necessary for construction of foundations, and trenching would occur
- 10 for installation of water delivery pipelines and utilities.
- 11 The northern and southern coastal regions are also most likely to explore constructing groundwater
- 12 management projects. The southern coastal region would require more projects than the northern
- 13 coastal region under the No Project Alternative.
- 14 Water recycling projects could be pursued in all four regions. The northern inland region would
- 15 require the fewest number of wastewater treatment/water reclamation plants, followed by the

1 northern coastal region, followed by the southern coastal region. The southern inland region would
2 require the greatest number of water recycling projects to replace the anticipated water yield that it
3 otherwise would have received through the Delta Conveyance Project. These projects would be
4 located near water treatment facilities.

5 From a comparative perspective, it is anticipated that the greatest conflict with recreation may
6 occur when water-supply projects are constructed in or near coastal areas as these areas are
7 recognized as providing important local and regional recreation opportunities. Other types of water-
8 supply projects considered in this assessment may be less likely to conflict with existing recreation
9 opportunities because of their location and scale.

10 **16.3.3.2 Impacts of the Project Alternatives on Recreation Resources**

11 **Impact REC-1: Increase the Use of Existing Neighborhood and Regional Parks or Other** 12 **Recreational Facilities Such That Substantial Physical Deterioration of the Facility Would** 13 **Occur or Be Accelerated**

14 *All Project Alternatives*

15 None of the project alternatives would likely lead to any noticeable increase in use of recreation
16 facilities in and around the Delta or in neighboring communities. Developing new water conveyance
17 facilities is not likely to generate much additional recreation use, if any, in local or regional parks or
18 recreation areas.

19 Project Construction

20 The construction period would last up to 14 years and would require up to approximately 4,000
21 construction workers during peak construction activity (see Chapter 17, *Socioeconomics*, Section
22 17.3.3.2, *Effects of the Project Alternatives on Delta Regional Employment and Income*). Not all of
23 these construction workers would be working in one location, but rather would be scattered across
24 the project's planned facility development locations. Some construction workers could choose to
25 partake in recreation activities in and around project facilities as a result of becoming aware of the
26 many Delta area recreation offerings as their daily work might expose them to what facilities and
27 events are available in the Delta. Some workers might frequent weekend festivals as they become
28 aware of them. However, this increase in potential participation is not expected to lead to much
29 additional use, as most workers would already live in the area and likely have a host of recreation
30 opportunities and activities in which they already participate in and outside the Delta.

31 Under Alternative 5, construction activities associated with the discharge structure at Bethany
32 Reservoir would preclude recreation use and access from about 1,000 feet of shoreline areas over
33 the 6-year construction period for that facility. However, construction would take place on less than
34 1,000 feet of the 5.25-mile-long shoreline of the reservoir, representing less than 4% of the available
35 shoreline areas. If recreationists who might use these areas instead use other portions of the
36 Bethany Reservoir SRA, adequate capacity exists for such use, and no degradation of the existing
37 park facilities would be expected, particularly because construction would not change overall
38 existing use levels at the park, other than possible small increases in participation by some
39 construction workers, who might become more aware of the park offerings and recreate during off-
40 work periods.

1 Some recreation users would likely avoid certain construction areas due to potential concerns about
2 increased noise, dust, or traffic and participate in similar or different recreation activities in other
3 nearby recreation areas or waterways during the project construction. This could lead to some
4 increased use at neighboring waterways as a result of the project; however, because project
5 construction work would typically be limited to weekdays (Monday through Friday), displacement
6 of local users may not happen on weekends as much as weekdays. However, the current waterways
7 and existing parks and recreation areas in the Delta have not been found to be over capacity and
8 could accommodate some additional recreation use if any recreationists choose not to frequent
9 waterways or recreation facilities closest to project construction areas. The state park facilities,
10 including Brannan Island SRA, and other public parks and private marina facilities are not over
11 capacity other than on some holiday weekends during the summer recreation season and, therefore,
12 would be able to accommodate any possible displacement of local users from project construction.

13 Operations and Maintenance

14 Development of new water conveyance facilities is not likely to generate more interest or demand
15 for recreation activities in the Delta region. Workers may become more aware of recreational
16 offerings and activities in the area through direct observation, encounters, and discussions with
17 community members and visitors. Some of the operation and maintenance staff may frequent local
18 parks and recreation events as they may become more aware of those offerings; however, there is
19 no indication they would increase their participation in recreation activities. The operations
20 workforce would be much smaller than that during construction, and it is assumed that most new
21 workers would already reside in the five-county Delta region. The possible spillover demand from a
22 small workforce would be unlikely to degrade or crowd the existing facilities. As described in
23 Chapter 20, *Transportation*, and Chapter 21, *Public Services and Utilities*, workers are assumed to
24 come from the five-county study area. The maximum number of O&M workers would be 53 under
25 Alternatives 2a and 5 (Chapter 17, *Socioeconomics*, Section 17.3.3.2, *Effects of the Project Alternatives*
26 *on Delta Regional Employment and Income*). These employees would not be concentrated in one
27 specific place but spread across the project facilities.

28 Operation of the conveyance facilities would result in small changes in flows and reservoir levels
29 that would be well within the range of existing variability and would not adversely affect recreation
30 use such that recreationists would greatly change patterns or shift use to other recreation facilities
31 in numbers that would cause degradation or physical changes to other recreation parks and
32 facilities in the region.

33 Under Alternative 5, the new discharge structures on the shoreline of Bethany Reservoir would
34 introduce new nonrecreational features that would result in removal or conversion of areas that
35 bicyclists, walkers, other day users, and anglers, and boaters (nearshore) can currently access.
36 Bicyclists are currently not allowed in this area due to other Bethany Reservoir maintenance, but
37 after completion of the discharge facility, a new permanent trail would be provided at the discharge
38 facility, and the facility would occupy only a small portion of the reservoir shoreline, which is lightly
39 used under existing conditions. Because the reservoir offers a large area for recreation that is not
40 heavily used, degradation to other areas of the recreation area would not be anticipated if users
41 change use patterns because of the new facility's presence. The new facility would be similar to the
42 existing discharge structure from the Harvey O. Banks Pumping Plant at the northwest corner of the
43 reservoir.

1 ***CEQA Conclusion—All Project Alternatives***

2 Field investigations would take a short period of time and are not likely to displace recreationist to
3 other parks at such a level as to degrade facilities or experiences at those facilities.

4 Construction of all project alternatives would bring in several thousand workers and, as noted
5 above, some of those workers will choose to undertake recreation activities at Delta area parks and
6 recreation facilities as a result of learning about the opportunities available. This increased use is
7 not expected to be great as workers are anticipated to already reside within the Delta region and are
8 not likely to use local facilities to an extent that damage or degradation to facilities might occur.
9 Therefore, this impact is less than significant. At the intake locations, some shoreline areas currently
10 available to angling would not be available after construction of the facilities. Nevertheless, no
11 documentation found indicated these areas receive much use, if any; these areas represent a very
12 small amount of shoreline compared to the many miles of shoreline accessible by adjoining roads;
13 and anglers would still have abundant choices for accessing desired locations for shoreline fishing in
14 and around the intake locations without these areas.

15 The loss of recreation use on the portion of shoreline area would be temporary, as would be the loss
16 of a portion of the reservoir from which in-water recreationists would be prohibited for safety
17 reasons. This temporarily affected portion of the recreation area would be small compared to the
18 total amount of available recreation land. Therefore, the likely number of recreationists who would
19 choose to visit other parks and nearby recreation facilities rather than those near the proposed
20 project facilities would also likely be small and thus not at a level that would lead to the need for
21 physical changes to existing nearby recreation facilities. Consequently, this impact would be less
22 than significant.

23 After construction, operations and maintenance of conveyance facilities would require some
24 permanent new workers and some might choose to also partake in recreation activities in and
25 around project facilities. The recreation facilities and sites near the project are not over capacity,
26 other than at some peak times during holiday weekends when very few workers, if any, would be at
27 project facilities. This would be a less than significant impact. Under Alternative 5, a new discharge
28 facility at Bethany Reservoir would remove a small amount of shoreline from potential recreation
29 use; however, given the abundance of shoreline at the reservoir and low overall use levels, the
30 likelihood of overuse in the remainder of park lands as a result is unlikely. Therefore, this impact is
31 less than significant.

32 ***Mitigation Impacts***

33 *Compensatory Mitigation*

34 Implementation of the Compensatory Mitigation Plan described in Appendix 3F, *Compensatory*
35 *Mitigation Plan for Special-Status Species and Aquatic Resources*, could result in impacts on
36 recreation resources. Although the Compensatory Mitigation Plan described in Appendix 3F does
37 not act as mitigation for physical impacts on, or associated with, recreation resources, its
38 implementation could result in impacts on recreation resources. Compensatory mitigation occurring
39 on Bouldin Island and Interstate (I-) 5 ponds through direct habitat improvement actions and
40 setting up of mitigation banks would result in the conversion of previous agricultural lands to
41 restored or enhanced habitat across these locations and could lead to greater wildlife viewing
42 opportunities in those areas compared to current conditions. As other tidal restoration
43 compensatory mitigation sites within the North Delta Arc are planned, they would also likely involve

1 similar conversions of agricultural lands. County scenic routes and restored areas would be natural
2 habitat areas. Alterations that could take place could include activities such as channel and levee
3 modifications. Landform alteration from dredge spoil placement could improve wildlife habitat and
4 diversity and lead to greater wildlife viewing opportunities. None of these actions are expected to
5 lead to increased recreation use at existing parks and other recreation areas. It is possible that
6 wildlife viewing enthusiasts may be able to visit these areas in the future, but this new use would
7 not likely lead to crowding or additional use that degrades the conditions at existing recreation
8 areas and parks.

9 The Compensatory Mitigation Plan, combined with the project, is not anticipated to adversely affect
10 recreational areas primarily because it is not anticipated to take place in active recreation use areas.
11 With compensatory mitigation, there could be benefits on recreation, such as increasing future
12 opportunities for wildlife viewing through the creation of new and diverse habitats in areas that
13 currently do not host habitat features frequented by wildlife. Construction activities related to
14 implementing the compensatory mitigation involving equipment could create dust and noise or slow
15 traffic, but these effects would be less than significant for recreation resources in the Delta because
16 they would be limited and not at recreation sites or primary use areas. Therefore, the project
17 alternatives combined with compensatory mitigation would not change the overall impact
18 conclusion of less than significant.

19 Other Mitigation Measures

20 Operation of excavation equipment, grading and landscaping, and stabilizing, moving, or redesigning
21 facilities or built resources would result in increased noise and dust under Mitigation Measures
22 SOILS-2: *Prepare and Implement Topsoil Salvage, Handling, Stockpiling and Reapplication Plans*, AES-
23 1c: *Implement Best Management Practices to Implement Project Landscaping Plan*, and CUL-2:
24 *Conduct a Survey of Inaccessible Properties to Assess Eligibility, Determine if These Properties Will Be*
25 *Adversely Affected by the Project, and Develop Treatment to Resolve or Mitigate Adverse Impacts*.
26 Construction activities with these mitigation measures would have the potential to expose
27 recreational areas to excessive noise and dust resulting in the potential for some recreational users
28 to avoid these areas and participate in similar or different recreation activities in other nearby
29 recreation areas or waterways temporarily. This could then lead to increased use at neighboring
30 waterways; however, the current waterways and existing parks and recreation areas in the Delta
31 have not been found to be over capacity and could temporarily accommodate some additional
32 recreation use if recreationists choose not to frequent waterways or recreation facilities closest to
33 project construction areas.

34 Overall, environmental commitments and best management practices would minimize dust and
35 reduce noise-related effects as described in Chapter 33, *Other CEQA Required Analyses*, Section
36 33.4.1, *Environmental Commitments and Best Management Practices*. Construction of compensatory
37 mitigation and implementation of other mitigation measures, combined with project alternatives,
38 would remain less than significant.

1 **Impact REC-2: Include Recreational Facilities or Require the Construction or Expansion of**
2 **Recreational Facilities That Might Have an Adverse Physical Effect on the Environment**

3 ***All Project Alternatives***

4 There are no recreation facilities planned as part of the project alternatives, other than rebuilding a
5 section of the California Aqueduct Bikeway trail that passes through the area that would be occupied
6 by the discharge facility on Bethany Reservoir under Alternative 5. All of the project alternatives
7 would result in the construction and operation of one, two, or three north Delta intake facilities
8 (Intakes A, B, and/or C) between river mile (RM) 42 (south of Freeport) and RM 37 (north of the
9 town of Courtland), the Twin Cities Complex, other tunnel launch, reception, and maintenance sites,
10 and the Southern or Bethany Complex. Other than the rebuilding of the California Aqueduct Bikeway
11 trail under Alternative 5, none of these project alternatives have activities that would result in
12 construction, expansion, or relocation of existing recreation facilities in the Delta.

13 Under Alternative 5, the new discharge structures on shorelines of Bethany Reservoir would
14 introduce new nonrecreational features on a shoreline that is currently designated for State Water
15 Project administrative and maintenance use as well as recreational use. The California Aqueduct
16 Bikeway that runs through this shoreline and is currently closed for other maintenance would
17 continue across the top of the Bethany Reservoir Discharge Structure. Boaters would still be able to
18 use this portion of the reservoir, other than in close proximity to the discharge facility where an
19 exclusion buoy barrier would be erected for public safety.

20 Under the eastern alignment (Alternatives 3, 4a, 4b, and 4c), and Bethany Reservoir alignment
21 (Alternative 5), two privately owned marinas along the levees of Lower Roberts Island are located
22 directly adjacent to levee construction areas and would likely be directly affected by levee
23 construction activities.

24 **Project Construction**

25 To address flood risk, the eastern alignment (Alternatives 3, 4a, 4b, and 4c) and Bethany Reservoir
26 alignment (Alternative 5) involve targeted repairs and improvements to existing levees on Lower
27 Roberts Island to reduce potential problems from constructing and operating the project during
28 high water events. There also are levee modifications for Bouldin Island proposed for the central
29 alignment (Alternatives 1, 2a, 2b, and 2c), but these are not directly adjacent to recreation sites. On
30 Lower Roberts Island, targeted repairs would primarily involve levee widening and crown raises
31 along the Turner Cut eastern levee adjacent to West Neugebauer Road. All modifications would
32 occur on the levees' landsides. Temporary levee modification access roads would be constructed
33 along the landside toe of the existing levee at current grade level.

34 Levee modifications on Lower Roberts Island under all eastern and Bethany Reservoir alternatives
35 would encompass approximately 30 acres in areas that would not directly affect active recreation
36 use areas.

37 Under Alternative 5, significant grading in the Bethany Reservoir SRA would be required to build the
38 Bethany Reservoir Discharge Structure. Constructing a temporary cofferdam in the water near the
39 shore would allow excavation, concrete, and backfill work to be completed on the reservoir bank
40 within an area as much as 25 feet below the reservoir water surface. A 40-foot bridge would be
41 constructed to replace a section of the existing Bethany Reservoir portion of the California Aqueduct
42 Bikeway, allowing it to cross the discharge structure.

1 *Field Investigations*

2 Field investigations would be conducted during preconstruction and construction periods related to
3 geotechnical, hydrogeologic, agronomic testing, and construction test projects (i.e., geotechnical
4 investigations) following adoption of the Draft EIR. These investigations would be used to more
5 specifically identify appropriate construction methods addressed in the final design documents and
6 help to establish geological and groundwater monitoring programs for the design and construction
7 phases of the adopted project. None of the field investigations require the construction or expansion
8 of recreation facilities.

9 *Operations and Maintenance*

10 Operation of the conveyance facilities would not directly result in construction or operation of new
11 recreation facilities because no new recreation facilities are planned and existing recreation
12 facilities, as described above, have the capacity to handle changes in use if some recreationists
13 choose to partake in future recreation activities at other facilities or park areas as a result of
14 operation of the project.

15 Maintenance of the conveyance facilities (i.e., intakes, tunnels, and transmission lines) would be
16 required periodically and would involve painting, cleaning, and repairing structures; annual
17 dredging at sedimentation basin and drying lagoons; vegetation removal and care along
18 embankments; tunnel inspection; and vegetation removal within transmission line rights-of-way.
19 These activities could be visible from the water or land by recreationists in proximity to these
20 features but would not result in any construction or expansion of recreation facilities in response to
21 the new maintenance activities and uses.

22 ***CEQA Conclusion—All Project Alternatives***

23 The proposed location of conveyance facilities for the central and eastern alignment alternatives
24 (Alternatives 1, 2a, 2b, 2c, 3, 4a, 4b, and 4c) would not lie within designated boundaries of an
25 existing public recreation facility, and none would result in construction, expansion, or relocation of
26 other existing recreation facilities in the Delta.

27 Under Alternative 5, approximately 1,000 feet of Bethany Reservoir SRA shoreline would be taken
28 out of recreation use during the approximate 6 years of construction for the discharge facilities.
29 Design and construction of the Bethany Reservoir Discharge Structure would be coordinated with
30 DWR, DPR, and CDFW that jointly operate the Bethany Reservoir SRA. Discussion of the recreational
31 experience has been included in Chapter 17, *Socioeconomics*. Overall, this new shoreline feature
32 would not result in the construction, expansion, or relocation of other existing recreation facilities in
33 the Delta and this impact would be less than significant.

34 ***Mitigation Impacts***

35 *Compensatory Mitigation*

36 Although the Compensatory Mitigation Plan described in Appendix 3F, *Compensatory Mitigation*
37 *Plan for Special-Status Species and Aquatic Resources*, does not act as mitigation for physical impacts
38 on, or associated with, recreation resources, its implementation could result in such impacts on
39 recreation resources. Compensatory mitigation occurring on Bouldin Island, at the I-5 ponds, and at
40 tidal restoration sites within the North Delta Arc could improve wildlife habitat and diversity and

1 lead to greater wildlife viewing opportunities in those areas compared to current conditions.
2 Therefore, the project alternatives combined with compensatory mitigation would not change the
3 overall impact conclusion of less than significant.

4 Other Mitigation Measures

5 None of the other mitigation measures proposed would require construction, expansion, or
6 relocation of existing recreation facilities in the Delta and therefore the less than significant
7 conclusion remains.

8 Overall, compensatory mitigation and implementation of other mitigation measures, combined with
9 the project alternatives, would remain less than significant.

10 **16.3.4 Cumulative Analysis**

11 This cumulative impact analysis considers projects that could affect the same resources and, where
12 relevant, in the same time frame as the project alternatives, resulting in a cumulative impact. The
13 recreation resources environment is expected to change as a result of past, present, and reasonably
14 foreseeable future projects with many related to changes in land use via growth in subdivisions or
15 housing or improving existing recreation facilities. (Chapter 14, *Land Use*, discusses land use
16 management plans that could change recreation use patterns and offerings). It is expected that
17 changes to the existing recreation resources will take place, even though reasonably foreseeable
18 future projects likely would include typical design and construction practices to avoid or minimize
19 potential impacts.

20 Cumulative projects include those within and in proximity to the study area. Projects that lie outside
21 of the study area (e.g., projects occurring in the Upper Sacramento Valley, Lower San Joaquin Basin,
22 and further south) are not included. Only projects that would result in changes to recreation
23 resources are included in the cumulative analysis. Projects that would not result in changes to
24 recreation resources include plans or programs that monitor or implement existing regulations and
25 programs (e.g., implementing stormwater regulations, Fish Screen and Passage Program), plans or
26 programs that are currently in operation and are a part of the existing environment conditions.

27 Some of the cumulative impacts described include localized effects that would occur in direct
28 combination with the project alternative in the vicinity of alternative conveyance facilities and
29 restoration actions. Other cumulative impacts described consider more indirect additive effects on
30 recreation resources in the region.

31 While there are several comprehensive plans and other planning documents proposing various
32 projects in the Delta that could affect recreation, few are advanced enough to be approved yet.
33 However, the ongoing Sacramento and San Joaquin County comprehensive plans provide guidance
34 for future growth. These plans help guide population growth, and as noted in the respective plans,
35 increases in population would result in increased needs for recreation resources, including parks,
36 open space, bicycle paths, and walking paths. These improvements would contribute positively to
37 help meet future recreation needs in the region.

38 Of the projects or programs most related to recreation that are proposed by various agencies and
39 jurisdictions in the area, the USFWS has adopted the Stone Lakes National Wildlife Refuge
40 Comprehensive Conservation Plan (CCP) (U.S. Fish and Wildlife Service 2007) and is implementing
41 projects and programs. Through those efforts it is likely additional lands or refuge units will open to

1 the public and more recreation opportunities will likely be available. Although it is expected that the
 2 No Project Alternative would result in some changes related to recreation resources, these efforts
 3 are anticipated to improve and enhance recreation offerings in the Delta.

4 The programs, plans, and projects included under the Cumulative scenario are summarized in
 5 Table 16-8, along with their anticipated effects on recreation resources.

6 **Table 16-8. Cumulative Impacts on Recreation from the Plans, Policies, and Programs**

Program/Project	Agency	Status	Description of Program/Project	Impacts on Recreation Resources
Fish Screen Project at Sherman and Twitchell Islands	CDFW and DWR	Under construction	The project would install fish screens on currently unscreened agricultural intakes used to irrigate state-owned lands on Sherman and Twitchell Islands in the Delta.	This project would result in incremental additions to the amount of infrastructure on neighboring sloughs that could be a small hinderance to boaters when under construction. If screens lead to improvements in local fish populations, angling experiences could be improved.
Lower Sherman Island Wildlife Area Land Management Plan	CDFW	Ongoing	The LSIWA occupies roughly 3,100 acres. The purpose of the LMP is to: (1) guide management of habitats, species, and programs to protect and enhance wildlife values; (2) serve as a guide for appropriate public uses of the LSIWA; (3) serve as descriptive inventory of fish, wildlife, and native plant habitats that occur on or use the LSIWA; (4) provide an overview of the property's operation and maintenance; and (5) present the environmental documentation necessary for compliance with state and federal statutes and regulations, provide a description of environmental impacts that may occur during plan management, and identify mitigation measures.	Land Management Plan actions could give rise to management activities that would improve opportunities for certain types of recreation (hunting, fishing, environmental education, boating, and wind sports). and help improve the conditions for wildlife observation activities in the region.
Staten Island Wildlife-Friendly Farming Demonstration	CDFW	Planning phase	Acquisition and restoration of Staten Island (9,269 acres) by The Nature Conservancy to protect critical agricultural wetlands used by waterfowl and Sandhill cranes. The project practices increased habitat availability by flooding 2,500-5,000 acres of corn for a longer duration than previously possible.	The farming demonstration would increase length of times flooding is seen on the island. Could increase recreationists opportunities for viewing Sandhill Cranes.

Program/Project	Agency	Status	Description of Program/Project	Impacts on Recreation Resources
Central Valley Vision	California State Parks	Ongoing	The Central Valley Vision is a strategic plan for State Parks expansion in the Central Valley. The plan provides a 20-year road map for State Park actions that increase service to valley residents and visitors. The plan outlines options to develop new and improved recreation opportunities, acquire new park lands, and build economic and volunteer partnerships.	Future improvements to state park units could increase opportunities and expand recreation facilities and offerings in and around the Delta region.
Lookout Slough Tidal Habitat Restoration and Flood Improvement Project	DWR	Planning phase	The proposed project would restore approximately 3,000 acres of tidal wetland, creating habitat that is beneficial to native fish and wildlife. Lookout Slough is adjacent to additional tidal habitat restoration efforts being implemented by the Department of Water Resources, including Yolo Flyway Farms and Lower Yolo Ranch, to create a contiguous tidal wetland restoration complex spanning 16,000 acres in the Cache Slough region. Once completed, the proposed project would be the Delta's largest single tidal habitat restoration project to date.	Various potential actions could improve waterways for boating, fishing, and hunting
North Delta Flood Control and Ecosystem Restoration Project	DWR	Planning phase	The project is intended to improve flood management and provide ecosystem benefits in the north Delta area through actions such as construction of setback levees and configuration of flood bypass areas to create quality habitat for species of concern. The purpose of the Project is to implement flood control improvements in a manner that benefits aquatic and terrestrial habitats, species, and ecological processes. Flood control improvements are needed to reduce damage to land uses, infrastructure, and the Bay-Delta ecosystem resulting from overflows caused by insufficient channel capacities and catastrophic levee failures near where the Mokelumne River, Cosumnes River, Dry Creek, and Morrison Creek converge.	This project could result in site-specific repairs or levee upgrades over areas of varying sizes. The levee improvement project could result in some changes in shoreline areas used for dispersed recreation uses, or access to shorelines.

Program/Project	Agency	Status	Description of Program/Project	Impacts on Recreation Resources
Central Valley Joint Venture Program	Central Valley Joint Venture	Ongoing	The Central Valley Joint Venture (CVJV) protects and enhances habitats for migrating and resident birds in the Central Valley and focuses on the conservation of waterfowl, wetlands and habitats for birds. The CVJV provides guidance and facilitates grant funding to accomplish its habitat goals and objectives. Integrated bird conservation objectives for wetland habitats in the Central Valley identified in the 2006 Implementation Plan include restoration of 19,170 acres of seasonal wetland, enhancement of 2,118 acres of seasonal wetland annually, restoration of 1,208 acres of semi-permanent wetland, and restoration of 1,500 acres of riparian habitat.	The program could support the restoration and enhancement of waterfowl areas, which would result in improved hunting opportunities and wildlife bird viewing opportunities.
Delta Protection Commission Land Use and Resource Management Plan Update	DPC	Planning phase	The Commission is currently updating its Land Use and Resource Management Plan (Management Plan), which was originally adopted in 1995. The Management Plan outlines the long-term land use requirements for the Sacramento–San Joaquin Delta and sets out findings, policies, and recommendations in the areas of environment, utilities and infrastructure, land use, agriculture, water, recreation and access, levees, and marine patrol/boater education/safety programs. The updated Management Plan will place increased emphasis on the requirement for local government general plans to provide for consistency with the provisions of the Management Plan. The Commission develops priorities and timelines for tasks to be implemented each year and provides annual progress reports to the Legislature.	Plan actions could give rise to a variety of improved recreation opportunities and offerings in the Delta along with better management and coordination of recreation offerings.
Great California Delta Trail System	DPC	Planning phase	The Delta Protection Commission (DPC) is leading the planning process for the Great California Delta Trail System. The system will link the San Francisco Bay Trail and trails planned along the Sacramento River in Yolo and Sacramento Counties to present and future trails in and around the Delta and along shorelines in several counties.	Trail system could give rise to an improved recreation opportunities, access, and offerings in the Delta and other county shorelines.

Program/Project	Agency	Status	Description of Program/Project	Impacts on Recreation Resources
Delta Plan	DSC	Ongoing	The Delta Reform Act, created by SB X7-1, established the coequal goals for the Delta of “providing a more reliable water supply for California and protecting, restoring, and enhancing the delta ecosystem.” (Pub. Resources Code § 29702; Wat. Code § 85054). These coequal goals are to be achieved “in a manner that protects and enhances the unique cultural, recreational, natural resources, and agricultural values of the Delta as an evolving place.” (Wat. Code § 85054). The Delta Plan generally provides policies and recommendations to preserve and enhance Delta recreation opportunities.	Plan actions could give rise to a variety of improved recreation opportunities and offerings in the Delta along with better management and coordination of recreation offerings.
Recreation Proposal for the Sacramento–San Joaquin Delta and Suisun Marsh	DPR	Proposal released in 2011	The proposal recommends the expansion of the State Park system in the Delta, agency collaboration to expand wildlife viewing, angling, and hunting opportunities in the Delta and Suisun Marsh, and that communities on the edge of the Delta or Suisun Marsh near major transportation routes be developed as “gateways” to provide supplies and recreational information to visitors.	Expanded recreation facilities could lead to additional opportunities for recreationists in the Delta region and improve opportunities for recreationists to choose from.
North American Waterfowl Management Plan	USFWS	Ongoing	A collaborative plan between Canada, the United States, and Mexico to achieve landscape conditions that could sustain and enhance waterfowl populations. The plan has been modified twice since the 1986 Plan to account for biological, sociological, and economic changes that influence the status of waterfowl and the conduct of cooperative habitat conservation. The 2004 Plan is intended to define the needs, priorities, and strategies for the next 15 years, increase interested parties’ confidence in the direction of plan actions, and guide partners in strengthening the biological foundation of North American waterfowl conservation.	Additional preserved lands could improve wildlife-viewing opportunities in the Delta.

Program/Project	Agency	Status	Description of Program/Project	Impacts on Recreation Resources
Stone Lakes National Wildlife Refuge Comprehensive Conservation Plan	USFWS	Ongoing	This is a 15-year management plan. Management programs for migratory birds and other Central Valley wildlife will be expanded and improved and public use opportunities will also be expanded. The number of refuge units open to the public will increase from one to five. In addition, environmental education, interpretation, wildlife observation, wildlife photography, hunting, and fishing programs will be expanded.	Plan actions may give rise to improved recreational use of the refuge and improved quality of experience for wildlife viewing and interpretive activities.
Twitchell Island – San Joaquin Setback Levee Project	CDFW	Planning phase	This project would stabilize a threatened section of levee along the San Joaquin River while also creating different habitat types along the water. In 2000, 2,200 linear feet of the waterside levee was re-contoured and replanted with native vegetation creating a shaded riverine aquatic habitat. Additional riparian habitat, intertidal habitat, upland vegetation, and waterside beaches, benches, and undulations are planned in conjunction with an additional 23,000 feet setback along the San Joaquin River.	Plan actions may give rise to improved quality of experience for wildlife viewing and interpretive activities.

1 CDFW = California Department of Fish and Wildlife; CVJV = Central Valley Joint Venture; DPC = Delta Protection
 2 Commission; DPR = California Department of Parks and Recreation; DSC = Delta Stewardship Council; DWR = California
 3 Department of Water Resources; LSIWA = Lower Sherman Island Wildlife Area; SB = Senate Bill; USFWS = U.S. Fish
 4 and Wildlife Service.
 5

6 **16.3.4.1 Cumulative Impacts of the No Project Alternative**

7 The future programs and plans described in Table 16-8 have the greatest potential to affect
 8 recreation resources and users in the absence of the project. The 2019 biological opinions issued by
 9 the National Marine Fisheries Service (NMFS) and USFWS facilitate Delta habitat restoration.
 10 Conversion of agricultural lands to restoration sites would typically involve some topographic
 11 grading that could temporarily reduce the quality of recreation experiences for nearby
 12 recreationists who encounter these areas in their activities. Restoration projects may lead to
 13 conditions with enhanced wildlife viewing, nonmotorized boating, and other passive recreation
 14 opportunities within the Delta by increasing wildlife habitat and public access.

15 Ongoing projects and programs such as operation of the Delta Cross Channel, the South Delta
 16 Temporary Barriers Program, and the Georgiana Slough Nonphysical Fish Screen would also affect
 17 water-dependent recreation by potentially changing or hindering boat passage and access to
 18 portions of the Delta’s waterways when in place. Other ongoing resource management plans such as
 19 controlling nonnative aquatic vegetation, Delta levee protection and repair programs, hatchery and
 20 stocking programs, maintenance of channels and sloughs, and other similar projects and programs
 21 help maintain access to Delta waterways, keep levees in working order, and keep lands protected.

1 All these ongoing activities are a part of the existing environmental conditions and would likely
2 benefit recreationists using Delta waterways and shorelands as they would improve the quality of
3 the experience by opening up more areas, reducing hazards.

4 **16.3.4.2 Cumulative Impacts of the Project Alternatives**

5 The projects in Table 16-8 involve construction or land use changes that would result in cumulative
6 changes to the recreation resources in the Delta. Some of the Delta-specific plans enhance recreation
7 opportunities and management in the Delta region, thus affecting recreation resources in a
8 beneficial way in the future. The overlay of the Delta Conveyance Project would change the
9 environment upon which Delta-specific plans that plan recreation improvements would consider.
10 The Delta Conveyance Project has features that would change the landscape of several areas of the
11 Delta where recreationists view or sightsee. The Delta Conveyance Project facilities have been
12 generally sited away from most recreation areas, other than the discharge facility under
13 Alternative 5 which is within Bethany Reservoir SRA. However, none of the facilities when combined
14 with future plans and actions would result in fewer recreation opportunities or conflict with plans to
15 improve recreation conditions and management in the Delta. As described for the future projects in
16 the Delta, many involve improvements to wildlife habitat, some to existing levees, and some are
17 specific to recreation planning or provision of new recreation facilities and areas as well as changes
18 to land use and the built environment.

19 Many of the ongoing programs include development of future projects that would require additional
20 project-level environmental review. Future actions may be required to comply with CEQA and CESA,
21 NEPA, the federal Endangered Species Act, and other federal laws and regulations. Compliance and
22 permit requirements would be implemented on a case-by-case basis. Overall, implementing ongoing
23 programs and projects in combination with project alternatives would not result in substantial
24 changes to the recreation resources because the Delta has more than 100 developed recreation sites
25 and these changes would likely only involve a few of these facilities at any one time. The incremental
26 impact of the project alternatives associated with construction activities would not result in a
27 cumulatively considerable contribution to recreation impacts because no recreation facilities are
28 being constructed by the project and there would be very little spillover demand for recreation uses
29 from the construction and permanent workforce staff who would likely continue to recreate in
30 places they currently frequent. Therefore, none of the project alternatives would result in a
31 cumulatively significant impact, nor would any alternative contribute to a cumulatively considerable
32 impact on recreation.