

15.1 Environmental Setting/Affected Environment

15.1.1 Potential Environmental Effects Area

15.1.1.1 Description of Existing Conditions in the Study Area

The Delta, Yolo Bypass, and Suisun Marsh contain 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 recreational opportunities and services. Private lands also provide several recreational opportunities, particularly hunting. [Figure 15-1 identifies public and private recreational facilities in the Delta.](#)

15.1.1.2 Description of Existing Conditions in the Upstream of the Delta Region

Recreational Activities and Opportunities Upstream of the Delta, New Melones Lake and San Luis Reservoir

The SWP and CVP water storage facilities provide substantial opportunity for recreational activities throughout the year. The reservoirs provide on-water boating and angling opportunities in addition to shoreline angling, camping, and day uses. These facilities release flows to the downstream rivers, which also support boating, angling, and shoreline activities. [Figure 15-2 identifies recreational facilities upstream of the Delta.](#)

15.3 Environmental Consequences

15.3.3 Effects and Mitigation Approaches

Overall construction of CM1 is expected to last up to 9 years. Implementation of the other conservation measures would be ongoing for the term of the BDCP (50 years). Construction activities adjacent to or within certain recreation areas or sites could last from 1 to 7.5 years; activities that do not require removal of a recreation facility or permanent use of a site would be considered temporary effects. Temporary effects (loss of recreation opportunity) are considered short-term if the duration is 2 years or less, or long-term, if the duration is more than 2 years.

Chapter 16, *Socioeconomics*, Sections 16.3.3.2 through 16.3.3.16, discuss tourism and recreation as economic drivers in the Delta region and how the potential effects of the alternatives on recreation opportunities discussed in this chapter could affect regional economics, community character, local government fiscal conditions, and recreation economics as a result of constructing, operating and maintaining the proposed water conveyance facilities and conservation measures. The reader is

1 referred to Chapter 16, *Socioeconomics*, Sections 16.3.3 through 16.3.3.16, for further discussion of
2 this topic.

3 Chapter 17, *Aesthetics and Visual Resources*, Sections 17.3.3.2 through 17.3.3.16, discuss the long-
4 term changes in the local visual setting on sensitive receptors from introduction of the alternative
5 water conveyance facilities to the project area. The reader is referred to Chapter 17, *Aesthetics and*
6 *Visual Resources*, Sections 17.3.3.2 through 17.3.3.16, for further discussion of this topic.

7 Chapter 20, *Public Services and Utilities*, Sections 20.3.3.2 through 20.3.3.16, describe the estimated
8 increase in study area population associated with construction of the action alternatives. It is
9 anticipated that many of the construction jobs would be filled from the existing labor force in the
10 five-county study area region although construction of the conveyance tunnels may require
11 specialized skills resulting in recruitment of specially trained workers coming from outside this
12 region. As described in Chapter 16, *Socioeconomics*, Section 16.3.3.2, Impact ECON-2, this additional
13 population would constitute a minor increase in the total 2020 projected regional population of 4.6
14 million. Because the construction population would primarily come from the five-county labor force
15 and because the minor increase in demand from the worker population that would move into the
16 area for specialized jobs (e.g., tunnel construction) would be spread across the large multi-county
17 study area, construction of the alternative is not anticipated to result in an increased demand or
18 adverse effects on existing neighborhood and regional parks or other recreational facilities such that
19 substantial physical deterioration of the facility would occur or be accelerated. This effect is not
20 discussed further in this chapter.

21 Noise traffic modeling indicates that increased noise levels from construction truck hauling and
22 worker commutes would not result in substantial increases in local noise levels. In addition, Chapter
23 23, *Noise*, Section 23.4.3.2, describes mitigation measures that would reduce the potential effects of
24 pump operations on local sensitive receptors to less-than-significant levels. The reader is referred to
25 Chapter 23, *Noise*, for further discussion of these topics. ~~As discussed in Chapter 6, CALSIM modeling~~
26 ~~results indicate that effects, if any, to Sacramento and San Joaquin river flows are so minor as to~~
27 ~~have no effect less than significant, and there is no determination in change in reverse flow~~
28 ~~conditions in the Old and Middle Rivers. Therefore, these and~~ are not discussed further. North-of-
29 Delta reservoirs (Lewiston, Whiskeytown, Keswick, Thermalito, and Natoma) and south-of-Delta
30 reservoirs (Castaic Lake, Lake Perris, Pyramid Lake, Silverwood Lake, Castaic Lagoon) are currently
31 operated with a seasonal storage pattern (elevations) with very small variation from year to year.
32 Major San Joaquin Valley eastside reservoirs (i.e. Millerton lake, New Melones Reservoir, etc.) were
33 not evaluated because BDCP operations would not be anticipated to result in a change in annual
34 storage patterns. These operations would remain the same under all the action alternatives and no
35 effects would occur as a result of implementing the BDCP. These reservoirs are not discussed
36 further.

37 **15.3.3.2 Alternative 1A—Dual Conveyance with Pipeline/Tunnel and** 38 **Intakes 1–5 (15,000 cfs; Operational Scenario A)**

39 **Impact REC-10: Result in Long-Term Reduction in Boating-Related Recreation Opportunities**
40 **as a Result of Implementing ~~CM2-CM21 Conservation Measures 2–21~~**

41 **NEPA Effects:** This assessment evaluates BDCP conservation measures related to habitat restoration
42 and enhancement efforts and those designed to reduce other stressors, describing their potential
43 effects on boating recreation in the study area. Because the details surrounding the location and

1 implementation of many of these measures are under development, these topics are addressed at a
2 programmatic level. CM17, Illegal Harvest Reduction, is an enforcement funding measure; CM19,
3 Urban Stormwater Treatment, would reduce pollutant discharges in stormwater—these measures
4 would not affect recreational boating opportunities and are not discussed in this analysis.

5 Under CM2, the Yolo Bypass would be modified to increase the frequency, duration, and magnitude
6 of floodplain inundation. These actions would improve passage and habitat for Sacramento splittail,
7 Chinook salmon, lamprey, and possibly steelhead. The modifications, which include fish passage
8 improvements and flow management facilities, would be implemented in four phases starting with
9 plan implementation and continuing to approximately 2063. Boats are not allowed in the Yolo
10 Bypass Wildlife Area, so construction activities associated with the physical modifications for this
11 measure would not affect boating opportunities. The maximum extent of inundation in the Yolo
12 Bypass would not increase from current conditions, but the frequency and duration of inundation
13 events would increase. This measure would not affect opportunities for boating-related activities as
14 a result of longer inundation periods.

15 CM4 provides for the restoration of 16,300 acres of tidal habitat (brackish emergent wetland,
16 freshwater emergent wetland, perennial aquatic, other wetland, and adjacent upland [to
17 accommodate sea level rise]) in the near-term and up to 65,000 acres in the late long-term. In the
18 early long-term, BDCP implementation would provide for the cumulative restoration of 25,975 acres
19 of freshwater and brackish tidal habitat in the BDCP ROAs under all the action alternatives. In the
20 late long-term, a cumulative 65,000 acres of freshwater and brackish tidal habitat throughout the
21 ROAs would be restored. The extent of restored tidal habitat includes a contiguous habitat gradient
22 encompassing restored shallow subtidal aquatic habitat, restored tidal mudflat, restored tidal marsh
23 plain habitat, and adjoining transitional upland habitat. Areas to be restored would be modified by
24 breaching and lowering levees, constructing new or modified levees to protect adjacent areas from
25 flooding, connecting remnant sloughs or channels to improve circulation, and modifying ground
26 elevations to reduce effects of subsidence. CM4 would lead to temporary decreases in boat-related
27 recreation opportunities as a result of noise and other conditions associated with channel and bank
28 modification activities in restoration areas. Following completion of restoration, CM4 would support
29 expanded opportunities for boating in reconnected and dredged sloughs.

30 CM5 provides for restoration of 1,000 acres of seasonally inundated floodplain habitat within the
31 Delta in the early long-term and up to 10,000 acres in the late long-term. Seasonally inundated
32 floodplain restoration could occur along channels in many locations in the north, east, and/or south
33 Delta. In most areas, setback levees would be constructed to modify the channel configuration. The
34 most promising opportunities for large-scale restoration are in the south Delta along the San
35 Joaquin, Old, and Middle Rivers channels. These locations offer benefits to covered fish species,
36 practicability considerations, and compatibility with potential flood management projects. While
37 site preparation and earthwork activities associated with restoration may temporarily limit some
38 boating access and lead to degraded conditions resulting from noise, odors, or visual effects, CM5
39 would result in an increase in boat-related recreation opportunities as a result of the seasonal
40 expansion of navigable areas.

41 Channel margin habitat enhancement would modify channel geometry and restore riparian, marsh,
42 and mudflat habitats along existing levees. At least 5 miles of habitat would be enhanced within the
43 first 10 years and up to 20 miles after 30 years. CM6 would create benches on the outboard side of
44 levees or create setback levees. Construction effects including noise, odors, and deteriorated visual
45 conditions would temporarily alter the quality of the boating experience in enhancement areas.

1 Where construction and completion of new benches would extend into existing waterways,
2 navigable areas would be slightly reduced, which would permanently affect boating-related
3 recreation. However, in cases where setback levees are constructed and channels are expanded,
4 there would be a slight increase in boating opportunities.

5 CM11 would provide beneficial effects on boating opportunities by allowing recreation to occur on
6 approximately 61,000 acres of lands in the BDCP reserve system, consisting of grassland, vernal
7 pool complex, riparian, managed wetland, and aquatic natural community types (see BDCP Chapter
8 4, Section 4.2.3.9.2 *Recreation*). The reserve system would update one boating facility, as well as a
9 new boat launch facility within the footprint of the North Delta diversion facilities, which would
10 increase opportunities for boating within the study area.

11 CM13 would control nonnative aquatic vegetation including Brazilian waterweed, water hyacinth,
12 and other nonnative submerged and floating aquatic vegetation in BDCP tidal habitat restoration
13 areas. While aquatic vegetation removal operations could temporarily restrict or obstruct
14 navigation and reduce the quality of boating, overall the measure would increase boat passage and
15 navigation and would improve the boating experience.

16 Under CM16, nonphysical fish barriers, such as sound, air or light barriers, would be placed at the
17 head of Old River, the Delta Cross Channel, and Georgiana Slough and could possibly include Turner
18 Cut, Columbia Cut, the Delta-Mendota Canal intake, and Clifton Court Forebay. Depending on their
19 design, the construction and operation of these barriers could constrict boat passage or necessitate
20 lower speed limits, diminishing the boating experience around the barriers.

21 Implementing the conservation measures could result in an adverse effect on recreation by limiting
22 boating by reducing the extent of navigable waterways available to boaters. Once implemented, the
23 conservation measures could provide beneficial effects to recreation by expanding the extent of
24 navigable waterways available to boaters, improving and expanding boat launch facilities, and
25 removing nonnative vegetation that restricts or obstructs navigation.

26 CM18 would establish new conservation propagation programs and expand the existing program for
27 delta and longfin smelt. This measure would include development of a delta and longfin smelt
28 conservation hatchery by USFWS. The specifications and operations of this facility have not been
29 developed. The final selection of a location for the facility will involve additional environmental
30 review. The location is expected to be within the study area in the vicinity of Rio Vista. The BDCP
31 identifies potential USFWS conservation hatchery facility locations in this area (see Figure 3.4-20).
32 One site is northwest of the city limits and could be used for a supplementation production facility.
33 This site is not near any existing well-established recreation sites or opportunities and is
34 approximately 1 mile from the Sacramento River such that future construction and operation
35 activities would not be expected to affect water-based recreation opportunities and experiences.
36 The other site is a former Army Reserve on the west river bank, south of the city limits, that would
37 be developed as a genetic refuge and research facility. Construction at this site could affect
38 recreation activities and experiences at the Delta Marina Yacht Harbor, immediately north of the
39 site, and boating on the Sacramento River, depending on noise levels and the degree of visual
40 disturbances. [The BDCP proponents would implement environmental commitments to include a noise abatement plan \(Appendix 3B, Environmental Commitments; also see additional discussion under Impact REC-2 and Impact REC-3, above\) to lessen these impacts. In addition, a number of mitigation measures address construction-related impacts on recreational boating by reducing the degree of aesthetic and visual degradation at the construction site \(see Chapter 17, Aesthetics and](#)

1 Visual Resources, Section 17.3.3.2, Mitigation Measures AES-1a, AES-1b, AES-1c, AES-1d, AES-1e,
 2 AES-1f, AES-1g, AES-4b, and AES-4c; also see additional discussion under Impact REC-2 and Impact
 3 REC-3, above). Mitigation measures TRANS-1a, TRANS-1b, and TRANS-1c will address traffic and
 4 transportation safety and access conditions of the marina (see additional discussion under Impact
 5 REC-2 and Impact REC-3, above, and Chapter 19, Transportation, Section 19.3.3.9). Mitigation
 6 measures NOI-1a and NOI-1b will address construction-related noise concerns (see additional
 7 discussion under Impact REC-2 and Impact REC-3, above and Chapter 23, Noise, Section 23.4.3.9).
 8 Implementation of these measures, as determined applicable to construction of this facility under
 9 future site-specific environmental review, would reduce impacts related to a long-term reduction in
 10 boating-related recreation activities to less than significant. Overall, implementation of CM18 would
 11 not be expected to have an adverse effect on recreational boating opportunities ~~because~~
 12 ~~construction of the facility would be anticipated to last 2 years or less (short term) and operation of~~
 13 ~~the facility would not be expected to affect recreational boating.~~

14 Under CM20, the BDCP Implementation Office would fund a Delta Recreational Users Invasive
 15 Species Program designed to implement actions to prevent the introduction of new aquatic invasive
 16 species and reduce the spread of existing aquatic invasive species via recreational watercraft,
 17 trailers, and other mobile recreational equipment used in aquatic environments in the study area.
 18 The program would consist of two primary elements targeting recreational boaters: education and
 19 outreach, and watercraft inspection. Education and outreach printed materials and interpretive
 20 displays would provide information regarding the presence and range of existing aquatic invasive
 21 species, the various vectors of aquatic invasive species, the threat of existing aquatic invasive
 22 species spreading within the study area, and the risk of new aquatic invasive species introductions.
 23 The watercraft inspection would involve development and implementation of a comprehensive
 24 inspection program. This type of program involves screening interviews at the point of entry; a
 25 comprehensive inspection of all high risk watercraft, trailers, and equipment identified as high-risk
 26 during the screening interview; decontamination and/or quarantine or exclusion of watercraft,
 27 trailers, and equipment that are not clean, drained, and dry; and optional vessel certification.
 28 Although there could be a marginal effect on the recreation experience if boaters are delayed at the
 29 boat launch, it is expected that there would be no adverse effect on recreational boating.

30 Under CM21, the BDCP proponents would provide funding for actions that would minimize the
 31 potential for entrainment of covered fish associated with operation of nonproject diversions and
 32 also to improve Delta ecosystem health by reducing the diversion of plankton and other nutritional
 33 resources into nonproject diversions, thereby benefiting all covered fishes. The number and size of
 34 the diversions that would be eliminated are not precisely known because the affected parcels have
 35 not yet been identified and moreover, some existing diversions may be remediated before being
 36 incorporated into the BDCP preserve system. Unscreened diversions may be handled through
 37 removal of individual diversions that have relatively large effects on covered fish species;
 38 consolidation of multiple unscreened diversions to a single or fewer screened diversions placed in
 39 lower quality habitat; relocation of diversions with substantial effects on covered species from high
 40 quality to lower quality habitat, in conjunction with screening; reconfiguration and screening of
 41 individual diversions in high quality habitat to take advantage of small-scale distribution patterns
 42 and behavior of covered fish species relative to the location of individual diversions in the channel;
 43 voluntary alteration of the daily and seasonal timing of diversion operation; or other methods may
 44 be implemented if the technical team determines it to be appropriate. Implementation of this
 45 measure would likely involve some in-water construction at some sites. These activities would be

1 highly localized and of short duration and would not result in adverse effects on recreational
2 boating in the study area.

3 With the exception of CM 18, these measures would not result in a long-term reduction in boating-
4 related recreation activities. With mitigation implemented, CM 18 would result not be adverse.
5 Overall, this impact would not be adverse.

6 **CEQA Conclusion:** Channel modification and other activities associated with implementation of
7 some habitat restoration and enhancement measures and other conservation measures would limit
8 some opportunities for boating and boating-related recreation by reducing the extent of navigable
9 water available to boaters. Temporary effects would also stem from construction, which may limit
10 boat access, speeds, or create excess noise, odors, or unattractive visual scenes during periods of
11 implementation. However, BDCP conservation measures would also lead to an enhanced boating
12 experience by expanding the extent of navigable waterways available to boaters, improving and
13 expanding boat launch facilities, and removing nonnative vegetation that restricts or obstructs
14 navigation. Overall, these measures would not be anticipated to result in a long-term reduction in
15 boating-related recreation activities; therefore, this impact is considered less than significant for the
16 conservation measures, with the exception of CM18, discussed further below.

17 ~~Because these measures would not be anticipated to result in a substantial long-term disruption of~~
18 ~~boating activities, this impact is considered less than significant for the conservation measures, with~~
19 ~~the exception of CM18, discussed further below.~~

20 Under CM18, construction of a genetic refuge and research facility at the former Army Reserve near
21 the Delta Marina Yacht Harbor could result in construction-related impacts on boaters at this site.
22 The BDCP proponents would implement environmental commitments to include a noise abatement
23 plan (Appendix 3B, *Environmental Commitments*; also see additional discussion under Impact REC-2
24 and Impact REC-3, above) to lessen these impacts. In addition, a number of mitigation measures
25 address construction-related impacts on recreational boating by reducing the degree of aesthetic
26 and visual degradation at the construction site (see Chapter 17, *Aesthetics and Visual Resources*,
27 Section 17.3.3.2, Mitigation Measures AES-1a, AES-1b, AES-1c, AES-1d, AES-1e, AES-1f, AES-1g, AES-
28 4b, and AES-4c; also see additional discussion under Impact REC-2 and Impact REC-3, above).
29 Mitigation measures TRANS-1a, TRANS-1b, and TRANS-1c will address traffic and transportation
30 safety and access conditions of the marina (see additional discussion under Impact REC-2 and
31 Impact REC-3, above, and Chapter 19, *Transportation*, Section 19.3.3.2). Mitigation measures NOI-1a
32 and NOI-1b will address construction-related noise concerns (see additional discussion under
33 Impact REC-2 and Impact REC-3, above and Chapter 23, *Noise*, Section 23.4.3.2). Implementation of
34 these measures, as determined applicable to construction of this facility under future site-specific
35 environmental review, would reduce impacts on recreational boating to less-than-significant. No
36 additional mitigation would be required.

37 **15.3.3.9 Alternative 4—Dual Conveyance with Modified Pipeline/Tunnel** 38 **and Intakes 2, 3, and 5 (9,000 cfs; Operational Scenario H)**

39 Alternative 4 includes the construction of three north Delta intake facilities (Intakes 2, 3, and 5)
40 between Clarksburg and Walnut Grove.) An operable barrier would be placed at the head of Old
41 River at the confluence with the San Joaquin River. Table 15-15 lists the recreation sites and areas
42 that may be affected by Alternative 4. Clifton Court Forebay and Cosumnes River Preserve are the

1 only recreation facilities that fall within the construction footprint (Mapbook Figure [M15-4](#)). Specific
 2 effects on recreation areas or sites are discussed below.

3 **Table 15-15. Recreation Sites Potentially Affected by Construction of Alternative 4**

Recreation Site or Area	Primary Alternative Feature	Potential Impact Source	Duration
Stone Lakes National Wildlife Refuge	Intake; Potential Borrow Area; Shaft Location; Reusable Tunnel Material Area; Temporary Work Area ; Transmission Lines ; Geotechnical Exploration	Noise and visual disturbances	Ongoing; up to 10.55 years (long term)
Clarksburg Boat Launch (Fishing Access)	Intake; Intake Work Area; Geotechnical Exploration	Noise and visual disturbances	Ongoing; up to 7.55 years (long term)
Cosumnes River Preserve	Shaft Location; Reusable Tunnel Material Area; Barge Unloading Facility; Safe Haven Work Areas; Reusable Tunnel Material Conveyor Facility; Tunnel Work Areas; Transmission Lines Geotechnical Exploration ; Shaft Locations ; Reusable Tunnel Material Area ; Transmission Line ; Temporary Access Roads ; Permanent Access Road	Surface impact; Noise and visual disturbances	Ongoing; up to 128.5 years (long term)
Wimpy's Marina	Tunnel Work Area; Geotechnical Exploration Transmission line	Noise and visual disturbances	Up to 2.5 years (long term) Up to 8 years (long term)
Westgate Landing Park	Tunnel Muck Area	Noise and visual disturbances	Up to 8 years (long term)
Delta Meadows	Forebay and Spillway; Geotechnical Exploration ; Transmission Line Permanent Access Road ; Barge Unloading Facility	Noise and visual disturbances	Ongoing; up to 7.55 years (long term)
Bullfrog Landing Marina	Safe Haven Work Area Temporary Access Road	Noise and visual disturbances	Up to 11 years (long term) Up to 8 years (long term)

Recreation Site or Area	Primary Alternative Feature	Potential Impact Source	Duration
Clifton Court Forebay	Canal; Control Structure; Forebay; Forebay Overflow Structure; Shaft Location; Reusable Tunnel Material Area; Canal Work Area; Control Structure Work Area; Forebay Dredging Area; Barge Unloading Facility; Siphon Work Area; Transmission Lines Siphon; Trenchless Crossing; Canals; Control Structure; Forebay; Forebay Embankment Area; Forebay Overflow Structure; New Forebay; Power Transmission Relocation; Reusable Tunnel Material Area; Shaft Location; Barge Unloading Facility; Canal Work Area; Control Structure Work Area; Forebay Dredging Area; Forebay Outlet Structure; Geotechnical Exploration Zone; Tunnel Muck Conveyor Facility; Electrical Substation; Facility Access Road; Gravity-Bypass Channel Spillway; Intake; MCC/Electrical Building; Office Trailer; Piping; Pumping Plant; Rebar Cage Assembly Area; Staging Area; Storage/Detention Tank; Surge Shaft; Water Treatment Facility	Surface impact; Noise and visual disturbances	Ongoing; up to 713 years (long term)
<u>Lazy M Marina</u>	<u>Permanent Access Road</u>	<u>Noise and visual disturbances</u>	<u>Ongoing; up to 11 years (long term)</u>

Sources: GIS data layers available from DWR: CPAD, Green Info Network, 2011; USFWS Boundaries, USFWS 2012; Recreation Areas, AECOM/ICF 2012; Recreation Facilities, AECOM/ICF 2012; Air quality construction equipment and scheduling assumptions as described in Appendix 22B.

Note: Construction duration information is approximate and subject to further revision.

1

2 **Impact REC-1: Permanent Displacement of Existing Well-Established Public Use or Private** 3 **Commercial Recreation Facility Available for Public Access as a Result of the Location of** 4 **Proposed Water Conveyance Facilities**

5 **NEPA Effects:** Alternative 4 conveyance facilities include elements that would be permanently
6 located in two existing recreation areas: Cosumnes River Preserve ~~-(tunnel, RTM area east of Eagle~~
7 ~~Tree on the northern end of Staten Island, and a RTM area on the southern end of Staten Island)~~ and
8 Clifton Court Forebay (Table 15-15 and Mapbook Figure M15-4). Additionally, proposed RTM areas
9 near Twin Cities Road could interfere with recreational-related activities on DWR-owned parcels
10 that currently host a water ski school and a venue for hound races.

11 ~~In the Cosumnes River Preserve, An RTM area would be built to the north of Cosumnes River~~
12 ~~Preserve, southeast of the intermediate forebay. A~~ an east-west permanent transmission line would

1 be constructed adjacent to the northern boundary of the preserve along Lambert Road, where CDFW
 2 manages the lands as an ecological reserve. There is no public access permitted within this part of
 3 the preserve; therefore, the placement of the transmission line would not displace any recreational
 4 facilities. A tunnel running north to south would be located northeast of Walnut Grove from the
 5 intermediate forebay south through Staten Island in land managed by The Nature Conservancy.
 6 Tunnel construction would be underground and would not permanently displace any recreation
 7 facilities or lands within the preserve. No recreational opportunities would be permanently
 8 displaced, disrupted, or relocated by placement of the tunnel at this location. ~~A temporary work area
 9 would also be built north east of Walnut Grove. Two~~ A sets of tunnel shafts with permanent access
 10 roads, -would be built on Staten Island ~~a launch shaft, a vent shaft, two reusable tunnel material~~
 11 ~~areas and a conveyor facility, two temporary access roads, a permanent access road, temporary~~
 12 ~~work areas, and a temporary barge unloading facility would be built on Staten Island (Table 15-15~~
 13 ~~and Mapbook Figure M15-4).~~ Most recreation takes place near the visitor's center near Middle
 14 Slough, approximately 1.5 miles east of the construction footprint. Recreationists use North Staten
 15 Island Road for wildlife viewing, but there are no formal recreation facilities in the western areas of
 16 the preserve. Temporary features would be returned to preconstruction conditions. The placement
 17 of ~~RTM areas,~~ shaft locations, ~~and a~~ permanent access roads s would cause permanent surface
 18 impacts and would permanently displace portions of the preserve that may be used by
 19 recreationists. However, they would not result in the permanent loss or closure of a facility or
 20 activity because visitors would still be able to access North Staten Island Road for wildlife viewing.
 21 While recreational activities could be disrupted at ponds used for water ski instruction and hound
 22 racing, access to these parcels is subject to lease agreements with DWR. Due to the nature of these
 23 lease agreements, these activities could not reasonably be expected to continue for the long-term
 24 with any definitiveness, therefore, these facilities would not be considered long-term and/or well-
 25 established recreational facilities. Additionally, regardless of any disruption in these activities, there
 26 would continue to be extensive opportunities for waterskiing throughout the Delta. BDCP
 27 proponents would also contribute funds for the construction of new recreation opportunities,
 28 including hunting opportunities, as described in Appendix 3B, *Environmental Commitments*, Section
 29 3B.2.3. Therefore, the location of the proposed water conveyance facilities would not result in the
 30 permanent displacement of existing well-established public use or private commercial recreation
 31 facilities, and would not cause adverse effects. ~~While RTM areas are considered permanent surface
 32 impacts for the purposes of impact analysis, it is anticipated that the RTM would be removed from
 33 these areas and reused, as appropriate, as bulking material for levee maintenance, as fill material for
 34 habitat restoration projects, or other beneficial means of reuse identified for the material, as
 35 described in Appendix 3B, Environmental Commitments.~~

36 In the Clifton Court Forebay, combined pumping plant facilities, a permanent siphons, canals s, a new
 37 forebay and new embankment areas, ~~a~~ control structures, shaft locations, power transmission lines,
 38 a gravity-bypass spillway, a new forebay, and ~~and a~~ forebay overflow structure would be built. A
 39 permanent reusable tunnel material area would be built -northwest of Italian Slough ~~is within the,~~
 40 adjacent to the -Clifton Court Forebay recreation area, but is and is not anticipated to hinder
 41 recreation opportunities. ~~Temporary~~ Permanent transmission lines, ~~work areas,~~ and a dredging area
 42 would also be built. While RTM areas are considered permanent surface impacts for the purposes of
 43 impact analysis, it is anticipated that the RTM would be removed from these areas and reused, as
 44 appropriate, as bulking material for levee maintenance, as fill material for habitat restoration
 45 projects, or other beneficial means of reuse identified for the material, as described in Appendix 3B,
 46 Environmental Commitments. There are no formal recreation facilities at Clifton Court Forebay,
 47 although well-established recreation, mostly fishing and hunting, takes place at the southern end of

1 the forebay along the embankment. This access would be lost during construction, but once new
 2 embankments are built, recreation could again occur. The post-construction location of the water
 3 conveyance facilities would not result in permanent displacement of well-established recreation
 4 facilities available for public access. Therefore, there would be no adverse effects. Effects on
 5 recreation related to construction of the water conveyance facilities are discussed below in Impact
 6 REC-2. Also see Chapter 17, Aesthetics and Visual Resources, Section 17.3.3.9, and Chapter 23, Noise,
 7 Section 23.4.3.9, for additional discussion of these topics.

8 **CEQA Conclusion:** The alternative would include the placement of permanent ~~RTM areas,~~ shaft
 9 locations, ~~transmission lines, and and an~~ access roads that would cause permanent surface impacts
 10 to Cosumnes River Preserve and would displace portions of the preserve that may be used by
 11 recreationists. Permanent noise and visual impacts would occur from a RTM areas adjacent to
 12 Cosumnes River Preserve. However, ~~they~~ se would not result in the permanent loss or closure of a
 13 facility or activity because visitors would still be able to access North Staten Island Road for wildlife
 14 viewing. While recreational activities could be disrupted at ponds used for water ski instruction and
 15 hound racing, access to these parcels is subject to lease agreements with DWR. Due to the nature of
 16 these lease agreements, these activities could not reasonably be expected to continue for the long-
 17 term with any definitiveness, therefore, these facilities would not be considered long-term and/or
 18 well-established recreational facilities. Additionally, regardless of any disruption in these activities,
 19 there would continue to be extensive opportunities for waterskiing throughout the Delta. BDCP
 20 proponents would also contribute funds for the construction of new recreation opportunities,
 21 including hunting opportunities, as described in Appendix 3B, Environmental Commitments, Section
 22 3B.2.3. In the Clifton Court Forebay, combined pumping plant facilities, a permanent siphon, canals,
 23 a new forebay and new embankment areas, a control structure, shaft locations, a forebay overflow
 24 structure, and a reusable tunnel material conveyor and facility would be built. A permanent reusable
 25 tunnel material area, along with a temporary fuel station and temporary concrete batch plant would
 26 be built northwest of Italian Slough, adjacent to the Clifton Court Forebay recreation area, are not
 27 anticipated to hinder recreation opportunities. There are no formal recreation facilities at Clifton
 28 Court Forebay, although well-established recreation, mostly fishing and hunting, takes place at the
 29 southern end of the forebay along the embankment. This access would be lost during construction,
 30 but once new embankments are built, recreation could again occur. The post-construction location
 31 of the water conveyance facilities would not result in permanent displacement of well-established
 32 recreation facilities available for public access. Therefore, this alternative would not result in the
 33 permanent displacement of well-established public use or private commercial recreation facilities
 34 available for public access. Impacts are considered less than significant. No mitigation is required.

35 **Impact REC-2: Result in Long-Term Reduction of Recreation Opportunities and Experiences** 36 **as a Result of Constructing the Proposed Water Conveyance Facilities**

37 **NEPA Effects:** Two recreation sites, Clifton Court Forebay and Cosumnes River Preserve, are within
 38 the construction footprint. A total of six recreation sites or areas are within the 1,200 to 1,400-foot
 39 indirect impact area associated with aboveground construction of the proposed water conveyance
 40 facilities (CM1) (see Chapter 23, Noise, Section 23.4.3.9). The effects that could occur at each
 41 potentially affected recreation site are discussed below. Potential indirect effects on recreation
 42 include access, construction noise, and changes in the visual character of the area surrounding the
 43 recreation sites, as well as reduced wildlife-related recreational opportunities due to nearby noise
 44 effects. Also see Chapter 12, Terrestrial Biological Resources, Section 12.3.3.9, Chapter 17, Aesthetics
 45 and Visual Resources, Section 17.3.3.9, Chapter 19, Transportation, Section 19.3.3.9, and Chapter 23,

1 Noise, Section 23.4.3.9, for additional detail related to waterfowl/wildlife, aesthetics/visual
2 resources, transportation, and noise, respectively.

3 **Stone Lakes National Wildlife Refuge**

4 Private and public use areas within the Stone Lakes NWR fall within the indirect impact area. No
5 public recreation facilities are located on the privately held lands within the NWR boundary (U.S.
6 Fish and Wildlife Service 2007a). The public use areas of Stone Lakes NWR include the Beach Lake
7 and North Stone Lake Units of the NWR.

8 The northern section of Stone Lakes NWR is adjacent to Intakes 2 and 3, and the southern portion is
9 approximately 1 mile from Intake 5. Recreation does occur in the northernmost section of Stone
10 Lakes NWR, which would be east of a ~~potential borrow/spoil area temporary work area and a RTM~~
11 ~~area~~ associated with Intake 2 and could cause noise and visual disturbances to recreationists.
12 ~~Geotechnical exploration would occur along the tunnel corridor, to the east of Stone Lakes NWR, for~~
13 ~~up to 2.5 years. Exploration methods would include soil borings and conventional piezocones and~~
14 ~~seismic cones, as well as sampling for gas within soils and groundwater at selected locations.~~
15 ~~Construction of the intakes and temporary work areas could also cause noise and visual~~
16 ~~disturbances to recreationists.~~ Construction of the proposed 230 kV and 69 kV ~~permanent~~
17 ~~temporary~~ transmission lines would be constructed to the west and south of the North Stone Lake
18 Unit, and could cause noise and visual disturbances to visitors in the refuge for up to ~~1.535~~ years~~s~~.
19 Access to the refuge would be preserved, but because of the proximity of the alignment and
20 associated construction work areas and borrow/spoil areas, there could be effects on wildlife
21 viewing and environmental education opportunities within the Stone Lakes NWR. Because
22 construction would primarily occur Monday through Friday, year-round, there could be temporary
23 effects on wildlife viewing and some environmental education opportunities that depend on the
24 presence of wildlife. Construction related to intakes could take up to ~~five-75~~ years. Hiking,
25 interpretation, and some environmental education opportunities would still be feasible within the
26 NWR; however, refuge visitors would experience a long-term reduction of recreation opportunities
27 and experiences due to construction noise and visual disruptions, resulting in reduced opportunities
28 for wildlife viewing. However, mitigation measures, environmental commitments, and conservation
29 measures would provide several benefits to waterfowl habitat and recreational opportunities. As
30 discussed in Chapter 12, *Terrestrial Biological Resources*, Section 12.3.3.9, mitigation would be
31 available to address effects on nesting birds, waterfowl populations, and greater sandhill crane near
32 construction areas. In addition, over the longer term of the action alternatives, implementation of
33 CM3 and CM11 will result in protection and enhancement of at least 8,100 acres of managed
34 wetlands (see BDCP¹ Chapter 3, Section 3.4, *Conservation Measures*, Goal MWNC1, Objective
35 MWNC1.1) that will provide suitable habitat conditions for covered species and native biodiversity,
36 including benefiting migratory waterfowl. Under CM3, the protection of cultivated lands will also
37 benefit sandhill crane and other species. Implementation of CM11 would provide beneficial effects
38 on recreation opportunities by allowing recreation to occur on approximately 61,000 acres of lands
39 in the BDCP reserve system, consisting of grassland, vernal pool complex, riparian, managed
40 wetland, and aquatic natural community types (see BDCP Chapter 4, Section 4.2.3.9.2 *Recreation*).
41 The reserve system would comprise more than 170 miles of trail (25 of which would be new), 4
42 picnic areas, 15 new trailhead facilities and one updated boating facility, as well as a new boat
43 launch facility within the footprint of the North Delta diversion facilities. Permitted activities will

¹ As described in Chapter 1, Introduction, Section 1.1, the full Draft EIR/EIS should be understood to include not only the EIR/EIS itself and its appendices but also the proposed BDCP documentation including all appendices.

1 include hiking, wildlife viewing, docent-led wildlife and botanical tours, bicycling, equestrian use,
 2 hunting, fishing, and boating, depending on the location. Also, as discussed in Appendix 3B,
 3 *Environmental Commitments*, DWR would implement an environmental commitment that would
 4 dispose of and reuse spoils, reusable tunnel material, and dredged material. Materials could be
 5 reused for purposes such as flood protection, habitat restoration, and subsidence reversal.

6 **Clarksburg Boat Launch (Fishing Access)**

7 The Clarksburg Boat Launch is on the west bank of the Sacramento River across the river from the
 8 proposed Intake 3 site. Access to the Clarksburg Boat Launch would be maintained using County
 9 Road E9 (also referred to as County Highway [CH] or Old River Road); access would not be expected
 10 to be a concern because most of the construction activity would take place on the east side of the
 11 Sacramento River. On-water access to the fishing site, as well as use of the boat ramp, would not be
 12 affected by construction. Indirect construction noise effects on recreation in the vicinity of the
 13 Clarksburg Boat Launch would last about 55 years with construction of the intake and related
 14 facilities primarily ongoing Monday through Friday for up to 24 hours each day. This would be
 15 considered a long-term adverse effect. Geotechnical exploration would occur along the tunnel
 16 corridor, to the east of Clarksburg Boat Launch, for up to 2.5 years. In addition, because of the
 17 relatively high groundwater level at all intake locations and pumping plant sites, dewatering would
 18 be necessary to provide a dry workspace. As discussed in Chapter 3, *Description of Alternatives*,
 19 Section 3.6.1, dewatering would take place 7 days per week and 24 hours per day and would be
 20 initiated 1–4 weeks prior to excavation. Dewatering would continue until excavation is completed
 21 and the construction site is protected from areas with high groundwater levels. Construction of the
 22 intake in this area would be long term and would also substantially alter the recreation setting for
 23 views from the boat launch/fishing access site. Therefore, constructing the proposed water
 24 conveyance facilities would result in long-term reduction of recreational opportunities or
 25 experiences.

26 **Cosumnes River Preserve (Private Lands and CDFW Ecological Reserve)**

27 Cosumnes River Preserve provides opportunities for limited fishing and hunting, hiking, paddling,
 28 wildlife viewing, and environmental education. Because public access is concentrated around the
 29 visitor center which is located approximately 1.5 miles east of the alternative alignment, a majority
 30 of public recreation activities would likely take place outside of the construction impact areas. As
 31 discussed in Impact REC-1, a proposed temporary 230-kV transmission line would be constructed
 32 to run east-west, adjacent to the northern boundaries of the two preserve areas along Lambert
 33 Road, where CDFW manages the lands as an ecological reserve. There is no public access permitted
 34 within this part of the preserve. A RTM area would be built northwest of Mokelumne City, almost 1
 35 mile east of the intermediate forebay. It would be nearly adjacent to the portion of the preserve run
 36 by The Nature Conservancy that lies south of Twin Cities Road and east of the Mokelumne River.
 37 Construction of the RTM area could cause noise and visual disturbances to this portion of the
 38 preserve for up to 6 years. A safe haven work area and temporary access road would be built
 39 northeast of Walnut Grove. Geotechnical exploration would occur along the tunnel corridor for
 40 approximately 2.5 years. A tunnel would also run from the intermediate forebay, south through
 41 Staten Island in land managed by The Nature Conservancy. Tunnel construction would be
 42 underground and would not permanently displace any recreation facilities or lands within the
 43 preserve. No recreational opportunities would be permanently displaced, disrupted, or relocated by
 44 placement of the tunnel at this location. However, SStaten Island, where a portion of Cosumnes
 45 River Preserve is located and managed by The Nature Conservancy, is a popular birdwatching

1 location. Table 15-15 and Mapbook Figure M15-4 identify the project features that would be
 2 constructed near or through preserve lands. ~~As discussed in Impact Rec 1, a proposed permanent~~
 3 ~~230 kV transmission line would be constructed to run east-west, adjacent to the northern boundary~~
 4 ~~of the preserve along Lambert Road, where CDFW manages the lands as an ecological reserve. There~~
 5 ~~is no public access permitted within this part of the preserve. Proposed temporary 230 kV and 34.5~~
 6 ~~kV transmission lines would run through the preserve northeast of Walnut Grove to Eagle Tree, and~~
 7 ~~through the southern end of Staten Island. Two safe haven work areas with temporary access roads,~~
 8 ~~and two sets of tunnel shafts with temporary work areas and permanent access roads, would be~~
 9 ~~built on Staten Island. These portions The Staten Island portion of the preserve are managed by The~~
 10 ~~Nature Conservancy and does~~ not provide formal recreation facilities; however, visitors do access
 11 these areas along North Staten Island Road for wildlife viewing. ~~Construction of the proposed~~
 12 ~~transmission lines would cause temporary noise and visual disturbances to visitors for up to 3.5~~
 13 ~~years. A tunnel running north to south would be located northeast of Walnut Grove from the~~
 14 ~~intermediate forebay south through Staten Island in land managed by The Nature Conservancy.~~
 15 ~~Tunnel construction would be underground and would not permanently displace any recreation~~
 16 ~~facilities or lands within the preserve. No recreational opportunities would be permanently~~
 17 ~~displaced, disrupted, or relocated by placement of the tunnel at this location. A temporary work area~~
 18 ~~would also be built north east of Walnut Grove. A tunnel shaft, a launch shaft, a vent shaft, two~~
 19 ~~reusable tunnel material areas and a conveyor facility, two temporary access roads, a permanent~~
 20 ~~access road, temporary work areas, and a temporary barge unloading facility would be built on~~
 21 ~~Staten Island (Table 15-15 and Mapbook Figure M15-4). While RTM areas are considered~~
 22 ~~permanent surface impacts for the purposes of impact analysis, it is anticipated that the RTM would~~
 23 ~~be removed from these areas and reused, as appropriate, as bulking material for levee maintenance,~~
 24 ~~as fill material for habitat restoration projects, or other beneficial means of reuse identified for the~~
 25 ~~material, as described above and in Appendix 3B, Environmental Commitments.~~ During construction,
 26 access to the preserve along North Staten Island Road could be affected. Construction primarily
 27 would take place Monday through Friday, for up to 24 hours per day with dewatering 7 days per
 28 week and 24 hours per day. Construction noise and views could affect wildlife viewing and
 29 environmental education opportunities for docent-guided tours. Construction of the proposed water
 30 conveyance facilities would slightly reduce the amount of area available for wildlife viewing in
 31 Cosumnes River Preserve, resulting in a substantial long-term reduction of recreation opportunities
 32 and experiences. As discussed in Chapter 12, *Terrestrial Biological Resources*, Section 12.3.3.9,
 33 mitigation would be available to address effects on nesting birds and waterfowl populations and
 34 greater sandhill crane near construction areas. In addition, over the longer term of the action
 35 alternatives, implementation of CM3 and CM11 will result in protection and enhancement of at least
 36 8,100 acres of managed wetlands (see BDCP² Chapter 3, Section 3.4, *Conservation Measures*, Goal
 37 MWNC1, Objective MWNC1.1) that will provide suitable habitat conditions for covered species and
 38 native biodiversity, including benefiting migratory waterfowl. Implementation of these conservation
 39 measures would increase wildlife viewing opportunities. Under CM3, the protection of cultivated
 40 lands will also benefit sandhill crane and other species. As described above in the Stone Lakes
 41 National Wildlife section, implementation of CM11 would provide beneficial effects on recreation
 42 opportunities by allowing recreation to occur on approximately 61,000 acres of lands in the BDCP
 43 reserve system. Permitted activities will include hiking, wildlife viewing, docent-led wildlife and
 44 botanical tours, bicycling, equestrian use, hunting, fishing, and boating.

² As described in Chapter 1, Introduction, Section 1.1, the full Draft EIR/EIS should be understood to include not only the EIR/EIS itself and its appendices but also the proposed BDCP documentation including all appendices.

1 **Wimpy's Marina**

2 Wimpy's Marina is a private boating facility located on the south fork of the Mokelumne River
 3 southeast of Walnut Grove. It contains 22 berths and a ramp, along with RV sites, a bait shop, and
 4 public fishing access. The marina is within the noise and visual disturbance impact area, and is
 5 across the river from a tunnel corridor, ~~a vent shaft, a temporary tunnel work area, a temporary~~
 6 ~~access road, and a temporary transmission line.~~ Geotechnical exploration would occur along the
 7 tunnel corridor for approximately 2.5 years. Access to the marina from West Walnut Grove Road will
 8 be maintained during geotechnical exploration and tunnel construction. On-water access to the
 9 marina and use of the marina's boating facilities ~~to the marina and use of the marina's boating~~
 10 ~~facilities~~ would not be affected by geotechnical exploration or tunnel/pipeline construction
 11 activities. ~~Boating opportunities would still be feasible at the marina during construction of the~~
 12 ~~tunnel/pipeline and temporary work area. Construction of the tunnel and use of the temporary~~
 13 ~~work area would take up to 8 years and would be considered a long-term adverse effect.~~
 14 ~~Construction of the access roads would both take up to 2 years, which would be considered a short-~~
 15 ~~term effect (2 years or less). Construction of the temporary 230 kV transmission line could take up~~
 16 ~~to 3.5 years.~~ During construction it is possible that marina users would be disturbed by noise and
 17 visual disruptions related to the construction activities. Anglers on the river near the marina and
 18 across from the construction area would also potentially experience noise and visual disturbances
 19 from construction.

20 **Westgate Landing Park**

21 ~~San Joaquin County manages the 15-acre Westgate Landing Regional Park on the Mokelumne River.~~
 22 ~~The park provides camping, fishing, picnicking, and boating opportunities. It has 14 campsites (RV~~
 23 ~~and tent, but no hookups), 1 fishing pier, 9 picnic sites, and 24 boat slips available for overnight~~
 24 ~~docking (San Joaquin County 2008c).~~ ~~Reusable tunnel material areas would be used during tunnel~~
 25 ~~construction, for up to 8 years, and would adversely affect the recreation experience of visitors~~
 26 ~~across the river due to noise and visual disturbances. Construction primarily would take place~~
 27 ~~Monday through Friday, for up to 24 hours per day. Construction noise could cause adverse effects~~
 28 ~~on wildlife viewing and environmental education opportunities for docent-guided tours.~~

29 **Delta Meadows**

30 According to the California Department of Parks and Recreation website at the time of this draft
 31 EIR/S, the Delta Meadows River Park is closed to the public and has no visitor services. It still serves
 32 as a preserve, and is a popular mooring site among boaters. This analysis describes the park as if it is
 33 accessible to recreationists. On-water access to the mooring site would not be affected. Permanent
 34 and temporary features of the proposed water conveyance facilities would cause ongoing noise and
 35 visual disturbances to visitors. ~~Construction of a proposed temporary 230 kV transmission line that~~
 36 ~~would run east of Delta Meadows could cause noise and visual disturbances for up to 3.5 years.~~ The
 37 intermediate forebay and spillway are adjacent to the northern corner of Delta Meadows River Park,
 38 across Twin Cities Road. Geotechnical exploration would also occur along the tunnel corridor for
 39 approximately 2.5 years. Construction primarily would take place Monday through Friday, for up to
 40 24 hours per day. Construction noise, as well as operation and maintenance of the intermediate
 41 forebay and spillway, could adversely affect wildlife viewing and environmental education
 42 opportunities for potential visitors.

1 **Bullfrog Landing Marina**

2 Containing 43 berths, Bullfrog Landing Marina is on Middle River within the noise and visual
 3 disturbance impact area surrounding the tunnel/pipeline alignment across Bacon Island. A
 4 temporary access road would wrap around the southern and eastern sides of Bacon Island, and will
 5 be as close as approximately 900 feet to the marina. The marina is ~~immediately~~ approximately 4,000
 6 feet west of a safe haven work area used for tunnel construction, which is outside of the
 7 approximate 1,400-foot noise and visual buffer; therefore, noise and visual disturbances from the
 8 safe haven work area are not expected to occur. On-water access to the marina and use of the
 9 marina's boating facilities would not be affected by tunnel construction activities. Boating
 10 opportunities would still be feasible at the marina during construction of the tunnel and use of the
 11 safe haven work area. During construction it is possible that marina users would be disturbed by
 12 noise and visual disruptions related to the temporary access road construction activities, which
 13 could last up to 11.8 years, resulting in a ~~long-long~~ term adverse effect. Anglers on the river
 14 between the marina and the construction area would also experience noise and visual disturbances
 15 from construction.

16 **Clifton Court Forebay**

17 Clifton Court Forebay offers public fishing and hunting access from Lindeman Road on the south
 18 side of the forebay. There are no recreation facilities at the forebay; motorized boating, camping, and
 19 swimming are not allowed. Most fishing and hunting use at the forebay likely occurs along the west
 20 and south shores of the forebay, although some visitors walk or ride a bike around the forebay to
 21 reach other fishing and hunting locations. Visitors to these areas will experience a ~~long-term~~
 22 reduction of recreational opportunities and experiences as a result of the proposed water
 23 conveyance facilities.

24 Access to the forebay would be maintained using Clifton Court Road or a detour. Construction of the
 25 combined pumping plants and associated facilities, Clifton Court Forebay expansion, control
 26 structures, shafts, work areas, ~~barge unloading facility,~~ reusable tunnel material areas, forebay
 27 dredging area, and installation of transmission lines would take up to 117 years. Geotechnical
 28 exploration would also occur along the tunnel corridor for approximately 2.5 years. Construction
 29 would primarily occur Monday through Friday for up to 24 hours per day. The opportunities for
 30 visitors who use the southern part of the forebay would be affected the most because of its
 31 proximity to the proposed construction areas. While the forebay is expanded and the new
 32 embankment is built, recreational visitors would lose access to the existing bank recreational
 33 activities. Construction would also cause noise and visual disturbances which would could deter fish
 34 and wildlife and result in reduced opportunities for fishing or hunting, as well as adversely affect the
 35 ambient recreation setting and recreation experience. Construction during waterfowl hunting
 36 season would affect recreational hunting in the area to the degree that use is temporarily degraded.
 37 As discussed in Chapter 12, *Terrestrial Biological Resources*, Section 12.3.3.9, mitigation would be
 38 available to address the effect on nesting birds and waterfowl populations near construction areas.
 39 In addition, over the longer term of the action alternatives, implementation of CM3 and CM11 will
 40 result in protection and enhancement of at least 8,100 acres of managed wetlands (see BDCP³
 41 Chapter 3, Section 3.4, *Conservation Measures*, Goal MWNC1, Objective MWNC1.1) that will provide
 42 suitable habitat conditions for covered species and native biodiversity, including benefiting

³ As described in Chapter 1, Introduction, Section 1.1, the full Draft EIR/EIS should be understood to include not only the EIR/EIS itself and its appendices but also the proposed BDCP documentation including all appendices.

1 migratory waterfowl. Under CM3, the protection of cultivated lands will also benefit sandhill crane
 2 and other species. As described above in the Stone Lakes National Wildlife section, implementation
 3 of CM11 would provide beneficial effects on recreation opportunities by allowing recreation to
 4 occur on approximately 61,000 acres of lands in the BDCP reserve system. Permitted activities will
 5 include hiking, wildlife viewing, docent-led wildlife and botanical tours, bicycling, equestrian use,
 6 hunting, fishing, and boating.

7 **Lazy M Marina**

8 Lazy M Marina provides about 35 berths, substantial dry storage, and a boat ramp. A permanent
 9 access road that would follow the same alignment as the existing Clifton Court Road would be
 10 located about 300 feet from this marina. It is anticipated that the existing road would be upgraded
 11 and extended, which could include widening the existing road, or resurfacing or reconstructing it to
 12 handle larger load volumes and weight. Construction, and equipment and delivery of Clifton Court
 13 Forebay and the combined pumping plants would occur up to 11½ years.

14 **Other Recreation Opportunities**

15 *On-Water Recreation*

16 There are no recreation sites within the impact area for the operable barrier at the head of Old River
 17 and San Joaquin River. Although these facilities and other marinas or fishing sites fall outside of the
 18 construction impact area for noise, the overall recreation experience upstream or downstream of
 19 these sites may fall within the noise impact area and could experience diminished recreation
 20 opportunities because of the elevated noise levels as well as visual setting disruptions over the
 21 course of construction. Overall, construction activities associated with the proposed water
 22 conveyance facilities, and geotechnical exploration, would range from 2.54 years to up to 13.58
 23 years depending on the site. Work would occur Monday through Friday for up to 24 hours per day.
 24 In-river construction would be further limited primarily to June 1 through October 31 each year.
 25 Although dewatering would take place 7 days a week for 24 hours per day, it would not result in
 26 adverse noise effects. Weekday construction would reduce the amount of fish and other wildlife in
 27 recreation areas in the vicinity of the intakes, resulting in decreased recreation opportunities related
 28 to wildlife and fish, causing recreationists to experience a changed recreation setting.

29 *Campgrounds*

30 Nighttime construction activities would require the use of bright lights that would negatively affect
 31 nighttime views of and from the work area. This would affect any overnight camping at the
 32 recreation sites and areas discussed above, although day use areas that close at sunset would not be
 33 adversely affected. Mitigation Measures AES-4a, AES-4b, and AES-4c would be available to reduce
 34 the effects of nighttime construction lighting. As discussed in Chapter 23, *Noise*, Section 23.4.3.9,
 35 another nighttime effect on recreation would be construction noise levels that could adversely affect
 36 camping or other nighttime recreation uses within up to 2,800 feet of construction areas. Nighttime
 37 construction would not occur on weekends or holidays. Mitigation Measures NOI-1a and NOI-1b
 38 would be available to address these effects.

39 **Summary**

40 Construction of Alternative 4 intakes and water conveyance facilities would result in disruption to
 41 recreational opportunities. Indirect effects on recreation experiences may occur as a result of

1 impaired access, construction noise, or negative visual effects associated with construction. Overall,
2 construction and geotechnical exploration may occur year-round and last from 2.54 to 13.58 years
3 at individual construction sites near recreation sites or areas and in-river construction would be
4 primarily limited to June 1 through October 31 each year, which would result in a long-term
5 reduction of recreational opportunities or experiences.

6 As discussed in Chapter 12, *Terrestrial Biological Resources*, Section 12.3.3.2, construction could
7 have an adverse effect on waterfowl if they were present in or adjacent to work areas and could
8 result in destruction of nests or disturbance of nesting and foraging behaviors. These effects could
9 indirectly affect recreational wildlife viewing and hunting in the study area; however, mitigation
10 measures, environmental commitments, and conservation measures would provide several benefits
11 to waterfowl habitat, which would result in increased recreational opportunities. Mitigation
12 Measure BIO-75, *Conduct preconstruction nesting bird surveys and avoid disturbance of nesting birds*,
13 would be available to address these effects. In addition, in areas near greater sandhill crane habitat,
14 construction-related disturbances (noise and visual), installation of transmission lines, or habitat
15 degradation associated with accidental spills, runoff and sedimentation, and dust could have
16 adverse effects on sandhill cranes and related recreational viewing opportunities. These effects on
17 sandhill crane would be minimized with BDCP AMM20 (Greater Sandhill Crane) and BDCP AMM31
18 (Noise Abatement). These measures, designed to avoid and minimize effects on greater sandhill
19 crane, would be implemented by the BDCP proponents where determined necessary for all covered
20 activities throughout the permit term. These and other BDCP AMMs are detailed in BDCP Appendix
21 3.C, *Avoidance and Minimization Measures*. Also, as discussed in Appendix 3B, *Environmental*
22 *Commitments*, DWR would implement an environmental commitment that would dispose of and
23 reuse spoils, reusable tunnel material, and dredged material. Materials could be reused for purposes
24 such as flood protection, habitat restoration, subsidence reversal. In addition, over the longer term
25 of the action alternatives, implementation of CM3 and CM11 will result in protection and
26 enhancement of 8,100 acres of managed wetlands (see BDCP Chapter 3, Section 3.4, *Conservation*
27 *Measures*, Goal MWNC1, Objective MWNC1.1) that will provide suitable habitat conditions for
28 covered species and native biodiversity, including benefiting migratory waterfowl. CM3 will also
29 protect cultivated lands, which will benefit sandhill crane and other species. Implementation of
30 CM11 will provide beneficial effects on recreation opportunities by allowing recreation to occur on
31 approximately 61,000 acres of lands in the BDCP reserve system, consisting of grassland, vernal
32 pool complex, riparian, managed wetland, and aquatic natural community types (see BDCP Chapter
33 4, Section 4.2.3.9.2 *Recreation*). The reserve system would comprise more than 170 miles of trail (25
34 of which would be new), 4 picnic areas, 15 new trailhead facilities and one updated boating facility,
35 as well as a new boat launch facility within the footprint of the North Delta diversion facilities.
36 Permitted activities will include hiking, wildlife viewing, docent-led wildlife and botanical tours,
37 bicycling, equestrian use, hunting, fishing, and boating.

38 Chapter 17, *Aesthetics and Visual Resources*, Section 17.3.3.9, identifies a number of mitigation
39 measures that would be available to address construction-related visual effects on sensitive
40 receptors from vegetation removal for transmission lines and access routes (AES-1a), provision of
41 visual barriers between construction work areas and sensitive receptors (AES-1b), and locating
42 concrete batch plants and fuel stations away from sensitive resources and receptors (AES-1f). In
43 addition, the chapter identifies measures to address longer term visual effects associated with
44 changes to the landscape/visual setting from construction and the presence of new water
45 conveyance features. These include developing and implementing a spoil/borrow and RTM area
46 management plan (AES-1c), restoring barge loading facility sites once they are decommissioned

1 (AES-1d), applying aesthetic design treatments to all structures to the extent feasible (AES-1e),
2 restoring concrete batch plants and fuel stations upon removal of facilities (AES-1f), and
3 implementing best management practices to implement a project landscaping plan (AES-1g). DWR
4 would also make a commitment to enhance the visual character of the area by creating new wildlife
5 viewing sites and enhancing interest in the construction site by constructing viewing areas and
6 displaying information about the project, which may attract people who may use the recreation
7 facilities to the construction site as part of the visit.

8 To further compensate for the loss of access as a result of constructing the river intakes, the BDCP
9 proponents will work with the California Department of Parks and Recreation to help insure the
10 elements of CM1 would not conflict with the elements proposed in DPR's Recreation Proposal for
11 the Sacramento-San Joaquin Delta and Suisun Marsh (California Department of Parks and
12 Recreation 2011d) that would enhance bicycle and foot access to the Delta. This would include the
13 helping to fund or construct elements of the American Discovery Trail and the potential conversion
14 of the abandoned Southern Pacific Railroad rail line that formerly connected Sacramento to Walnut
15 Grove. The BDCP project proponents will ensure that the constructed elements of CM1 would not
16 result in physical barriers to implementing the Delta recreation access elements outlined in the DPR
17 proposal. The BDCP project proponents will also work with DPR to determine if some of the
18 constructed elements of CM1 could incorporate elements of the DPR's proposal.

19 As described in Chapter 19, *Transportation*, Section 19.3.3.2, Mitigation Measure TRANS-1a would
20 involve preparation of site-specific construction traffic management plans that would address
21 potential public access routes and provide construction information notification to local residents
22 and recreation areas/businesses. Additionally, DWR would provide and publicize alternative modes
23 of access to affected recreation areas as an environmental commitment. Where construction
24 impedes access around or near existing recreation areas (e.g., Clifton Court forebay), the project
25 proponents would provide clear pedestrian, bicycle, and vehicular routes around or across
26 construction sites. These would be designed to be safe, pleasant and would integrate with
27 opportunities to view the construction site as an additional area of interest. These physical facilities
28 would be combined with public information, including sidewalk wayfinding information that would
29 clearly indicate present and future opportunities for access. Mitigation Measure TRANS-1b would
30 limit construction hours or activities and prohibit construction vehicle trips on congested roadway
31 segments and Mitigation Measure TRANS-1c would implement measures to enhance capacity of
32 congested roadway segments, although this mitigation measure (TRANS-1c) would require
33 cooperation from the affected jurisdictions, and therefore there is no way to guarantee its
34 effectiveness.

35 Chapter 23, *Noise*, Section 23.4.3.9, discusses that construction noise effects could be addressed
36 through mitigation measures that call for use of noise-reducing construction practices (NOI-1a) and
37 implementation of a complaint/response tracking program (NOI-1b), and an environmental
38 commitment requiring a noise abatement plan (Appendix 3B, *Environmental Commitments*). In
39 addition, specific noise-generating activities near recreation areas would be scheduled to the extent
40 possible so as to avoid effects on passive recreation activities such as walking, picnicking, and
41 viewing the aesthetic amenities of the area.

42 In addition to these mitigation measures and environmental commitments, Mitigation Measure REC-
43 2 would ensure continued access to existing recreation experiences. The Delta offers many
44 alternative recreational opportunities for water-based, water-enhanced, and land-based recreation,
45 all of which would continue to be available for recreationists. However, due to the length of time that

1 construction would occur and the dispersed effects across the Delta, the direct and indirect effects
 2 related to temporary disruption of existing recreational activities at facilities within the impact area
 3 would be adverse.

4 **CEQA Conclusion:** Construction of the Alternative 4 intakes and related water conveyance facilities
 5 would result in permanent and long-term (i.e., lasting over 2 years) impacts on well-established
 6 recreational opportunities and experiences in the study area because of access, noise, and visual
 7 setting disruptions that could result in loss of public use. These impacts would occur year-round. A
 8 number of environmental commitments made by DWR would lessen these impacts (conduct
 9 environmental training for field management and construction personnel on important timing
 10 windows for covered species mating/nesting/fledging which would lessen some of the impacts on
 11 wildlife viewing; to store, process and reuse RTM in a way that would benefit recreational activities;
 12 provide and publicize alternative modes of access to affected recreation areas; implement a noise
 13 abatement plan) (Appendix 3B, Environmental Commitments) as would BDCP AMM20 and AMM31.
 14 Due to the size of the Plan Area and the duration of construction, this impact would be significant.
 15 Mitigation measures, ~~environmental commitments, and BDCP AMMs~~ would further reduce some
 16 construction-related impacts by implementing measures to protect or compensate for effects on
 17 existing recreation opportunities (Mitigation Measure REC-2); effects on wildlife habitat and species
 18 (Mitigation Measure BIO-75); minimize the extent of changes to the visual setting (Mitigation
 19 Measures AES-1a, AES-1b, AES-1c, AES-1d, AES-1e, AES-1f, AES-1g, AES-4a), including nighttime
 20 light sources (Mitigation Measures AES-4b, AES-4c); manage construction-related traffic (TRANS-1a,
 21 TRANS-1b, TRANS-1c); and implement noise reduction and complaint tracking measures (NOI-1a
 22 and NOI-1b). However, the level of impact would not be reduced to less than significant because
 23 even though mitigation measures and environmental commitments would reduce the impacts on
 24 wildlife, visual setting, transportation, and noise conditions that could detract from the recreation
 25 experience, due to the dispersed effects on the recreation experience across the Delta, it is not
 26 certain the mitigation would reduce the level of these impacts to less than significant in all instances
 27 such that there would be no reduction of recreational opportunities or experiences over the entire
 28 study area. Therefore, these impacts are considered significant and unavoidable. However, the
 29 impacts related to construction of the intakes would be less than significant.

30 **Mitigation Measure REC-2: Provide Alternative Bank Fishing Access Sites**

31 Construction-related impacts on informal fishing access sites near the proposed water
 32 conveyance facilities, such as along the east bank of the Sacramento River, in the vicinity of the
 33 proposed intakes, and in the vicinity of the expanded Clifton Court Forebay, would be
 34 considered significant because construction would alter the river bank and/or restrict access,
 35 making these sites unusable. To compensate for the loss of these informal sites during
 36 construction, the BDCP proponents will enhance nearby formal fishing access sites, including
 37 partnering with Yolo County to enhance the Clarksburg Fishing Access site on the west bank of
 38 the Sacramento River, and with the Sacramento County Department of Regional Parks to
 39 enhance the Cliffhouse Fishing Access site on the east bank of the Sacramento River and the
 40 Georgiana Slough Fishing Access site east of the Sacramento River, and with Contra Costa
 41 County to enhance fishing sites near Clifton Court Forebay, as well as other nearby sites. Prior to
 42 construction of the proposed intakes, the BDCP proponents will ensure adequate signage will be
 43 placed at the informal sites that would be directly affected by construction of the intakes,
 44 directing anglers to the formal sites. Upgrading the existing fishing access sites will be
 45 completed prior to beginning construction of the intakes.

1 As part of design of the intakes, the BDCP proponents will ensure that public access to the
2 Sacramento River, including fishing access, will be incorporated into the design of the intakes.
3 The access sites will be placed a reasonable distance from the intake to ensure the safety of
4 recreationists and to compensate for the loss that would occur as a result of constructing the
5 intakes.

6 **Mitigation Measure BIO-75: Conduct Preconstruction Nesting Bird Surveys and Avoid**
7 **Disturbance of Nesting Birds**

8 Please refer to Mitigation Measure BIO-75 in Chapter 12, *Terrestrial Biological Resources*,
9 Alternative 1A, Impact BIO-75.

10 **Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to**
11 **Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New**
12 **Transmission Lines and Underground Transmission Lines Where Feasible**

13 Please refer to Mitigation Measure AES-1a in Chapter 17, *Aesthetics and Visual Resources*,
14 Alternative 1A, Impact AES-1.

15 **Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and**
16 **Sensitive Receptors**

17 Please refer to Mitigation Measure AES-1b in Chapter 17, *Aesthetics and Visual Resources*,
18 Alternative 1A, Impact AES-1.

19 **Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel**
20 **Material Area Management Plan**

21 Please refer to Mitigation Measure AES-1c in Chapter 17, *Aesthetics and Visual Resources*,
22 Alternative 1A, Impact AES-1.

23 **Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned**

24 Please refer to Mitigation Measure AES-1d in Chapter 17, *Aesthetics and Visual Resources*,
25 Alternative 1A, Impact AES-1.

26 **Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the**
27 **Extent Feasible**

28 Please refer to Mitigation Measure AES-1e in Chapter 17, *Aesthetics and Visual Resources*,
29 Alternative 1A, Impact AES-1.

30 **Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from**
31 **Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities**

32 Please refer to Mitigation Measure AES-1f in Chapter 17, *Aesthetics and Visual Resources*,
33 Alternative 1A, Impact AES-1.

1 **Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project**
 2 **Landscaping Plan**

3 Please refer to Mitigation Measure AES-1g in Chapter 17, *Aesthetics and Visual Resources*,
 4 Alternative 1A, Impact AES-1.

5 **Mitigation Measure AES-4a: Limit Construction to Daylight Hours within 0.25 Mile of**
 6 **Residents**

7 Please refer to Mitigation Measure AES-4a in Chapter 17, *Aesthetics and Visual Resources*,
 8 Alternative 1A, Impact AES-4.

9 **Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for**
 10 **Construction**

11 Please refer to Mitigation Measure AES-4b in Chapter 17, *Aesthetics and Visual Resources*,
 12 Alternative 1A, Impact AES-4.

13 **Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary,**
 14 **to Prevent Light Spill from Truck Headlights toward Residences**

15 Please refer to Mitigation Measure AES-4c in Chapter 17, *Aesthetics and Visual Resources*,
 16 Alternative 1A, Impact AES-4.

17 **Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management**
 18 **Plan**

19 Please refer to Mitigation Measure TRANS-1a in Chapter 19, *Transportation*, Alternative 1A,
 20 Impact TRANS-1.

21 **Mitigation Measure TRANS-1b: Limit Hours or Amount of Construction Activity on**
 22 **Congested Roadway Segments**

23 Please refer to Mitigation Measure TRANS-1b in Chapter 19, *Transportation*, Alternative 1A,
 24 Impact TRANS-1.

25 **Mitigation Measure TRANS-1c: Make Good Faith Efforts to Enter into Mitigation**
 26 **Agreements to Enhance Capacity of Congested Roadway Segments**

27 Please refer to Mitigation Measure TRANS-1c in Chapter 19, *Transportation*, Alternative 1A,
 28 Impact TRANS-1.

29 **Mitigation Measure NOI-1a: Employ Noise-Reducing Construction Practices during**
 30 **Construction**

31 Please refer to Mitigation Measure NOI-1a in Chapter 23, *Noise*, Alternative 1A, Impact NOI-1.

32 **Mitigation Measure NOI-1b: Prior to Construction, Initiate a Complaint/Response**
 33 **Tracking Program**

34 Please refer to Mitigation Measure NOI-1b in Chapter 23, *Noise*, Alternative 1A, Impact NOI-1.

1 **Impact REC-3: Result in Long-Term Reduction of Recreational Navigation Opportunities as a**
 2 **Result of Constructing the Proposed Water Conveyance Facilities**

3 **NEPA Effects:** Changes to boat passage and navigation on the Sacramento River and other
 4 waterways in the study area, including direct effects on boat passage related to the creation of
 5 obstructions and associated boat traffic delays, would occur during construction of Alternative 4.
 6 Construction of the three intakes would involve installation of cofferdams in the waterways and the
 7 use of barges, barge-mounted cranes, or other large waterborne equipment, which could affect
 8 navigation for recreationists. Construction of the temporary barge unloading facilities and siphons
 9 would also affect navigation for recreationists. Alternative 4 also would involve construction and
 10 operation of an operable barrier at the head of Old River (Mapbook Figure M15-4).

11 **Intakes**

12 To allow for construction of intakes, cofferdams would be constructed within the river channel. The
 13 cofferdams would vary in size according to intake location, but would range from 740 to 2,440 feet
 14 in length and would extend into the river channel up to ~~851~~20 feet, depending on location. This
 15 would include a 25-foot buffer zone around each cofferdam. Although boats would be unable to use
 16 the portion of the waterway where construction was occurring, the river in the vicinity of the intake
 17 construction sites would remain open to boat passage at all times. The river is approximately 500–
 18 700 feet wide near the proposed intakes, which would leave most of the channel width
 19 (approximately 380–580 feet) open to boat passage, providing ample room for the boat traffic
 20 observed to occur in the area to pass without difficulty and minimizing possible traffic congestion.

21 Temporary in-water construction zone restrictions would be in place. These measures would
 22 include a speed-restricted zone extending upstream and downstream of river construction areas to
 23 reduce wake and maintain a safe work area in the vicinity of the construction activities. Site-specific
 24 safety features, including determination of the speed-restriction zone would be developed under the
 25 Mitigation Measure TRANS-1a that involves the BDCP proponents developing and implementing
 26 site-specific construction traffic management plans, including waterway navigation elements and
 27 providing notification of construction activities in waterways. Within the speed-restricted zones
 28 around the intake areas, high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would
 29 effectively be eliminated. Mitigation Measure TRANS-1a also involves providing notification of
 30 construction activities in waterways to ensure information about construction site location(s),
 31 construction schedules, and identification of no-wake zone and/or detours is posted at Delta
 32 marinas and public launch ramps.

33 Direct effects on boat passage and navigation on the Sacramento River would result from
 34 construction of the intakes. Effects could include reduced access and delays to boat passage and
 35 navigation related to the narrower available river width and temporary reduced-speed zones.
 36 However, boat passage volume along the corridor of the Sacramento River where intakes are
 37 proposed is low. Water-based recreational activities such as waterskiing, wakeboarding, tubing, or
 38 fishing are also low, but effectively would be eliminated in the vicinity of the intakes for the duration
 39 of construction (up to 4 years at each intake location). However, implementation of separate, non-
 40 environmental commitments as set forth in Appendix 3B, *Environmental Commitments*, relating to
 41 the enhancement of recreational access and control of aquatic weeds in the Delta would reduce
 42 these effects. Although there is sufficient width in the channel to allow boat passage, boaters could
 43 experience minor delays related to construction speed zones. However, this could still result in a

1 reduction of recreational navigation opportunities would be considered adverse because, although
2 temporary, the effects would be long-term, lasting more than 2 years.

3 Floating Fish Barriers

4 CM16 involves nonphysical fish barriers (BioAcoustic Fish Fences [BAFFs]) at the junction of
5 channels with low survival of outmigrating juvenile salmonids to deter fish from entering these
6 channels. In addition to these BAFF system evaluations of what may be considered true nonphysical
7 barriers, studies are also underway to determine the effectiveness of a floating fish guidance
8 structure. This structure uses steel panels suspended from floats to change water currents so that
9 fish are guided towards the center of the river (away from other channel entrances), but does not
10 substantially change the amount of water entering the channels. BAFF structures may be
11 appropriate at the Georgiana Slough, Head of Old River, and Delta Cross Channel sites, while floating
12 structures may be suitable at the Turner Cut and Columbia Cut sites. Installation of these barriers
13 would not block boating access but would restrict the channels by extending into the channel by up
14 to approximately 200 feet. Nonphysical barriers of the BAFF type would be removed and stored
15 offsite while not in operation, but floating fish guidance structures do not require removal and
16 would be left in place. This would cause impacts to boaters in these channels. Mitigation Measure
17 TRANS-1a would be available to reduce impacts, but due to a potentially permanent duration,
18 impacts would remain significant and unavoidable.

19 Siphons

20 Construction of ~~two of the three~~ the two siphons associated with Alternative 4 would not result in a
21 long-term reduction in recreational navigation opportunities. However, temporary obstruction of
22 boat passage ~~and~~ may ~~also~~ cause boat traffic delays or navigation hazards to boaters. The siphons
23 would cross one ~~watercourse,~~ one existing water facility, and one highway and rail line:

24 ● Italian Slough

- 25 ● South Clifton Court Forebay Outlet
- 26 ● Byron Highway/Southern Pacific Railroad (SPRR)

27 ~~Culvert siphons would be constructed using cofferdams and open cut and cover construction~~
28 ~~methods with conventional cast-in-place concrete structures. In each phase, a temporary cofferdam~~
29 ~~surrounding the work area would be installed that would occupy as much as one-half the width of~~
30 ~~the waterway.~~

31 The Byron Highway/SPRR siphon would not be built in an area where recreation occurs, so it would
32 not cause a long-term reduction in recreational navigation opportunities.

33 The South Clifton Court Forebay Outlet siphon would lie underneath the existing Clifton Court
34 Forebay outlet. This crossing is a constructed waterway that connects the existing Clifton Court
35 Forebay to the Approach Canal to Banks Pumping Plant. It would not cause a long-term reduction in
36 recreational navigation opportunities.

37 Culvert siphons would be constructed using cofferdams and open cut-and-cover construction
38 methods with conventional cast-in-place concrete structures. In each phase, a temporary cofferdam
39 surrounding the work area would be installed that would occupy as much as one-half the width of
40 the waterway.

~~The culvert siphons at Italian Slough and the South Clifton Court Forebay Outlet would be constructed in two phases, each phase lasting approximately one year. The first phase would entail the installation of a temporary cofferdam for half of the total length of the culvert siphon to be constructed inside the cofferdam. During the second phase, the cofferdam would be reinstalled across the other half of the siphon, and the remainder of the structure would be constructed and backfilled. Construction of the cofferdams would occur from August to November.~~

~~Barges and The South Clifton Court Forebay Outlet siphon would lie underneath the existing Clifton Court Forebay outlet. This crossing is a constructed waterway that connects the existing Clifton Court Forebay to the Approach Canal to Banks Pumping Plant. It would not cause a long-term reduction in recreational navigation opportunities.~~

~~Use of the waterway at Italian Slough would be allowed to continue during construction, albeit with appropriate temporary construction zone restrictions in place for marine safety. The proposed Italian Slough siphon would lie within the Byron Tract approximately 3 miles east of Byron and less than 2.5 miles south of Discovery Bay. Lazy M Marina is approximately 1.75 miles from the siphon site. The marina provides about 35 berths, substantial dry storage, and a boat ramp and is likely the source of most boat traffic on Italian Slough.~~

~~Boat traffic volume in the vicinity of the siphon on Italian Slough may be high at times because of the proximity of this marina. Because boat traffic would be confined to a limited portion of the channel by the cofferdams, increased boat traffic congestion is likely to occur during peak use times (primarily summer weekends). Although boats would not be able to use the portion of the waterway where construction was occurring, the use of each of these waterways for recreational navigation would be allowed to continue during construction. This would not result in a long-term reduction in recreational navigation opportunities.~~

Temporary Barge Unloading Facilities

~~Construction of the CM1 water conveyance facilities would require the use of barges in water, often to hold construction equipment, such as cranes. Construction would take place in phases, and the number and duration of barges would vary by location. Approximately eight barges are expected per day for construction of CM1 for up to 5 years. The majority of barge-related transportation would be used to carry precast tunnel segment liners to temporary barge unloading facilities closest to the launch shafts. Effects on recreation in the vicinity of the barges would be considered a long-term effect. Alternative 4 also includes five-seven barge unloading facilities to be built on or near the tunnel alignment at riverbank locations about 4-9 miles apart (Mapbook Figure M15-4). Temporary barge unloading facilities would be built on the following waterways: Snodgrass Slough, Potato Slough, South Mokelumne River, S, San Joaquin River, Middle River, Connection Slough, Old River, and the West Canal, Old River, and Italian Slough. The temporary barge unloading facilities would be used to transfer pipeline construction equipment and materials to and from construction sites and would be removed after construction was completed.~~

~~Use of barges for water facilities construction and construction of the temporary barge unloading facilities may require partial channel closures and use of equipment within the waterways. All barge facilities would have Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including a speed-restricted zone extending upstream and downstream of construction within the waterway to reduce wake and maintain a safe work area in the vicinity of the construction activities. Site-specific safety features, including determination of the speed-restriction zone, and notification procedures would be developed under the Mitigation~~

1 Measure TRANS-1a that involves the BDCP proponents developing and implementing site-specific
 2 construction traffic management plans, including waterway navigation elements. Within the speed-
 3 restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would
 4 effectively be eliminated. Specific effects that could occur at each barge unloading facility site are
 5 discussed below. Effects on recreation in the vicinity of the barge unloading facility sites would
 6 last approximately 5 years and would be considered a long-term effect. Construction would
 7 primarily occur Monday through Friday and last for up to 24 hours per day. In-river construction
 8 primarily would be limited to June 1 through October 31 each year. However, the barges would
 9 remain in place for the duration of the construction period and still present a temporary barrier to
 10 boats and related recreation. Post-construction, temporary barges would be removed and the ability
 11 to navigate rivers and channels would return to previous conditions.

12 Sacramento River

13 The Sacramento River barge unloading facility would be built almost 3 miles northeast of Walnut
 14 Grove on the Sacramento River, about 1,400 feet north of Twin Cities Road. It would be located at
 15 the southern end of a RTM area near the intermediate forebay. It would occupy approximately 200
 16 feet of the river bank. The river channel is almost 200 feet wide at this location, and the barge
 17 unloading facility would require approximately 130 feet of the channel, leaving less than 100 feet for
 18 boat passageway. Increased boat traffic congestion could occur during peak use (primarily summer
 19 weekends) because boat traffic would be confined to a limited portion of the channel.

20 Snodgrass Slough

21 The Snodgrass Slough barge unloading facility would be located nearly adjacent to the Intermediate
 22 Forebay. It would occupy approximately 185 feet of the river bank and would extend about 135 feet
 23 into the river. The river channel is approximately 235 feet wide at this location, so it would leave
 24 about 100 feet for boat passage.

25 Little Potato Slough

26 The Little Potato Slough barge unloading facility would be on the southern end of Bouldin Island. It
 27 would occupy about 980 feet of riverbank, and would extend about 210 feet into the river. The
 28 channel is about 1,000 feet wide at this location, extending to an island, which would leave nearly
 29 700 feet of passage for boats. Boats could also choose to bypass this facility and travel on the
 30 southern end of the island.

31 South Mokelumne River

32 The South Mokelumne River barge unloading facility would be on the southern end of Staten Island
 33 and would occupy about 1,000 feet of the east riverbank. The river channel is relatively narrow at
 34 this location (about 400 feet wide, as compared to 500–700 feet wide at the intake locations).
 35 Therefore, the barge facility and barge operations at this location could occupy a substantial portion
 36 of the river, constricting boat passage. The nearest boating facilities are approximately 1 mile away.
 37 Because boat traffic would be confined to a limited portion of the channel, increased boat traffic
 38 congestion is likely to occur during peak use (primarily summer weekends).

39 San Joaquin River

40 The San Joaquin River barge unloading facility would be on the west side of Bouldin
 41 Island, on a wide bend in the river, and would occupy about 1,000–928 feet of the riverbank.

1 The river channel is more than 2,000 feet wide at this location. Therefore, even if the barge facility
 2 and barge operations at this location occupied a substantial portion of the river, several hundred
 3 feet of unimpeded channel width would remain, and there would be little effect on boat passage.

4 *Middle River*

5 The Middle River barge unloading facility would be on the ~~north side of Bacon east side of~~
 6 ~~Mandeville~~ Island and would occupy ~~approximately 180 more than 1,000~~ feet of the riverbank. ~~It~~
 7 ~~would extend about 180 feet into the river, which is almost 900 feet wide at this location, leaving~~
 8 ~~more than 700 feet for boat passage.~~ ~~, about 500 feet west of Connection Slough. The river channel is~~
 9 ~~about 400 feet to an island in the middle of the river. Therefore, boats could bypass the barge facility~~
 10 ~~and barge operations at this location by navigating around the other side of the island. This could~~
 11 ~~constrict boat passage on the northern side of the river. Peak boat traffic volume may be high at this~~
 12 ~~location. Because boat traffic would be confined to a limited portion of the channel, increased boat~~
 13 ~~traffic congestion could occur during peak use times (primarily summer weekends). Bypassing the~~
 14 ~~barge unloading facility, coupled with signage and information outreach to be implemented as part~~
 15 ~~of the Mitigation Measure TRANS-1a traffic management plans would be available to minimize~~
 16 ~~congestion and delay at this barge facility site.~~

17 Connection Slough

18 The Connection Slough barge unloading facility would be on the north side of Bacon Island. It would
 19 occupy about 665 feet of riverbank and would extend about 250 feet into the river. There is an
 20 island in the middle of the channel, so it would leave about 150 feet for boat passage between the
 21 facility and the island, or boats could bypass it and travel on the northern side of the island.

22 *Old River*

23 One barge unloading facility would be on the northwest side of Victoria Island along the Old River,
 24 less than two miles from Discovery Bay. It would occupy more than 1,000 feet of the river banks
 25 near the junction of Woodward Canal, and would extend about 320 feet into the river. The river is
 26 about 400-520 feet wide at this location, which would leave almost 100 feet for boat passage. ~~The~~
 27 ~~barge facility and barge operations at this location would leave more than 200 feet of passageway~~
 28 ~~around the unloading facility.~~ Peak boat traffic volume is likely high at this location; therefore, if boat
 29 passage continued, increased boat traffic congestion could occur during peak use (primarily summer
 30 weekends) because boat traffic would be confined to a limited portion of the channel. The
 31 Woodward Canal in the vicinity of the barge unloading facilities is a known location for waterskiing
 32 and wakeboarding.

33 West Canal

34 One barge unloading facility would be located on the northeast side of Clifton Court Forebay along
 35 West Canal, just south of Kings Island. It would occupy almost 1,000 feet of riverbank and would
 36 extend about 80 feet into the channel. The channel is about 250 feet wide at this location, which
 37 would leave nearly 170 feet for boat passage.

38 *Italian Slough*

39 ~~The Italian Slough barge unloading facility would be on the west side of Byron Island to the~~
 40 ~~northwest of Clifton Court Forebay, and would occupy more than 400 feet of the riverbank. The~~
 41 ~~river channel is less than 300 feet at this location. Therefore, the barge facility and barge operations~~

~~at this location could constrict boat passage. Peak boat traffic volume may be high at this location. Because boat traffic would be confined to a limited portion of the channel, increased boat traffic congestion could occur during peak use times (primarily summer weekends). Signage and information outreach would be implemented as part of the Mitigation Measure TRANS-1a traffic management plans that would be available to minimize congestion and delay at this barge facility site.~~

Construction of the temporary barge unloading facilities would result in adverse effects to boat passage and navigation on waterways in the study area, including the creation of obstructions to boat passage and associated boat traffic delays and temporary partial channel closures that could impede boat movement and eliminate recreational opportunities. In waterways where waterskiing, wakeboarding, and tubing occur, recreation opportunities in the vicinity of the barge unloading facilities would be eliminated during construction. Construction of the operable barrier at the head of Old River would have only short-term effects on recreational opportunities on Old River. The barrier would have a boat lock that would restore boating access once construction is complete.

Mitigation Measure TRANS-1a would be available to reduce effects to marine navigation by development and implementation of site-specific construction traffic management plans, including waterway navigation elements. ~~The following e~~Environmental commitments would also reduce effects on water-based recreation (water-skiing, wakeboarding, tubing).

Currently, invasive aquatic vegetation can limit access to boats and reduce swimming areas. Enhanced ability to control these invasive vegetation would lead to increased recreation opportunities which would compensate for the loss of recreational opportunities within the project area by providing a recreational opportunity downstream/upstream in the same area for the same regional recreational users. CM13 (*Invasive Aquatic Vegetation Control*) provides for the control of egeria, water hyacinth, and other IAV throughout the Plan Area. However, the BDCP proponents would also commit to partner with existing programs operating in the Delta (including DBW, U.S. Department of Agriculture-Agriculture Research Service, University of California Cooperative Extension Weed Research and Information Center, California Department of Food and Agriculture, local Weed Management Areas, Resource Conservation Districts, and the California Invasive Plant Council) to perform risk assessment and subsequent prioritization of treatment areas to strategically and effectively reduce expansion of the multiple species of IAV in the Delta. This risk assessment would dictate where initial control efforts would occur to maximize the effectiveness of the conservation measure. BDCP would contribute funds to further the DBW's aquatic weed control programs in the Delta. The funds will be transferred prior to, or concurrent with, commencement of construction of the BDCP, as described in Appendix 3B, *Environmental Commitments*. Implementation of CM13 (*Invasive Aquatic Vegetation Control*) and the BDCP proponents' environmental commitment to fund programs for aquatic weed control would create and rehabilitate alternative recreation opportunities for those eliminated during construction.

BDCP proponents would ensure through various outreach methods that recreationists were aware of nearby recreation opportunities for similar water sports (e.g., Victoria Canal, Empire Cut or Bishop Cut). Additionally, BDCP proponents would commit to contributing funds for the construction of new recreation opportunities as well as for the protection of existing recreation opportunities as outlined in Delta Plan R11. BDCP proponents would also assist in funding the expansion of state recreation areas in the Delta as described in Delta Plan R13. The funds will be transferred prior to, or concurrent with, commencement of construction of the BDCP. This commitment serves to compensate for the loss of recreational opportunities within the project area

1 by providing a recreational opportunity downstream/upstream in the same area for the same
 2 regional recreational users. Potential areas for use of funds include, but are not limited to: the
 3 reopening of Brannan Island State Recreation Area, completion of Delta Meadows-Locke Boarding
 4 House and potential addition of new State parks at Barker Slough, Elkhorn Basin, the Wright-
 5 Elmwood Tract, and south Delta.

6 Nonetheless, since these effects would be long-term, lasting approximately 5 years, they would be
 7 considered adverse because of the reduced recreation opportunity and experiences expected to
 8 exist near construction activity.

9 **CEQA Conclusion:** Impacts on boat passage and navigation in the study area would result from the
 10 construction of the intakes, temporary barge unloading facilities, siphons, and the operable barrier
 11 at the head of Old River. Impacts from intake and barge unloading facilities would last
 12 approximately 5 years and include obstruction and delays to boat passage and navigation as a result
 13 of channel obstructions in addition to compliance with temporary speed zones. Temporary partial
 14 channel closures could impede boat movement and ~~restrict~~eliminate recreational opportunities. In
 15 waterways where waterskiing, wakeboarding, and tubing occur, recreation opportunities would be
 16 eliminated during construction. DWR has made a commitment to partner with existing programs
 17 operating in the Delta to reduce expansion of the multiple species of invasive aquatic vegetation in
 18 the Delta which currently can limit access to boats and reduce swimming areas. BDCP would
 19 contribute funds to further the Department of Boating and Waterway's aquatic weed control
 20 programs in the Delta. The funds will be transferred prior to, or concurrent with, commencement of
 21 construction of the BDCP (Appendix 3B, Environmental Commitments). Mitigation Measure TRANS-
 22 1a would reduce impacts on marine navigation by development and implementation of site-specific
 23 construction traffic management plans, including specific measures related to management of
 24 barges and stipulations to notify the commercial and leisure boating communities of proposed
 25 construction and barge operations in the waterways. While the environmental commitments would
 26 reduce impacts on water-based recreation (water-skiing, wakeboarding, tubing) in these areas by
 27 creating alternative recreation opportunities for those eliminated during construction, impacts from
 28 the intakes and barge unloading facilities would be long-term, and therefore considered significant
 29 and unavoidable. Construction of the operable barrier and the siphons would last for 2 years (short-
 30 term) and would not result in long-term reduction of recreation opportunities. The operable barrier
 31 at the Head of Old River will have a boat lock which will be in use whenever the barrier is
 32 completely or partially closed. Passage through the boat lock could take between 15-20 minutes
 33 depending on the water surface elevations. With implementation of Mitigation Measure TRANS-1a,
 34 these components would cause less-than-significant impacts on recreational navigation on Old
 35 River. These components would cause less-than-significant impacts on recreational navigation on
 36 Old River and Italian Slough. Mitigation Measure TRANS-1a is available to reduce impacts on
 37 marine navigation by development and implementation of site-specific construction traffic
 38 management plans, including specific measures related to management of barges and stipulations to
 39 notify the commercial and leisure boating communities of proposed construction and barge
 40 operations in the waterways, but would not be able to completely mitigate the impacts on all the
 41 waterways. The impact would be significant and unavoidable.

42 **Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management**
 43 **Plan**

44 Please refer to Mitigation Measure TRANS-1a in Chapter 19, *Transportation*, Alternative 1A,
 45 Impact TRANS-1.

1 **Impact REC-4: Result in Long-Term Reduction of Recreational Fishing Opportunities as a**
 2 **Result of Constructing the Proposed Water Conveyance Facilities**

3 **NEPA Effects:** Sport fishing in the study area is a year-round activity, and includes bank fishing and
 4 boat fishing for a number of fish including striped bass, largemouth bass; green and white sturgeon;
 5 Chinook salmon, and American shad. Striped bass, American shad, and largemouth bass are all sport
 6 fish species that were introduced into rivers for that purpose. Striped bass and largemouth bass are
 7 regulated by CDFW for recreational fishing. Fishing likely occurs in all of the waterways where
 8 water intake and barge unloading facilities would be located.

9 Under Alternative 4, construction of the water intakes, siphons, ~~and~~ and operable barrier, and
 10 placement and use of barge unloading facilities during tunnel/pipeline construction would result in
 11 temporary water quality effects (e.g., turbidity, accidental spills, disturbance of contaminated
 12 sediments); elevated underwater noise conditions (associated with pile driving and other
 13 construction activities); fish exposure to stranding and direct physical injury; and temporary
 14 exclusion or degradation of spawning and rearing habitats. These temporary construction-related
 15 effects would last for up to 5 years in the vicinity of intake and barge unloading facilities and could
 16 alter fish populations such that recreational fishing opportunities in the study area would be
 17 affected. Weekday construction would reduce the amount of fish and other wildlife in recreation
 18 areas in the vicinity of the intakes, resulting in decreased recreation opportunities related to wildlife
 19 and fish, causing recreationists to experience a changed recreation setting.

20 Construction of the expanded Clifton Court Forebay would affect bank fishing but would not affect
 21 fish-accessible waterways or on-water sport fishing. Therefore, it would ~~and therefore would~~ not
 22 result in a long-term reduction of recreational fishing opportunities as a result of constructing the
 23 proposed water conveyance facilities affect sport fish. Construction of the forebay would cause a
 24 long-term reduction of up to 57 years for bank fishing that occurs on the embankment on the
 25 southern end of Clifton Court Forebay while the forebay is expanded and a new embankment is
 26 constructed. Construction of the combined pumping plants on the northeast side of Clifton Court
 27 Forebay, and geotechnical exploration, would last up to 13 years. Fishing would be permitted again
 28 once construction is completed. However, this would result in a long-term reduction of fishing
 29 opportunities. Mitigation Measure REC-2 would address these effects by ensuring access to nearby
 30 fishing by enhancing formal fishing sites near the proposed water conveyance facilities, including
 31 near Clifton Court Forebay, and providing adequate signage directing anglers to the formal sites.

32 Although fish populations likely would not be affected to the degree that fishing opportunities would
 33 be substantially reduced, construction conditions would introduce noise and visual disturbances
 34 that would affect the recreation experience for anglers~~ss~~. Although construction noise would be
 35 temporary, and primarily be limited to Monday through Friday, it would be ongoing for up to 24
 36 hours per day and for up to 151 years near individual work sites. Visual setting disruptions could
 37 distract from the recreation experience including on weekends. However, Mitigation Measures
 38 AQUA-1a ~~and AQUA-1b~~ would avoid and minimize adverse effects on sport fish populations from
 39 impact pile driving, Mitigation Measures NOI-1a and NOI-1b and an environmental commitment to
 40 develop and implement a noise abatement plan (Appendix 3B, Environmental Commitments) would
 41 address construction noise effects. Additionally, specific noise-generating activities near recreation
 42 areas would be scheduled to the extent possible so as to avoid effects on passive recreation activities
 43 on-shore fishing. Mitigation measures would also be available to address construction-related visual
 44 effects on sensitive receptors from vegetation removal for transmission lines and access routes
 45 (AES-1a), provision of visual barriers between construction work areas and sensitive receptors

(AES-1b), and locating concrete batch plants and fuel stations away from sensitive resources and receptors (AES-1f). In addition, the chapter identifies measures to address longer term visual effects associated with changes to the landscape/visual setting from construction and the presence of new water conveyance features. These include developing and implementing a spoil/borrow and RTM area management plan (AES-1c) (as discussed in Appendix 3C *Construction Assumptions*), restoring barge loading facility sites once they are decommissioned (AES-1d), applying aesthetic design treatments to all structures to the extent feasible (AES-1e), restoring concrete batch plants and fuel stations upon removal of facilities (AES-1f), and implementing best management practices to implement a project landscaping plan (AES-1g). As described in Appendix 3B, *Environmental Commitments*, RTM would be removed from RTM storage areas (which represent a substantial portion of the permanent impact areas) and reused, as appropriate, as bulking material for levee maintenance, as fill material for habitat restoration projects, or other beneficial means of reuse identified for the material. Anglers could move to other locations along the Sacramento River and throughout the Delta region. Although construction would occur for more than 2 years and cause a long-term reduction in fishing opportunities at one recreational site, construction of the proposed water conveyance facilities would not disperse fishing opportunities throughout the Delta. Additionally, mitigation measures are available to ensure access to and enhance nearby fishing sites, and to address noise and visual disturbances. Therefore, construction of the proposed water conveyance facilities would not result in a long-term reduction of fishing opportunities. The effect would not be adverse.

CEQA Conclusion: Significant impacts could occur if construction of the water conveyance facilities resulted in a long-term reduction of recreational fishing opportunities. Construction of the water intakes, siphons, and operable barrier, and placement and use of barge unloading facilities during tunnel/pipeline construction would result in temporary water quality effects, elevated underwater noise conditions, fish exposure to stranding and direct physical injury, and temporary exclusion or degradation of spawning and rearing habitats. DWR has made a ~~The potential impact on covered and non-covered sport fish species from construction activities would be considered less than significant because the BDCP would include environmental~~ commitments to prevent water quality effects ~~include through~~ environmental training; implementation of stormwater pollution prevention plans, erosion and sediment control plans, hazardous materials management plans, and spill prevention, containment, and countermeasure plans; ~~disposal-dispose~~ of spoils, RTM, and dredged material (RTM would be removed from RTM storage areas and reused, as appropriate, as bulking material for levee maintenance, as fill material for habitat restoration projects, or other beneficial means of reuse identified for the material); implement a noise abatement plan; and implement a barge operations plan (Appendix 3B, *Environmental Commitments*). Due to the magnitude of the Plan Area and the duration of time construction is expected to last, this impact would be significant. However, mMitigation Measures AQUA-1a and AQUA-1b would avoid and minimize adverse effects on sport fish populations from impact pile driving (Mitigation Measures AQUA-1a, NOI-1a, NOI-1b): Mitigation Measure REC-2 would and ensure continued access for bank fishing at established locations as well as enhance fishing sites near the proposed water conveyance facilities, including near Clifton Court Forebay; and provide adequate signage directing anglers to the formal sites (Mitigation Measure REC-2). Mitigation measures would also be available to address construction-related visual effects on sensitive receptors from vegetation removal for transmission lines and access routes (AES-1a), provision of visual barriers between construction work areas and sensitive receptors (AES-1b), and locating concrete batch plants and fuel stations away from sensitive resources and receptors (AES-1f). In addition, the chapter identifies measures to address longer term visual effects associated with changes to the landscape/visual setting from construction and

1 the presence of new water conveyance features. These include developing and implementing a
 2 spoil/borrow and RTM area management plan (AES-1c), restoring barge loading facility sites once
 3 they are decommissioned (AES-1d), applying aesthetic design treatments to all structures to the
 4 extent feasible (AES-1e), restoring concrete batch plants and fuel stations upon removal of facilities
 5 (AES-1f), and implementing best management practices to implement a project landscaping plan
 6 (AES-1g). As described in Appendix 3B, *Environmental Commitments*, RTM would be removed from
 7 RTM storage areas (which represent a substantial portion of the permanent impact areas) and
 8 reused, as appropriate, as bulking material for levee maintenance, as fill material for habitat
 9 restoration projects, or other beneficial means of reuse identified for the material This impact would
 10 therefore be less than significant.

11 **Mitigation Measure REC-2: Provide Alternative Bank Fishing Access Sites**

12 Please refer to Mitigation Measure REC-2 under Impact REC-2 in the discussion of Alternative 4.

13 **Mitigation Measure AQUA-1a: Minimize the Use of Impact Pile Driving to Address Effects** 14 **of Pile Driving and Other Construction-Related Underwater Noise**

15 Please refer to Mitigation Measure AQUA-1a in Chapter 11, *Fish and Aquatic Resources*,
 16 Alternative 1A, Impact AQUA-1.

17 ~~**Mitigation Measure AQUA-1b: Use an Attenuation Device to Reduce Effects of Pile Driving**~~ 18 ~~**and Other Construction-Related Underwater Noise**~~

19 ~~Please refer to Mitigation Measure AQUA-1b in Chapter 11, *Fish and Aquatic Resources*,~~
 20 ~~Alternative 1A, Impact AQUA-1.~~

21 **Mitigation Measure NOI-1a: Employ Noise-Reducing Construction Practices during** 22 **Construction**

23 Please refer to Mitigation Measure NOI-1a in Chapter 23, *Noise*, Alternative 1A, Impact NOI-1.

24 **Mitigation Measure NOI-1b: Prior to Construction, Initiate a Complaint/Response** 25 **Tracking Program**

26 Please refer to Mitigation Measure NOI-1b in Chapter 23, *Noise*, Alternative 1A, Impact NOI-1.

27 **Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to** 28 **Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New** 29 **Transmission Lines and Underground Transmission Lines Where Feasible**

30 Please refer to Mitigation Measure AES-1a in Chapter 17, *Aesthetics and Visual Resources*,
 31 Alternative 1A, Impact AES-1.

32 **Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and** 33 **Sensitive Receptors**

34 Please refer to Mitigation Measure AES-1b in Chapter 17, *Aesthetics and Visual Resources*,
 35 Alternative 1A, Impact AES-1.

1 **Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel**
 2 **Material Area Management Plan**

3 Please refer to Mitigation Measure AES-1c in Chapter 17, *Aesthetics and Visual Resources*,
 4 Alternative 1A, Impact AES-1.

5 **Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned**

6 Please refer to Mitigation Measure AES-1d in Chapter 17, *Aesthetics and Visual Resources*,
 7 Alternative 1A, Impact AES-1.

8 **Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the**
 9 **Extent Feasible**

10 Please refer to Mitigation Measure AES-1e in Chapter 17, *Aesthetics and Visual Resources*,
 11 Alternative 1A, Impact AES-1.

12 **Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from**
 13 **Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities**

14 Please refer to Mitigation Measure AES-1f in Chapter 17, *Aesthetics and Visual Resources*,
 15 Alternative 1A, Impact AES-1.

16 **Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project**
 17 **Landscaping Plan**

18 Please refer to Mitigation Measure AES-1g in Chapter 17, *Aesthetics and Visual Resources*,
 19 Alternative 1A, Impact AES-1.

20 **Impact REC-5: Result in Long-Term Reduction of Recreational Fishing Opportunities as a**
 21 **Result of the Operation of the Proposed Water Conveyance Facilities**

22 ***NEPA Effects:*** Operation of Alternative 4 may result in changes in entrainment, spawning, rearing
 23 and migration. However, in general, effects on (non-covered) fish species that are popular for
 24 recreational fishing as a result of these changes are not of a nature/level that will adversely affect
 25 recreational fishing. While there are some significant impacts to specific non-covered species, as
 26 discussed in Chapter 11, *Fish and Aquatic Resources*, Section 11.3.4.9, they are typically limited to
 27 specific rivers and not the population of that species as a whole. ~~The effect is not adverse because it~~
 28 ~~would not result in a substantial long-term reduction in recreational fishing opportunities.~~

29 Species frequently targeted in recreational fishing include Chinook salmon, steelhead, white
 30 sturgeon, and striped bass. As described in Impact AQUA-39 through Impact AQUA-60, AQUA-93
 31 through AQUA-96, AQUA-147 through AQUA-150, and AQUA-201 to AQUA-204 in Chapter 11,
 32 impacts from operations of the water conveyance facilities related to entrainment, spawning and
 33 egg incubation habitat, rearing habitat, and migration conditions would be less than significant or
 34 beneficial to Chinook salmon, steelhead, white sturgeon, and striped bass.

35 Impacts from operations of the proposed water conveyance facilities related to common
 36 recreational fish populations are less than significant. Although impacts may occur, they would be
 37 localized and not affect the species as a whole, and therefore would not be anticipated to amount to

1 a reduction in fishing opportunities. The effect is not adverse because it would not result in a
 2 substantial long-term reduction in recreational fishing opportunities.

3 **CEQA Conclusion:** The potential impact on covered and non-covered sport fish species from
 4 operation of Alternative 4 would be considered less than significant because any impacts to fish and,
 5 as a result, impacts to recreational fishing, are anticipated to be isolated to certain areas and would
 6 not impact the species population of any popular sportfishing species overall. As described in
 7 Chapter 11, impacts from operations of the water conveyance facilities related to entrainment,
 8 spawning and egg incubation habitat, rearing habitat, and migration conditions would be less than
 9 significant or beneficial to Chinook salmon, steelhead, white sturgeon, and striped bass. Although
 10 impacts may occur, they would be localized and not affect the species as a whole, and therefore
 11 would not be anticipated to amount to a reduction in fishing opportunities. The effect is not adverse
 12 because it would not result in a substantial long-term reduction in recreational fishing
 13 opportunities.

14 **Impact REC-6: Cause a Change in Reservoir or Lake Elevations Resulting in Substantial**
 15 **Reductions in Water-Based Recreation Opportunities and Experiences at North- and South-**
 16 **of-Delta Reservoirs**

17 **NEPA Effects:** Generally, the peak recreation season at the reservoirs falls between May to
 18 September. Reservoirs are usually at maximum storage volume and surface water elevation in May
 19 and decline over the course of the summer through September. This analysis compares the results of
 20 the CALSIM II end-of-September reservoir water surface elevations because typically this month has
 21 the most instances when reservoir elevations fall below key recreation thresholds (i.e., number of
 22 years out of the 82 simulated when the September end-of-month storage is less than the recreation
 23 elevation threshold). Under these low surface water elevations, the overall usable reservoir area is
 24 reduced and previously submerged islands or shoals may become exposed and affect boating safety.
 25 In addition, shoreline recreation becomes degraded.

26 For each reservoir, a specific water surface level elevation was selected as the “recreation
 27 threshold,” an initial indicator to represent constrained boating conditions for the comparison of the
 28 BDCP action alternative conditions to Existing Conditions (CEQA baseline) and the No Action
 29 Alternative (2060) (alternative operations contribution [impact] comparison) (Table 15-12a and
 30 Table 15-12b). Additional consideration of other factors is discussed, for instance where the
 31 modeling results show substantial changes to reservoir levels that may affect recreation at a
 32 particular location (generally, this occurs for San Luis Reservoir). Also see Chapter 3, *Description of*
 33 *Alternatives*, Section 3.6.4.2, for detailed information on the operational scenarios, and Appendix 5A,
 34 *Modeling Methodology*, for an explanation of the CALSIM II model and assumptions.

35 **Existing Conditions (CEQA Baseline) Compared to Alternative 4 (2060)**

36 As shown in Table 15-12a and Table 15-12b, under Alternative 4 Operational Scenarios H1, H2, H3,
 37 and H4 recreation thresholds would be exceeded more frequently at Trinity, Shasta, Oroville,
 38 Folsom, and San Luis Reservoirs relative to Existing Conditions. These changes represent a greater
 39 than 10% increase in the frequency the recreation thresholds are exceeded. However, as discussed
 40 under Section 15.3.1, *Methods for Analysis*, these changes in SWP/CVP reservoir elevations are
 41 primarily attributable to sea level rise and climate change. It is not possible to specifically define the
 42 exact extent of the changes due to implementation of the action alternative using these model
 43 simulation results. Thus, the precise contributions of sea level rise and climate change to the total

1 differences between Existing Conditions and Alternative 4 cannot be isolated in this comparison.
 2 Please refer to the comparison of the No Action Alternative (2060) to Alternative 4 (2060) for a
 3 discussion of the potential effects on end-of-September reservoir and lake elevations attributable to
 4 operation of Alternative 4.

5 **No Action Alternative (2060) Compared to Alternative 4 (2060)**

6 The comparison of Alternative 4 (2060) to the No Action Alternative (2060) condition most closely
 7 represents changes in reservoir elevations that may occur as a result of operation of the alternative
 8 because both conditions include sea level rise and climate change (see Appendix 5A, *Modeling*
 9 *Methodology*). As shown in Table 15-12a and Table 15-12b, Alternative 4 Operational Scenarios H1,
 10 H2, H3, and H4 would result in changes in the frequency with which the end-of-September reservoir
 11 levels at Trinity Shasta, Oroville, Folsom New Melones and San Luis Reservoirs would fall below
 12 levels identified as important water-dependent recreation thresholds. With the exception of San
 13 Luis Reservoir, the CALSIM II modeling results indicate that reservoir levels under Alternative 4
 14 operations would either not change or would fall below the individual reservoir recreation
 15 thresholds less frequently than under No Action Alternative (2060) conditions. Operation of
 16 Alternative 4 would not adversely affect water-dependent or water-enhanced recreation at these
 17 reservoirs. Overall, these conditions represent improved recreation conditions under operation of
 18 Alternative 4 because there would be fewer years in which end-of-September reservoir levels would
 19 fall below the recreation thresholds thus indicating better boating opportunities, when compared to
 20 No Action Alternative (2060) conditions.

21 The modeling results for San Luis Reservoir indicates there could be up to 11, 38, 28, and 46
 22 additional years under Alternative 4 Scenario H1, H2, H3, and H4, respectively during which the
 23 reservoir level would fall below the reservoir boating threshold at the end of September for the
 24 Dinosaur Point boat launch. In addition, at the Basalt boat launch, which is accessible to elevation
 25 340 feet, operations under Alternative 4 Scenarios H2 and H4 would result in 15 and 29 additional
 26 years during which reservoir elevations would fall below the recreation threshold relative to the No
 27 Action Alternative (2060) condition. This is a greater than 10% change and would be considered a
 28 substantial reduction in recreational boating opportunities at San Luis Reservoir. Shoreline fishing
 29 would still be possible, and other recreation activities at the reservoir—picnicking, biking, hiking,
 30 and fishing—would be available. The reduction in surface elevations at San Luis Reservoir under
 31 Scenarios H1 and H2 and H4 would result in an adverse impact on recreation occurring at the
 32 reservoir by restricting access by boaters. Mitigation Measure REC-6 would be available to address
 33 this effect.

34 **CEQA Conclusion:** This impact on water-dependent and water-enhanced recreation opportunities at
 35 north- and south-of-Delta reservoirs would be less than significant because, with the exception of
 36 San Luis Reservoir, the CALSIM II modeling results indicate that reservoir levels attributable to
 37 Alternative 1A (2060) operations would either not change (New Melones Reservoir) or would fall
 38 below the individual reservoir thresholds less frequently than under No Action Alternative (2060).
 39 These changes in reservoir and lake elevations would result in a less-than-significant impact on
 40 recreation opportunities and experiences at Trinity Lake, Shasta Lake, Lake Oroville, Folsom Lake,
 41 and New Melones Lake. At Trinity Lake, Shasta Lake, Lake Oroville, and Folsom Lake, because there
 42 would be fewer years in which the reservoir or lake levels fall below the recreation threshold
 43 relative to No Action Alternative (2060) conditions, these effects would be considered beneficial
 44 effects on recreation opportunities and experiences. Operation of Alternative 4 would not
 45 substantially affect water-dependent or water-enhanced recreation at these reservoirs. At San Luis

1 Reservoir, although boating opportunities would be reduced more frequently for the Dinosaur Point
 2 boat launch and the Basalt boat launch would not substantially change. The reduction in reservoir
 3 access by boaters under Scenarios H2 and H4 would be significant because it is a greater than 10%
 4 change (8 additional years or more). Operations as modeled under Alternative 4 Scenarios H2 and
 5 H4 could substantially affect recreational boating at San Luis Reservoir and could result in a
 6 significant impact. Mitigation Measure REC-6 would reduce this impact to less than significant.

7 **Mitigation Measure REC-6: Provide a Temporary Alternative Boat Launch to Ensure**
 8 **Access to San Luis Reservoir**

9 Consistent with applicable recreation management plans, DWR and Reclamation will work with
 10 DPR to establish a boat ramp extension at or near the Basalt boat launch or other alternative
 11 boat ramp site at San Luis Reservoir to maintain reservoir access in years when access becomes
 12 unavailable.

13 **Impact REC-7: Result in Long-Term Reduction in Water-Based Recreation Opportunities as a**
 14 **Result of Maintenance of the Proposed Water Conveyance Facilities**

15 **NEPA Effects:** Intake maintenance, such as painting, cleaning, making repairs, conducting biofouling
 16 prevention, conducting corrosion prevention, and maintaining equipment could have a minor effect
 17 on boat passage and navigation in the Sacramento River. Repair efforts requiring barges and divers,
 18 as well as activities to remove debris and sediment, could cause a temporary impediment to boat
 19 movement and result in slowing of Sacramento River boat traffic in the immediate vicinity of the
 20 affected intake structure and reduce opportunities for waterskiing, wakeboarding, or tubing in the
 21 immediate vicinity of the intake structures. However, boat passage and navigation on the river
 22 would still be possible around any barges or other maintenance equipment and these effects would
 23 be expected to be short-term (2 years or less). In addition, the areas around the proposed intake
 24 locations are not usually used for waterskiing, wakeboarding, or tubing, and many miles of the
 25 Sacramento River would still be usable for these activities during periodic maintenance events.

26 Maintenance of intake facilities would result in periodic temporary but not substantial adverse
 27 effects on boat passage and water-based recreational activities. Any effects would be short-term and
 28 intermittent. Other facility maintenance activities would occur on land and would not affect boat
 29 passage and navigation. Implementation of the environmental commitment to provide notification
 30 of ~~construction and~~ maintenance activities in waterways (Appendix 3B, *Environmental*
 31 *Commitments*) would reduce these effects. These effects are not considered adverse.

32 **CEQA Conclusion:** Effects on recreation resulting from the maintenance of intake facilities would be
 33 short-term and intermittent and would not result in significant impacts on boat passage, navigation,
 34 or water-based recreation within the vicinity of the intakes. In addition, implementation of the
 35 environmental commitment to provide notification of ~~construction and~~ maintenance activities in
 36 waterways (Appendix 3B, *Environmental Commitments*) would further minimize these effects.
 37 Intake maintenance impacts on recreation would be considered less than significant because
 38 impacts, if any, on public access or public use of established recreation facilities would last for 2
 39 years or less. Mitigation is not required.

1 **Impact REC-8: Result in Long-Term Reduction in Land-Based Recreation Opportunities as a**
 2 **Result of Maintenance of the Proposed Water Conveyance Facilities**

3 **NEPA Effects:** Conveyance facility maintenance may include painting, landscaping, equipment
 4 replacement, and mechanical repairs that would be short-term and intermittent and would not
 5 affect recreation opportunities. Maintenance activities for these facilities would be conducted within
 6 the individual facility right-of-way, which does not include any recreation facilities or recreation use
 7 areas. In addition, there would be no public recreation use of the new facilities. Maintenance would
 8 not result in any significant noise that would affect nearby recreational opportunities. Therefore,
 9 there would be no effects on recreation opportunities as a result of maintenance of the proposed
 10 water conveyance facilities.

11 **CEQA Conclusion:** Maintenance of conveyance facilities would be short-term and intermittent and
 12 would not result in any changes to land-based recreational opportunities. Therefore, there would be
 13 no impact. Mitigation is not required.

14 **Impact REC-9: Result in Long-Term Reduction in Fishing Opportunities as a Result of**
 15 **Implementing ~~CM2-CM21~~ Conservation Measures 2-21**

16 **NEPA Effects:** Construction, and operation and maintenance of the proposed conservation
 17 components as part of Alternative 4 could have effects related to recreational fishing that are similar
 18 in nature to those discussed above for construction, and operation and maintenance of proposed
 19 water conveyance facilities. Although similar in nature, the potential intensity of any effects would
 20 likely be substantially lower because the nature of the activities associated with implementing the
 21 conservation components would be different—less heavy construction equipment would be
 22 required and the restoration actions would be implemented over a longer time frame than CM1.
 23 Potential effects from implementation of the conservation components would be dispersed over a
 24 larger area and would generally involve substantially fewer construction and operation effects
 25 associated with built facilities. Additionally, overall, the habitat restoration and enhancement
 26 components would be expected to result in long-term benefits to aquatic species. Additional
 27 discussion related to the individual conservation measures is provided below.

28 Under CM2, the Yolo Bypass would be modified to increase the frequency, duration, and magnitude
 29 of floodplain inundation. These actions would improve passage and habitat for Sacramento splittail,
 30 Chinook salmon, lamprey, and possibly steelhead. The modifications, which include fish passage
 31 improvements and flow management facilities, would be implemented in four phases starting with
 32 plan implementation and continuing to approximately 2063. CM2 would reduce migratory delays
 33 and loss of adult salmon, steelhead, and sturgeon at Fremont Weir and other structures; enhance
 34 rearing habitat for Sacramento River Basin salmonids; enhance spawning and rearing habitat for
 35 Sacramento splittail; and improve food sources for delta smelt downstream of the bypass. To
 36 achieve this, CM2 includes modifications to the Yolo Bypass that, in balance with existing uses,
 37 would benefit covered fish by increasing the frequency, duration, and magnitude of floodplain
 38 inundation and improving fish passage.

39 Yolo Bypass fishery enhancement would be achieved with site-specific projects to construct fish
 40 passage improvements and facilities to introduce and manage additional flows for seasonal
 41 floodplain habitat. Prior to construction for each project, the preparatory actions would include
 42 interagency coordination, feasibility evaluations, site or easement acquisition, modifications to
 43 agricultural practices, development of site-specific plans, and environmental compliance.

1 The YBFEP would propose a balance between important uses of the Yolo Bypass such as flood
2 protection, agriculture, endangered terrestrial species habitat, fisheries habitat, the Yolo Natural
3 Heritage Program, and managed wetlands habitat as described in existing state and federal land
4 management plans associated with the Yolo Bypass Wildlife Area and existing conservation
5 easements on private land.

6 Noise and the physical footprint associated with these physical modifications would temporarily
7 affect the quality and access of fishing opportunities in the affected areas. The maximum extent of
8 inundation in the Yolo Bypass would not increase from current conditions, but the frequency and
9 duration of inundation events would increase. This modification in operations would affect onshore
10 fishing opportunities. Shore fishing would be temporarily affected by reduced access to the popular
11 deeper channels due to an increased floodplain footprint in the Yolo Bypass Wildlife Area. This
12 conservation measure was designed, in part, to improve habitat for covered fish species, including
13 Chinook salmon, green and white sturgeon, and steelhead. These habitat improvement elements
14 would lead to increased populations of targeted fish species, which over time, could benefit
15 recreational fishing opportunities. Thus, to the extent that access is available to anglers, the fishing
16 experience for native sport species benefiting from this measure would improve based on
17 hypothetical higher catch rates. Environmental commitments would be available to reduce the
18 effects of inundation on fishing opportunities.

19 CM4 would provide for the restoration of 16,300 acres of tidal habitat (brackish emergent wetland,
20 freshwater emergent wetland, perennial aquatic, other wetland, and adjacent upland [to
21 accommodate sea level rise]) in the near-term and up to 65,000 acres in the late long-term. The
22 extent of restored tidal habitat includes a contiguous habitat gradient encompassing restored
23 shallow subtidal aquatic habitat, restored tidal mudflat, restored tidal marsh plain habitat, and
24 adjoining transitional upland habitat. Areas to be restored would be modified by breaching and
25 lowering levees, constructing new or modified levees to protect adjacent areas from flooding,
26 connecting remnant sloughs or channels to improve circulation, and modifying ground elevations to
27 reduce effects of subsidence. Tidal habitat restoration activities would lead to temporary decreases
28 in boat and onshore fishing opportunities and quality due to the physical footprint, noise, odors, and
29 other conditions created by site preparation and earthwork activities, including channel and bank
30 modification in restoration areas. Tidal habitat restoration could permanently disrupt existing
31 points of fishing access, eliminating recreational opportunities. Depending on the extent of
32 recreational access granted to the public in new tidal habitat areas, however, this measure could
33 also support expanded opportunity for shore-based and boat fishing. This conservation measure
34 was designed, in part, to improve habitat for covered fish species, including Chinook salmon, green
35 and white sturgeon, river and Pacific lamprey, and steelhead. CM4 would improve fish habitat which
36 would be expected to lead to increased populations of targeted fish species, which over time, would
37 benefit fishing experience associated with these and other target species that benefit from restored
38 tidal habitat.

39 Another guiding principle in the design of CM4 is the limitation of environmental conditions that
40 favor nonnative predator fish species, including striped bass. Predator removal measures would be
41 highly localized and would not appreciably decrease Delta-wide abundance of predatory game fish
42 (refer to Chapter 11, *Fish and Aquatic Resources*, Section 11.3.4.9). The recreational experience
43 associated with fishing for these species would not be expected to be substantially reduced. On
44 balance, it is anticipated that CM4 would have a minor positive effect on the fishing experience in the
45 Delta region.

1 CM5 provides for the restoration of 1,000 acres of seasonally inundated floodplain habitat within
2 the Delta in the early long-term and up to 10,000 acres in the late long-term. Seasonally inundated
3 floodplain restoration could occur along channels in many locations in the north, east, and/or south
4 Delta. In most areas, setback levees would be constructed to modify the channel configuration. The
5 most promising opportunities for large-scale restoration are in the south Delta along the San
6 Joaquin, Old, and Middle Rivers channels. While temporary earthwork and site preparation
7 measures could temporarily limit recreational access and interfere with the quality of fishing in
8 restoration areas, this measure would result in an increase in boat fishing opportunities as a result
9 of improvements in riparian habitat for a number of fish species and increased areas for boat
10 navigation. Similar improvements may also exist for onshore fishing, though current points of access
11 may be eliminated following implementation of restoration activities.

12 Within the first 40 years of Plan implementation, a total of 10,000 acres of seasonally inundated
13 floodplain would be restored under Alternative 4. Seasonally inundated floodplain restoration could
14 occur along channels in many locations in the north, east, and/or south Delta. These restoration
15 measures would result in a further increase in onshore and boat fishing opportunities due to
16 improvements in riparian habitat for fish; however, existing points of access may be modified or
17 disrupted.

18 CM6 would create benches on the outboard side of levees or create setback levees. Site preparation
19 and earthwork associated with the construction of these areas and potential access restrictions
20 would lead to temporary or permanent decreases in boat and onshore fishing quality and
21 opportunities. However, CM6 was designed, in part, to improve habitat for covered fish species,
22 including Chinook salmon, sturgeon, and steelhead. CM6 would improve the fishing experience
23 associated with these and other target species that benefit from enhanced channel margin habitat.
24 Another guiding principle in the design of this measure is the limitation of environmental conditions
25 that favor nonnative predator fish species, including striped bass. The recreational experience
26 associated with fishing for these species would be reduced by this measure. After 20 years of
27 implementation, the BDCP would cumulatively enhance 10 miles of channel margin habitat. After 30
28 years, this measure would cumulatively enhance 20 miles of channel margin. This measure would
29 modify channel geometry and restore riparian, marsh, and mudflat habitats along existing levees. On
30 balance, it is anticipated that because of these habitat improvements and expected increase in
31 targeted fish populations, this measure would make a minor improvement to the fishing experience
32 in the Delta region.

33 CM7 would restore 1,100 acres of riparian habitat in the first 15 years and up to 5,000 acres in the
34 late long-term. Areas chosen for implementation of this measure would be associated with
35 restoration and enhancement activities associated with CM4, CM5, and CM6. Restoration of riparian
36 habitat would support fish habitat by increasing the input of organic material and by increasing the
37 extent of shaded riverine aquatic (SRA) cover. By year 40 of implementation, the BDCP would
38 cumulatively restore 5,000 acres of riparian habitat. While construction activities associated with
39 this component may temporarily or permanently restrict some access for anglers and create
40 temporary conditions less favorable for fishing activities, this measure would improve fish habitat,
41 which would be expected to result in higher populations of targeted species and lead to an enhanced
42 fishing experience.

43 Under CM11 management plans for natural communities may be prepared for specific reserves or
44 for multiple reserves within a specified geographic area. Management and enhancement actions
45 would be implemented for the following natural communities: tidal aquatic and wetland, nontidal

1 aquatic and wetland, riparian, grasslands and associated seasonal wetland, inland dune scrub, and
2 agricultural lands and managed wetlands. Depending on the level of recreational access granted by
3 management plans, this measure could increase or decrease opportunities for anglers within the
4 Delta region.

5 CM12 would minimize adverse effects of methylmercury on covered fish species, including white
6 sturgeon and North American green sturgeon, and Sacramento splittail. This measure, if successful
7 in reducing predation caused as a byproduct of methylmercury and improving fish health, would
8 support an enhanced fishing experience for onshore and boat-based anglers.

9 CM13 would control nonnative aquatic vegetation including Brazilian waterweed, water hyacinth,
10 and other nonnative submerged and floating aquatic vegetation in BDCP tidal habitat restoration
11 areas. Site-specific conditions and the intended goal would dictate the specific method of removal.
12 This measure is hypothesized to reduce predation mortality on covered species (juvenile salmon,
13 steelhead, and splittail) by reducing habitat for nonnative predatory fish and by increasing turbidity
14 levels. Increased turbidity could also support delta and longfin smelt foraging. Control of nonnative
15 aquatic vegetation could also support access to additional rearing habitat for covered species, as
16 well as increased food availability stemming from greater light levels for phytoplankton growth.
17 Operations associated with vegetation control, particularly mechanical removal, would
18 intermittently and temporarily affect the quality of fishing. However, this measure would increase
19 opportunities for onshore and boat fishing for species that are hampered by the presence of
20 excessive nonnative vegetation. While these activities would reduce the fishing experience related to
21 nonnative predatory fish, overall these efforts would not appreciably reduce Delta-wide abundances
22 of predatory game fish (i.e., largemouth bass, striped bass) and populations would not be
23 diminished to the extent that fishing opportunities would be adversely affected (refer to Chapter 11,
24 *Fish and Aquatic Resources*, Section 11.3.4.9).

25 CM14 would maintain dissolved oxygen (DO) levels above levels that impair covered fish species in
26 the Stockton Deep Water Ship Channel when covered species are present. The BDCP would operate
27 and maintain an oxygen aeration facility in the Stockton Deep Water Ship Channel to increase DO
28 concentrations. By improving conditions for covered and game fish species, this measure would
29 increase opportunities for onshore and boat fishing activities.

30 CM15 would reduce local effects of predators on covered fished species by conducting predator
31 control in areas with high predator density. Predator *hot spots* would be identified and control
32 methods would be adopted including the removal of predator hiding spots, modification of channel
33 geometry, targeted removal of predators, and other focused methods as dictated by site-specific
34 conditions and the intended outcome or goal. Preference for which hot spots to address would be
35 given to areas of high overlap with covered fish species, such as migratory routes or spawning and
36 rearing habitats. Predator control would decrease opportunities for onshore and boat fishing for
37 species targeted for removal but would improve fishing opportunities for game species benefiting
38 from reduced predation. If implementation includes a relaxation of regulations relating to bag limits
39 or size restrictions associated with predatory species, this measure would carry a beneficial effect
40 for anglers targeting these species as well. Overall, as for other CMs targeting predator species, these
41 efforts would not appreciably reduce Delta-wide abundances of predatory game fish such that
42 recreational fishing would be adversely affected (refer to Chapter 11, *Fish and Aquatic Resources*,
43 Section 11.3.4.9).

1 CM16 involves nonphysical fish barriers (BioAcoustic Fish Fences [BAFFs]) at the junction of
2 channels with low survival of outmigrating juvenile salmonids to deter fish from entering these
3 channels. Nonphysical fish barrier placement locations would include Georgiana Slough, the hHead
4 of Old River, the Delta Cross Channel, ~~and Georgiana Slough, and could possibly include~~ Turner Cut
5 ~~and~~, Columbia Cut (note that Turner and Columbia Cut each have two channels, and thus would
6 require two barriers), ~~the Delta-Mendota Canal intake, and Clifton Court Forebay~~. Installation of
7 these barriers could temporarily limit fishing activities by creating noise and necessitating a
8 physical footprint in existing fishing areas. This measure would decrease opportunities for onshore
9 and boat fishing in some channels but would support overall native fish populations, resulting in a
10 mixed, but minimal, effect on fishing opportunities across the Delta region.

11 To address the illegal harvest of covered species across the study area, under CM17, the BDCP
12 Implementation Office would contribute funds directly to the CDFW Delta-Bay Enhanced
13 Enforcement Program to hire and equip additional staff to improve enforcement against poaching of
14 covered species. The program currently has a 10-warden squad; the BDCP would provide funds to
15 hire and equip 23 additional staff, including 17 game wardens and 6 supervisory and administrative
16 staff, to increase enforcement of fishing regulations. While this measure would curb illegal fishing
17 activities and could result in greater regulatory burdens for law-abiding anglers as a result of
18 increased inspection frequency, it would increase opportunities for a wider number of individuals
19 through the enforcement of bag limits.

20 CM18 would establish new conservation propagation programs and expand the existing program for
21 delta and longfin smelt. This measure would include development of a delta and longfin smelt
22 conservation hatchery by USFWS. The specifications and operations of this facility have not been
23 developed. The final selection of a location for the facility will involve additional environmental
24 review. The location is expected to be within the study area in the vicinity of Rio Vista. The BDCP
25 identifies potential USFWS conservation hatchery facility locations in this area (see Figure 3.4-20).
26 One site is northwest of the city limits and could be used for a supplementation production facility.
27 This site is not near any existing well-established recreation sites or opportunities and is
28 approximately 1 mile from the Sacramento River such that future construction and operation
29 activities would not be expected to affect water-based recreation opportunities and experiences.
30 The other site is a former Army Reserve on the west river bank, south of the city limits, that would
31 be developed as a genetic refuge and research facility. Construction at this site could affect
32 recreation activities and experiences at the Delta Marina Yacht Harbor, immediately north of the
33 site, and boating (including boat fishing) on the Sacramento River, depending on noise levels and the
34 degree of visual disturbances. Additional permitting and environmental documentation would be
35 needed to implement this conservation measure once facility designs and funding are available.
36 Overall, implementation of CM18 would not be expected to have an adverse effect on fishing
37 opportunities because construction of the facility would be anticipated to last 2 years or less (short
38 term) and operation of the facility would not be expected to affect recreational fishing.

39 Under CM19, the BDCP Implementation Office would provide a mechanism for implementing
40 stormwater treatment measures that would result in decreased discharge of contaminants to the
41 Delta. These measures would be focused on urban areas and would fund local government projects
42 to reduce pollutant discharges in stormwater. This conservation measure is intended to reduce the
43 amount of pollution in stormwater runoff entering Delta waterways. These efforts would benefit
44 aquatic species, including sport fish populations, in the study area. There would be no adverse effect
45 on recreational fishing.

1 Under CM20, the BDCP Implementation Office would fund a Delta Recreational Users Invasive
 2 Species Program designed to implement actions to prevent the introduction of new aquatic invasive
 3 species and reduce the spread of existing aquatic invasive species via recreational watercraft,
 4 trailers, and other mobile recreational equipment used in aquatic environments in the study area.
 5 The program would consist of two primary elements targeting recreational boaters: education and
 6 outreach, and watercraft inspection. Education and outreach printed materials and interpretive
 7 displays would provide information regarding the presence and range of existing aquatic invasive
 8 species, the various vectors of aquatic invasive species, the threat of existing aquatic invasive
 9 species spreading within the study area, and the risk of new aquatic invasive species introductions.
 10 The watercraft inspection would involve development and implementation of a comprehensive
 11 inspection program. This type of program involves screening interviews at the point of entry; a
 12 comprehensive inspection of all high risk watercraft, trailers, and equipment identified as high-risk
 13 during the screening interview; decontamination and/or quarantine or exclusion of watercraft,
 14 trailers, and equipment that are not clean, drained, and dry; and optional vessel certification. These
 15 efforts would benefit aquatic species, including sport fish populations, in the study area. Although
 16 there could be a marginal effect on the recreation experience if boaters are delayed at the boat
 17 launch, it is expected that there would be no adverse effect on recreational fishing.

18 Under CM21, the BDCP proponents would provide funding for actions that would minimize the
 19 potential for entrainment of covered fish associated with operation of nonproject diversions and
 20 also to improve Delta ecosystem health by reducing the diversion of plankton and other nutritional
 21 resources into nonproject diversions, thereby benefiting all covered fishes. The number and size of
 22 the diversions that would be eliminated are not precisely known because the affected parcels have
 23 not yet been identified and moreover, some existing diversions may be remediated before being
 24 incorporated into the BDCP preserve system. Unscreened diversions may be handled through
 25 removal of individual diversions that have relatively large effects on covered fish species;
 26 consolidation of multiple unscreened diversions to a single or fewer screened diversions placed in
 27 lower quality habitat; relocation of diversions with substantial effects on covered species from high
 28 quality to lower quality habitat, in conjunction with screening; reconfiguration and screening of
 29 individual diversions in high quality habitat to take advantage of small-scale distribution patterns
 30 and behavior of covered fish species relative to the location of individual diversions in the channel;
 31 voluntary alteration of the daily and seasonal timing of diversion operation; or other methods may
 32 be implemented if the technical team determines it to be appropriate. Implementation of this
 33 measure would likely involve some in-water construction at some sites. These activities would be
 34 highly localized and of short duration and would not be expected to result in adverse effects on
 35 recreational fishing in the study area. Mitigation measures and environmental commitments would
 36 be available to reduce the effects of construction on recreation opportunities and experiences in the
 37 study area.

38 During the implementation stage, construction activity associated with conservation measures could
 39 result in adverse effects on recreation by temporarily or permanently limiting access to fishing sites
 40 and disturbing fish habitat. The conservation measures are expected to result in a long-term
 41 beneficial effect on recreation by enhancing aquatic habitat and fish abundance in the study area.

42 ***CEQA Conclusion:*** ~~Significant impacts could occur from implementation of CMs 2-21 if it resulted in~~
 43 ~~a long-term reduction in fishing opportunities. CM2–CM21 in the long-term would be expected to~~
 44 ~~improve fishing opportunities by enhancing fish habitat in the Yolo Bypass; restoring tidal habitat,~~
 45 ~~seasonally inundated floodplains, channel margins, and riparian habitat; controlling aquatic~~
 46 ~~vegetation and predators; controlling illegal harvest of covered species; and expanding boat launch~~

1 ~~facilities~~. During the implementation stage, ~~these measures~~ CM2-CM21 could result in impacts on
 2 fishing opportunities by temporarily or permanently limiting access to fishing sites and disturbing
 3 fish habitat.

4 CM2 would increase the floodplain footprint in the Yolo Bypass Wildlife Area, which would result in
 5 decreased onshore fishing opportunities. These impacts would be considered less than significant
 6 because the BDCP would include environmental commitments to consult with CDFW to expand
 7 wildlife viewing, angling, and hunting opportunities, as described in Recommendation DP R14 of the
 8 Delta Plan (Appendix 3B, *Environmental Commitments*).

9 CM4, CM13, and CM15 target predator fish species and although these CMs would result in highly
 10 localized reductions of predatory species, overall, these measures would not result in an appreciable
 11 decrease in Delta-wide abundances of predatory game fish (refer to Chapter 11, *Fish and Aquatic*
 12 *Resources*, Section 11.3.4.9). Construction of facilities could have short-term impacts on the noise or
 13 visual setting and could indirectly affect recreational fishing.

14 ~~The potential impact on covered and non-covered sport fish species from construction activities~~
 15 ~~would be considered less than significant because the BDCP would include environmental~~
 16 ~~commitments to prevent water quality effects include environmental training; implementation of~~
 17 ~~stormwater pollution prevention plans, erosion and sediment control plans, hazardous materials~~
 18 ~~management plans, and spill prevention, containment, and countermeasure plans; disposal of spoils,~~
 19 ~~and dredged material; and a barge operations plan (Appendix 3B, *Environmental Commitments*). In~~
 20 ~~addition, mitigation measures and environmental commitments identified to reduce the effects of~~
 21 ~~constructing CM1 would also be used to minimize effects of construction on recreation (i.e., visual~~
 22 ~~conditions, noise, transportation/access) associated with implementation of the other conservation~~
 23 ~~components.~~

24 Environmental commitments that will reduce construction-related impacts on recreation include a
 25 noise abatement plan and consultation with CDFW to expand recreational opportunities (Appendix
 26 3B, *Environmental Commitments*; also see additional discussion under Impact REC-2 and Impact
 27 REC-3, above). DWR has also made environmental commitments to prevent water quality effects
 28 include environmental training; implementation of stormwater pollution prevention plans, erosion
 29 and sediment control plans, hazardous materials management plans, and spill prevention,
 30 containment, and countermeasure plans; disposal of spoils, and dredged material; and a barge
 31 operations plan (Appendix 3B, *Environmental Commitments*).

32 Because construction of the conservation measure component facilities would be less intense and of
 33 shorter duration than construction of CM1 conveyance facilities, the ~~mitigation measures and~~
 34 environmental commitments would reduce the construction-related impacts on recreational fishing
 35 associated with the other conservation measures to a less-than-significant level.

36 ~~Further, the individual facilities or conservation elements will undergo additional environmental~~
 37 ~~review and permitting which will include identification of site-specific measures to further protect~~
 38 ~~resources.~~

39 ~~Environmental commitments that will reduce construction-related impacts on recreation include a~~
 40 ~~noise abatement plan and consultation with CDFW to expand recreational opportunities (Appendix~~
 41 ~~3B, *Environmental Commitments*; also see additional discussion under Impact REC-2 and Impact~~
 42 ~~REC-3, above). In addition, a number of mitigation measures already being implemented to mitigate~~
 43 ~~effects of construction of CM1 will address construction-related impacts on recreational fishing by~~

1 reducing the degree of aesthetic and visual degradation at construction sites (see Chapter 17,
 2 *Aesthetics and Visual Resources*, Section 17.3.3.2, Mitigation Measures AES-1a, AES-1b, AES-1c, AES-
 3 1d, AES-1e, AES-1f, AES-1g, AES-4b, and AES-4c; also see additional discussion under Impact REC-2
 4 and Impact REC-3, above). Mitigation measures TRANS-1a, TRANS-1b, and TRANS-1c will address
 5 traffic and transportation safety and access conditions that could affect public use of recreation
 6 areas (see additional discussion under Impact REC-2 and Impact REC-3, above, and Chapter 19,
 7 *Transportation*, Section 19.3.3.9). Mitigation measures NOI-1a and NOI-1b will address construction-
 8 related noise concerns (see additional discussion under Impact REC-2 and Impact REC-3, above and
 9 Chapter 23, *Noise*, Section 23.4.3.9). Finally, should construction of conservation measure facilities
 10 require pile-driving, mitigation measures to protect fish and aquatic species would be implemented
 11 to reduce these impacts (see additional discussion under Impact REC-4, above and Chapter 11, *Fish*
 12 *and Aquatic Resources*, Section 11.3.4.9).

13 Further, the individual facilities or conservation elements will undergo additional environmental
 14 review and permitting which will include identification of site-specific measures to further protect
 15 resources.

16 Therefore, the potential impact on covered and non-covered sport fish species from construction
 17 activities would be considered less than significant. CM2–CM21 in the long-term would be expected
 18 to improve fishing opportunities by enhancing fish habitat in the Yolo Bypass; restoring tidal
 19 habitat, seasonally inundated floodplains, channel margins, and riparian habitat; controlling aquatic
 20 vegetation and predators; controlling illegal harvest of covered species; and expanding boat launch
 21 facilities. In the long term, the impact on fishing opportunities would be considered beneficial
 22 because the conservation measures are intended to enhance aquatic habitat and fish abundance.

23 **Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to**
 24 **Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New**
 25 **Transmission Lines and Underground Transmission Lines Where Feasible**

26 Please refer to Mitigation Measure AES-1a in Chapter 17, *Aesthetics and Visual Resources*,
 27 Alternative 1A, Impact AES-1.

28 **Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and**
 29 **Sensitive Receptors**

30 Please refer to Mitigation Measure AES-1b in Chapter 17, *Aesthetics and Visual Resources*,
 31 Alternative 1A, Impact AES-1.

32 **Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel**
 33 **Material Area Management Plan**

34 Please refer to Mitigation Measure AES-1c in Chapter 17, *Aesthetics and Visual Resources*,
 35 Alternative 1A, Impact AES-1.

36 **Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned**

37 Please refer to Mitigation Measure AES-1d in Chapter 17, *Aesthetics and Visual Resources*,
 38 Alternative 1A, Impact AES-1.

1 **Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the**
 2 **Extent Feasible**

3 Please refer to Mitigation Measure AES-1e in Chapter 17, *Aesthetics and Visual Resources*,
 4 Alternative 1A, Impact AES-1.

5 **Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from**
 6 **Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities**

7 Please refer to Mitigation Measure AES-1f in Chapter 17, *Aesthetics and Visual Resources*,
 8 Alternative 1A, Impact AES-1.

9 **Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project**
 10 **Landscaping Plan**

11 Please refer to Mitigation Measure AES-1g in Chapter 17, *Aesthetics and Visual Resources*,
 12 Alternative 1A, Impact AES-1.

13 **Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for**
 14 **Construction**

15 Please refer to Mitigation Measure AES-4b in Chapter 17, *Aesthetics and Visual Resources*,
 16 Alternative 1A, Impact AES-4.

17 **Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary,**
 18 **to Prevent Light Spill from Truck Headlights toward Residences**

19 Please refer to Mitigation Measure AES-4c in Chapter 17, *Aesthetics and Visual Resources*,
 20 Alternative 1A, Impact AES-4.

21 **Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management**
 22 **Plan**

23 Please refer to Mitigation Measure TRANS-1a in Chapter 19, *Transportation*, Alternative 1A,
 24 Impact TRANS-1.

25 **Mitigation Measure TRANS-1b: Limit Hours or Amount of Construction Activity on**
 26 **Congested Roadway Segments**

27 Please refer to Mitigation Measure TRANS-1b in Chapter 19, *Transportation*, Alternative 1A,
 28 Impact TRANS-1.

29 **Mitigation Measure TRANS-1c: Make Good Faith Efforts to Enter into Mitigation**
 30 **Agreements to Enhance Capacity of Congested Roadway Segments**

31 Please refer to Mitigation Measure TRANS-1c in Chapter 19, *Transportation*, Alternative 1A,
 32 Impact TRANS-1.

33 **Mitigation Measure NOI-1a: Employ Noise-Reducing Construction Practices during**
 34 **Construction**

35 Please refer to Mitigation Measure NOI-1a in Chapter 23, *Noise*, Alternative 1A, Impact NOI-1.

1 **Mitigation Measure NOI-1b: Prior to Construction, Initiate a Complaint/Response**
 2 **Tracking Program**

3 Please refer to Mitigation Measure NOI-1b in Chapter 23, *Noise*, Alternative 1A, Impact NOI-1.

4 **Mitigation Measure AQUA-1a: Minimize the Use of Impact Pile Driving to Address Effects**
 5 **of Pile Driving and Other Construction-Related Underwater Noise**

6 Please refer to Mitigation Measure AQUA-1a in Chapter 11, *Fish and Aquatic Resources*,
 7 Alternative 1A, Impact AQUA-1.

8 ~~Please refer to Mitigation Measure AQUA-1b in Chapter 11, *Fish and Aquatic Resources*,~~
 9 ~~Alternative 1A, Impact AQUA-1.~~

10 **Impact REC-10: Result in Long-Term Reduction in Boating-Related Recreation Opportunities**
 11 **as a Result of Implementing ~~CM2-CM21 Conservation Measures 2-21~~**

12 **NEPA Effects:** This assessment evaluates BDCP conservation measures related to habitat restoration
 13 and enhancement efforts and those designed to reduce other stressors, describing their potential
 14 effects on boating recreation in the study area. Because the details surrounding the location and
 15 implementation of many of these measures are under development, these topics are addressed at a
 16 programmatic level. CM17, Illegal Harvest Reduction, is an enforcement funding measure; CM19,
 17 Urban Stormwater Treatment, would reduce pollutant discharges in stormwater—these measures
 18 would not affect recreational boating opportunities and are not discussed in this analysis.

19 Under CM2, the Yolo Bypass would be modified to increase the frequency, duration, and magnitude
 20 of floodplain inundation. These actions would improve passage and habitat for Sacramento splittail,
 21 Chinook salmon, lamprey, and possibly steelhead. The modifications, which include fish passage
 22 improvements and flow management facilities, would be implemented in four phases starting with
 23 plan implementation and continuing to approximately 2063. Boats are not allowed in the Yolo
 24 Bypass Wildlife Area, so there would be no effect on boating opportunities due to construction
 25 activities associated with the physical modifications for this measure. The maximum extent of
 26 inundation in the Yolo Bypass would not increase from current conditions, but the frequency and
 27 duration of inundation events would increase. This measure would not affect opportunities for
 28 boating-related activities as a result of longer inundation periods.

29 CM4 provides for the restoration of 16,300 acres of tidal habitat (brackish emergent wetland,
 30 freshwater emergent wetland, perennial aquatic, other wetland, and adjacent upland [to
 31 accommodate sea level rise]) in the near-term and up to 65,000 acres in the late long-term. In the
 32 early long-term, BDCP implementation would provide for the cumulative restoration of 25,975 acres
 33 of freshwater and brackish tidal habitat in the BDCP ROAs under all the action alternatives. In the
 34 late long-term, a cumulative 65,000 acres of freshwater and brackish tidal habitat throughout the
 35 ROAs would be restored. The extent of restored tidal habitat includes a contiguous habitat gradient
 36 encompassing restored shallow subtidal aquatic habitat, restored tidal mudflat, restored tidal marsh
 37 plain habitat, and adjoining transitional upland habitat. Areas to be restored would be modified by
 38 breaching and lowering levees, constructing new or modified levees to protect adjacent areas from
 39 flooding, connecting remnant sloughs or channels to improve circulation, and modifying ground
 40 elevations to reduce effects of subsidence. CM4 would lead to temporary decreases in boat-related
 41 recreation opportunities as a result of noise and other conditions associated with channel and bank

1 modification activities in restoration areas. Following completion of restoration, CM4 would support
2 expanded opportunities for boating in reconnected and dredged sloughs.

3 CM5 provides for restoration of 1,000 acres of seasonally inundated floodplain habitat within the
4 Delta in the early long-term and up to 10,000 acres in the late long-term. Seasonally inundated
5 floodplain restoration could occur along channels in many locations in the north, east, and/or south
6 Delta. In most areas, setback levees would be constructed to modify the channel configuration. The
7 most promising opportunities for large-scale restoration are in the south Delta along the San
8 Joaquin, Old, and Middle Rivers channels. These locations offer benefits to covered fish species,
9 practicability considerations, and compatibility with potential flood management projects. While
10 site preparation and earthwork activities associated with restoration may temporarily limit some
11 boating access and lead to degraded conditions resulting from noise, odors, or visual effects, CM5
12 would result in an increase in boat-related recreation opportunities as a result of the seasonal
13 expansion of navigable areas.

14 Channel margin habitat enhancement would modify channel geometry and restore riparian, marsh,
15 and mudflat habitats along existing levees. At least 5 miles of habitat would be enhanced within the
16 first 10 years and up to 20 miles after 30 years. CM6 would create benches on the outboard side of
17 levees or create setback levees. Construction effects including noise, odors, and deteriorated visual
18 conditions would temporarily alter the quality of the boating experience in enhancement areas.
19 Where construction and completion of new benches would extend into existing waterways,
20 navigable areas would be slightly reduced, which would permanently affect boating-related
21 recreation. However, in cases where setback levees are constructed and channels are expanded,
22 there would be a slight increase in boating opportunities.

23 CM11 would provide beneficial effects on boating opportunities by allowing recreation to occur on
24 approximately 61,000 acres of lands in the BDCP reserve system, consisting of grassland, vernal
25 pool complex, riparian, managed wetland, and aquatic natural community types (see BDCP Chapter
26 4, Section 4.2.3.9.2 *Recreation*). The reserve system would update one boating facility, as well as a
27 new boat launch facility within the footprint of the North Delta diversion facilities, which would
28 increase opportunities for boating within the study area.

29 CM13 would control nonnative aquatic vegetation including Brazilian waterweed, water hyacinth,
30 and other nonnative submerged and floating aquatic vegetation in BDCP tidal habitat restoration
31 areas. While aquatic vegetation removal operations could temporarily restrict or obstruct
32 navigation and reduce the quality of boating, overall the measure would increase boat passage and
33 navigation and would improve the boating experience.

34 Under CM16, nonphysical fish barriers would be placed at the head of Old River, the Delta Cross
35 Channel, and Georgiana Slough, ~~and could possibly include Turner Cut and Columbia Cut (note that~~
36 ~~Turner and Columbia Cut each have two channels, and thus would require two barriers), the Delta-~~
37 ~~Mendota Canal intake, and Clifton Court Forebay.~~ Depending on their design, the construction and
38 operation of these barriers could constrict boat passage or necessitate lower speed limits,
39 diminishing the boating experience around the barriers.

40 Implementing the conservation measures could result in an adverse effect on recreation by limiting
41 boating by reducing the extent of navigable waterways available to boaters. Once implemented, the
42 conservation measures could provide beneficial effects to recreation by expanding the extent of
43 navigable waterways available to boaters, improving and expanding boat launch facilities, and
44 removing nonnative vegetation that restricts or obstructs navigation.

1 CM18 would establish new conservation propagation programs and expand the existing program for
2 delta and longfin smelt. This measure would include development of a delta and longfin smelt
3 conservation hatchery by USFWS. The specifications and operations of this facility have not been
4 developed. The final selection of a location for the facility will involve additional environmental
5 review. The location is expected to be within the study area in the vicinity of Rio Vista. The BDCP
6 identifies potential USFWS conservation hatchery facility locations in this area (see Figure 3.4-20).
7 One site is northwest of the city limits and could be used for a supplementation production facility.
8 This site is not near any existing well-established recreation sites or opportunities and is
9 approximately 1 mile from the Sacramento River such that future construction and operation
10 activities would not be expected to affect water-based recreation opportunities and experiences.
11 The other site is a former Army Reserve on the west river bank, south of the city limits, that would
12 be developed as a genetic refuge and research facility. Construction at this site could affect
13 recreation activities and experiences at the Delta Marina Yacht Harbor, immediately north of the
14 site, and boating on the Sacramento River, depending on noise levels and the degree of visual
15 disturbances. The BDCP proponents would implement environmental commitments to include a
16 noise abatement plan (Appendix 3B, Environmental Commitments; also see additional discussion
17 under Impact REC-2 and Impact REC-3, above) to lessen these impacts. In addition, a number of
18 mitigation measures address construction-related impacts on recreational boating by reducing the
19 degree of aesthetic and visual degradation at the construction site (see Chapter 17, Aesthetics and
20 Visual Resources, Section 17.3.3.2, Mitigation Measures AES-1a, AES-1b, AES-1c, AES-1d, AES-1e,
21 AES-1f, AES-1g, AES-4b, and AES-4c; also see additional discussion under Impact REC-2 and Impact
22 REC-3, above). Mitigation measures TRANS-1a, TRANS-1b, and TRANS-1c will address traffic and
23 transportation safety and access conditions of the marina (see additional discussion under Impact
24 REC-2 and Impact REC-3, above, and Chapter 19, Transportation, Section 19.3.3.9). Mitigation
25 measures NOI-1a and NOI-1b will address construction-related noise concerns (see additional
26 discussion under Impact REC-2 and Impact REC-3, above and Chapter 23, Noise, Section 23.4.3.9).
27 Implementation of these measures, as determined applicable to construction of this facility under
28 future site-specific environmental review, would reduce impacts related to a long-term reduction in
29 boating-related recreation activities to less than significant. Overall, implementation of CM18 would
30 not be expected to have an adverse effect on recreational boating opportunities.

31 Under CM20, the BDCP Implementation Office would fund a Delta Recreational Users Invasive
32 Species Program designed to implement actions to prevent the introduction of new aquatic invasive
33 species and reduce the spread of existing aquatic invasive species via recreational watercraft,
34 trailers, and other mobile recreational equipment used in aquatic environments in the study area.
35 The program would consist of two primary elements targeting recreational boaters: education and
36 outreach, and watercraft inspection. Education and outreach printed materials and interpretive
37 displays would provide information regarding the presence and range of existing aquatic invasive
38 species, the various vectors of aquatic invasive species, the threat of existing aquatic invasive
39 species spreading within the study area, and the risk of new aquatic invasive species introductions.
40 The watercraft inspection would involve development and implementation of a comprehensive
41 inspection program. This type of program involves screening interviews at the point of entry; a
42 comprehensive inspection of all high risk watercraft, trailers, and equipment identified as high-risk
43 during the screening interview; decontamination and/or quarantine or exclusion of watercraft,
44 trailers, and equipment that are not clean, drained, and dry; and optional vessel certification.
45 Although there could be a marginal effect on the recreation experience if boaters are delayed at the
46 boat launch, it is expected that there would be no adverse effect on recreational boating.

1 Under CM21, the BDCP proponents would provide funding for actions that would minimize the
 2 potential for entrainment of covered fish associated with operation of nonproject diversions and
 3 also to improve Delta ecosystem health by reducing the diversion of plankton and other nutritional
 4 resources into nonproject diversions, thereby benefiting all covered fishes. The number and size of
 5 the diversions that would be eliminated are not precisely known because the affected parcels have
 6 not yet been identified and moreover, some existing diversions may be remediated before being
 7 incorporated into the BDCP preserve system. Unscreened diversions may be handled through
 8 removal of individual diversions that have relatively large effects on covered fish species;
 9 consolidation of multiple unscreened diversions to a single or fewer screened diversions placed in
 10 lower quality habitat; relocation of diversions with substantial effects on covered species from high
 11 quality to lower quality habitat, in conjunction with screening; reconfiguration and screening of
 12 individual diversions in high quality habitat to take advantage of small-scale distribution patterns
 13 and behavior of covered fish species relative to the location of individual diversions in the channel;
 14 voluntary alteration of the daily and seasonal timing of diversion operation; or other methods may
 15 be implemented if the technical team determines it to be appropriate. Implementation of this
 16 measure would likely involve some in-water construction at some sites. These activities would be
 17 highly localized and of short duration and would not result in adverse effects on recreational
 18 boating in the study area.

19 With the exception of CM 18, these measures would not result in a long-term reduction in boating-
 20 related recreation activities. With mitigation implemented, CM 18 would result not be adverse.
 21 Overall, this impact would not be adverse.

22 **CEQA Conclusion:** Channel modification and other activities associated with implementation of
 23 some habitat restoration and enhancement measures and other conservation measures would limit
 24 some opportunities for boating and boating-related recreation by reducing the extent of navigable
 25 water available to boaters. Temporary effects would also stem from construction, which may limit
 26 boat access, speeds, or create excess noise, odors, or unattractive visual scenes during periods of
 27 implementation. However, BDCP conservation measures would also lead to an enhanced boating
 28 experience by expanding the extent of navigable waterways available to boaters, improving and
 29 expanding boat launch facilities, and removing nonnative vegetation that restricts or obstructs
 30 navigation. Because Overall, these measures would not be anticipated to result in a substantial
 31 long-term disruption-reduction in of boating-related recreation activities; therefore, this impact is
 32 considered less than significant for the conservation measures, with the exception of CM18,
 33 discussed further below.

34 Under CM18, construction of a genetic refuge and research facility at the former Army Reserve near
 35 the Delta Marina Yacht Harbor could result in construction-related impacts on boaters at this site.
 36 The BDCP proponents would implement environmental commitments to include a noise abatement
 37 plan (Appendix 3B, *Environmental Commitments*; also see additional discussion under Impact REC-2
 38 and Impact REC-3, above) to lessen these impacts. However, construction of CM18 would result in
 39 significant impacts. In addition, a number of mitigation measures address construction-related
 40 impacts on recreational boating by reducing the degree of aesthetic and visual degradation at the
 41 construction site (see Chapter 17, *Aesthetics and Visual Resources*, Section 17.3.3.2, Mitigation
 42 Measures AES-1a, AES-1b, AES-1c, AES-1d, AES-1e, AES-1f, AES-1g, AES-4b, and AES-4c; also see
 43 additional discussion under Impact REC-2 and Impact REC-3, above). Mitigation measures TRANS-
 44 1a, TRANS-1b, and TRANS-1c will address traffic and transportation safety and access conditions of
 45 the marina (see additional discussion under Impact REC-2 and Impact REC-3, above, and Chapter 19,
 46 *Transportation*, Section 19.3.3.9). Mitigation measures NOI-1a and NOI-1b will address construction-

1 related noise concerns (see additional discussion under Impact REC-2 and Impact REC-3, above and
 2 Chapter 23, *Noise*, Section 23.4.3.9). Implementation of these measures, as determined applicable to
 3 construction of this facility under future site-specific environmental review, would reduce impacts
 4 ~~on-related to a long-term reduction in boating-related~~ recreation ~~activitiesal boating~~ to less than
 5 significant. No additional mitigation would be required.

6 **Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to**
 7 **Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New**
 8 **Transmission Lines and Underground Transmission Lines Where Feasible**

9 Please refer to Mitigation Measure AES-1a in Chapter 17, *Aesthetics and Visual Resources*,
 10 Alternative 1A, Impact AES-1.

11 **Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and**
 12 **Sensitive Receptors**

13 Please refer to Mitigation Measure AES-1b in Chapter 17, *Aesthetics and Visual Resources*,
 14 Alternative 1A, Impact AES-1.

15 **Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel**
 16 **Material Area Management Plan**

17 Please refer to Mitigation Measure AES-1c in Chapter 17, *Aesthetics and Visual Resources*,
 18 Alternative 1A, Impact AES-1.

19 **Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned**

20 Please refer to Mitigation Measure AES-1d in Chapter 17, *Aesthetics and Visual Resources*,
 21 Alternative 1A, Impact AES-1.

22 **Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the**
 23 **Extent Feasible**

24 Please refer to Mitigation Measure AES-1e in Chapter 17, *Aesthetics and Visual Resources*,
 25 Alternative 1A, Impact AES-1.

26 **Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from**
 27 **Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities**

28 Please refer to Mitigation Measure AES-1f in Chapter 17, *Aesthetics and Visual Resources*,
 29 Alternative 1A, Impact AES-1.

30 **Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project**
 31 **Landscaping Plan**

32 Please refer to Mitigation Measure AES-1g in Chapter 17, *Aesthetics and Visual Resources*,
 33 Alternative 1A, Impact AES-1.

1 **Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for**
 2 **Construction**

3 Please refer to Mitigation Measure AES-4b in Chapter 17, *Aesthetics and Visual Resources*,
 4 Alternative 1A, Impact AES-4.

5 **Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary,**
 6 **to Prevent Light Spill from Truck Headlights toward Residences**

7 Please refer to Mitigation Measure AES-4c in Chapter 17, *Aesthetics and Visual Resources*,
 8 Alternative 1A, Impact AES-4.

9 **Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management**
 10 **Plan**

11 Please refer to Mitigation Measure TRANS-1a in Chapter 19, *Transportation*, Alternative 1A,
 12 Impact TRANS-1.

13 **Mitigation Measure TRANS-1b: Limit Hours or Amount of Construction Activity on**
 14 **Congested Roadway Segments**

15 Please refer to Mitigation Measure TRANS-1b in Chapter 19, *Transportation*, Alternative 1A,
 16 Impact TRANS-1.

17 **Mitigation Measure TRANS-1c: Make Good Faith Efforts to Enter into Mitigation**
 18 **Agreements to Enhance Capacity of Congested Roadway Segments**

19 Please refer to Mitigation Measure TRANS-1c in Chapter 19, *Transportation*, Alternative 1A,
 20 Impact TRANS-1.

21 **Mitigation Measure NOI-1a: Employ Noise-Reducing Construction Practices during**
 22 **Construction**

23 Please refer to Mitigation Measure NOI-1a in Chapter 23, *Noise*, Alternative 1A, Impact NOI-1.

24 **Mitigation Measure NOI-1b: Prior to Construction, Initiate a Complaint/Response**
 25 **Tracking Program**

26 Please refer to Mitigation Measure NOI-1b in Chapter 23, *Noise*, Alternative 1A, Impact NOI-1.

27 **Impact REC-11: Result in Long-Term Reduction in Upland Recreational Opportunities as a**
 28 **Result of Implementing ~~CM2-CM21 Conservation Measures 2-21~~**

29 **NEPA Effects:** This section considers upland recreational activities and potential effects from BDCP
 30 conservation measures geared toward the restoration and enhancement of habitat and the
 31 reduction of stressors on covered species. The activities under consideration include hunting,
 32 hiking, walking, wildlife viewing, botanical viewing, nature photography, picnicking, and sightseeing.
 33 The specific location and implementation activities associated with these measures are pending;
 34 thus, these topics are addressed at a programmatic level. Future guidelines governing the level of
 35 recreational access allowed in restored habitat areas would influence the severity of the BDCP's
 36 effects on these activities. CM17–CM21 involve enforcement, management, or other individual,
 37 localized project components that would not affect upland recreation opportunities. CM17 is an

1 enforcement funding mechanism and would not result in a physical change to upland areas;
2 construction under CM18, CM19 or CM21 would not affect existing upland recreation areas; and
3 CM20 is an enforcement action primarily located at boat launches and would not affect upland
4 recreation areas and related opportunities. These measures are not discussed further in this
5 analysis.

6 Under CM2, the Yolo Bypass would be modified to increase the frequency, duration, and magnitude
7 of floodplain inundation. These actions would improve passage and habitat for Sacramento splittail,
8 Chinook salmon, lamprey, and possibly steelhead. The modifications, which include fish passage
9 improvements and flow management facilities, would be implemented in four phases starting with
10 plan implementation and continuing to approximately 2063. The maximum extent of inundation in
11 the Yolo Bypass would not increase from current conditions, but the frequency and duration of
12 inundation events would increase. The Yolo Bypass Wildlife Area provides opportunities for upland
13 recreational activities, including waterfowl and upland game bird hunting, hiking and walking,
14 wildlife viewing, botanical viewing, and nature photography. Changes to flood management in the
15 Yolo Bypass have the potential to result in effects on waterfowl and other recreation uses, including
16 recreational hunting, in this area (Ducks Unlimited 2012). Because the wildlife area closes during
17 periods of inundation, this measure would decrease opportunities for these activities as a result of
18 the longer inundation periods in the Yolo Bypass. Under Existing Conditions, flood-related
19 conditions contribute to Yolo Bypass hunting area closures lasting for up to 2 weeks (14 days) out of
20 the 100-day hunting season. Removal of berms and levees could also decrease recreational access in
21 the Yolo Bypass. Construction activities would also temporarily affect the quality of activities by
22 introducing noise, odors, and unattractive visual scenes into the recreational environment. Longer
23 inundation events would reduce wetland-dependent wildlife species access to food and could result
24 in impacts to upland game birds and failure of nesting birds during spring events. This may decrease
25 hunting and wildlife viewing experiences during non-flooding periods. Winter flood water levels
26 under CM2 could be deeper than Existing Conditions waterfowl species (e.g., dabbling duck) that
27 prefer a shallower flooded seasonal wetland area could experience reduced foraging habitat.
28 Another factor that could affect waterfowl populations and related waterfowl hunting and bird
29 watching would be spring seed production loss and related decrease of food resources for these
30 populations (Ducks Unlimited 2012). Hunting in the Yolo Bypass is most common in the lower
31 elevation portions of the property; thus, low levels of flooding would impact blind areas and free
32 roam areas and reduce hunting opportunities. [As described in Table 3.4.2-1 of Chapter 3 of the](#)
33 [BDCP](#), two inundation targets have been proposed for CM2, which would attempt to inundate
34 7,000-10,000 acres from November to May, or 17,000 acres from December through February,
35 every year for 50 years, which could have potential effects on waterfowl and associated recreational
36 opportunities. The hunting season for waterfowl lasts from late October through January, so some
37 months would not be affected by inundation. However, CM2 would still have an adverse effect on
38 upland recreational opportunities. The BDCP proponents and agencies are considering alternative
39 methods for managing closures at the wildlife area, such as partial rather than full closures following
40 flood events, and so it could be that future operations would not adversely affect the overall hunting
41 season. Additionally, environmental commitments are available to reduce the effects of inundation
42 on upland recreational opportunities.

43 CM3 provides the mechanism and guidance for land acquisition and establishment of a system of
44 conservation lands in the study area necessary to meet BDCP natural community and species habitat
45 protection objectives. This system of conservation lands would be built over the implementation
46 term of the BDCP to protect and enhance areas of existing natural communities and covered species

1 habitat, protect and maintain years of selected plant species with very limited distributions, provide
2 sites suitable for restoration of natural communities and covered species habitat, and provide
3 habitat connectivity among the various BDCP conservation land units in the system. This measure
4 includes tidal habitat restored under CM4; valley/foothill riparian habitat restored under CM7;
5 grassland habitat restored under CM8; 8,000 acres of grassland habitat protected, vernal pool
6 complex restored to achieve no net loss under CM9; 600 additional acres vernal pool complex
7 protected, nontidal freshwater perennial emergent wetland and nontidal perennial aquatic habitat
8 restored under CM10; 400 acres of alkali seasonal wetland complex protected and 16,620–32,640
9 acres of agricultural habitats protected. Depending on the acquisition strategy implemented through
10 this measure, recreational access for upland activities could be expanded or diminished.
11 Mechanisms that permit public access would increase opportunities related to upland hunting,
12 hiking, walking, wildlife viewing, botanical viewing, nature photography, picnicking, and sightseeing.
13 Alternatively, acquisition that would exclude public recreational use would decrease opportunities
14 for these activities.

15 CM4 provides for restoration of 16,300 acres of tidal habitat (brackish emergent wetland,
16 freshwater emergent wetland, perennial aquatic, other wetland, and adjacent upland [to
17 accommodate sea level rise]) in the near-term and up to 65,000 acres in the late long-term. In the
18 late long-term, BDCP implementation would provide for the cumulative restoration of 65,000 acres
19 of freshwater and brackish tidal habitat in the BDCP ROAs under Alternative 1A. The extent of
20 restored tidal habitat includes shallow subtidal aquatic habitat, restored tidal mudflat, restored tidal
21 marsh plain habitat, and adjoining transitional upland habitat. Areas to be restored would be
22 modified by breaching and lowering levees, constructing new or modified levees to protect adjacent
23 areas from flooding, connecting remnant sloughs or channels to improve circulation, and modifying
24 ground elevations to reduce effects of subsidence. Site preparation and earthwork associated with
25 this restoration could result in temporary closure to recreational areas and excess noise, decreasing
26 recreational quality. Additionally, some upland areas would be converted to tidal habitat as part of
27 this measure, limiting access for upland recreation activities including upland hiking and walking,
28 camping, picnicking, and nature viewing and photography. However, because transitional upland
29 habitat adjoining tidal areas would also be restored, this could also create new opportunities.
30 Furthermore, restoration actions adjacent to existing recreational areas could enhance the quality of
31 the experience in these areas.

32 CM5 provides for the restoration of 1,000 acres of seasonally inundated floodplain habitat within
33 the Delta in the early long-term and up to 10,000 acres in the late long-term. Seasonally inundated
34 floodplain restoration could occur along channels in many locations in the north, east, and/or south
35 Delta. In most areas, setback levees would be constructed to modify the channel configuration. The
36 most promising opportunities for large-scale restoration are in the south Delta along the San
37 Joaquin, Old, and Middle River channels; these locations offer benefits to covered fish species,
38 practicability considerations, and compatibility with potential flood management projects. Levee
39 removal and construction would temporarily limit access, while increased inundation of formerly
40 upland areas would temporarily and permanently limit access, diminishing opportunities for a
41 range of upland recreational activities including upland hiking, walking, camping, picnicking, upland
42 game hunting, sightseeing, wildlife and botanical viewing, and nature photography. Noise, odors,
43 and visual degradation from construction would also temporarily affect upland recreational quality.
44 However, restoration under this measure would provide additional on-water waterfowl hunting
45 opportunities and improve the quality of recreational experiences in existing and adjacent
46 recreation areas.

1 Channel margin habitat enhancement would modify channel geometry and restore riparian, marsh,
2 and mudflat habitats along existing levees. Under CM6 at least 5 miles of habitat would be enhanced
3 within the first 10 years and up to 20 miles after 30 years. At least 5 of the 20 miles of channel
4 margin enhancement would take place along the Sacramento River and at least 5 miles would be
5 along the San Joaquin River. The remaining 10 miles would be distributed among other fish
6 migration channels. Earthwork and site preparation associated with habitat enhancement may limit
7 access to existing upland recreational areas and degrade the recreational experience. This measure
8 would create benches on the outboard side of levees or create setback levees. Where setback levees
9 and associated enhancement activities close access to existing upland areas, associated recreational
10 opportunities such as wildlife viewing and hiking would be reduced. Where habitat enhancement
11 creates new upland areas accessible to recreationists, the opportunities for upland activities would
12 improve. In either case, habitat enhancements would improve the experience of wildlife-dependent
13 upland recreational activities from existing, adjacent recreation areas.

14 CM7 would restore 1,100 acres of riparian habitat in the first 15 years and up to 5,000 acres in the
15 late long-term. Areas chosen for implementation of this measure would be associated with
16 restoration and enhancement activities associated with CM4, CM5, and CM6. By year 40 of
17 implementation, the BDCP would cumulatively restore 5,000 acres of riparian habitat. Restoration of
18 riparian habitat would support fish habitat by increasing the input of organic material and by
19 increasing the extent of shaded riverine aquatic cover. While construction activities and access
20 restrictions associated with this component may temporarily or permanently reduce opportunities
21 for or quality of upland recreational activities, this measure would restore riparian habitat, which
22 would support increased opportunities and improved quality of upland game hunting, wildlife
23 viewing, botanical viewing, nature photography, hiking, walking, picnicking, and sightseeing.

24 Under CM8, 2,000 acres of grassland within CZ 1, CZ 8, and CZ 11 would be restored. Restoration
25 activities for this measure would be associated with tidal habitat restoration under CM4 and
26 agricultural land protection under CM3. Anticipated actions to restore grassland habitat, as
27 appropriate to site-specific conditions, would include, but not be limited to, acquiring lands, in fee
28 title or through conservation easements, with site characteristics that support restoration of high-
29 value grassland, restoring grassland by sowing native species using a variety of techniques, and
30 potentially restoring grazing grassland habitat to modify its vegetation. While earthwork and site
31 preparation of these areas could temporarily degrade recreational access and quality by introducing
32 noise and odors into the setting, restoration of grassland communities would increase opportunities
33 for upland hunting, wildlife viewing, botanical viewing, and nature photography due to
34 improvements to wildlife and native plant habitats. Restoration of natural areas under this measure
35 would also increase opportunities for upland hiking, walking, picnicking, and sightseeing.

36 Under CM9, vernal pool complex in CZ 1, CZ 8, and CZ 11 would be restored to achieve no net loss of
37 this habitat type associated with BDCP covered activities. Anticipated actions to restore vernal pool
38 complex habitat include acquiring lands, in fee-title or through conservation easement, suitable for
39 restoration of vernal pool complex habitat; restoring remnant natural vernal pool and swale
40 topography; restoring and maintaining natural hydrology; restoring and maintaining natural salt
41 and suspended clay concentrations in vernal pool water; significantly reducing or preventing the
42 deposition of substances that increase the fertility of the habitat; controlling the cover of invasive
43 nonnative plant species; adjusting livestock grazing regimes in vernal pool complexes; preventing
44 the introduction of invasive species; and hand collecting seed and vernal pool invertebrates from the
45 vicinity of the vernal pools to be restored as a source for establishment of native species. Activities
46 associated with the implementation of this measure could temporarily limit access to existing

1 recreational opportunities and create noise, detracting from the experience; however, restoration of
2 vernal pool complexes is anticipated to modestly increase opportunities for upland recreation
3 including wildlife viewing, botanical viewing, and nature photography.

4 Under CM10, 1,200 acres of nontidal freshwater marsh within CZ 2 and CZ 4 and/or CZ 5 would be
5 restored by year 40. CM10 actions would be phased with 400 acres restored by year 10, 600 by year
6 20 and the cumulative total of 1,200 acres restored by year 40. Restoration of nontidal freshwater
7 emergent wetland and nontidal perennial aquatic natural communities would provide habitat for
8 giant garter snake, western pond turtle, and other native wildlife and plant species characteristic of
9 this habitat. Restored nontidal wetlands would also be designed and managed to support other
10 native wildlife functions including waterfowl foraging, resting, and brood habitat and shorebird
11 foraging and roosting habitat. Restored habitat would include preserved transitional upland habitat
12 to provide upland habitat for giant garter snakes and western pond turtles and nesting habitat for
13 waterfowl. While construction activities and access restrictions associated with this measure may
14 reduce some upland recreational opportunities and create temporary construction effects from
15 activities producing noise or odors, improvements in wildlife and native plant habitats associated
16 with the measure would increase the quality of upland hunting, wildlife viewing, botanical viewing,
17 and nature photography in and adjacent to restored areas.

18 Implementation of CM11 would provide beneficial effects on recreation opportunities by allowing
19 recreation to occur on approximately 61,000 acres of lands in the BDCP reserve system, consisting
20 of grassland, vernal pool complex, riparian, managed wetland, and aquatic natural community types
21 (see BDCP Chapter 4, Section 4.2.3.9.2 *Recreation*). The reserve system would comprise more than
22 170 miles of trail (25 of which would be new), 4 picnic areas, 15 new trailhead facilities and one
23 updated boating facility, as well as a new boat launch facility within the footprint of the North Delta
24 diversion facilities. This measure is expected to increase upland recreational opportunities by
25 permitting hiking, wildlife viewing, docent-led wildlife and botanical tours, bicycling, and equestrian
26 use, as well as a potential for limited hunting opportunities.

27 Implementing the conservation measures could result in an adverse effect on recreation
28 opportunities by reducing the extent of upland recreation sites and activities available to hiking,
29 nature photography, or other similar activity. However, implementation of the measures would also
30 restore or enhance new potential sites for upland recreation thereby improving the quality of
31 recreational opportunities.

32 **CEQA Conclusion:** Site preparation and earthwork activities associated with a number of
33 conservation measures would temporarily limit opportunities for upland recreational activities
34 where they occur in or near existing recreational areas. Noise, odors, and visual effects of
35 construction activities would also temporarily compromise the quality of upland recreation in and
36 around these areas. Additionally, it is possible that current areas of upland recreation would be
37 converted to wetland or other landforms poorly suited to hiking, nature photography, or other
38 activities. These impacts on upland recreational opportunities would be considered less than
39 significant because the BDCP would include environmental commitments that would require BDCP
40 proponents to consult with CDFW to expand wildlife viewing, angling, and hunting opportunities, as
41 described in Recommendation DP R14 of the Delta Plan (Appendix 3B, *Environmental*
42 *Commitments*). Near-term implementation would also restore or enhance new potential sites for
43 upland recreation and the measure would improve the quality of existing recreational opportunities
44 adjacent to areas modified by the conservation measures. These measures would not be anticipated

1 to result in a substantial long-term disruption of upland recreational activities; thus, this impact is
2 considered less than significant.

3 **Impact REC-12: Compatibility of the Proposed Water Conveyance Facilities and Other**
4 **Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations**
5 **Addressing Recreation Resources**

6 **NEPA Effects:** Constructing the proposed water conveyance facilities (CM1) and implementing CM2–
7 CM21 could result in the potential for incompatibilities with plans and policies related to protecting
8 recreation resources of the Delta. A number of plans and policies that coincide with the study area
9 provide guidance for recreation resource issues as overviewed in *Section 17.2, Regulatory Setting*.
10 This overview of plan and policy compatibility evaluates whether Alternative 4 is compatible or
11 incompatible with such enactments, rather than whether impacts are adverse or not adverse or
12 significant or less than significant. If the incompatibility relates to an applicable plan, policy, or
13 regulation adopted to avoid or mitigate recreation effects, then an incompatibility might be
14 indicative of a related significant or adverse effect under CEQA and NEPA, respectively. Such
15 physical effects of Alternative 4 on recreation resources is addressed in Impacts REC-1 through REC-
16 11, and in other chapters such as Chapter 23, *Noise*, Section 23.4.3.9, and Chapter 17, *Aesthetics and*
17 *Visual Resources*, Section 17.3.3.9. The following is a summary of compatibility evaluations related to
18 recreation resources for plans and policies relevant to the BDCP.

- 19 • The *New Melones Lake Area Final Resource Management Plan, Management Guide for the Shasta*
20 *and Trinity Units of the Whiskeytown-Shasta-Trinity National Recreation Area, General*
21 *Management Plan for the Whiskeytown Unit of the Whiskeytown-Shasta-Trinity National*
22 *Recreation Area, Folsom Lake State Recreation Area General Plan, Lake Oroville State Recreation*
23 *Area Resource Management Plan and General Development Plan, and San Luis Reservoir State*
24 *Recreation Area General Development Plan* all have policies or goals to protect the recreation
25 resources and promote a range of opportunities to visitors to these areas. Construction and
26 operation of the proposed water conveyance facilities and other conservation measures would
27 not affect recreation opportunities in these areas and would be compatible with these plans.
- 28 • The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992 (Delta Protection Act), *Delta*
29 *Protection Commission Land Use and Resource Management Plan for the Primary Zone of the*
30 *Delta, Delta Plan, and Brannan Island and Franks Tract State Recreation Areas General Plan* are
31 all focused on the protection of resources, including recreation resources, within the Delta.
32 These plans have policies, objectives, or goals intended to protect and enhance existing
33 recreation and encourage development of new local and regional opportunities. Constructing
34 the proposed conveyance facilities would result in long term disruption to existing established
35 recreation areas in the study area and change the nature of the recreation setting. The proposed
36 water conveyance elements could be considered incompatible with measures to protect existing
37 recreation opportunities in the study area.
- 38 • The Delta Protection Act, the Delta Protection Commission’s Great California Delta Trail System,
39 and the Great California Delta Trail *Blueprint Report for Contra Costa and Solano Counties* all
40 promote development of a regional trail system providing a continuous regional recreational
41 corridor to provide bikeways and hiking trails. The BDCP proponents would work with these
42 regional and local efforts to design proposed restoration areas to be compatible with and
43 complement the goals of creating a regional trail network and where feasible to adapt
44 restoration proposals to incorporate recreational amenities and opportunities in these areas.

- 1 • Regional plans and those geared toward the management of specific areas, including the *Stone*
2 *Lakes National Wildlife Refuge CCP, Cosumnes River Preserve Management Plan, Brannan Island*
3 *and Franks Tract State Recreation Areas General Plan, Yolo Bypass Wildlife Area Land*
4 *Management Plan, the Yolo County General Plan, Lower Sherman Island Wildlife Area Land*
5 *Management Plan, San Francisco Bay Plan, Suisun Marsh Protection Plan, and Solano County*
6 *General Plan Suisun Marsh Policy Addendum* are primarily designed to preserve and enhance the
7 natural resource and recreation qualities of these areas. Implementing the BDCP alternatives
8 may create disruptions related to facility and restoration improvements. Proposed restoration
9 areas in the Yolo Bypass, on Sherman Island, and in Suisun Marsh would be designed to be
10 compatible with and complement the current management direction for these areas and would
11 be required to adapt restoration proposals to meet current policy established for managing
12 these areas.
- 13 • The BDCP would be constructed and operate in compliance with regulations related to boat
14 navigation jurisdiction, rules, and regulations enforced by local, state (including the [California](#)
15 [Department of Boating and Waterways](#)[California Department of Parks and Recreation's Division](#)
16 [of Boating and Waterways](#)), and federal (including the U.S. Coast Guard) boating law
17 enforcement. The alternative would be compatible with California State Land Commission
18 regulations related to recreational piers or marinas.
- 19 • EBRPD parks within the study area include Browns Island, Antioch/Oakley, and Big Break Parks
20 (East Bay Regional Park District 2012b). Recreation at these parks would not be affected by this
21 alternative.
- 22 • Alternative 4 would result in the construction of permanent and temporary features associated
23 with the proposed water conveyance facility across land governed by the general plans of
24 Sacramento, San Joaquin, Contra Costa, and Alameda Counties. The county general plans all have
25 policies related to the protection of recreation resources and encourage the development of new
26 water-based and land-based recreation opportunities. Sacramento and San Joaquin Counties
27 recognize the Delta as an area of international importance and as a major recreational resource
28 of these counties. Construction activities that disrupt and degrade recreation opportunities in
29 the study area would be incompatible with policies designed to protect recreation resources,
30 including those intended to protect open space and natural areas and those that discourage
31 development of public facilities and infrastructure unless it is related to agriculture, natural
32 resources and open space, and has recreational value.

33 **CEQA Conclusion:** The incompatibilities identified in the analysis indicate the potential for a
34 physical consequence to the environment. The physical effects are discussed in impacts REC-1
35 through REC-11, above and no additional CEQA conclusion is required related to the compatibility of
36 the alternative with relevant plans and polices.

1 15.4 References

2 15.4.1 Printed Communications

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