

3.3.5 Threatened and Endangered Species

This section discusses species listed as threatened or endangered species under the ESA. First, and immediately below, is a list of ESA-related terms used in this section. Section 3.3.5.1 describes SSWD's informal consultation with USFWS and NMFS regarding ESA-listed species. Section 3.3.5.2 describes SSWD's actions to identify threatened and endangered species and their designated Critical Habitats that could potentially be affected by the Proposed Project. In addition, this section includes a life history of each ESA-listed species addressed in this Exhibit E, including: 1) status and critical habitat; 2) discussion of the recovery plan for the species, if one has been issued; 3) current and historical distribution; 4) life history and habitat requirements; 5) stressors and limiting factors, if known; 6) the results of any species-specific relicensing studies performed by SSWD; and 7) known occurrence in the Action Area. Section 3.3.5.2 describes the Environmental Baseline for ESA-listed species under USFWS' jurisdiction (i.e., plant, invertebrate and amphibian species). Section 3.3.5.3 addresses Project effects on ESA-listed species under NMFS' and USFWS' jurisdiction, and cumulative effects on ESA-listed species are discussed in Section 3.3.5.4. Section 3.3.5.5 describes measures recommended by agencies and other interested parties in written comments on SSWD's DLA that were not adopted by SSWD.

SSWD augmented existing, relevant, and reasonably available information regarding ESA-listed species with information from seven studies: 1) Study 2.2, *Water Temperature Modeling*; 2) Study 3.1, *Salmonid Redd Study*; 3) Study 3.2, *Stream Fish Study*; 4) Study 3.3, *Instream Flow Study*; 5) Study 5.1, *ESA-Listed Plants Study*; 6) Study 5.2, *ESA-Listed Wildlife – VELB Study*; and 7) Study 5.3, *ESA Listed Amphibians – California Red-legged Frog Study*. These studies are complete and the information is discussed below or in other sections of this document. All data collected during these studies is provided in Appendix E1.

ESA-related terms used in this section are:

- Action Agency. For the purpose of ESA, FERC is considered the Action Agency.
- Non-Federal Representative. On May 13, 2016, FERC designated SSWD as its non-federal representatives for purposes of informal consultation under Section 7 of the ESA.¹
- Consultation. On May 13, 2016, FERC initiated informal consultation with the USFWS and NMFS.¹
- Proposed Action. For the purpose of ESA, the Proposed Action includes issuance by FERC of a new license to SSWD for the Proposed Project, as described in this Application for New License.
- Action Area. Under ESA, an action area is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 C.F.R. § 402.02). Direct effects are defined as “the direct or immediate effects of the project on the species or its habitat” (USFWS and NMFS 1998). Indirect effects are defined as “those that are caused by the Proposed Action and are later in time, but still are reasonably certain to occur” (50 C.F.R. § 402.02). The downstream extent of the action

¹ FERC Accession Number 20160513-3015

area is defined as the point where effects to river flow and habitat availability associated with the Proposed Action are no longer measurable (NMFS 2012). The Action Area for this Proposed Action is the proposed FERC Project Boundary for ESA-listed plants, insects, and amphibians. The Action Area for this Proposed Action is the confluence of the Bear and Feather rivers when considering ESA-listed anadromous fish and habitats.

- Environmental Baseline. For the purpose of ESA, the Environmental Baseline includes the past and present impacts of all federal, state, or private activities, and other human activities in the action area, as well as the anticipated impacts of all proposed federal projects in the Action Area that have already undergone formal or early ESA Section 7 consultation, and the impacts of state or private actions that are contemporaneous with the consultation in process (50 C.F.R. § 402.02). The Environmental Baseline includes effects attributable to the existence of dams or diversions over which the Action Agency (i.e., FERC) has no discretion, and non-discretionary operations and maintenance. This Environmental Baseline includes the continued operation and maintenance of the non-Project diversion dam, approximately 1-mi downstream of Camp Far West Dam.
- Effects. Under Section 7(a)(2) of the ESA, the federal action agency that permits, licenses, funds, or otherwise authorizes an action must consult with the NMFS and the USFWS, as appropriate, to ensure that the action will not jeopardize the continued existence of any ESA-listed species or adversely modify ESA-designated critical habitat, unless the federal action agency determines the action will have no effect on ESA-listed species (16 U.S.C. § 1536(c)).

Under the aggregate effects assessment approach used in this section, the environmental baseline and the status of the species establish the context for determining the ability of each listed species to withstand additional stressors or the exacerbation of existing stressors that may be caused by the Proposed Action. As the NMFS (1999) policy document states: “[i]f the species’ status is poor and the baseline is degraded at the time of consultation, it is more likely that any additional adverse effects caused by the proposed or continuing action will be significant”. The effects analysis is conducted to assist USFWS and NMFS in determining whether the Proposed Action will cause “...some deterioration in the species' pre-action condition” (National Wildlife Federation v. NMFS, 524 F.3d 917, 930 (9th Cir. 2008). As the court stated in that decision, “...an agency only ‘jeopardize[s]’ a species if it causes some new jeopardy.” (Ibid.) The effects analysis also considers the guidance provided by this Ninth Circuit decision that states “...an agency may not take action that will tip a species from a state of precarious survival into a state of likely extinction. Likewise, even where baseline conditions already jeopardize a species, an agency may not take action that deepens the jeopardy by causing additional harm.” (Ibid.)

If the federal agency determines the action may affect ESA-listed species or designated critical habitat, it is required to prepare a BA for the Section 7 process to determine whether the action is likely to: 1) adversely affect listed species or designated critical habitat; 2) jeopardize the continued existence of species that are proposed for listing;² or 3) adversely modify proposed critical habitat. After reviewing the BA, NMFS or

² “Jeopardize the continued existence of” under the ESA is defined as “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of the species.” (50 C.F.R. § 402.02)

USFWS determines whether formal consultation or a conference is necessary (50 C.F.R. § 402.02, 50 C.F.R. § 402.12).

When a federal action agency determines, through a BA or other review, that its action is not likely to adversely affect a listed species or designated critical habitat, the action agency must request NMFS' or the USFWS', as appropriate, concurrence on its determination. A not likely to adversely affect determination is appropriate and warranted when the action agency concludes that all of the effects of the action on the species and its critical habitat are expected to be "insignificant," "discountable" or "completely beneficial." According to the USFWS' and NMFS' Endangered Species Consultation Handbook, Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act (USFWS and NMFS 1998):

[i]nsignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.

Further, page 4-32 of the ESA Consultation Handbook states that:

The Services can evaluate only the Federal action proposed, not the action as the Services would like to see that action modified.

If NMFS or USFWS, as appropriate, does not concur with the action agency's determination of "not likely to adversely effect," the action agency must request formal consultation or a conference. Similarly, when the action agency determines, through a BA or other review, that its action is "likely to adversely affect" a listed species or designated critical habitat, the action agency must submit a request for formal consultation to the NMFS or the USFWS, as appropriate.

There is a designated 90-day period for formal consultation to take place and, after that, another 45-day period for NMFS or USFWS, as appropriate, to prepare a biological opinion (i.e., a BO, also referred to at times as a BiOp). The ESA does not allow extension of the consultation period beyond 150 days without the applicant's³ consent (16 U.S.C. § 1536(b)(1)(B)).

The BO presents NMFS' or USFWS', as appropriate, determination as to whether or not the proposed action would be likely to jeopardize the species or adversely modify its critical habitat. If NMFS or USFWS, as appropriate, issues either a no jeopardy opinion or a jeopardy opinion that contains Reasonable and Prudent Alternatives (RPA), the BO may include an incidental take⁴ statement. NMFS or USFWS, as appropriate, must anticipate the quantity of take that may result from the action and authorize such take with a statement that the ESA-listed species described in the incidental take statement will not be jeopardized. The incidental take statement must contain clear terms and

³ For this Project, the "applicant" is SSWD. For consultation regarding the DEIS or BA, the "applicant" is FERC.

⁴ "Take" is defined under the ESA to mean "harass, harm, pursue, hunt, shoot would, kill, trap, capture or collect, or attempt to engage in any such conduct." (16 U.S.C. § 1532). "Harm" in the definition of "take" as used in the ESA means an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering (16 U.S.C. § 222.102).

conditions designed to reduce the effect of the anticipated take; these terms are binding on the action agency.

- Cumulative Effects. Cumulative effects are defined by federal regulations as “...those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation” (50 C.F.R. §402.02). Cumulative effects must be considered in the analysis of the effects of the Proposed Action (50 C.F.R. §402.12(f)(4)).
- Interrelated and Interdependent Actions. Interrelated actions are actions that are part of a larger action and depend on the larger action for their justification. Interdependent actions are actions having no independent utility apart from the proposed action. (50 C.F.R. § 402.02.) If a particular activity would not occur “*but for*” the occurrence of the proposed federal action, the effects of that action are interdependent and interrelated to the federal action, and the effects of that action are attributable to the federal action for consultation purposes. To the contrary, activities that would occur anyway, with or without the occurrence of the federal action at issue, are not interdependent or interrelated to the proposed federal action. The ESA Consultation Handbook (USFWS and NMFS 1998) further clarifies that if a project would exist independently of a proposed action, it cannot be considered “*interrelated*” or “*interdependent*,” even if the proposed action is required to bring the existing facility into compliance with federal law. SSWD would continue to utilize Camp Far West Reservoir and dam to provide water storage and irrigation deliveries if there was no hydroelectric generation, so those activities and the existence of those facilities are independent of the Proposed Action.

3.3.5.1 Informal Consultation with USFWS and NMFS

Beginning in early 2008, over 10 months prior to filing its NOI and PAD, SSWD began to meet with Relicensing Participants to familiarize them with the Project and its operations, discuss process, identify issues, and, most importantly, to collaboratively develop study proposals, including for species listed as threatened and endangered under the ESA. Since that time, SSWD has held numerous meetings to discuss process and study methods and results. USFWS and NMFS were each specifically notified of and invited to each meeting, and both agencies have participated in some of the meetings during which ESA related items were discussed. NMFS indicated it views such meetings as “technical advisory meetings.”

The following provides a summary of SSWD’s informal consultation with NMFS and USFWS regarding ESA-listed species.

- Pre-Initiation of Informal Consultation under Section 7 of ESA
 - May 7, 2015. SSWD mailed to NMFS a PAD information questionnaire requesting existing, relevant and reasonably available information in NMFS’s possession regarding the Project and potentially affected resources.
 - May 13, 2015. SSWD mailed to USFWS a PAD information questionnaire requesting existing, relevant and reasonably available information in NMFS’s possession regarding the Project and potentially affected resources.
 - March 13, 2016. SSWD filed with FERC and distributed to NMFS and USFWS its

- NOI and PAD. The PAD described existing, relevant and reasonably available information regarding ESA-listed species and other potentially affected resources.
- Post-Initiation of Informal Consultation under Section 7 of ESA
 - May 13, 2016. FERC initiated informal consultation with the USFWS and NMFS under Section 7 of ESA, and designated SSWD as its non-federal representatives for purposes of informal consultation under Section 7.
 - June 27, 2016. SSWD hosted a Project site visit. All agencies were invited. USFWS participated.
 - June 27, 2016. SSWD held a joint agency and public meeting to provide agencies, Indian tribes and members of the public an opportunity to discuss the information in the PAD, discuss data and studies to be developed by SSWD, and express their views regarding resource issues that should be addressed in SSWD's application for new license. Both USFWS and NMFS participated.
 - August 25, 2016. USFWS requested a 60-day extension from the NOI/PAD comment filing deadline of August 27, 2016. FERC and SSWD agreed with the extension.
 - August 25, 2016. NMFS filed with FERC comments on SSWD's PAD, including SSWD's proposed studies. With regards to ESA-listed species under NMFS's jurisdiction, NMFS requested that SSWD add sturgeon spp. to the list of species that could potentially occur in the Action Area and that SSWD address green sturgeon in its application. Further, NMFS requested that SSWD conduct two new studies: one related to fluvial processes and channel morphology for anadromous fishes and one related to exploring the feasibility of new coldwater delivery systems for anadromous fishes.
 - September 7, 2016. USFWS filed with FERC comments on SSWD's PAD, including SSWD's proposed studies. With regards to ESA-listed species under USFWS's jurisdiction, USFWS requested that SSWD add CRLF to the list of species that could potentially occur in the Action Area, and recommended an alternative CRLF study to the one proposed by SSWD.
 - October 12, 2016. SSWD filed with FERC a letter that provided: 1) SSWD's rationale for adopting, adopting with modification, or not adopting requested study modifications and new studies; and 2) detailed plans for each of the 14 studies that SSWD now proposed to conduct.
 - November 21, 2016. To resolve any remaining disagreements on studies, SSWD invited NMFS, USFWS and other agencies, and NGOs to meet. USFWS participated. At the conclusion of the meeting, SSWD agreed to modify its October 12, 2016, study plans. SSWD understood that these agreements resolved any outstanding study disagreements with those parties, including USFWS that attend the November 21 meeting.
 - December 20, 2016. NMFS filed a letter with FERC commenting on SSWD's October 12, 2016, letter and requesting a meeting with FERC *"to discuss ESA consultation procedures including developing a shared understanding of the*

environmental baseline, including related structures such as CFW diversion dam in the analysis of the Project's effects."

- January 9, 2017. SSWD commented on NMFS's letter stating it would be pleased to meet with NMFS at its convenience.
- January 9, 2017. SSWD filed a letter with FERC with each of the 16 study plans, including those agreed to at the November 21, 2016 meeting, and advised FERC that SSWD was undertaking these studies to support the relicensing. Each study plan is posted on SSWD's Camp Far West Relicensing Website at www.sswdrelicensing.com. The studies included: 1) 2.1, Water Temperature Monitoring; 2) 2.2, Water Temperature Modeling; 3) 2.3, Water Quality; 4) 3.1, Salmonid Redd; 5) 3.2, Stream Fish Populations; 6) 3.3, Instream Flow; 7) 3.4, Benthic Macroinvertebrates; 8) 4.1, Special-status Plants and Non-native Invasive Plants; 9) 4.2, Special-status Wildlife – Raptors; 10) 4.3, Special-status Wildlife – Bats; 11) 5.1, ESA-listed Plants; 12) 5.2, ESA-listed Wildlife – Valley Elderberry Longhorn Beetle; 13) 5.3, ESA-listed Amphibians – California Red-legged Frog; 14) 6.1, Recreation Use and Visitor Survey Study; 15) 10.1, Cultural Resources; and 16) 11.1, Tribal Interests.
- January 24, 2017. FERC responded to NMFS's letter stating that FERC does not participate in pre-filing activities under the TLP, and that NMFS may file a formal dispute regarding SSWD's proposed studies if NMFS "sees fit to do so." NMFS did not file a formal dispute.
- 2017 and 2018. SSWD conducted the relicensing studies. Beginning in April 2018, SSWD made the data and results from the relicensing studies available on SSWD's relicensing website. As new study results became available, SSWD alerted NMFS, USFWS, other agencies and other interested parties of the new information via email.
- June 5, July 16, July 23, September 20, October 18, and November 15, 2018. SSWD met with agencies and other interested parties to discuss relicensing study results, Project operations, water temperature and instream flow models, and lower Bear River aquatic resources. USFWS participated in most of the meetings; NMFS participated in only the September 20 meeting.
- August 16 and November 9, 2018. SSWD met with agencies and other interested parties to discuss vegetation management, wildlife, and recreation. USFWS participated in the meetings.
- December 31, 2018. SSWD distributed its draft Application for New License to USFWS, NMFS, and other agencies for review and comment.
- January 8, 2019. SSWD met with agencies and other interested parties to discuss flow-related and other PM&E measures for inclusion in SSWD's FLA. USFWS participated in the meeting.
- January 25, 2019. SSWD met with agencies and other interested parties to discuss flow-related and other PM&E measures for inclusion in SSWD's FLA. USFWS participated in the meeting.

- February 12, 2019. SSWD met with agencies and other interested parties to discuss flow-related and other PM&E measures for inclusion in SSWD's FLA. USFWS participated in the meeting.
- March 1, 2019. SSWD met with agencies and other interested parties to discuss flow-related and other PM&E measures for inclusion in SSWD's FLA. USFWS participated in the meeting.
- March 12, 2019. SSWD met with agencies and other interested parties to discuss flow-related and other PM&E measures for inclusion in SSWD's FLA. USFWS participated in the meeting.
- April 26, 2019. SSWD met with agencies and other interested parties to discuss flow-related and other PM&E measures for inclusion in SSWD's FLA. USFWS participated in the meeting.
- May 6, 2019. SSWD met with agencies and other interested parties to discuss flow-related and other PM&E measures for inclusion in SSWD's FLA. USFWS and NMFS participated in the meeting.
- May 13, 2019. SSWD met with agencies and other interested parties to resolve written comments on SSWD's DLA. USFWS and NMFS participated in the meeting.
- May 24, 2019. SSWD met with agencies and other interested parties to discuss flow-related and other PM&E measures for inclusion in SSWD's FLA. USFWS participated in the meeting.
- June 4, 2019. SSWD met with agencies and other interested parties to discuss flow-related and other PM&E measures for inclusion in SSWD's FLA. USFWS participated in the meeting.

3.3.5.2 ESA-listed Species and Critical Habitats Considered

3.3.5.2.1 Screening for Potentially-Affected ESA-listed Species

On August 25, 2015, SSWD generated a list of ESA-listed species by using USFWS' on-line IPaC (USFWS 2015). The IPaC query included a user-defined polygon that encompassed the existing FERC Project Boundary plus the reach of the Bear River that extends from Camp Far West Dam downstream to the Feather River confluence, and a 1-mi wide buffer around this entire area.

The resulting list included 11 species, with two listed as endangered and nine listed as threatened under ESA: four invertebrates; one amphibian; one reptile; four fishes; and one bird. These were:

- Endangered:
 - Conservancy fairy shrimp (*Branchinecta conservatio*)
 - Vernal pool tadpole shrimp (*Lepidurus packardii*) and Critical Habitat

- Threatened:
 - Vernal pool fairy shrimp (*Branchinecta lynchi*) and Critical Habitat
 - California red-legged frog (*Rana draytonii*) and Critical Habitat
 - Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), Western U.S. Distinct Population Segment (DPS)
 - Steelhead (*Oncorhynchus mykiss*), California Central Valley (CV) DPS and Critical Habitat
 - Delta smelt (*Hypomesus transpacificus*)
 - Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
 - Giant garter snake (*Thamnophis gigas*)
 - Chinook salmon (*O. tshawytscha*), CV spring-run Evolutionarily Significant Unit (ESU) and Critical Habitat.
 - Green sturgeon (*Acipenser medirostris*), North American Southern DPS

No candidate species or species proposed for listing were identified in this query result. An updated IPaC review on March 1, 2018, and on April 30, 2019, generated no additional species to the list (Attachment 3.3.5A).

Following its IPaC query, SSWD searched several additional sources to identify other ESA-listed species that are known or have the potential to occur within the Project Vicinity. For fish and wildlife, the information sources included CDFW's California Natural Diversity Database (CNDDDB, CDFW 2018a), the California Wildlife Habitat Relationships (CWHR, CDFW 2014), Camp Far West Biological Assessment (Sycamore Environmental 2013) and NMFS' and USFWS' recovery plans. For plants, CNPS' Inventory of Rare Plants (CNPS 2018) was also queried for the Project Vicinity plus an additional buffer of one USGS quadrangle. SSWD also searched for and reviewed relevant and readily available reports (e.g., BAs, EIRs and EISs) and Critical Habitat designations that pertain to the Project Vicinity.

These additional searched identified four ESA-listed plant species with the potential to occur in the Project Vicinity. These are:

- Endangered:
 - Hartweg's golden sunburst (*Pseudobahia bahiifolia*)
 - Pine Hill flannelbush (*Fremontodendron decumbens*)
 - Stebbins' morning-glory (*Calystegia stebbinsii*)
- Threatened:
 - Layne's ragwort (*Packera layneae*)

No candidate species or species proposed for listing were identified in this additional search.

SSWD eliminated 7 of the 15 species from further analysis. These species and the rationale for exclusion are described below.

- Delta smelt
- Pine Hill flannelbush
- Stebbins' morning-glory
- Layne's ragwort
- Conservancy fairy shrimp
- Giant garter snake
- Western yellow-billed cuckoo

SSWD eliminated from further consideration the Delta smelt because this species does not occur in or near the Project Vicinity. The species is endemic to the Sacramento-San Joaquin estuary and historically was documented to only occur in the Sacramento River upstream to the vicinity of Knights Landing (USFWS 2016).

Due to the soil characteristics of the Project site, SSWD eliminated from further consideration Pine Hill flannelbush, Stebbins' morning-glory and Layne's ragwort due to the complete lack of required clay, gabbro, or serpentine soils for these species. Additionally, Layne's ragwort is found at elevations of approximately 1,000 ft and above (Jepson Interchange 2018), while the Project's maximum elevation is 320 ft. The nearest known population of Stebbins' morning-glory to the Project is 11 mi away. The nearest known population of Pine Hill flannelbush and Layne's ragwort are more than 20 mi away from the Project (CDFW 2018a).

Effects on Conservancy fairy shrimp were not analyzed due to the lack of playa-like large vernal pools, which are their sole known habitat, within the Proposed Project Boundary.

Effects on giant garter snake were not analyzed because the Project is outside the known range for this species, as defined by the recovery units outlined in the USFWS' (2017a) *Recovery Plan for the Giant Garter Snake (Thamnophis gigas)*.

Finally, the western yellow-billed cuckoo was not analyzed because the Project is located approximately 10 mi east of the USFWS' defined range for this species (USFWS 2018a).

Based on SSWD's searches, a total of eight species, two endangered and six threatened, could potentially be affected by the Proposed Action. No candidate or proposed for listing species are potentially affected. Table 3.3.5-1 describes for each of these ESA-listed species: 1) a description of the species' habitat requirements; 2) known or potential occurrences in the Project Vicinity; and 3) references to any recovery plans or status reports pertaining to that species.

Table 3.3.5-1. ESA-Listed species occurring or potentially occurring in the Project Vicinity.

| Common Name (Scientific Name) | Suitable Habitat Type | Known or Potential Occurrence in Project Vicinity | Status ¹ | Status Reports and Recovery Plans Relevant to Project Vicinity |
|---|--|--|-----------------------|--|
| PLANTS | | | | |
| Hartweg's golden sunburst (<i>Pseudobahia bahiiifolia</i>) | Valley and foothill grassland, cismontane woodland (CNPS 2018). | Present in quads (Knights Ferry and Yuba City) adjacent to the Project Vicinity, (CNPS 2018). | FE, SE & CRPR 1B.1 | None |
| INVERTEBRATES | | | | |
| Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>) | Occurs only in the Central Valley and adjacent foothills up to 3,000 ft elevation in association with blue elderberry (<i>Sambucus</i> spp.) (USFWS 2017b). | Fourteen occurrences found on CNDDB near Project Vicinity; four occurrences within Sheridan quad, seven within the Browns Valley quad, two in Lake Combie quad, and one in Wheatland quad (CDFW 2018a). | FT | Recovery Plan (USFWS 1984) |
| Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>) | Endemic to grasslands of the Central Valley, Central Coast Mountains, and South Coast Mountains, in rain-filled pools (CDFW 2014). | Reported on the USFWS IPaC Trust Report (USFWS 2018b) | FT | Recovery Plan (USFWS 2005a) |
| Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) | Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water (CDFW 2014). | Reported on the USFWS IPaC Trust Report (USFWS 2018b) | FE | Recovery Plan (USFWS 2005a) |
| AMPHIBIANS | | | | |
| California red-legged frog (<i>Rana draytonii</i>) | Suitable habitat is located in deep (>0.7 m), still or slow- moving water within dense, shrubby riparian and upland habitats (Jennings and Hayes 1994). | Reported on the USFWS IPaC Trust Report (USFWS 2018b) | FT | Recovery Plan (USFWS 2002) |
| FISH | | | | |
| Steelhead, California Central Valley DPS (<i>Oncorhynchus mykiss</i>) | Spawning occurs within the Sacramento and San Joaquin rivers and their tributaries (NatureServe 2017). Habitat conditions are not suitable to support a self-sustaining population in the Bear River; intermittent spawning may occur during high flow years (NMFS 2014). | Reported on the USFWS IPaC Trust Report (USFWS 2018b). Critical Habitat designated in lower Bear River up to the Camp Far West Diversion Dam (70 FR 52488) | FT | Status Report (Busby et al. 1996; Good et al. 2005; NMFS 1997, 1998) Restoration and Management Plan (CDFG 1991, 1993; 1996a) Recovery Plan (NMFS 2014) |
| Chinook salmon, Central Valley spring- run ESU (<i>Oncorhynchus tshawytscha</i>) | Spawning occurs within the Sacramento River and its tributaries. Habitat conditions in the Bear River are not suitable for Chinook salmon spawning (PFMC 2014). | Occurs in the Feather River. Critical Habitat designated in the lower ~5 mi of the Bear River for intermittent non- natal juvenile rearing (70 FR 52488). | FT & ST | Status Report (CDFG 1996b, 1998; Good et al. 2005; NMFS 1999) Restoration and Management Plan (CDFG 1991, 1993) Recovery Plan (NMFS 2014) |

Table 3.3.5-1. (continued)

| Common Name (Scientific Name) | Suitable Habitat Type | Known or Potential Occurrence in Project Vicinity | Status ¹ | Status Reports and Recovery Plans Relevant to Project Vicinity |
|---|--|--|---------------------|--|
| Green sturgeon, North American Southern DPS (<i>Acipenser medirostris</i>) | The Sacramento and Feather rivers currently host the only known spawning populations of the Southern DPS of North American green sturgeon (Poytress et al. 2010; Seesholtz et al. 2014). | NMFS (2009a) designated the lower Feather River critical habitat for the Southern DPS of North American green sturgeon. USFWS (1995) and Beamesderfer et al. (2004) state that green sturgeon have been recorded in the Bear River. | FT & ST | Recovery Plan (NMFS 2018) Status Report (NMFS 2015) |

¹ Status Codes:

- CRPR California Rare Plant Rank; 1B: Species considered rare, threatened or endangered in California and elsewhere.
- I: Species seriously threatened in California
- FE Endangered: Any species that is in danger of extinction throughout all or a significant portion of its range.
- FT Threatened: Any species likely to become endangered within the near future.
- SE Endangered: Listed as endangered under CESA.
- ST Threatened: Listed as threatened under CESA.

As shown in Table 3.2.5-1, two of the ESA-listed species are also listed under the CESA: Hartweg's golden sunburst (SE); and CV spring-run Chinook salmon ESU (ST).

3.3.5.2.2 ESA Listed Species Life Histories

Hartweg's Golden Sunburst (FE)

Status and Critical Habitat

On February 6, 1997, USFWS listed Hartweg's golden sunburst as an endangered species under the ESA (62 FR 5542). No Critical Habitat has been designated for this species.

Recovery Plan

No Recovery Plan for Hartweg's golden sunburst has been developed. On May 27, 2011, USFWS began a 5-year review of this species, which has not been completed (USFWS 2018c).

Current and Historical Distribution

This species is found only in the Central Valley of California, though the historic range may have gone from Yuba County south to Fresno County. However, the species was always restricted to local abundance. All of the 19 known remaining populations are located in the Friant region of Fresno and Madera counties and the La Grange region in Stanislaus County (USFWS 2010).

Life History and Habitat Requirements

Hartweg's golden sunburst is an annual herb (i.e. plant surviving for just one growing season) of the aster family. It is a small plant of about 2 to 8 in tall with linear leaves. Like many other asters, it has a sunflower-like flower head with yellow ray and disk flowers (Baldwin et. al 2012).

Hartweg's golden sunburst grows on grasslands, but almost always on the north/northeast side of Mima mounds, mounds of earth roughly 1 to 6 ft high and 10 to 100 ft in diameter at the base,

interspersed with basins that may pond water in the rainy season. Soils are primarily shallow, well-drained, fine-textured soils (USFWS 2010).

Stressors and Limiting Factors

USFWS reports the primary threat to Hartweg's golden sunburst is the conversion of natural habitat to residential and agricultural development (62 FR 5542). In addition, the majority of occurrences are located on private lands where they receive little protection.

SSWD's Relicensing Study

SSWD conducted the *ESA-listed Plants Study* within a designated study area inside the existing FERC project Boundary, including background literature reviews, desktop analyses, and field investigations. The study area consisted of four specific areas: 1) the North Shore Recreation Area (NSRA); 2) the South Shore Recreation Area (SSRA); 3) the Camp Far West Dam and associated dikes and Spillway; and 4) the Camp Far West Powerhouse, for a total of 505 ac. These are the areas where SSWD's Project O&M activities or Project-related recreation have a potential to effect ESA-listed plant species if the species occurs there.

This study was conducted in conjunction with SSWD's *Special-Status Plants and Non-Native Invasive Plant Study*, and *ESA-Listed Wildlife – Valley Elderberry Longhorn Beetle Study*. Additional information describing Valley Elderberry Longhorn beetle surveys and results is provided below in Section 3.3.5.2.2.

Field surveys were conducted from April 2017 through July 2017. Survey timing was planned based on known bloom times and herbarium collection dates. SSWD's surveyors conducted special-status plant surveys and NNIP surveys as outlined in the "Botanical Survey" section of the CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009). Surveys were comprehensive over the entire study area, except for areas deemed to be unsafe (e.g., due to steep, unstable terrain) by the field team, using systematic field techniques to ensure thorough coverage, with additional efforts focused in habitats with a higher probability of supporting special-status plants (e.g., serpentine outcrops) and NNIP. Surveys were floristic in nature, documenting all species observed; taxonomy and nomenclature were based on *The Jepson Manual* (Baldwin et al. 2012).

Although 206 plant species were identified during floristic surveys (see Attachment 3.3.4A), no occurrences of Hartweg's golden sunburst were located.

Known Occurrences in Action Area

Hartweg's golden sunburst was not found in the Action Area during SSWD's studies, and SSWD is unaware of any recorded occurrence in the Action Area. Critical Habitat does not occur in the Action Area. No potential habitat (i.e., Mima mounds) for Hartweg's golden sunburst was observed during SSWD's relicensing surveys.

Valley Elderberry Longhorn Beetle (FT)

Status and Critical Habitat

On August 8, 1980, USFWS listed Valley Elderberry Longhorn Beetle (VELB) as a threatened species (45 FR 52803). On February 14, 2007, the USFWS completed a 5-year review, which

resulted in USFWS' recommendation that the species be de-listed. In October of 2012, USFWS began the process of reviewing the de-listing proposal, but it was withdrawn in September 2014 (USFWS 2018d).

Critical Habitat has been designated for the species, including the American River Parkway and Sacramento zones. The Project is outside of the Critical Habitat zones designated by USFWS, but portions of the Project fall within the potential range of the beetle (45 FR 52803). According to the USFWS Critical Habitat Mapper, the closest Critical Habitat designation lies 29.2 mi south of Camp Far West Reservoir along the American River (USFWS 2018d).

Recovery Plan

The USFWS issued a VELB Recovery Plan on August 28, 1984 (USFWS 1984). In 2017, USFWS published the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*) (USFWS 2017b). There is nothing specific in the VELB Recovery Plan (USFWS 1984) relating to the Project or the lower Bear River.

Current and Historical Distribution

VELB is one of two subspecies of *Desmocerus californicus*. The other subspecies, the California elderberry longhorn beetle (*Desmocerus californicus californicus*), is found primarily in coastal areas from Mendocino County to San Diego County and in the southern Sierra Nevada range. The range of the VELB extends throughout California's Central Valley from the valley floor to the lower foothills. Most of the recorded occurrences occur in suitable habitat below 500 ft in elevation. Historically, VELB ranged wherever the host plant, elderberry (*Sambucus* spp.), were present in Central valley riparian areas and some uplands (USFWS 2017b).

In the CNDDDB search, VELB was found near the Project Vicinity in the Sheridan, Browns Valley, Lake Combie, and Wheatland quad. The nearest occurrence is approximately 10 mi southwest along the Bear River, downstream of Camp Far West Dam (CDFW 2018a).

Life History and Habitat Requirements

The VELB is dependent on its host plant, elderberry plants, which is a common component of riparian corridors and adjacent upland areas in the Central Valley (USFWS 2017b). There are four stages of this species' life: egg, larva, pupa and adult. Females deposit eggs on or adjacent to the host elderberry. Egg production varies, and females have been observed to lay between 16 and 180 eggs. Eggs hatch within a few days of being deposited and larvae emerge. The larvae bore into the wood of the host plant and create a long feeding gallery in the pith of the elderberry stem. The larvae feed on the pith of the plant for 1 to 2 years. When a larva is ready to pupate, it chews an exit hole to the outside of the stem and then plugs it with frass.⁵ The larva then retreats into the feeding gallery and constructs a pupal chamber from wood and frass. The larvae metamorphose between December and April; the pupal stage lasts about a month. The adult remains in the chamber for several weeks after metamorphous, and then emerges from the chamber through the exit hole (USFWS 2018d).

⁵ Frass is the debris or excrement produced by the insect.

Adults generally emerge from late-March through June and are short-lived; however, most records for adults occur from late-April to mid-May. Adults feed on elderberry leaves and mate within the canopy (USFWS 2018d).

Stressors and Limiting Factors

The USFWS considers VELB, although wide-ranging, to be in long-term decline due to human activities that have resulted in widespread alteration and fragmentation of riparian habitats, and to a lesser extent, upland habitats, which support the beetle. The primary threats to the survival of the beetle include:

- Loss and alteration of habitat by agricultural conversion
- Overgrazing
- Levee construction
- Stream and river channelization
- Removal of riparian vegetation
- Rip-rapping of shoreline
- Non-native animals, such as the Argentine ant (*Linepithema humile*), which may eat the early phases of the beetle
- Recreational, industrial and urban development
- Non-native or invasive plant species, such as giant reed (*Arundo donax*), Himalayan blackberry (*Rubus armeniacus*), and fig (*Ficus carica*), may also negatively affect the health and vigor of the host plant for VELB

Indiscriminant insecticide and herbicide use in agricultural areas and along road rights-of-way may also be factors limiting the beetle's distribution. The age and quality of individual elderberry shrubs/trees and stands may also be a factor in its limited distribution because elderberry leaves and flowers are also the beetle's only food source (USFWS 2018d).

SSWD's Relicensing Studies

SSWD conducted the *ESA-Listed Wildlife – Valley Elderberry Longhorn Beetle Study* within a designated study area inside the existing FERC project Boundary, including background literature reviews, desktop analyses, and field investigations. The study area consisted of four specific areas: 1) the NSRA; 2) the SSRA; 3) the Camp Far West Dam and associated dikes and Spillway; and 4) the Camp Far West Dam Powerhouse, for a total of 505 ac. These are the areas where SSWD's Project O&M activities or Project-related recreation could affect ESA-listed plant species. The study was conducted in conjunction with SSWD's *Special-Status Plants and Non-Native Invasive Plant Study* and *ESA-Listed Plants Study*. The 5-ft band around the reservoir (i.e., elevation 300 ft to 305 ft) that would be impacted by the Pool Raise was surveyed for elderberry and VELB indicators in 2013, so the majority of those areas were not resurveyed (Sycamore Environmental 2013).

Before starting field surveys, SWWD found there were no known occurrences of VELB or elderberry shrubs, other than those recorded by Sycamore Environmental, within the study area. Field surveys were conducted from April 2017 through July 2017. Survey timing was planned based on known bloom times and herbarium collection dates. SWWD's surveyors conducted special-status plant surveys and NNIP surveys as outlined in the "Botanical Survey" section of the CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009). Surveys were comprehensive over the entire study area, except for areas deemed to be unsafe (e.g., due to steep, unstable terrain) by the field team, using systematic field techniques to ensure thorough coverage, with additional efforts focused in habitats with a higher probability of supporting special-status plants (e.g., serpentine outcrops) and NNIP. Surveys were floristic in nature, documenting all species observed; taxonomy and nomenclature were based on *The Jepson Manual* (Baldwin et al. 2012).

One elderberry shrub with two stems greater than one inch in diameter at ground height was identified during surveys in the area east of the dam face, on the shore of the reservoir (Figure 3.3.5-1). The largest stem was 15.2 in. at ground height, while the other was 1.8 in. at ground height. No VELB-sized exit holes were observed on the stems of the shrub, although there were holes in the stems (CDFW 2002). No VELB were observed at the time of the survey. A non-Project building is located approximately 20 ft upslope from the elderberry shrub. There was evidence of recreation in the area of the elderberry shrub, including pedestrian trails and litter. Recreationists were observed during relicensing studies fishing in the area. No Project O&M is conducted in the vicinity of the shrubs.

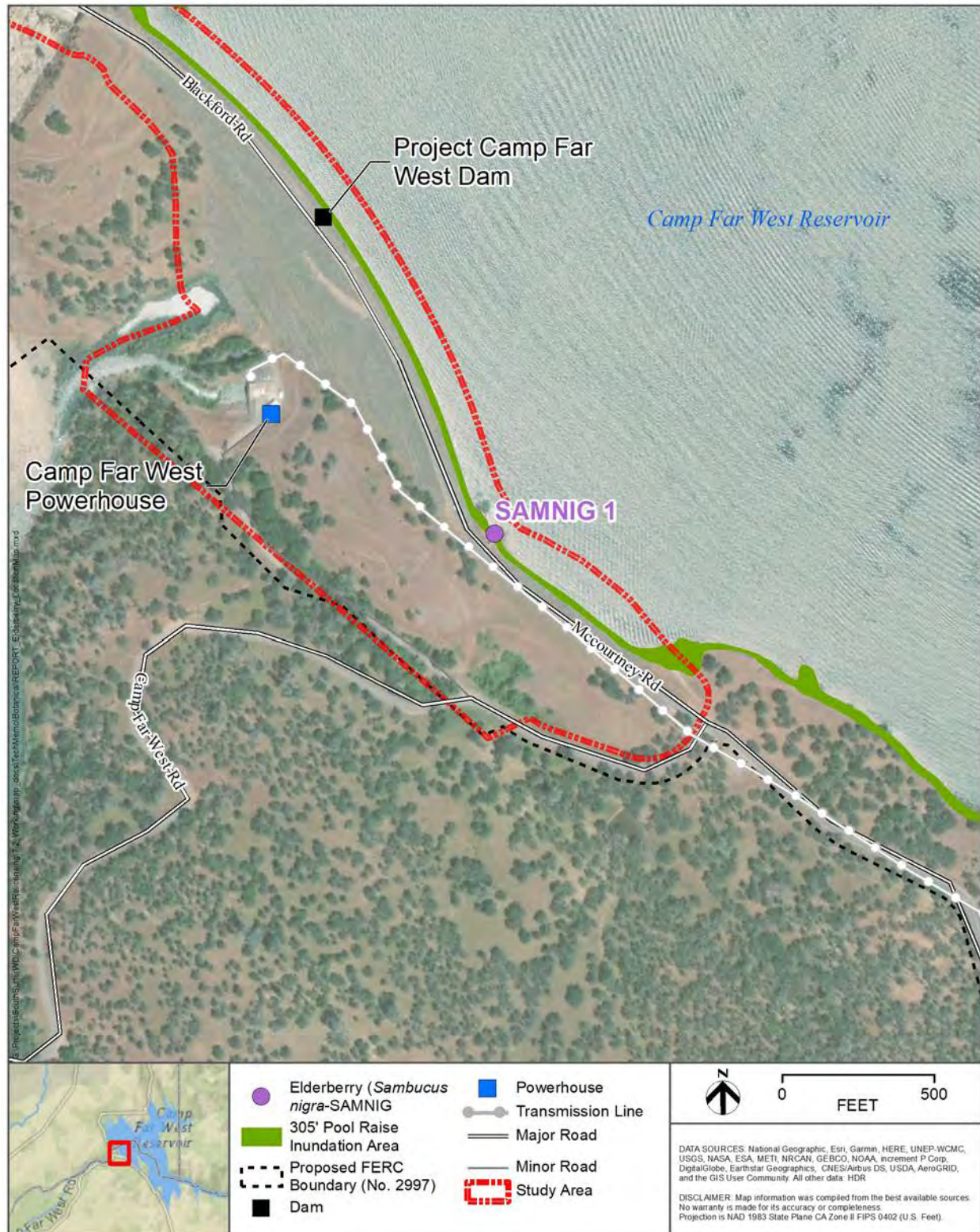


Figure 3.3.5-1. Location of elderberry occurrence within the study area.

Known Occurrences in Action Area

As described above, one elderberry shrub, with holes, was found in the Action Area during SSWD's relicensing studies. Additionally, two elderberry shrubs (EB 1 & EB2) were observed around the section of the reservoir that will be inundated by the Pool Raise (Sycamore Environmental 2013). Both elderberry shrubs were located in upland vegetative communities near the margin of the Camp Far West Reservoir. Both shrubs are not considered riparian as they historically would have been far above the Bear River and currently do not occur within a riparian community. No exit holes were observed on either shrub. According to the BA, EB2 will not be affected by Project activities, but EB1 is expected to be seasonally inundated by the Project (Sycamore Environmental 2013). Critical Habitat for VELB does not occur in the Action Area. SSWD is unaware of any historical records of VELB or elderberry plant in the Action Area.

Vernal Pool Fairy Shrimp (FT) and Vernal Pool Tadpole Shrimp (FE)

Status and Critical Habitat

Vernal pool fairy shrimp and vernal pool tadpole shrimp were listed under the ESA on September 19, 1994 (59 FR 48136).

Critical Habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp, along with other vernal pool species, was originally designated in a final rule on August 6, 2003 (68 FR 46684). The revised final rule for Critical Habitat was published on February 10, 2006, providing 35 Critical Habitat units for the vernal pool fairy shrimp, totaling 597,821 acres, and 18 Critical Habitat units for the vernal pool tadpole shrimp, totaling 228,785 acres (71 FR 7118). The closest units to the Project are approximately 4.3 mi away, just outside of Lincoln's Regional Airport for vernal pool fairy shrimp only, and 7.5 mi away, just outside of Beale Air Force Base for both species (USFWS 2018e).

Recovery Plan

The USFWS issued a Draft Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon in October 2004; the recovery plan was finalized on December 15, 2005 (USFWS 2005a). One of the objectives of the recovery plan is to delist the vernal pool fairy shrimp and vernal pool tadpole shrimp, primarily through habitat protection. Core areas of vernal pools were identified, including in Southwestern Sacramento Valley. These areas coincide with Critical Habitat for both species, with the closest core area to the Project approximately 4.3 mi away, just outside of Lincoln's Regional Airport. There is nothing specified for Project or the lower Bear River in the recovery plan (USFWS 2005a).

A 5-year review, initiated in 2006, concluded with a recommendation of no status change for vernal pool fairy shrimp or vernal pool tadpole shrimp (73 FR 11945). Another 5-year review was initiated on May 25, 2011 (76 FR 30377).

Current and Historical Distribution

The vernal pool fairy shrimp occurs in California from Shasta County south to Tulare County and in Jackson County, Oregon. Most of the known occurrences are on the eastern side of the Central Valley and in the central Coast Ranges, with disjunct populations in San Luis Obispo County, Santa Barbara County and Riverside County, California, and southern Oregon (Eng et

al. 1990, Eriksen and Belk 1999). Although the species has a wide geographic range, populations are usually small. Extensive conversion of natural habitats for agriculture, urban development, landfills, and water supply/flood control projects has substantially diminished and fragmented the historical range. The long-term viability of populations may be associated with vernal pool complexes where there are suitable pools under different climatic conditions. The current distribution of the species includes small or isolated populations that are probably not viable (USFWS 2005a).

The vernal pool tadpole shrimp is currently distributed across the Central Valley of California and in the San Francisco Bay area. The species' distribution has been greatly reduced from historical times, as a result of widespread destruction and degradation of its vernal pool habitat. Vernal pool habitats in the Central Valley now represent only about 25 percent of their former area and remaining habitats are considerably more fragmented and isolated than during historical times (Holland 1998). Vernal pool tadpole shrimp are uncommon even where vernal pool habitats occur. Helm (1998) found vernal pool tadpole shrimp in only 17 percent of vernal pools sampled across 27 counties, and Sugnet (1993) found this species at only 11 percent of 3,092 locations.

In the Northwestern Sacramento Vernal Pool Region, vernal pool tadpole shrimp are found at the Stillwater Plains and in the vicinity of the City of Redding in Shasta County (USFWS 2005a).

In the Northeastern Sacramento Vernal Pool Region, vernal pool tadpole shrimp have been documented on private land in the vicinity of Chico in Butte County. They have also been documented in Tehama County at the Vina Plains Preserve, the Dales Lake Ecological Reserve and on California Department of Transportation land (USFWS 2005a).

The largest concentration of vernal pool tadpole shrimp occurrences are found in the Southeastern Sacramento Vernal Pool Region, where the species occurs on a number of public and private lands in Sacramento County. Vernal pool tadpole shrimp are also known to occur in a few locations in Yuba and Placer counties, including Beale Air Force Base (USFWS 2005a).

In the Solano-Colusa Vernal Pool Region, the vernal pool tadpole shrimp occurs in the vicinity of Jepson Prairie, Travis Air Force Base, near Montezuma in Solano County and in the Sacramento National Wildlife Refuge in Glenn County. In the San Joaquin Vernal Pool Region, vernal pool tadpole shrimp are known to occur in the Grasslands Ecological Area, on private land in Merced County and in a single location in both Tulare and Kings counties. In the Southern Sierra Foothills region, the species occurs at the Stone Corral Ecological Preserve in Tulare County, on ranchlands in eastern Merced County, at the Big Table Mountain Preserve in Fresno County and at a few locations in Stanislaus County. In the Central Coast Vernal Pool Region, the vernal pool tadpole shrimp is found on the San Francisco National Wildlife Refuge and private land in Alameda County (USFWS 2005a).

According to Placer County Natural Resources Report, the closest occurrence of the vernal pool fairy shrimp is approximately 5 mi southeast of Camp Far West Reservoir (Placer County 2004). However, the CNDDDB search resulted in a total of 33 occurrences within the Project Vicinity. The closest occurrence is within 1 mi of the Bear River and approximately 1.6 mi to the west of

the reservoir, just west of Camp Far West Road. This occurrence includes a series of vernal pools that provide suitable habitat for this species (CDFW 2018a).

The CNDDDB search revealed a total of nine occurrences of vernal pool tadpole shrimp within the Project Vicinity. The closest of these is located approximately 4.8 mi northeast of Camp Far West Reservoir within Beale Air Force Base. Vernal pool tadpole shrimp was found in the Browns Valley, Sheridan, and Wheatland quadrangles (CDFW 2018a).

Life History and Habitat Requirements

Fairy shrimp are generally restricted to seasonal aquatic habitats where predatory fish do not occur. Female fairy shrimp of all species carry their eggs in a ventral brood sac. The eggs either are dropped to the pool bottom or remain in the brood sac until the mother dies and sinks. When the pool dries, the eggs dry and remain dormant in the dry pool bed until rain and other environmental stimuli cause them to hatch. Resting fairy shrimp eggs are commonly referred to as cysts and capable of withstanding heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding (USFWS 2005a).

The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools (Eng et al. 1990; Helm 1998). Although the vernal pool fairy shrimp has been collected from large vernal pools, including one exceeding 25 ac in area (Eriksen and Belk 1999), it tends to occur primarily in smaller pools (Platenkamp 1998); most frequently found in pools measuring less than 0.05-ac in area (Gallagher 1996; Helm 1998) in grass or mud-bottomed swales or basalt depression pools in grasslands that have not been mowed. The vernal pool fairy shrimp typically occurs at elevations from 30 to 4,000 ft (Eng et al. 1990), although two sites in the Los Padres National Forest have been found to contain the species at an elevation of 5,600 ft. The vernal pool fairy shrimp has been collected at water temperatures as low as 4.5°C (Eriksen and Belk 1999) and has not been found in water temperatures above about 23°C (Helm 1998; Eriksen and Belk 1999). The species is typically found in pools with low to moderate amounts of salinity or total dissolved solids (Collie and Lathrop 1976; Keeley 1984; Syrdahl 1993). Vernal pools are mostly rain fed, resulting in low nutrient levels and dramatic daily fluctuations in pH, dissolved oxygen and carbon dioxide (Keeley and Zedler 1998). Although there are many observations of the environmental conditions where vernal pool fairy shrimp have been found, there have been no experimental studies investigating the specific habitat requirements of this species. Platenkamp (1998) found no significant differences in vernal pool fairy shrimp distribution between four different geomorphic surfaces studied at Beale Air Force Base.

Although the vernal pool tadpole shrimp is adapted to survive in seasonally available habitat, the species has a relatively long life span, compared to other vernal pool crustaceans. Helm (1998) found that the vernal pool tadpole shrimp lived significantly longer than any other species observed under the same conditions, except for the California fairy shrimp. Vernal pool tadpole shrimp continue growing throughout their lives, periodically molting their shells. These shells can often be found in vernal pools where vernal pool tadpole shrimp occur. Helm (1998) found that vernal pool tadpole shrimp took a minimum of 25 days to mature and the mean age at first reproduction was 54 days.

Stressors and Limiting Factors

The current status and continuing threat to the survival and recovery of vernal pool fairy shrimp and vernal pool tadpole shrimp is attributable to extensive loss of suitable habitat from agricultural conversion, urbanization and surface mining. Habitat loss also occurs as a result of changes to natural hydrology, introduction of invasive species, introduction of incompatible grazing regimes (e.g., insufficient grazing for prolonged periods), infrastructure development projects (e.g., roads, water storage and conveyance, utilities), recreational activities (e.g., off-highway vehicles and hiking), erosion, climatic and environmental change and contamination (USFWS 2005a).

SSWD's Relicensing Study

There were no specific studies done for vernal pool fairy shrimp and vernal pool tadpole shrimp. The BA done in 2013 for the Pool Raise identified no suitable habitat in the area to be inundated by the Pool Raise (Sycamore Environmental 2013).

An aquatic resources delineation was performed for the north western portion of the existing FERC Project Boundary in February 2018 for the Spillway Modification (SSWD 2018). A total of 83 aquatic features, comprising 4.40 ac (3.35 ac are within the Proposed Project Boundary), were detected during the delineation, all on private land. Of the 3.35 ac in the proposed boundary, 0.95 ac were identified as vernal pools (8 distinct pools) that could provide suitable habitat for vernal pool crustaceans, specifically vernal pool tadpole shrimp and vernal pool fairy shrimp. There was no sign of disturbance to the vernal pools from Project O&M or recreation. Cattle graze throughout the area where the delineation was performed, and a section of barbed wire fence runs through one vernal pool near Camp Far West Road.

Figure 3.3.5-2 includes representative photos of the eight vernal pools, taken on February 19, 2018, while Figure 3.3.5-3 shows the location of aquatic resource features within the Proposed Project Boundary mapped during the February 2018 delineation.



Figure 3.3.5-2. Photographs of the eight distinct vernal pools identified during the February 2018 delineation.

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Figure 3.3.5-3. Aquatic resources located during February 2018 delineation.

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Known Occurrences in Action Area

Neither vernal pool fairy shrimp nor vernal pool tadpole shrimp have been reported to occur in the Action Area. Critical Habitat does not occur in the Action Area. However, 0.95 ac of vernal pools occur in the Action Area.

California Red-Legged Frog (FT)

Status and Critical Habitat

The California red-legged frog (CRLF) was listed as threatened on May 23, 1996 (61 FR 25813).

Critical habitat was originally designated for CRLF on March 13, 2001 and re-designated on April 13, 2006 (71 FR 19244). However, due to court challenges and questions about scientific validity, USFWS made a series of revisions to Critical Habitat for the CRLF. The final Critical Habitat designation was issued on March 17, 2010 (75 FR 12816).

The criteria for the CRLF critical habitat are: 1) suitable aquatic breeding habitat that holds water for a minimum of 20 weeks in all but the driest of years; 2) suitable aquatic non-breeding habitat that may not stay inundated as long as breeding habitat but provides shelter, foraging, predator avoidance, and aquatic dispersal of juvenile and adults; 3) upland habitat adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat within 1 mi; and 4) dispersal habitat within and between occupied location within a minimum of 1 mi of each other (75 FR 12816). The closest Critical Habitat to the Project is approximately 24 mi away, just outside of Foresthill near Lake Clementine (USFWS 2018e).

Recovery Plan

A recovery plan has been developed for CRLF. Recovery criteria for this species include protection and management of suitable habitats within core areas, stable populations distributed within viable metapopulations, and re-establishment of at least one population within each core area where CRLF is currently absent (USFWS 2002). The nearest core area is Unit 2: Yuba River – South Fork Feather River Unit which is located approximately 23 mi to the north of the Project.

Current and Historical Distribution

The historical range of the CRLF extends through Pacific slope drainages from Shasta County, California, to Baja California, Mexico, including the Coast Ranges and the west slope of the Sierra Nevada Range at elevations below 4,000 ft. The current range of this species is greatly reduced, with most remaining populations occurring along the coast from Marin County to Ventura County. In the Sierra Nevada region, where the species was once widespread, there are only eight known extant populations of CRLF, most of which contain few adults (Shaffer et al. 2004; Tatarian and Tatarian 2010; 71 FR 19244).

There is one known CRLF population in Yuba County, one in Nevada County and one in the adjacent County of Butte (CDFW 2018a).

There are no known recent verified or historical accounts of CRLF from the Project Vicinity. The nearest occurrence is located approximately 24.5 mi to the northeast of the Project in

Nevada County. The second closest is located approximately 26 mi north of the Project in Placer County (CDFW 2018a).

An initial query of the CNDDDB indicated no records of CRLF in the Project Vicinity. However, in February 2018, SSWD found the following statement in an unrelated FERC filing: “In 2017, the USFWS found a California red-legged frog within 30 feet of a sewage pond at Camp Far West (FERC No. 2997) in Northern California and 3 potential California red-legged frogs in that pond.”⁶ Upon further research, SSWD determined that there is an unprocessed data submission to CNDDDB for CRLF from the Project area dated May 20, 2017. Although this record is noted as “unprocessed” by CNDDDB, it is available on the CNDDDB website. The record was reported by USFWS and indicates USFWS staff found an adult CRLF in a small, seasonal impoundment (i.e., non-Project stock pond) on a drainage adjacent to the sewage treatment pond in the NSRA. The California Native Species Field Survey Form submitted to the CNDDDB states that this was a “single, confirmed CRLF at edge of stock pond,” and provides no other details describing the frog, and no information regarding that frog or the three potential CRLFs is provided in the “Determination” section. The sighting occurred during a night-time site visit accompanied by SSWD’s consultant, who was briefly separate and witnessed only the leap of an unidentified frog as the observer’s light was turned in its direction. There was no discussion among the participants during the site visit that a CRLF detection had occurred. Two subsequent daytime site visits were conducted by USFWS and SSWD biologists at the sewage pond and adjacent non-Project stock pond on February 15, 2018, and March 25, 2019. The non-Project stock pond was carefully examined during each of these subsequent site visits, whereas the sewage pond was observed with binoculars at several locations from behind the surrounding fence. SSWD’s biologists accompanied USFWS on each of the three visits and did not observe any CRLF during the visits.

Life History and Habitat Requirements

CRLF breeding occurs from late November to late April in ponds or in backwater pools or creeks. Egg masses are attached to emergent vegetation such as cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.). Larvae remain in these aquatic habitats until metamorphosis. Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae typically metamorphose between July and September and most likely feed on algae (Jennings and Hayes 1994).

Outside of the breeding season, adults may disperse upstream, downstream, or upslope of breeding habitat to forage and seek sheltering habitat, which may consist of small-mammal burrows, leaf litter, and other moist sites in or near (i.e., up to 200 ft) from riparian areas (Jennings and Hayes 1994; 71 FR 19244). During wet periods, long distance dispersal of up to 1-mi may occur between aquatic habitats, including movement through upland habitats or ephemeral drainages (71 FR 19244). Seeps and springs in open grasslands can function as foraging habitat or refuges for wandering frogs (USFWS 1997).

CRLF is primarily associated with perennial ponds or pools and perennial or seasonal streams where water remains for a minimum of 20 weeks beginning in the spring (i.e., sufficiently long

⁶ FERC Accession Number 20180129-5298

for breeding to occur and larvae to complete development) (Jennings and Hayes 1994, 71 FR 19244). Dense, shrubby riparian vegetation (e.g. willow [*Salix* spp.] and tule [*Schoenoplectus* spp.] species), and bank overhangs are important features of CRLF breeding habitat. Suitable aquatic habitats include natural and manmade ponds, backwaters within streams and creeks, marshes, lagoons and dune ponds. CRLF is not characteristically found in deep lacustrine habitats (e.g. deep lakes and reservoirs). A minimum water depth of 0.66-ft during the entire tadpole rearing season is typically required. Locations with the highest densities of CRLF exhibit dense emergent or shoreline riparian vegetation closely associated with moderately deep (greater than 2.3 ft), still, or slow-moving water. The types of vegetation that seem to provide the most suitable structure are willows, cattails and bulrushes at or close to the water level, which shade a substantial area of the water (Hayes and Jennings 1988). Another correlate to CRLF occurrence is the absence or near-absence of introduced predators, such as American bullfrog and predatory fish, particularly Centrarchids, which feed on the larvae at higher rates than native predatory species (Hayes and Jennings 1988), and mosquitofish. Hiding cover from predators may be provided by emergent vegetation, undercut banks and semi-submerged root wads (USFWS 2005b). Some habitats that are not suitable for breeding (e.g., shallow or short-seasonal wetlands, pools in intermittent streams, seeps and springs) may constitute habitats for aestivation, shelter, foraging, predator avoidance and juvenile dispersal.

The most comprehensive analysis of CRLF distribution and habitat use in the Sierra Nevada (Barry and Fellers 2013) suggests that historical CRLF habitat was associated with small, narrow, permanent or nearly permanent creeks near the headwaters, where small populations of CRLF occurred. Current available habitat in the species' range within the Sierra Nevada includes ponds of anthropogenic origin, including small instream impoundments (e.g., abandoned lumber mill ponds), excavated ponds, and mining tailing ponds.

Suitable upland habitat consists of all upland areas (riparian or otherwise) within 500 ft of the water's edge, but not further than the watershed boundary. This upland habitat is important in maintaining the integrity of CRLF aquatic/breeding habitat as land use activities adjacent to and upstream of suitable aquatic habitat greatly affect the quality of aquatic/breeding habitat downstream (Allen and Tennant 2000).

Suitable dispersal habitat consists of all upland and wetland habitat that connect two or more patches of suitable aquatic habitat within 1.25 mi of one another. Dispersal habitat must be at least 500 ft wide and free of barriers, such as heavily traveled roads (roads with more than 30 cars per hour), moderate to high-density urban or industrial developments and large reservoirs. The healthiest CRLF populations persist and flourish where suitable breeding and non-breeding habitats are interspersed throughout the landscape and are interconnected by un-fragmented dispersal habitat (Allen and Tennant 2000).

Stressors and Limiting Factors

According to the CRLF Recovery Plan (USFWS 2002), factors associated with declining populations of CRLF include degradation and loss of its habitat through: agriculture, urbanization, mining, overgrazing, recreation, timber harvesting, the introduction of non-native plants that affect the frog's habitat, impoundments, water diversions, degraded water quality, use of pesticides, and introduced predators (e.g., American bullfrog, crayfish [*Procambarus clarkii*]).

and *Pacifastacus leniusculus*], and non-native predatory fish, such as smallmouth bass and mosquitofish). In an experiment, the presence of American bullfrog tadpoles significantly lowered survival of CRLF tadpoles to metamorphosis (Lawler et al. 1999), probably through competition.

SSWD's Relicensing Studies

To supplement existing information regarding CRLF within the Project Vicinity, SSWD conducted the *ESA Listed Amphibians – California Red-legged Frog Study*. SSWD conducted a desktop analysis site assessment of the area within 1-mi of the Project Boundary.

A total of 134 aquatic habitat locations potentially suitable for CRLF were identified and mapped within 1 mi of the Project Boundary using existing, publically available ESRI aerial imagery, reviewed at a scale of 1:1000 and compared to Google Earth imagery (dated May 17, 2017) (Figure 3.3.5-4). One additional feature, a seasonal stock pond located near the NSRA sewage pond, was identified after the study and is included as location 135 in the Figure. Most of these features (i.e., 123 of the total) are constructed impoundments along drainages, or excavated ponds used to support livestock, hold irrigation water, or for undetermined purposes on private property. Based on available aerial imagery, 52 of these constructed ponds were classified as seasonal and 71 as semi-permanent to permanently flooded. Another 10 aquatic habitat locations were categorized as seasonal emergent wetlands that were generally located on drainages supported by irrigation water but without an apparent constructed dam or excavated basin. Aquatic habitat locations are largely concentrated northwest, east, and south of Camp Far West Reservoir. On the basis of apparently suitability hydrology, many of the aquatic habitats, particularly where supplemented by irrigation water, are evidently suitable habitat for CRLF as well as American bullfrog and, in most areas, there are multiple suitable sites that would facilitate dispersal of either species. The aerial imagery indicates that vegetation characteristics of the sites ranges from those with no apparent aquatic, emergent, or riparian vegetation to sites with dense areas of cattail and patches of riparian willows. The surrounding uplands include grazed annual grasslands and oak woodland, with low rolling hills, unlikely to pose a dispersal barrier.

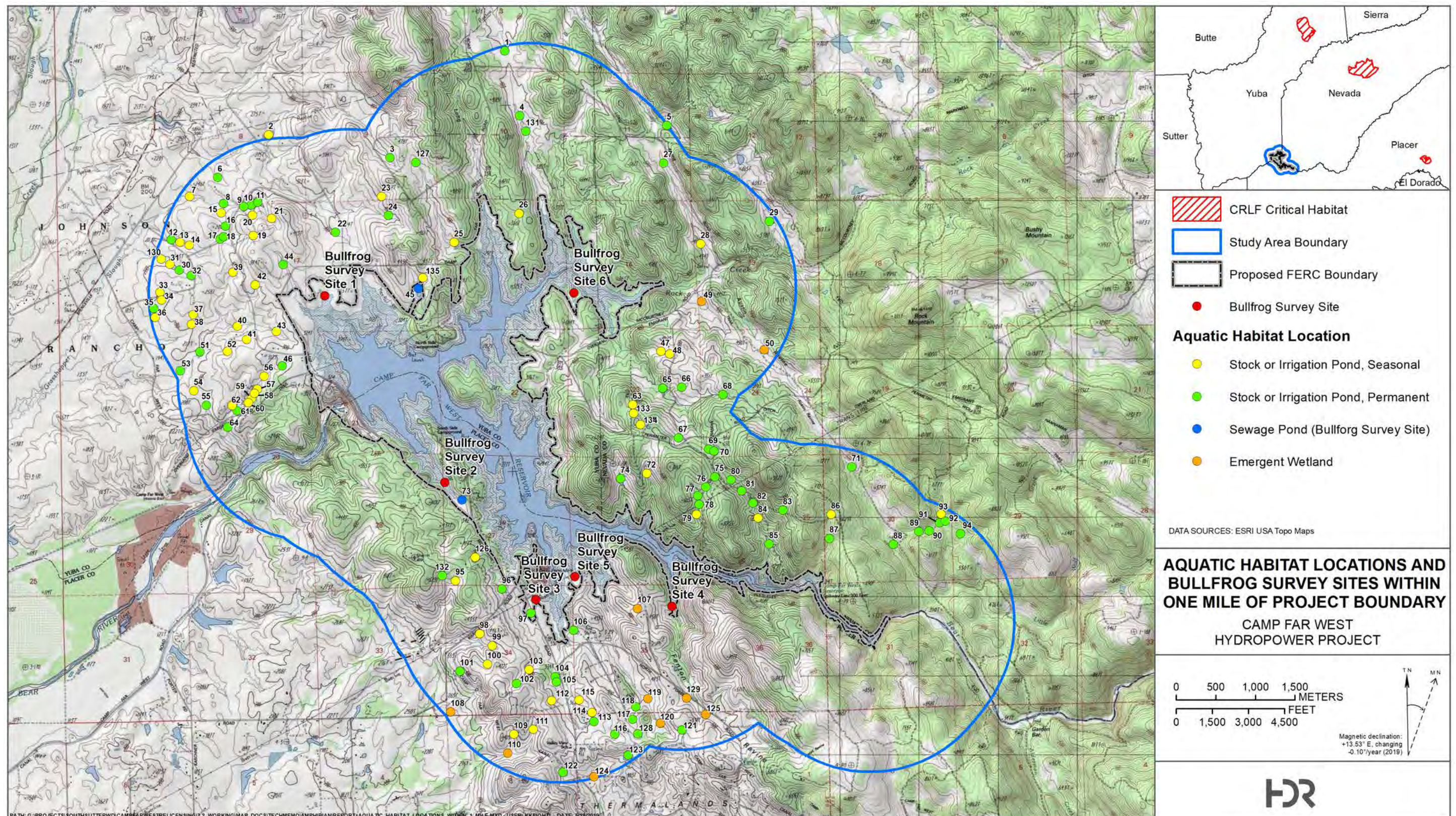


Figure 3.3.5-4. Aquatic habitat locations identified and characterized within one mile of the Proposed Project Boundary, and American bullfrog survey sites.

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Additional information was gathered by field reconnaissance and supplemental surveys for American bullfrogs within the Project Boundary. Field reconnaissance was completed on June 29, 2017, at two sewage ponds associated with the NSRA and the SSRA, respectively, in accordance with USFWS (2005b) CRLF site assessment guidelines, and included completion of Habitat Site Assessment Data Sheets. Both ponds are perennial, have steeply sloped sides and undetermined depth, little or no associated emergent or overhanging vegetation, but a dense cover of duckweed (*Lemna* sp.) over part of each pond.

Surveys to listen for calls of American bullfrogs were completed at the two sewage ponds, followed by a walk around the perimeter of each pond and visual scan during which all adult and juvenile bullfrogs heard or seen were noted. These daytime surveys were completed on June 29, 2017, July 25, 2017, and August 3, 2017. Juvenile American bullfrogs were detected in numbers ranging from 24 to 39 at the SSRA sewage pond, but only 1 was detected at the NSRA sewage pond. On two of the surveys, adult male American bullfrogs (2 and 3, respectively) were heard at the NSRA sewage pond. No adult American bullfrogs were heard at the SSRA sewage pond during any of the surveys. In addition to these surveys, an informal nighttime survey looking for reflected eyeshine was conducted at the NSRA sewage pond on May 20, 2017 by USFWS and SSWD biologists. A total of 96 juvenile American bullfrogs were identified within the sewage pond, as well as three frogs that differed in eyeshine color. Because, in SSWD's opinion, these frogs were located too far from the observers to be otherwise illuminated, they are regarded by SSWD as unidentified.

Auditory surveys for American bullfrog were also performed at six locations in coves or "arms" of the reservoir on Camp Far West Reservoir on the same dates (Figure 3.3.5-4). No bullfrog calls were heard at any of the six survey locations on Camp Far West Reservoir.

As described above, SSWD also accompanied USFWS biologists during its daytime site visits to the NSRA on February 15, 2018 and March 25, 2019. On February 15, 2018, one Sierran chorus frog (*Pseudacris sierra*) was observed in the seasonal stock pond (i.e., location 135 in Figure 3.3.5-4); no other frogs were observed by SSWD biologists. No frogs were observed by SSWD biologists during the 2019 site visit.

Based on numerous aquatic habitats within 1-mi of the Project that meet the minimum criteria for CRLF breeding habitat and without the results of protocol level CRLF survey at all of these sites, most of which are on private land, CRLF must be assumed to occur within this area, regardless of the probability of an undiscovered population. The habitat assessment conducted by SSWD also indicates that sites suitable for American bullfrog are widespread and that this invasive species is almost certainly well established in the area. Aquatic habitats within the Project Boundary, which are limited to Camp Far West Reservoir itself, the two sewage ponds, and small, seasonal water bodies that do not meet the 20-week minimum criteria, are unlikely to support CRLF breeding. Non-breeding habitat use, such as during overland dispersal, is possible. High numbers of American bullfrogs within the sewage ponds may limit the use of these ponds for breeding and larval/ juvenile development due to predation and competition. The stock pond located near the NSRA may provide habitat for CRLF; however, due to the proximity of the sewage pond, it is likely that American bullfrogs utilize this stock pond as dispersal habitat and seasonal aquatic use. The stock pond is also seasonal which may impact its

availability for both CRLF and American bullfrog habitat (Figure 3.3.5-5). Cattle grazing may cause direct effects to CRLF through crushing and/ or disturbing egg masses, a reduction in emergent and riparian vegetation, and increased erosion within the watershed, resulting in the filling of pools suitable for CRLF breeding and aquatic habitat (USFWS 2002). However, cattle grazing has been shown to positively affect CRLF populations through the creation of stock ponds that provide habitat for CRLF where it did not occur previously (USFWS 2002). In such ponded habitat, grazing may help maintain habitat suitability by keeping ponds clear of emergent vegetation that may otherwise fill the ponds and make them unsuitable for CRLF (USFWS 2002).



Figure 3.3.5-5. Stock pond (location 135) near the North Shore Recreation Area sewage pond as shown when dry during an October 2017 site visit and when wet during a February 2018 site visit.

Known Occurrences in Action Area

SSWD is unaware of any fully documented and verified accounts of CRLF occurring in the Action Area. However, SSWD acknowledges the reports by USFWS staff of a CRLF observation at the non-Project stock pond. Critical Habitat for CRLF does not occur in the Action Area

Steelhead, California Central Valley DPS (FT)

Status and Critical Habitat

On March 19, 1998 (63 FR 13347) NMFS listed the Central Valley DPS of steelhead as threatened, concluding that the risks to Central Valley (CV) steelhead had diminished since the completion of the 1996 status review based on a review of existing and recently implemented State conservation efforts and federal management programs (e.g., Central Valley Project Improvement Act Anadromous Fish Restoration Plan, CALFED Bay-Delta Program) that address key factors for the decline of this species. On January 5, 2006, NMFS reaffirmed the threatened status of the CV steelhead DPS (71 FR 834) and applied the DPS policy to the species because the resident and anadromous life forms of steelhead remain “markedly separated” as a consequence of physical, ecological and behavioral factors, and may therefore warrant delineation as a separate DPS (71 FR 834).

The DPS includes all naturally spawned anadromous *O. mykiss* populations below natural and man-made impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries (63 FR 13347). Two artificial propagation programs are considered to be part of the DPS-the Coleman National Fish Hatchery, and Feather River Fish Hatchery (FRFH) steelhead hatchery programs. NMFS determined that these artificially propagated stocks are no more divergent relative to the local natural populations than what would be expected between closely related natural populations within the DPS (71 FR 834).

On February 16, 2000 (65 FR 7764), NMFS published a final rule designating Critical Habitat for CV steelhead DPS. Critical habitat was designated to include all river reaches accessible to listed steelhead in the Sacramento and San Joaquin rivers and their tributaries in California. NMFS proposed new Critical Habitat for CV steelhead on December 10, 2004 (69 FR 71880) and published a final rule designating Critical Habitat on September 2, 2005 (70 FR 52488). In the Bear River, NMFS designates CV steelhead Critical Habitat to include the area defined in the CALWATER Marysville Hydrologic Unit 5515 (i) Lower Bear River Hydrologic Sub-area 551510. Outlet(s) = Bear River (39.9398, -121.5790) upstream to endpoint(s) in Bear River (39.0421, -121.3319), which means the upstream extent is at the non-Project diversion dam (70 FR 52488).

During the investigation of whether to include the Bear River as part of the final rule, several statements were made by the Critical Habitat Analytical Review Team (CHART) that highlighted the Bear River was only marginally included as part of critical habitat. The ruling stated:

The CHART originally evaluated the conservation value of HSA 551510, which contains the lower Bear River, as being low, and it was proposed for exclusion in the proposed critical habitat rule based on the results of the ESA section 4(b)(2) analysis conducted for that rulemaking.

As a result of the revised 4(b)(2) analysis conducted for the final rule, however, this [lower Bear River] HSA watershed was considered to have a medium benefit of designation and a relatively high benefit of exclusion (ie., high cost relative to benefit), making it potentially subject to exclusion from the final designation.

While analyses suggested that the high cost and low benefit of including the Bear River as critical habitat was marginal, the CHART included it because other species (i.e. spring-run Chinook salmon) may use the lower Bear River for non-natal rearing and the overall potential was assumed to justify the high cost.

Recovery Plan

The Recovery Plan for Central Valley (CV) winter-run Chinook salmon (*Oncorhynchus tshawytscha*) Evolutionary Significant Unit (ESU), CV spring-run Chinook salmon (*O. tshawytscha*) ESU and CV steelhead (*O. mykiss*) Distinct Population Segment (DPS) (NMFS 2014) was published as a means to identify the actions that may be needed for the conservation

and survival of these species. The Recovery Plan is a comprehensive document that serves as a road map for species recovery. The purpose of this Recovery Plan is to guide the implementation of species recovery by identifying and correcting threats to the species and ensuring viable CV Chinook salmon ESUs and the CV steelhead DPS.

The plan provides background history on the species, presents and justifies the recommended recovery strategy for each species including specific goals and objectives. Finally, the specific actions that should be taken to achieve recovery are presented. The ultimate goal is the delisting of the CV Chinook salmon ESUs and the CV steelhead DPS.

A key element of the Recovery Plan is the focus of actions on watersheds that can support viable populations of ESA-listed salmonids and contribute to meeting Diversity Group⁷ requirements for distribution and redundancy. To assess their potential to contribute to species recovery in the diversity group, the Recovery Plan places watersheds into three categories based on their potential to support populations with low risk of extinction. The three categories are Core 1, Core 2, and Core 3. If the watershed has no potential to support populations with low risk of extinction, it is not placed into one of the three categories. In addition, the Recovery Plan lists stressors to the populations by watershed.

For the CV steelhead DPS, the Recovery Plan classifies the Bear River as a Core 3⁸ stream and states that the Bear River does not provide suitable habitat for self-sustaining populations of anadromous salmonids, including CV steelhead DPS, and that any CV steelhead DPS that intermittently spawn in the Bear River during high flow years are likely strays from the FRFH. Moreover, in Appendix B of the Recovery Plan, NMFS (2014) states that: “..warm water temperatures during the summer months likely preclude steelhead juvenile rearing in the Bear River.”

The plan lists the following Bear River-specific stressors:⁹

- Water temperature during specific times of the year (primarily during the CV steelhead adult immigration, embryo incubation, and juvenile outmigration periods – spring, summer, and fall)
- Flow conditions during all CV steelhead lifestages because the Bear River is a highly managed river. Flow-dependent habitat availability is a concern during spawning and

⁷ The Recovery Plan identifies four diversity groups, which are geographic areas that NMFS believes have supported historical populations of the ESA-listed anadromous salmonid. The Bear River is in the Recovery Plan’s Northern Sierra Nevada Diversity Group, which is “composed of streams tributary to the Sacramento River from the east, from Antelope Creek to the Mokelumne River” (NMFS 2014, p. 68).

⁸ The Recovery Plan describes a Core 3 stream as in “watersheds [that] have populations that are present on an intermittent basis and require straying from other nearby populations for their existence. These populations likely do not have the potential to meet the abundance criteria for moderate risk of extinction. Core 3 watersheds are important because, like Core 2 watersheds, they support populations that provide increased life history diversity to the ESU/DPS and are likely to buffer against local catastrophic occurrences that could affect other nearby populations. Dispersal connectivity between populations and genetic diversity may be enhanced by working to recover smaller Core 3 populations that serve as stepping stones for dispersal.”

⁹ The Bear River Watershed Profile in the Recovery Plan begins on Page 49 in Appendix A and the Threats Matrix, which begins on Page C-94, in Attachment C to Appendix B, are the two main locations in the Recovery Plan for Bear River-specific stressors.

juvenile rearing and emigration. Low flows during adult immigration are a concern with respect to attraction and migratory cues.

- Entrainment of CV steelhead at unscreened diversions.
- Physical habitat alteration, which can lead to CV steelhead spawning habitat reduction.
- Loss of natural river morphology as a result of the managed flow regime.
- Loss of riparian habitat and instream cover as a result of the managed flow regime and adjacent agricultural production.
- Poor water quality primarily for CV steelhead embryo incubation and juvenile rearing and outmigration. Of particular concern are mercury from historic gold mining, and diazinon from agricultural runoff.

Additional stressors to the CV steelhead DPS listed in the Recovery Plan that are not specific to the Bear River but apply to the overall Northern Sierra Nevada Diversity Group include loss of floodplain habitat in the San Francisco Bay Delta, flow and water temperature issues in the Feather and Sacramento rivers, hatchery effects on genetic diversity, and predation of juvenile outmigrants.¹⁰

The Recovery Plan does not identify passage impediments in the Bear River as a stressor of high importance because, according to the Recovery Plan, Camp Far West Dam was constructed at the site of a natural historic barrier.¹¹

Current and Historical Distribution

CV steelhead DPS historically ranged throughout accessible tributaries and headwaters of the Sacramento and San Joaquin rivers prior to major dam construction, water development, and other watershed disturbances. In the Bear River, historic population estimates do not exist for steelhead. USFWS (1998) states:

Historically, the Bear River never supported substantial runs of salmon and steelhead as a consequence of its naturally intermittent hydrology and the occurrence of a natural rock barrier located a short distance upstream from Camp Far West Reservoir. This barrier prevented salmon and steelhead from ascending the Bear River to higher elevations where streamflows and water temperatures were more suitable. Thus, fish were restricted to the Sacramento Valley floor where environmental conditions were not always favorable. In years with favorable flows, the Bear River probably supported small runs of fall-run chinook salmon and steelhead, although run size estimates are not available.

CV steelhead DPS was not reported on the CNDDDB search in or near the Project Vicinity (CDFW 2018a).

¹⁰ The Northern Sierra Nevada Diversity Group stressor Matrix Results highlight the highest priority stressors for the Diversity Group that contains the Bear River starts on Page 4-135 in Appendix B of the Recovery Plan.

¹¹ As stated at page 4-135 in Appendix B, Section 4, of the Recovery Plan.

Life History and Habitat Requirements

“Steelhead” is the name commonly applied to the anadromous form of the biological species *O. mykiss*. Steelhead exhibits perhaps the most complex suite of life-history traits of any species of Pacific salmonid. Members of this species can be anadromous or freshwater residents and, under some circumstances, members of one form can apparently yield offspring of another form.

Due to a lack of documentation of CV steelhead DPS occurring in the Bear River, there is no information on the life history of any CV steelhead DPS that may intermittently spawn there. However, assuming that CV steelhead DPS that may spawn in the Bear River are likely FRFH-origin fish, recent studies in the lower Yuba River, another tributary to the Feather River, are likely representative of general life history conditions for steelhead that would have the potential to spawn in the Bear River, described below.

The Lower Yuba River Accord, River Management Team (RMT 2010; 2013) identified the period extending from August through March as encompassing the majority of the upstream migration and holding of adult CV steelhead DPS in the lower Yuba River. CV steelhead DPS adults typically spawn from December through April with peaks from January through March in small streams and tributaries where cool, well-oxygenated water is available year-round (Hallock et al. 1961; McEwan 2001). Based on all available information collected to date, the RMT (2013) recently identified the CV steelhead DPS spawning period in the lower Yuba River as extending from January through April, with embryo incubation extending into May. Juvenile CV steelhead DPS rearing in the lower Yuba River exhibits a variety of temporal periods. Some juvenile CV steelhead DPS may rear in the lower Yuba River for a short duration (i.e., up to a few months) whereas others may spend from 1 to 3 years rearing in the river. Review of available data indicates that emigration of CV steelhead DPS smolts 1 year old and older (yearling+) may extend from October through mid-April (RMT 2010; 2013).

Table 3.3.5-2. Life stage-specific periodicities for CV steelhead DPS in the Yuba River (shaded boxes indicate temporal utilization of the Yuba River, and assumed in this Exhibit E for the Bear River). Reproduced from Lower Yuba River Accord River Management Team (2013).

| Life stage | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Adult Immigration & Holding | | | | | | | | | | | | |
| Spawning | | | | | | | | | | | | |
| Embryo Incubation | | | | | | | | | | | | |
| Fry Rearing | | | | | | | | | | | | |
| Juvenile Rearing | | | | | | | | | | | | |
| Juvenile Downstream Movement | | | | | | | | | | | | |
| Smolt (Yearling+) Emigration | | | | | | | | | | | | |

Female steelhead construct redds within a range of depths and velocities in suitable gravels, oftentimes in pool tailouts and heads of riffles. Steelhead eggs incubate in redds for 3 to 14 weeks prior to hatching, depending on water temperatures (Shapovalov and Taft 1954; Barnhart 1991). After hatching, alevins, newly spawned salmon or trout still carrying the yolk, remain in the gravel for an additional 2 to 5 weeks while absorbing their yolk sacs prior to emergence (Barnhart 1991). The entire egg incubation life stage encompasses the time adult CV steelhead DPS select a spawning site through the time when emergent fry exit the gravel (CALFED and YCWA 2005).

In general, it has been reported that after emergence, steelhead fry move to shallow-water, low-velocity habitats, such as stream margins and low gradient riffles, and will forage in open areas lacking instream cover (Hartman 1965; Everest et al. 1986; Fontaine 1988). As fry increase in size and their swimming abilities improve in late summer and fall, juvenile steelhead have been reported to increasingly use areas with cover and show a preference for higher velocity, deeper mid-channel areas near the thalweg (Hartman 1965; Everest and Chapman 1972; Fontaine 1988).

Juvenile steelhead have been reported to occupy a wide range of habitats, preferring deep pools as well as higher velocity rapid and cascade habitats (Bisson et al. 1982, 1988). During the winter period of inactivity, steelhead prefer low velocity pool habitats with large rocky substrate or woody debris for cover (Hartman 1965; Swales et al. 1986; Raleigh et al. 1984; Fontaine 1988). During periods of low temperatures and high flows associated with the winter months, juvenile steelhead seek refuge in interstitial spaces in cobble and boulder substrates (Bustard and Narver 1975; Everest et al. 1986).

Aside from cutthroat trout (*O. clarki*), steelhead is the only anadromous species of the genus *Oncorhynchus* in which adults can survive spawning and return to fresh water to spawn in subsequent years. Individuals that survive spawning return to sea between April and June (Mills and Fisher 1994). The frequency of repeat spawning is higher for females than for males (Ward and Slaney 1988; Meehan and Bjornn 1991; Behnke 1992). In the Sacramento River, Hallock (1989) reported that 14 percent of CV steelhead DPS returned to spawn a second time. In the lower Yuba River, Mitchell (2010) reports that, based on scale analysis, 2 of the 10 wild CV steelhead DPS were on their second spawning migration at the time of capture, as indicated by a spawning check between the first and second ocean growth zones.

Stressors and Limiting Factors

Major modifications to habitat in the Bear River result from water diversions during the irrigation season, historical hydraulic mining, and construction of Rollins Dam which caused a substantial reduction in downstream sediment transport. It is estimated that 125 million cubic meters (160 million cu yds) of mining sediment is stored in the lower Bear River. The high volume of mining sediment, as well as the restricting levees, has resulted in a shallow and deeply incised channel in the lower Bear River (NMFS 2014).

During high flow events, CV steelhead DPS are known to utilize the river for limited spawning. Because CV steelhead DPS spawning likely only occurs during wet years, existing flow conditions are likely adequate to support CV steelhead DPS embryo incubation. However, the current system of diversions in the Bear River watershed results in abnormal flow fluctuations, in contrast to historical natural seasonal flow variations (NMFS 2014).

The Bear River was reviewed for summer baseflows to consider whether additional flows would benefit steelhead and possibly improve water temperature. During a summer water transfer from July 2 to August 28, 2018, flows were increased to over 120 cfs, which is significantly greater than the 10 cfs baseflow. Stream temperature reduced by 2°C for one day and then climbed back to ambient conditions (over 26°C) over the next several days. At the time of the transfer, the Feather River remained over 20 times greater in discharge magnitude, with water temperature that was 5-6°C cooler. The results suggest that steelhead during the summer are able to utilize

the Feather River for holding and that usage of the Bear River, regardless of added flow, is likely opportunistic based on ambient conditions.

SSWD's Relicensing Studies

In 2017, SSWD conducted Environmental DNA (eDNA) sampling at six locations between the non-Project diversion dam and the confluence with the Feather River. The eDNA sampling selectively targeted salmonids and sturgeon species including *O. mykiss*. Eleven of the 49 eDNA samples collected were positive for *O. mykiss*. For further analysis of the study, see Section 3.3.3.1.3 in this Exhibit E.

In April, May and June 2018, SSWD conducted snorkel and seine surveys at three locations on the Bear River. Based on the snorkel surveys, *O. mykiss* represented less than two percent of the estimated total abundance in April and May, and no *O. mykiss* were observed in June. Only one *O. mykiss* parr was captured during all three seining events; in May accounted for 1.69% of the total catch. For further description of these studies, see Section 3.3.3.1.3 in this Exhibit E.

SSWD also conducted an analysis of habitat and water temperature as they pertain to steelhead life stages using output from temperature and Instream Flow Study models developed as part of relicensing studies. This analysis indicates that, while habitat for CV steelhead DPS is available for all life stages, temperatures generally preclude utilization of the available habitat for most months of the year. A detailed discussion of this analysis is provided in Section 3.3.3.1.3 of this Exhibit E. Provided below is a summary of habitat, temperature and flow analyses for CV steelhead DPS by lifestage to address potential conditions by period.

CV Steelhead DPS Adult Immigration and Holding

Adult immigration and staging may occur from August through March. Summer fish observations as part of Water Transfer Monitoring surveys on July 24 through 26 and August 29 through 31 2018, did not document the presence of adult CV steelhead DPS in the entire lower Bear River. Yuba River Vaki data¹² does not specifically identify CV steelhead DPS, but the generalized life form *O. mykiss*, which can include resident or anadromous life histories. Data from 2017 in the Yuba River did not observe any *O. mykiss* passage event from November 2016 to February 2017, but 2018 data detected passage events March 2017 to September 2018. Again, these data do not corroborate steelhead, but show that *O. mykiss* presence overall can be variable.

Suitable steelhead salmon migration characteristics are not relatively complex to maintain. Primarily, adults need complete access to spawning grounds, without physical impairment due to obstacle or shallow water barrier. The lower Bear River maintains sufficient continuity for adult access to the spawning grounds and no instream barriers or impediments to passage were noted during any SSWD relicensing surveys (e.g., habitat mapping, redd mapping and fisheries sampling). Specific instream habitat models for this life stage were not developed by SSWD

¹² Summarized Vaki data available online at: <http://www.yubaaccordrmt.com/RMT%20Data/Forms/AllItems.aspx?RootFolder=%2fRMT%20Data%2fField%20Data%20Collection%20Updates&FolderCTID=%2f61A7D3ED2-7710-46BB-BBAE-266745BCE474%7d>

during its relicensing Instream Flow Study because of the general simplistic needs do not require advanced modeling to measure suitability.

The EPA (2003) also provides a temperature guideline, expressed as the 7DADM of 18°C for migrating adult steelhead to ensure that adults are not stressed and any fecund females with potential eggs are not compromised due to excessively warm water. Water temperature analyses in Table 3.3.5-3 show that adults returning from August through September may be exposed to warmer water temperature outside of EPA guidelines, but conditions rapidly improve and are optimal from November through March. Wetter years expand the window of opportunity for returning adults, while drier years limit access due to temperature. These conditions are typical of any small watershed and would occur regardless of the Project.

Table 3.3.5-3. Percent of days per month where the No Action Alternative stream temperature at four locations in the lower Bear River is less than EPA guidelines for specific lifestages of steelhead. Temperatures are output from the water temperature model developed in Study 2.2, and are expressed as the 7-day average of the daily maxima (7DADM) in degrees Celsius. For each lifestage, only months where utilization is expected are shown; lifestage utilization periodicities are derived from steelhead utilization of the Yuba River. The number of days for each month in the period of record from which the temperature model was developed are shown in the bottom row.

| Lower Bear River Location | Month | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| STEELHEAD SPAWNING/INCUBATION/EMERGENCE (EPA GUIDELINE: LESS THAN 13°C 7DADM) | | | | | | | | | | | | |
| Below the non-Project diversion dam | 100% | 100% | 80% | 45% | 19% | | | | | | | |
| Highway 65 | 100% | 81% | 53% | 16% | 0% | | | | | | | |
| Pleasant Grove Bridge gage | 98% | 75% | 46% | 9% | 0% | | | | | | | |
| Highway 70 | 94% | 69% | 38% | 7% | 0% | | | | | | | |
| STEELHEAD CORE JUVENILE REARING (EPA GUIDELINE: LESS THAN 16°C 7DADM) | | | | | | | | | | | | |
| Below the non-Project diversion dam | 100% | 100% | 99% | 99% | 85% | 34% | 0% | 3% | 19% | 23% | 83% | 100% |
| Highway 65 | 100% | 98% | 78% | 63% | 14% | 0% | 0% | 0% | 0% | 8% | 90% | 100% |
| Pleasant Grove Bridge gage | 100% | 97% | 75% | 57% | 7% | 0% | 0% | 0% | 0% | 8% | 89% | 100% |
| Highway 70 | 100% | 96% | 72% | 54% | 4% | 0% | 0% | 0% | 0% | 8% | 90% | 100% |
| STEELHEAD MIGRATION (EPA GUIDELINE: LESS THAN 18°C 7DADM) | | | | | | | | | | | | |
| Below the non-Project diversion dam | 100% | 100% | 100% | | | | | 9% | 5% | 29% | 98% | 100% |
| Highway 65 | 100% | 100% | 90% | | | | | 0% | 0% | 32% | 100% | 100% |
| Pleasant Grove Bridge gage | 100% | 100% | 88% | | | | | 0% | 0% | 30% | 99% | 100% |
| Highway 70 | 100% | 100% | 88% | | | | | 0% | 0% | 30% | 99% | 100% |
| Number of Days included in Each Month's Analysis (WYs 1976 through 2014) | 1,209 | 1,102 | 1,209 | 1,170 | 1,209 | 1,170 | 1,209 | 1,209 | 1,170 | 1,203 | 1,170 | 1,209 |

Key: Blue cells are 100% suitable water temperatures based on EPA guideline; green cells are 80% to 99% suitable; yellow cells are 70% to 79% suitable; orange cells are 60% to 69% suitable; and red cells are less than 60% suitable.

CV Steelhead DPS Spawning

Steelhead spawning can occur in the lower Bear River from January through April. Spawning surveys did not identify a single steelhead redd to further inform periodicity. SSWD's studies did show that the lower Bear River contains good quantities of salmonid spawning substrate and the overall capacity for spawning does not appear to be limited by gravel based on general activity observed of adult Chinook salmon spawners (i.e., opportunistic observation and carcass counts) and related spatial requirements. The EPA (2003) guidelines state that a cool water temperature of 7DADM of 13°C is desired for suitable temperature during spawning. The guideline is relatively cold, especially for early spring in the lower Bear River, which begins to warm due to increased ambient temperatures. The low elevation of the lower Bear River does not benefit from a snowpack to extend cold water temperature and the relatively smaller reservoir is more rapidly warmed due to a lower thermal buffer.

During this period, the existing minimum flow requirement is 10 cfs from January through March and 25 cfs in April. At a flow of 10 cfs and based on the habitat-flow relationship (see Figure 3.3.3-31 in Section 3.3.3.1.3), habitat would range from 2% to 5% of Max WUA, and water temperature would remain within EPA guidelines 94 to 100 percent of the time in January and 69 to 100 percent in February (Table 3.3.5-3). By March, water temperature begins to warm and temperature would remain within guidelines 38 to 80 percent of the time. In April, increased base flow results in habitat improving to a range of 13 to 17 % of Max WUA, but temperature is within guidelines 7 to 45 percent of the time.

Steelhead spawning was not observed during any studies in the Bear River. Given the relatively low frequency of spawning, there does not appear to be any physical constraint of spawning habitat due to competition. Large amounts of spawning gravel occur throughout the lower Bear River. While there is not a large amount of spawning habitat available at minimum required streamflows, the areas that are available are likely viable through early March. Water temperatures become a limiting factor in April and May (Table 3.3.5-3).

CV Steelhead DPS Egg Incubation

Egg incubation immediately follows spawning and generally requires 20 to 30 days to complete (Moyle 2002). Since spawning mainly occurs from January through April, egg incubation can then extend through May. SSWD's studies, as described above, show that steelhead spawning substrate has good permeability for egg incubation and there are extensive quality gravel beds extending throughout the lower reach.

SSWD's *Instream Flow Study* did not include a specific egg incubation model, but is encompassed as part of the overall spawning curve. Assuming that salmon are able to successfully spawn in suitable habitat and that sufficient water stage is maintained for covering redds, then the overall conditions for egg incubation are physically met for velocity, depth, and substrate habitat modeling.

The EPA (2003) guideline similarly maintain that a 7DADM water temperature of 13°C is advised through spawning and egg incubation. This results in a similar scenario to spawning

with generally suitable temperature in January and February, marginal in March (i.e., 38% to 80% of the days suitable), and unsuitable conditions through most of May (i.e., 0 to 19%) (Table 3.3.5-3).

While the early window for egg incubation may be limited in some warmer, drier water years, it is anticipated that cooler, wetter years expand the opportunity for both spawning and incubation. The seasonal opportunity driven by precipitation and cooler weather is a strong factor that persisted prior to the Project and still influences the opportunistic steelhead production levels in the Bear River.

CV Steelhead DPS Fry Rearing

Young fish that have emerged from gravel incubation represent a fry lifestage. Fry rearing may occur April through July. SSWD's studies, as described above, show that the lower Bear River contains good structural habitat for fry rearing. Instream Flow Study modeling differentiates fry from juvenile fishes, because they are not strong swimmers and tend to occupy different habitat when compared to the more mature juvenile counterparts. The existing minimum flow requirement is 25 cfs April to June and 10 cfs all other months. At a flow of 10 cfs and based on the habitat-flow relationship (see Figure 3.3.3-32 in Section 3.3.3.1.3), the existing minimum flow provides 100 percent of Max WUA at each of the Instream Flow Study Upstream and Downstream sites and at the USFWS Site. At 25 cfs, the percent of Max WUA ranges from 89 to 92 percent. Therefore, habitat for fry rearing does not appear to be limited.

The EPA (2003) guidelines do not contain different prescriptions for fry or juvenile developmental stages and only officially identify juvenile rearing. Regardless, the EPA suggests that a water temperature of a 7DADM of 16°C is an appropriate guideline for rearing salmonids of either fry or juvenile. Temperature conditions for fry in the lower Bear River are challenged. April offers the best suitability of 54 to 99 percent, with each month thereafter reducing. At the uppermost habitat below the non-Project diversion dam, temperature is 99 percent suitable in April and 85 percent in May. All other reaches are generally unsuitable from May through July, with minimal suitability at the most upstream habitat. (Table 3.3.5-3.)

The Bear River is a relatively smaller watershed that warms considerably into summer months. While steelhead habitat is excellent for fry rearing, early to mid-summer rearing is constrained by water temperature. Prior to the Project, most of the lower Bear River would have become unsuitable and the only habitat that is suitable in April and May is due to the limited cold tailwater releases caused by impoundments. As described above, steelhead likely did not enter the upper the Bear River.

CV Steelhead DPS Juvenile Rearing

As fry mature, food prey items increase in size, swimming ability improves and the developmental stage transitions to juvenile. Juvenile fish are more robust, can handle quicker water and access a greater range of habitat when compared to fry. Juvenile fish may be present throughout the year. The existing minimum flow requirement from July through March is 10 cfs

and it results in 63 to 88 percent of Max WUA, while the 25 cfs flow requirement April through June provides 78 to 95 percent of Max WUA (see Figure 3.3.3-33 in Section 3.3.3.1.3).

As discussed for fry rearing, the EPA suggests that a 7DADM water temperature of 16°C is an appropriate guideline for rearing salmonids (fry or juvenile developmental stages). Temperature conditions for rearing juveniles are good to excellent from November through March, begin to decline in April and are generally unsuitable June through October. Thermal conditions are not within EPA guidelines for year-round rearing by juveniles (Table 3.3.5-3). A recent study by Verhille et al. (2016) showed that *O. mykiss* can show localized thermal plasticity that may result in viable survival at temperatures of up to 23°C. Regardless, water temperature in the lower Bear River is generally unsuitable for summer rearing based on the EPA (2003) guidelines.

Smoltification

Smoltification is the process of a juvenile freshwater anadromous fish moving into saltwater. The process is a general physiological change that begins in freshwater and requires suitable water temperature to occur. A smolting steelhead generally has reared in freshwater for one or more years. Habitat requirements for fry or juvenile fishes as discussed above address what is needed during rearing, but water temperature during smoltification is suggested to be 14°C by EPA guidelines. Smoltification may occur between November and March, which generally are the cool months in the Bear River. Water temperature is generally greater than 90 percent suitable for all months except for March, which ranges from 88 to 100 percent suitability. The lower Bear River provides both appropriate habitat and temperature for the smoltification process for steelhead.

Known Occurrences in Action Area

SSWD's relicensing studies identified *O. mykiss* in the lower Bear River, but no redds were observed. The Recovery Plan (NMFS 2014) states that the lower Bear River does not provide suitable habitat for steelhead due to warm summer water temperatures and that any CV steelhead DPS that intermittently spawn in the lower Bear River during high flow years are likely strays from the FRFH. Steelhead have been reported to utilize Dry Creek, a tributary entering the Bear River at approximately RM 5 (McEwan 2001, Yoshiyama et al. 2001), but no adult or juvenile steelhead were observed during snorkel surveys conducted in Dry Creek in 2008, 2010, 2011-12, and 2014-15 (Bhate Environmental Associates, Inc. and HDR, Inc. 2016). The lower Bear River from the Feather River to the non-Project diversion dam is designated as Critical Habitat for CV steelhead DPS, while the CHART stated the high cost - low benefit of including the Bear River as Critical Habitat was marginal, and only included because of reported historical presence in the Bear River and Dry Creek, and because other species may use the lower Bear River for non-natal rearing.

To evaluate whether the unsuitable summer temperature conditions in the lower Bear River are related to Project O&M, SSWD conducted further analysis of the Bear River inflow 7DADM temperatures into Camp Far West Reservoir and compared them to 7DADM water temperatures in the lower Bear River downstream of the non-Project diversion dam for three representative years: 1995 (a representative wet water year), 2003 (a representative normal water year), and 2001 (a representative dry water year). The results indicate that under the Environmental

Baseline, Camp Far West Reservoir releases are cooler in the summer months (generally from May or June to November in each of the three representative years) than Bear River inflow temperatures (Figure 3.3.5-6, Figure 3.3.5-7, Figure 3.3.5-8). In the winter and spring, temperatures of Project releases into the lower Bear River are generally similar to reservoir inflows, although fluctuating at times to be warmer or cooler than inflows. Additionally, the results show that during the same time period in the summer, temperatures in the lower Bear River at Highway 65 are more similar to Bear River inflow temperatures than to below the non-Project diversion dam. These results indicate that Project releases of water from Camp Far West Reservoir, while exceeding the EPA guideline temperature for rearing juvenile salmonids, are an improvement to temperature conditions over what would be expected if the Project and Camp Far West Dam were not in place. However, the improvements are spatially ephemeral, as water temperatures below the non-Project diversion dam essentially reach equilibrium with ambient air temperatures by Highway 65.

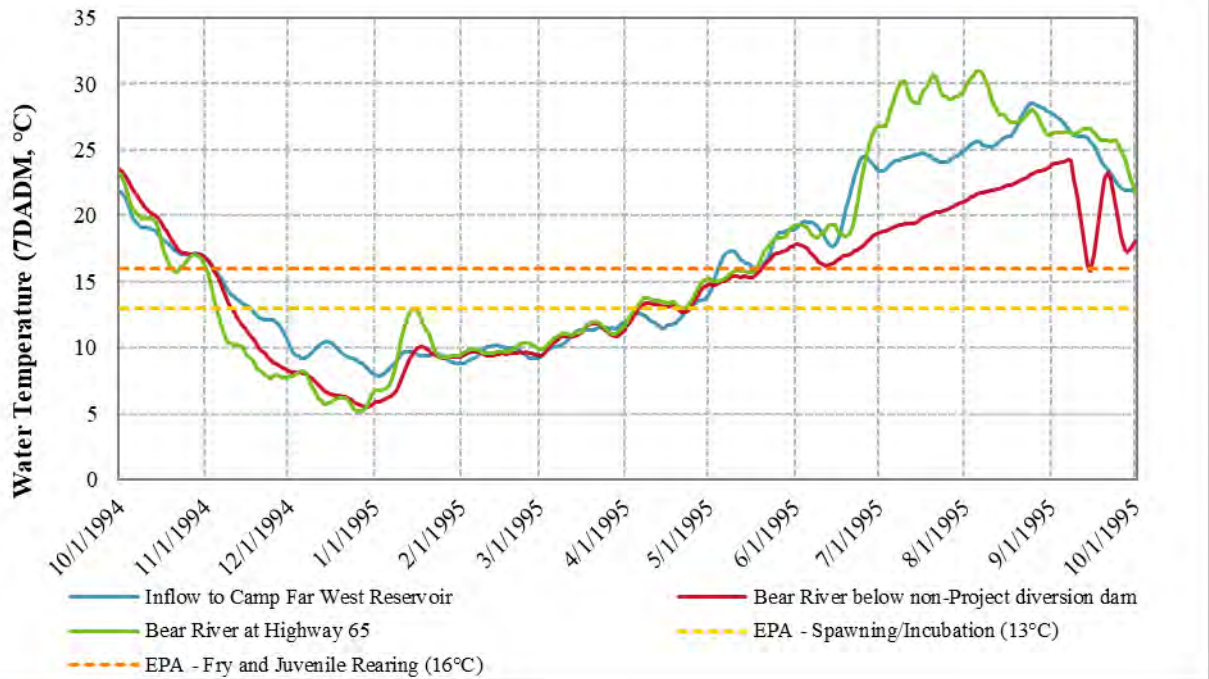


Figure 3.3.5-6. Modeled water temperatures in water year 1995 (a representative wet WY) under the Environmental Baseline.

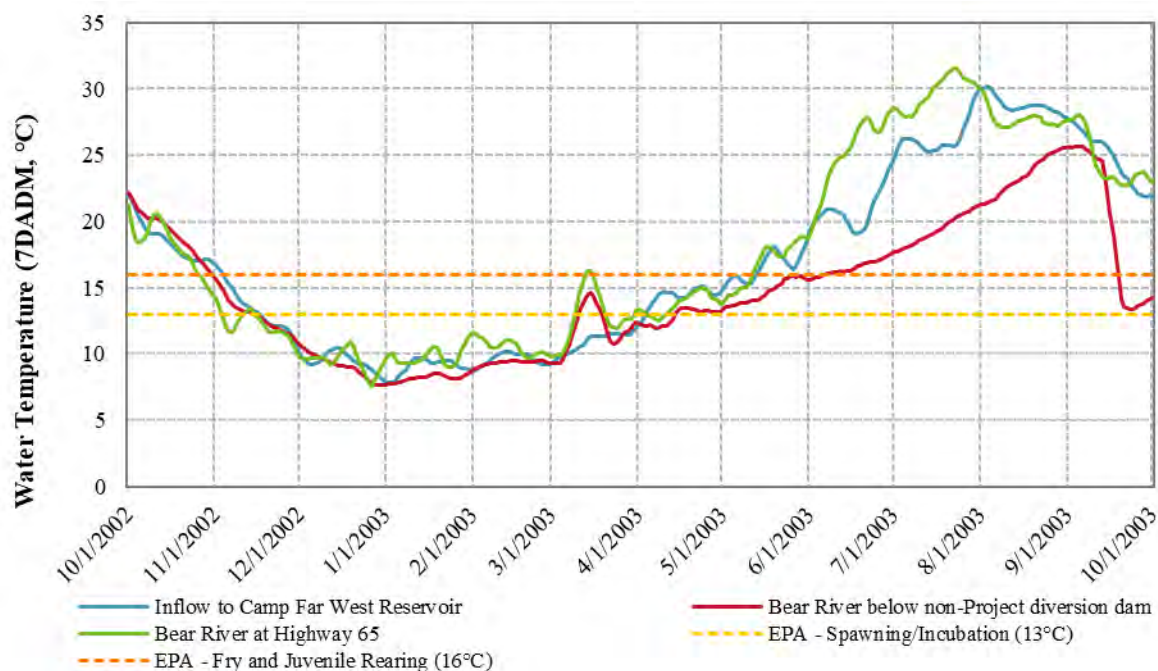


Figure 3.3.5-7. Modeled water temperatures in water year 2003 (a representative normal WY) under the Environmental Baseline.

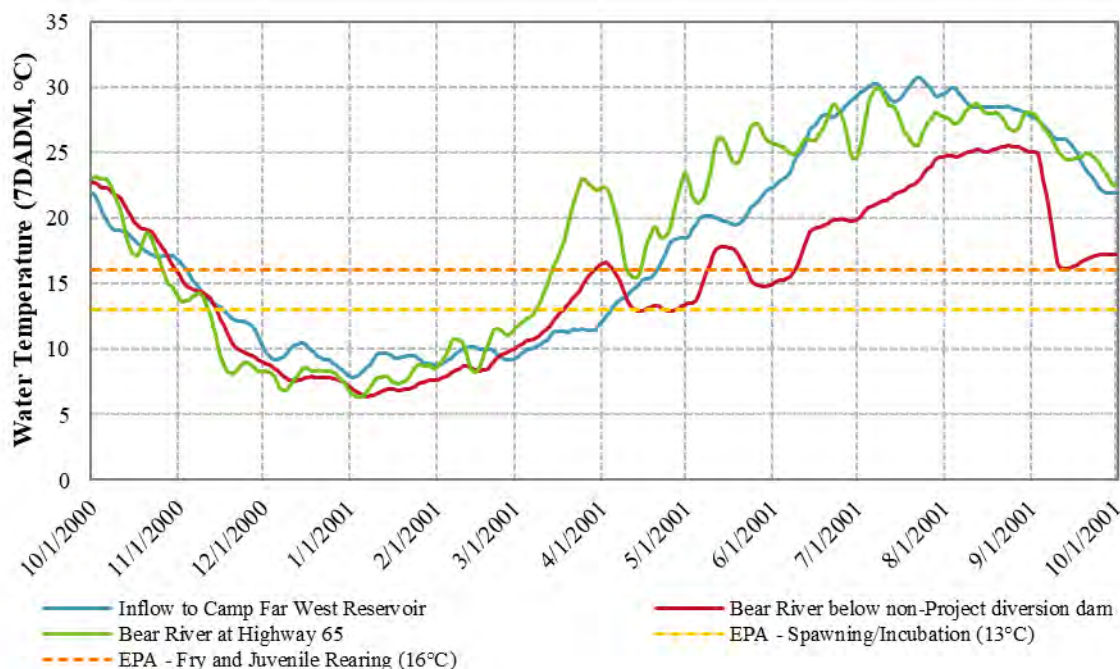


Figure 3.3.5-8. Modeled water temperatures in water year 2001 (a representative dry WY) under the Environmental Baseline.

CV Spring-run Chinook Salmon ESU (FT)

Status and Critical Habitat

On September 16, 1999, NMFS listed the Central Valley ESU of Chinook salmon as threatened (64 FR 50394). On June 14, 2004, following a 5-year species status review, NMFS proposed that CV spring-run Chinook salmon ESU remain a threatened species based on the Biological Review Team's strong majority opinion that the CV spring-run Chinook salmon ESU is "likely to become endangered within the foreseeable future" due to the greatly reduced distribution of CV spring-run Chinook salmon ESU and hatchery influences on the natural population. On June 28, 2005, NMFS reaffirmed the threatened status of the CV spring-run Chinook salmon ESU, and included the FRFH spring-run Chinook salmon population as part of the CV spring-run Chinook salmon ESU (70 FR 37160).

Critical Habitat was designated for the CV spring-run Chinook salmon ESU on September 2, 2005 (70 FR 52488). The ESU for CV spring-run Chinook salmon ESU is defined as all naturally spawned populations of spring-run Chinook salmon ESU in the Sacramento River and its tributaries, including the FRFH population. In the Bear River, NMFS designates CV spring-run Chinook salmon ESU Critical Habitat to include the area defined in the CALWATER Marysville HU 5515, Lower Yuba River Hydrologic Sub-area 551510. Outlet(s) = Bear River (38.9398, -121.5790) upstream to endpoint(s) in: Bear River (38.9783, -121.5166), which means the upstream extent is approximately to RM 5 in the Bear River (70 FR 52488).

During the final ruling review, the CHART did not first see the Bear River as occupied habitat for CV spring-run Chinook salmon ESU. The CHART stated:

The HSA watershed (551510) containing the lower Bear River was originally considered unoccupied by the CHART, and its conservation value was not rated.

The habitat was only included based on commenters suggestions that future habitat restoration may result in usable beneficial habitat. At the time of the ruling, the lower Bear River habitat was only marginal for CV spring-run Chinook salmon ESU, but the CHART determined inclusion of the habitat outweighed exclusion.

Recovery Plan

NMFS's 2014 Recovery Plan for Central Valley (CV) winter-run Chinook salmon (*Oncorhynchus tshawytscha*) Evolutionary Significant Unit (ESU), CV spring-run Chinook salmon (*O. tshawytscha*) ESU and CV steelhead (*O. mykiss*) Distinct Population Segment (DPS) is discussed above under CV steelhead DPS. For the CV winter-run and spring-run Chinook salmon ESUs, the Recovery Plan does not classify the Bear River as a Core 1, 2, or 3, stream, and does not list any Bear River-specific stressors. The Recovery Plan states that the Bear River does not provide suitable habitat for self-sustaining populations of anadromous salmonids. Moreover, USFWS (1998) states that "temperatures are often at or above preferred ranges for Chinook salmon." CV spring-run Chinook salmon ESU use of the lower Bear River is likely

restricted to use by non-natal juveniles originating from the Feather or Yuba rivers during higher flow years.

Current and Historical Distribution

Section 305(b)(2) of the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) (16 USC 1801 et seq.) requires the identification of essential fish habitat (EFH) for federally managed fishery species and the implementation of measures to conserve and enhance this habitat. In the Mid-Pacific Region, the Pacific Fisheries Management Council designates EFH and NMFS approves the designation. EFH includes specifically identified waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity and covers a species' full life cycle (16 USC 1802(10)). EFH only applies to commercial fisheries. Chinook salmon habitat has been identified as Pacific salmon EFH in the Bear River upstream to Camp Far West Dam (PFMC 2014). EFH applies to all runs of Chinook salmon potentially present in the Bear River.

Four distinct runs of Chinook salmon spawn in the Sacramento-San Joaquin River system, with each run named for the season when the majority of the run enters freshwater as adults. Historically, spring-run Chinook salmon occurred in the headwaters of all major river systems in the Central Valley where natural barriers to migration were absent. Beginning in the 1880s, harvest, water development, construction of dams that prevented access to headwater areas, and habitat degradation significantly reduced the number and range of CV spring-run Chinook salmon ESU. Presently, Mill, Deer, and Butte creeks in the Sacramento River system support self-sustaining, persistent populations of CV spring-run Chinook salmon ESU (PFMC 2014).

The upper Sacramento, Yuba, and Feather rivers also are reported to support CV spring-run Chinook salmon ESU. However, these populations may be hybridized to some degree with fall-run Chinook salmon. CV spring-run Chinook salmon ESU acquired and maintained genetic integrity through reproductive (spatial-temporal) isolation from other CV Chinook salmon runs. However, construction of dams has prevented access to headwater areas and much of this historical reproductive isolation has been compromised, resulting in intermixed life history traits in many remaining habitats (PFMC 2014). USFWS (1998) states that historical use of the Bear River by Chinook salmon was limited by a natural barrier in the vicinity of Camp Far West Reservoir to the lower-elevation reaches on the valley floor, where natural regimes of temperature and flow likely restricted their use to years when suitable conditions existed.

Life History and Habitat Requirements

NMFS (2014) reports that the Bear River does not provide adequate physical habitat or suitable flow or water temperature conditions that could support self-sustaining anadromous salmonid populations. CV spring-run Chinook salmon ESU was not identified in NMFS (2014) Recovery Plan as a species that historically or currently exists in the Bear River. However, as previously mentioned, NMFS did designate Critical Habitat for CV spring-run Chinook salmon ESU in the lowest 5 mi of the Bear River for non-natal juvenile rearing (70 FR 52488). NMFS included the lower reach of the Bear River in the Critical Habitat designation, in part, because the habitat may serve as refugia from high water conditions and catastrophic events (70 FR 52488), which suggests that non-natal juvenile CV spring-run Chinook salmon ESU, presumably originating from the Feather River or Yuba River, may utilize the lower Bear River during high flow events.

If non-natal juvenile CV spring-run Chinook salmon ESU primarily access the lower Bear River during high flow years, flow-dependent habitat in the lower Bear River would likely not be limiting during those periods.

CV spring-run Chinook salmon ESU fry generally emerge from the gravel from November to March (Moyle 2002). Most juvenile Chinook salmon emigrate from the lower Feather River within a few months of emergence. However, some CV spring-run Chinook salmon ESU juveniles reportedly rear for up to 15 months prior to emigrating (NMFS 2014). While non-natal juvenile CV spring-run Chinook salmon ESU may rear year-round, based on the generally unsuitable habitat conditions in the lower Bear River during the summer and fall, juveniles would likely only utilize the lower Bear River during the higher flow spring months.

Table 3.3.5-4. CV spring-run Chinook salmon ESU lifestage periodicity based on information presented for the Yuba River. CV spring-run Chinook salmon ESU do not occupy the Bear River, so a nearby surrogate basin was used for discussion.

| CV Spring-run Chinook Salmon ESU Lifestage | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Adult Migration | | | | | | | | | | | | |
| Adult Holding | | | | | | | | | | | | |
| Spawning | | | | | | | | | | | | |
| Embryo Incubation | | | | | | | | | | | | |
| Juvenile Rearing and Downstream Movement | | | | | | | | | | | | |
| Smolt (Yearling+) Emigration | | | | | | | | | | | | |

The CNDDDB had no reports of the CV spring-run Chinook salmon ESU in the Project Vicinity (CDFW 2018a). CV Spring-run Chinook salmon ESU are known to occur in the Feather and Yuba rivers. Adults in the Feather River migrate past the Bear River on return to their natal spawning grounds and juveniles outmigrate past the Bear River confluence as they move to the Delta.

Stressors and Limiting Factors

Although the Bear River historically supported fall-run Chinook salmon, CV spring-run Chinook salmon were apparently not present. This may be in part due to the fact that a natural waterfall blocked Chinook salmon in the vicinity of the present day Camp Far West Reservoir (Yoshiyama et al. 2001), which would have prevented CV spring-run Chinook salmon ESU from immigrating and spawning in their preferred habitats in the higher elevation reaches of Central Valley streams.

The Bear River was described as only marginal for CV spring-run Chinook salmon ESU during consideration of critical habitat designation. The only usage of the Bear River would be for non-natal rearing, which is a small portion of the overall life history of CV spring-run Chinook salmon ESU originating from the Feather or Yuba rivers. Flow in the lower Bear River is

strongly influenced by upstream water released from the Feather and Yuba rivers, so the overall potential to manage or benefit non-natal rearing in the lower Bear River is low.

SSWD's Relicensing Studies

Given the low likelihood of occurrence in the lower Bear River of CV spring-run Chinook salmon ESU identified in the NMFS (2014) Recovery Plan, SSWD conducted no studies specifically focused on CV spring-run Chinook salmon ESU. However, SSWD conducted eDNA sampling in the lower Bear River in 2017, and the sampling targeted Chinook salmon. Chinook salmon were detected at 17 of the 49 samples collected, but eDNA does not allow for identification of run type.

SSWD conducted an analysis of habitat and water temperature as they pertain to fall-run Chinook salmon life stages using output from temperature and Instream Flow Study models developed as part of relicensing studies. Many of the physical requirements for CV spring-run Chinook salmon ESU are similar to fall-run to allow for comparative assessment. Also, EPA water temperature guidelines are generally the same for spring- and fall-run Chinook and steelhead by lifestage, with additional consideration based on differences in periodicity. Analysis indicates that, while habitat for CV spring-run Chinook salmon ESU is available for all life stages, temperatures generally preclude utilization of the available habitat for most months of the year. Provided below is a summary of habitat, temperature and flow analyses for spring-run Chinook salmon ESU by lifestage to address potential conditions by period.

Adult Migration and Holding

CV spring-run Chinook salmon ESU return to their natal streams in spring and hold through the summer months prior to spawning. Their early return and relatively long riverine holding period are unique to the periodicity of this run of fish when compared to other runs like fall-run Chinook that quickly move into freshwater in the fall (October) and spawn with minimal holding time. The long holding period make spring-run adults conspicuous and easier to view from the water's surface. Large schools of spring-run can be seen in nearby rivers including the Feather and Yuba rivers, where they occupy large stratified pools where deep cool water remains through summer months. Compared to the Feather and Yuba rivers, the lower Bear River is relatively small and does not offer large, deep, thermally stratified pools. Suitable temperature below 18°C may occur November through April, but May through September would generally have unsuitable water temperature.

Historical data did not suggest that CV spring-run Chinook salmon ESU ever occupied the Bear River, which is not surprising based on its size and low elevation. During all of the relicensing studies, there was not a single observation of an adult Chinook salmon between the months of March and August, which would be typical of adult holding. The Water Transfer Survey for fishes on July 24-26 and August 29-31, 2018 did not identify any adult Chinook salmon as well. All historic and recently collected information suggests that adult CV spring-run Chinook salmon ESU does not occupy the Bear River for reproduction.

CV Spring-Run Chinook Salmon ESU Spawning

CV spring-run Chinook salmon ESU spawning generally occurs relatively high in the watershed, near deepwater cold holding areas. Adults' early return in the spring allows for the run to move into the uppermost accessible stream habitat, where cooler water may occur. Then, spawning generally initiates in September through early October. The early potential spawning would be problematic in the lower Bear River where spawning temperature is outside of EPA (2003) guidelines and unsuitable for all of September and October. Table 3.3.5-3 presents information for steelhead spawning, but temperature guidelines are the same for Chinook spawning, although periodicity is different.

Fall-run Chinook salmon often occur in the same watershed as CV spring-run Chinook salmon ESU, but typically spawn in mid-October through November and even into December. Fall-run Chinook salmon gonads are ripe as they enter freshwater making them quick to spawn. They generally do not expend the energy to move higher in the watershed, where CV spring-run Chinook salmon ESU would occur. As a result, there is generally a spatial separation between fall- and spring-runs, even if a small period in October may temporally overlap between fall- and spring-run adult spawning. The separation maintains the genetic integrity of the runs. In the event that CV spring-run Chinook salmon ESU were to occupy and spawn in the lower Bear River, it would likely occur near the non-Project diversion dam, the furthest upstream accessible point in the lower Bear River. Spawning surveys and the results from habitat modeling showed that extensive physical spawning habitat and quality gravel is available throughout the lower Bear River and would not limit spawning. Historical information did not document any spawning and all relicensing studies did not observe any early spawning that would suggest CV spring-run Chinook salmon ESU activity.

CV Spring-Run Chinook Salmon ESU Embryo Incubation

CV spring-run Chinook salmon ESU adult presence or related spawning activity were not observed in the Bear River. As a result, there is little information to present regarding embryo or egg incubation. In the event that CV spring-run Chinook salmon ESU were to attempt spawning in September and October, the resultant embryo would have limited success because water temperature during this period exceed the EPA guidelines for embryo incubation. While temperature would be unsuitable, the presence of extensive spawning gravels with suitable permeability would not be a limiting factor. Regardless, any spawning or incubation is unlikely and any successful egg incubation result is even more unlikely due to unsuitable water temperature.

CV Spring-run Chinook Salmon ESU Rearing (Fry and Juvenile Lifestages)

CV spring-run juvenile Chinook salmon ESU have a complex early life history. Emergent fry are known to quickly begin moving downstream within hours of emergence from the gravel. Others hold for weeks and then begin the process of smoltification, which will result in moving out of their natal river as a subyearling. Finally, a select portion will oversummer for a year and migrate out as larger yearling. Each of these life history strategies spread out the potential risk of mortality and predation by varying the timing of rearing and outmigration. The potential for

each of these life histories is contingent upon a surrounding suitable environment to allow for each option to occur. The lower Bear River does not offer suitable year-round habitat as a result of unsuitable water temperature and would not allow for any long-term rearing.

As fry and juveniles exit their natal streams from the Feather and Yuba rivers, they may move into the mouth of tributaries to hold and feed for relatively brief periods. Tributary confluences can offer slower or slack water for areas to feed and rest. Outmigrating CV spring-run Chinook salmon ESU may occupy these areas, which are classified as non-natal rearing habitat. The lower 5 mi of the Bear River is designated as critical habitat for CV spring-run Chinook salmon ESU for the purpose of non-natal rearing.

During SSWD's Water Transfer Surveys, it was observed that the lower 1 mi of the Bear River may backwater as flow from the Feather River backs incoming flow from the Bear River. The resultant low velocity area may provide a brief, desirable area for juvenile outmigrants to occupy. Water temperature in the lower Bear River during late spring, summer, and fall months is likely too warm for juveniles outside of the mixing area from the cooler Feather River. During winter months, cooler temperature may allow for expanded usage as temperature becomes suitable. Habitat within the Bear River near the confluence of the Feather River is physically suitable for temporary usage by juveniles. The amount of backwatered habitat is primarily influenced by flow from the Feather River and less a result of Bear River flow management. The distant location also cannot be managed for temperature from Project water releases, as ambient temperature overwhelms any potentially cooler Project flow releases. Therefore, there is little management for CV spring-run Chinook salmon ESU that may utilize the confluence for non-natal rearing.

Smoltification

As described for CV steelhead DPS earlier, smoltification is a physiological change that occurs as juvenile salmonids move from freshwater to saltwater. CV spring-run Chinook salmon ESU are not expected to be present during any natal rearing activity, but may occur during non-natal rearing and occupation of the lower Bear River. Smoltification may occur from October through early May and the EPA provides a temperature guideline of 14°C during this period. The lower Bear River temperature is determined by ambient warming year-round and, therefore, may be unsuitable during late spring, summer, and fall months. Water temperature from November through March may be suitable and offer brief periods of usage for non-natal rearing.

Known Occurrences in Action Area

SSWD's relicensing studies identified Chinook salmon in the lower Bear River, but these are the fall-run phenotype. The Recovery Plan states that CV spring-run Chinook salmon ESU use of the lower Bear River is likely restricted to use by non-natal juveniles originating from the Feather or Yuba rivers during higher flow years. The lower 5 mi of the lower Bear River are designated as Critical Habitat for CV spring-run Chinook salmon ESU. As discussed above, the Bear River may provide intermittent habitat for non-natal rearing as is allowed by suitable water temperature dictated by ambient warming. The Bear River cannot manage for this usage through flow releases, but does offer potential opportunistic usage as temperature conditions allow.

North American Green Sturgeon Southern DPS (FT)

Status and Critical Habitat

The Southern DPS of North American green sturgeon was listed as a threatened species on April 7, 2006 (71 FR 17757) and includes the green sturgeon population spawning in the Sacramento River and utilizing the Sacramento-San Joaquin River Delta, and San Francisco Estuary. NMFS (2009b) *Draft Environmental Assessment for the Proposed Application of Protective Regulations Under Section 4(D) of the Endangered Species Act for the Threatened Southern Distinct Population Segment of North American Green Sturgeon* identified the loss of spawning habitat in the upper Sacramento River, and potentially in the Feather and Yuba rivers, due to migration barriers and instream alterations as threats to the survival of the Southern DPS of North American green sturgeon.

In August 2015, NMFS completed the 5-year status review of the Southern DPS of the North American green sturgeon. Based on the evaluation of new information generated since the last status review, NMFS (2015) does not suggest a significant change in the status of Southern DPS green sturgeon and has concluded that the “threatened” status continues to be applicable.

On October 9, 2009, NMFS (74 FR 52300) designated critical habitat for the Southern DPS of North American green sturgeon. In the Central Valley, designated critical habitat for green sturgeon includes the Sacramento River, lower Feather River, lower Yuba River, the Sacramento-San Joaquin River Delta, and San Francisco Estuary. NMFS (74 FR 52300) defined specific habitat areas in the Sacramento, Feather, and Yuba rivers in California to include riverine habitat from each river mouth upstream to and including the furthest known site of historic and/or current sighting or capture of North American green sturgeon, as long as the site is still accessible. No critical habitat for green sturgeon was designated in the Bear River.

Recovery Plan

The NMFS (2018) Recovery Plan focuses recovery efforts on conservation and expansion of freshwater and estuarine spawning and rearing habitats. Additionally, NMFS (2018) states that NMFS may refine the recovery criteria or revise or reprioritize recovery actions. For example, if indices of recruitment to the juvenile life stage do not show a net positive trend within 15 years after restoring adequate habitat in the Sacramento, Feather and Yuba rivers, then additional spawning and rearing habitat may be needed elsewhere or other activities that increase juvenile productivity may be needed. Watersheds that might have once provided spawning habitat based on historical conditions (i.e., Bear River, American River, and Russian River) could be considered. NMFS (2018) states that as a monitoring priority, the use of eDNA or other methods to monitor unoccupied rivers/non-spawning population rivers for the presence of green sturgeon, particularly during summer months, should be implemented. Priority rivers would be those more likely to have Southern DPS populations than Northern DPS populations (i.e., American, Bear, Russian, San Joaquin, Stanislaus, and Tuolumne rivers). NMFS (2018) lists this monitoring as a Priority 2, which is defined as research with potentially high management or recovery value.

Current and Historical Distribution

Green sturgeon exhibit a broad range along the Pacific Coast, and have been documented offshore from Ensenada, Mexico, to the Bering Sea. It is found in rivers from British Columbia

to the Sacramento River (Moyle 2002). The Southern DPS of North American green sturgeon are anadromous, and are considered to be the most marine-oriented of the sturgeon species (Moyle 2002).

Limited data has been collected regarding the historical distribution of green sturgeon in the Sacramento-San Joaquin river basins. However, Adams et al. (2007) summarizes information that suggests that green sturgeon may have been distributed above the locations of present-day dams on the Sacramento and Feather rivers (Mora et al. 2009).

Currently, spawning populations of green sturgeon in North America are found in only three river systems: the Sacramento and Klamath rivers in California and the Rogue River in southern Oregon (NMFS 2009b). Green sturgeon have been intermittently observed in the lower Feather River, a tributary to the Sacramento River (Beamesderfer et al. 2007). According to NMFS (2008), the presence of adult, and possibly sub-adult, green sturgeon within the lower Feather River has been confirmed by photographs, anglers' descriptions of fish catches (CDFG 2002), incidental sightings (DWR 2005), and occasional catches of green sturgeon reported by fishing guides (Beamesderfer et al. 2004).

Although adult green sturgeon occurrence in the Feather River has been previously documented, the use of rotary screw traps, artificial substrates, and larval nets deployed at multiple locations during early spring and through summer had failed to collect larval and juvenile green sturgeon (Seesholtz et al. 2003). Moreover, unspecific past reports of green sturgeon spawning (Wang 1986; USFWS 1995; CDFG 2002) have not been corroborated by observations of young fish or significant numbers of adults in focused sampling efforts (Niggemeyer and Duster 2003; Seesholtz et al. 2003; Beamesderfer et al. 2004). Due to a lack of corroborated documentation, NMFS concluded, in 2006, that an effective population of spawning green sturgeon did not exist in the lower Feather River (71 FR 17757). However, four fertilized green sturgeon eggs were collected near the Thermalito Afterbay Outlet on June 14, 2011, thus providing the first documentation of at least some successful spawning in the Feather River (Seesholtz et al. 2014).

The only historic evidence for the presence of green sturgeon in the lower Bear River is anecdotal and comes from personal communications with a game warden, a CDFG biologist, and a fishing guide (USFWS 1995). Presence of both green and white sturgeon was attributed to accounts of adult sturgeon periodically utilizing pools in the lower Bear River between Highway 70 and Highway 65 between 1989 and 1992, although none of the direct observations included green sturgeon specifically (USFWS 1995).

Recent studies conducted by DWR and utilizing Dual Frequency Identification Sonar (DIDSON) documented sturgeon presence in the lower 1 mi of the Bear River, but DWR was unable to determine species (A. Seesholtz, pers. comm., 2018). On March 28, 2017, DWR biologists reported detecting 24 adult sturgeon while conducting DIDSON surveys in the lower 1 mi of the Bear River. During that same time period, DWR staff reported they received anecdotal reports of anglers landing sturgeon in Wheatland just above the Highway 65 Bridge. On March 19, 2018, DWR repeated the DIDSON survey in the lower Bear River and reported detecting a total of 37 adult sturgeon within 1 mi of the Feather River confluence. During the survey, DWR staff reported watching an angler hook and land four white sturgeon approximately 0.5 mi upstream

from the confluence with the Feather River. Additionally, DWR staff reported that a friend of a DWR biologist hooked and landed an adult white sturgeon on the Bear River on March 18, 2018.

In addition, CDFW recently deployed egg mats to investigate sturgeon spawning on the lower Bear River at eight sites in 2017 and at two sites in 2018 (CDFW 2018b and 2018c). Prior to deployment of the egg mats, CDFW conducted reconnaissance surveys with DIDSON cameras to identify potential spawning or holding locations on the Bear River. No sturgeon were observed during the DIDSON reconnaissance surveys in 2017 or 2018. After identifying suitable locations, two egg mats were deployed at each sampling site. Sampling took place from March 7 through May 9, 2017, and March 27 through May 11, 2018. During the 2018 surveys, a logjam on the Bear River approximately 2.5 mi upstream from the confluence with the Feather River prevented access to six sites where mats were deployed in 2017. CDFW staff checked egg mats 3 to 4 times during the 2017 survey period, depending on accessibility due to flow conditions, and 4 times during the 2018 survey period. No sturgeon eggs were collected or observed on the egg mats in 2017 or 2018.

Life History and Habitat Requirements

Green sturgeon in the Sacramento River have been documented and studied more successfully than they have been on the Feather River. Green sturgeon adults in the Sacramento River begin their upstream spawning migrations into freshwater during late February. Spawning occurs between March and July, with peak spawning believed to occur between April and June (Adams et al. 2002). Poytress et al. (2011) conducted spawning surveys in the upper Sacramento River from early April through mid-June and temperatures ranged from 52.9°F to 60.1°F. Green sturgeon eggs identified on the Feather River in 2011 were collected at temperatures ranging from 60.8°F to 62.6°F (Seesholtz et al. 2014).

NMFS (2009a) reports that in the Sacramento River, adult green sturgeon prefer deep holes (≥ 5 m depth) at the mouths of tributary streams, where they spawn and rest on the bottom. After spawning, the adults hold over in the upper Sacramento River between Red Bluff Diversion Dam (RBDD) and the Glen-Colusa Irrigation District (GCID) diversion until November (Klimley et al. 2007). Heublein et al. (2006, 2009) reported the presence of adults in the Sacramento River during the spring through the fall into the early winter months, holding in upstream locations before their emigration from the system later in the year. Green sturgeon downstream migration appears to be triggered by increased flows and decreasing water temperatures, and occurs rapidly once initiated (NMFS 2009a). Some adult green sturgeon leave the system immediately following their suspected spawning activity and re-enter the ocean in early summer (Heublein 2006). NMFS (2009a) states that green sturgeon larvae and juveniles are routinely observed in rotary screw traps at RBDD and the GCID diversion, indicating that spawning occurs upstream of both these sites.

It is believed that adult green sturgeon spawn every 1 to 5 years (Beamesderfer et al. 2007). Upon maturation of their gonadal tissue, but prior to ovulation or spermiation, the adult fish enter freshwater and migrate upriver to their spawning grounds (NMFS 2009a). Heublein et al. (2009) observed that green sturgeon enter San Francisco Bay in March and April and migrate rapidly up the Sacramento River. The fish lingered in the upper Sacramento River at the apex of their

migration for 14 to 51 days, presumably engaged in spawning behavior, before moving back downriver (Heublein et al. 2009).

Green sturgeon spawning habitat preferences and requirements are not well documented. Eggs are likely broadcast and externally fertilized in relatively fast water and probably in depths greater than three meters (Moyle 2002). Preferred spawning substrate is likely large cobble where eggs settle into cracks, but spawning substrate can range from clean sand to bedrock (Moyle 2002). Spawning is believed to occur over substrates ranging from clean sand to bedrock, with preferences for cobble (Emmett et al. 1991; Moyle et al. 1995). Eggs likely adhere to substrates, or settle into crevices between substrates (Van Eenennaam et al. 2001; Deng et al. 2002).

Green sturgeon larvae hatch from fertilized eggs after approximately 169 hours of incubation at a water temperature of 59°F (Van Eenennaam et al. 2001; Deng et al. 2002), which is similar to the sympatric white sturgeon development rate (176 hours). Van Eenennaam et al. (2005) indicated that an optimum range of water temperatures for egg development was between 57.2°F and 62.6°F. Water temperatures over 73.4°F resulted in 100 percent mortality of fertilized eggs before hatching. Water temperatures above 68°F are reportedly lethal to green sturgeon embryos (Cech et al. 2000; Beamesderfer and Webb 2002).

A general timeline of green sturgeon development has been reproduced from NMFS (2016a) and is provided as Table 3.3.5-5. Developmental stage is given by size, and used to infer life-stage through the measured length of the fish. As indicated in the reproduced Table 3.3.5-5, there is considerable variability across categories, such as size or age at maturity (NMFS 2016a).

Table 3.3.5-5. A general timeline of Southern DPS of North American green sturgeon life history, from egg to adult, with length-at-life-stage information provided. Table reproduced from NMFS (2016a).

| Timeline | Life-stage, Length-Age Relationship |
|--|---|
| Fertilization of eggs (spawning) | Spawning occurs primarily in deep water (>5m) pools ¹ at very few select sites ² , predominantly in the Sacramento River, predominantly mid-April to mid-June ³ . |
| 144–192 hours (6-8 days) after fertilization of eggs | Newly hatched larvae emerge. Larvae are 12.6–14.5 mm long ⁴ . |
| 6 days post hatch | Nocturnal swim up, hide-by-day behavior observed ⁴ . |
| 10 days post hatch (dph) | Exogenous feeding begins around 10 dph ⁴ . Larvae begin to disperse downstream. |
| 2 weeks old (approx) | Larvae appear in USFWS rotary screw traps at RBDD at lengths of 24–31 mm. |
| 45 days post hatch | Larval to juvenile metamorphosis complete. Begin juvenile lifestage. Juveniles are 63–94 mm long. |
| 45 days to 1.5 years | Juveniles migrate downstream and into the Delta or the estuary and rear to the subadult phase. Juveniles range in size from around 70 mm to 90 cm. Little information available about this lifestage. |
| 1.5 to 4 years | Sometime between the ages of 1.5 to 4 years, juvenile green sturgeon migrate to sea for the first time, thereby entering the subadult phase. Subadults are 107 cm to 174 ⁵ cm. |
| 1.5 years to 15-17 years | After green sturgeon enter the ocean for the first time, they grow and develop, reaching maturity between 15–17 years old.* |
| 15 to 17 years* | Green sturgeon reach sexual maturity and become adults, with males maturing around 120 cm and females maturing around 145 cm ⁶ (based on Nakamoto's Klamath River studies). |

Table 3.3.5-5. (continued)

| Timeline | Life-stage, Length-Age Relationship |
|-----------------|---|
| 15 to 50+ years | Green sturgeon have a lifespan that can reach 50 or more years and can grow to a total length of over 2 meters. |

¹ Thomas et al. (2013)

² Mora (unpub, UC Davis, as cited in NMFS 2016a)

³ Poytress et al. (2013)

⁴ Deng et al. (2002)

⁵ Heppell (2007)

⁶ Nakamoto et al. (1995) found that green sturgeon in the Klamath River might reach sexual maturity as early as 13 years for females and 9 years for males.

* More research is needed to determine the typical age and size of green sturgeon at maturity (NMFS 2016a).

Stressors and Limiting Factors

The principal factor for the decline of green sturgeon reportedly comes from the reduction of green sturgeon spawning habitat to a limited area of the Sacramento River (70 FR 17391). Loss of historical spawning habitat can be attributed to the construction of migration barriers which block or impede green sturgeon access to spawning grounds. Although existing water storage dams only block access to about 9 percent of historically available green sturgeon habitat, Mora et al. (2009) suggest that the blocked areas historically contained relatively high amounts of spawning habitat because of their upstream position in the river system.

In addition, a substantial amount of what may have been historical spawning and rearing habitat in the Feather River upstream of Oroville Dam has also been lost (70 FR 17386). According to NMFS (2016b), multiple hydroelectric projects upstream of Oroville Reservoir would impede or block access to historical spawning and rearing grounds even if fish passage was provided past the Oroville facilities.

According to NMFS (2016b), water temperatures during the green sturgeon spawning and early juvenile development period are one of the most significant stressors affecting green sturgeon individuals in the lower Feather River. Water temperatures within potential spawning areas are within optimal ranges during a majority of the spawning and early rearing period from March through May, but are warmer in June, exceeding optimal levels that may result in egg and early juvenile mortalities or abnormalities (NMFS 2016a). Although the range of optimal water temperatures varies depending on month and WY type, NMFS determined that there appears to be at least as much suitable spawning habitat now as under pre-dam conditions, and water temperatures appear adequate to support reproduction, especially during wet and above normal WYs when green sturgeon production is known to be highest (NMFS 2016a).

SSWD's Relicensing Studies

In 2017, SSWD collected 50 water samples between the non-Project diversion dam and the confluence with the Feather River to be analyzed for eDNA, including green sturgeon. No green sturgeon were detected in the eDNA analysis. For further analysis of the study, see Section 3.3.3.1.3 in this Exhibit E.

Known Occurrences in Action Area

SSWD did not find any verified occurrences of North American green sturgeon in the Action Area, though general sturgeon observations have been recorded. SSWD's eDNA sampling did

not find green sturgeon, and designated Critical Habitat for North American green sturgeon Southern DPS does not occur in the Action Area.

3.3.5.3 Environmental Effects

This section discusses the potential environmental effects of SSWD's Proposed Project, which as described in Section 2.2 of this Exhibit E, includes a Pool Raise, modifications of existing recreation facilities, and modification of the existing Project Boundary. SSWD developed its Proposed Measures WR1, AR1 and AR2 in collaboration with CDFG and USFWS and are continuing to collaborate with these agencies to refine Measure AR3. These flow measures were developed targeting fall-run Chinook salmon, but would also provide benefit for other anadromous fishes, with the realization that the Project controls a small amount of water and that this water is warm in summer and fall. With that in mind, SSWD and the agencies developed Measure WR1, Implement Water Year Types, so that, when cool water is available in winter and spring, the key periods for fall-run Chinook salmon, in wetter years, the water could be allocated for the benefit of fall-run Chinook salmon. Further emphasis was placed on juvenile rearing (i.e., extending the period of suitable conditions, where possible). Measure AR1, Implement Minimum Streamflows, reflects this emphasis with an increase in winter and spring minimum streamflows from existing minimum flows of between 10 to 115 cfs, depending on month and WY type. Minimum streamflows from June through October are the same, or even slightly less than existing minimum streamflows, recognizing that the water is better used in the winter and spring, and no amount of release is going to substantially improve aquatic habitat over existing conditions in summer and fall, primarily due to ambient warming and the subsequent warm water temperatures. In addition, Measure AR2, Implement Fall and Spring Pulse Flow, would provide a fall pulse flow in Wet, Above Normal, and Below Normal WYs to encourage fall-run Chinook salmon to enter the lower Bear River and spawn, and a spring pulse flow in Below Normal, Dry, and Critically Dry WYs to encourage whatever fall-run Chinook salmon are in the river to outmigrate before conditions in the lower Bear River become unfavorable due to water temperature. Measure AR3, Implement Ramping Rates, would establish ramping rates to protect all fishes and minimize fish stranding. The existing license includes only one WY type and does not include pulse flows or ramping rates.

The section is divided into the following areas: 1) deconstruction of the constituent components of the Proposed Action; 2) effects of continued Project O&M; and 3) effects of construction-related activities.

3.3.5.3.1 Deconstruction of the Constituent Components of the Proposed Action

SSWD's Proposed Project, as described in Section 2.2 of this Exhibit E, includes a Pool Raise, modifications of existing recreation facilities, and modification of the existing Project Boundary. In addition, the Proposed Action includes seven measures which are WY types (WR1), minimum streamflows (AR1), fall and spring pulse flows (AR2), ramping rates (AR3), Bald Eagle Management Plan (TR1), blue heron rookery management (TR2), Recreation Facilities Plan (RR1), and HPMP (CR1). SSWD's proposed measures are described in detail in Appendix E2 to this Exhibit E.

This section clearly identifies and geographically distinguishes the individual constituent components of the Proposed Action distinguishing between: 1) constituent components that will have no effect to ESA-listed species or their critical habitats; and 2) constituent components that may affect ESA-listed species or their critical habitats.

Proposed Action constituent components that would have no effect on ESA-Listed species or their critical habitats are generally legal (e.g., comply with a law) or administrative (e.g., filing of a plan), or require management of a terrestrial species. FERC is not required to consult with USFWS or NMFS under Section 7 of the ESA on Proposed Action constituent components that FERC determines will have no effect.

Proposed Action constituent components that may affect ESA-listed species or their critical habitats are primarily related to flow, ground-disturbing activities, vegetation management, access, recreation, and the Pool Raise. FERC is required to consult with USFWS and NMFS under Section 7 of the ESA on Proposed Action constituent components that FERC determines may affect ESA-listed species. These constituent components are discussed below.

Normal O&M of Dam and Powerhouse, including Access for O&M

Normal O&M of Project facilities would continue to occur, including required O&M access to these facilities by Project personnel. Generally, the potential for normal O&M of such constructed facilities devoid of vegetation to affect ESA-listed species would be limited. O&M-related access on the Project road could be a source of disturbance if ESA-listed species occur near the road, which they do not.

Construction of the Pool Raise

The construction related to the Pool Raise and relocation of associated recreation facilities as part of the Proposed Action would not affect most ESA-listed species. The construction would be short-term and isolated to specific areas near Camp Far West Dam and the recreation facilities where ESA-listed species do not occur or are not known to occur. ESA-listed fish in the lower Bear River would not be affected because minimum instream flows and water quality would not be changed from those in the new license during construction. There are two elderberry shrubs that may be inundated by the pool raise, though they are not confirmed to have VELB present. VELB is the only known species that may be affected, though not adversely affected, by the pool raise.

Vegetation Management

Vegetation management, including control of non-native invasive species and trimming or removing unwanted vegetation around Project facilities, would continue to occur and has the potential to affect ESA-listed plants and terrestrial wildlife, if these species occur in vegetation management locations, which they do not.

Ongoing Recreational Use

Recreational use of Project recreational facilities would continue to occur. Recreational activities include shoreline fishing, hiking and trail use, boating, waterskiing, swimming, picnic day use, trail hiking, and nature/wildlife viewing. Such activities have the potential to affect ESA-listed species by increased human presence (e.g., trampling vegetation) or inadvertent or illegal introduction (e.g., escape of bait fish) of invasive species. General measures to limit impacts of recreational use on sensitive resources (e.g., signage) would be protective of ESA-listed species, if present within the proposed FERC Project Boundary and areas downstream of Camp Far West Dam. The Proposed Action includes measure RR1, implement the *Recreation Facilities Plan*.

Capture of Sediment and Large Woody Material in Camp Far West Reservoir

Camp Far West Dam would continue to store water and capture sediment and large woody material that would otherwise move downstream. The general effects of reduced sediment and large woody debris in streams below other impoundments include changes in instream habitat structure, such as fewer pools and loss of spawning gravel, and indirect effects on riparian vegetation. However SSWD's relicensing studies showed that there is available sediment of suitable size, quality, and quantity for ESA-listed fish spawning and large woody material is present in suitable quantities.

Water Year Types and Streamflow Requirements

The Proposed Action would release minimum instream flows below Camp Far West Dam according to five WY type designations, as described in measures WR1 and AR1. The Proposed Action would provide additional releases of water in the form of fall and spring pulse flows according to WY types, and implementation of ramping rates from November through May, as described in measures AR2 (pulse flows) and AR3 (ramping rates). Minimum flows have the potential to affect ESA-listed fish in the lower Bear River by changing the amount of available habitat and water temperature. However, the minimum streamflow schedules that would be implemented under the Proposed Action are designed to improve or maintain aquatic habitats in the lower Bear River in all WY types.

Additional Protection, Mitigation, and Enhancement Measures

The remaining three measures related to bald eagles, the great blue heron rookery, and the implementation of the HPMP should not affect ESA-listed species in the Action Area. The management activities for bald eagles and blue herons would not occur where ESA-listed species occur or have the potential to occur (i.e., at Project facilities or on Camp Far West Reservoir). Implementation of the HPMP would not likely occur in areas where ESA-listed species occur and, if there was overlap, consideration for the ESA-listed species would be made.

3.3.5.3.1 Effects Analysis

Hartweg's Golden Sunburst

Project O&M activities that would have a potential to affect Hartweg's Golden Sunburst include ground-disturbing activities, recreation, and vegetation control, including the application of herbicides. Construction activities that would have the potential to affect Hartweg's Golden Sunburst include the construction of recreation facilities and the modification of the existing spillway for the Pool Raise. As described above, SSWD studies did not find Hartweg's Golden Sunburst in the proposed FERC Project Boundary. Further, habitat for the Hartweg's Golden Sunburst does not occur in the proposed FERC Project Boundary. Hartweg's golden sunburst grows on Mima mounds, which is not present within the Proposed Project Boundary.

For these reasons, SSWD concludes that the Proposed Action would have no effect on Hartweg's golden sunburst.

VELB

Field surveys conducted by SSWD located one elderberry plant in a non-riparian community, dominated by annual grasses and blue oak, in the area east of the dam face, on the shore of the reservoir (Figure 3.3.5-1). The largest stem was 15.2 inches at ground height, while the other was 1.8 inches at ground height. VELB indicators (i.e., boreholes) were not observed, although larger holes were present in the stems (CDFW 2002). Construction would not result in the loss of VELB habitat because the elderberry occurrence on the edge of the reservoir is not near any of the locations of proposed construction. Recreationists were observed during relicensing studies fishing in the area where the elderberry shrub occurs and this will likely continue with the Proposed Action, and the recreationists' activities may compact the ground and damage the root structure of the plant, and existing condition. The Pool Raise may inundate enough of this plant to drown it. Additionally, surveys conducted by Sycamore Environmental for the BA in 2013 located two additional elderberry shrubs along the shoreline, one of which (EB1) may be inundated by the Pool Raise. No signs of dispersed recreation were described around either of the elderberry shrubs located in 2013. No Project O&M or other Project-related activities occur in the areas where elderberry shrubs were located. The only Project activity that might have an effect on VELB or VELB habitat outside of the FERC Project Boundary is downstream flow. However, the proposed new flows would not substantially differ from the current flows, so there would be no anticipated impact on downstream vegetation, including elderberry. Therefore, there would be no impacts on VELB or its habitat outside of the FERC Project Boundary. There are no conclusive signs that VELB utilize this habitat and two plants represent a *de minimis* portion of potential habitat for the species.

For these reasons, SSWD concludes that the Proposed Action may affect, but is not likely to adversely affect VELB and will have no effect on VELB designated Critical Habitat.

Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

Suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp, in the form of small vernal pools, was identified within the northwestern corner of the proposed FERC Project Boundary. Project O&M and recreation would not occur in the vicinity of these vernal pools, except for vegetation management, both by hand trimming and herbicides, on the existing north berm. Three vernal pools were mapped along the base of this berm. However, vegetation management is and would be kept to the face of the berm only, and all herbicide application, as required by State law, are and would be supervised by a Qualified Applicator with direction of a licensed PCA, avoiding impacts to the pools at the berm's base.

No vernal pools would be inundated by the Pool Raise. Other wetland features that would be inundated include 0.04-ac of intermittent channel, 0.06-ac of seasonal swale, 0.03-ac of seasonal wetland and 0.06-ac of seep. None of the features that would be inundated are potential habitat for vernal pool branchiopods.

Vernal pool fairy shrimp, and vernal pool tadpole shrimp do not occur in streams and, therefore, have no potential to occur in stream reaches that would be affected by Proposed Project flows.

The proposed construction for the Pool Raise includes work in the existing spillway and a laydown area south of Blackford Road. There is no suitable vernal pool habitat for either species in these areas. Additionally, there are no vernal pools in the recreation areas; therefore, the construction in these areas would not impact vernal pool fairy shrimp or vernal pool tadpole shrimp.

For these reasons, SSWD concludes that the Proposed Action may affect, but is not likely to adversely affect vernal pool fairy shrimp and vernal pool tadpole shrimp, and will have no effect on their designated Critical Habitats.

CRLF

Project O&M activities that have a potential to affect CRLF include ground-disturbing activities and vegetation control, particularly the application of herbicides, at non-aquatic and terrestrial areas where this species could occur within the proposed FERC Project Boundary. Aquatic habitats within the Action Area include two sewage holding ponds and a non-Project seasonal stock pond. SSWD staff follow Regional Water Quality Control Board (RWQCB) permit requirements to treat algae within the sewage ponds with copper, and to maintain the ponds.¹³ In addition, aquatic vegetation in the ponds and around the pump stations is treated with Diquat. Vegetation spraying typically occurs in February, and again in summer. No other Project-related activities which could affect amphibians typically occur at the sewage ponds. The Project does not apply herbicides or perform other O&M activities at the seasonal stock pond.

Camp Far West Reservoir itself is not suitable habitat for CRLF. Accordingly, operations of the reservoir are unlikely to directly affect CRLF.

¹³ RWQCB Order WQ 2014-0153-DWQ for sewage ponds associated with the NSRA and SSRA.

No aquatic habitats suitable for CRLF breeding would be affected by the Pool Raise. However, the Pool Raise would result in seasonal inundation from January to May of a narrow band of current terrestrial areas along the shoreline, some of which may be suitable for CRLF. Within this affected area, occasional use by CRLF (e.g., during dispersal from other areas) may be reduced as habitat is eliminated or altered. However, the Pool Raise would not preclude CRLF from using adjacent areas during seasonal inundation.

SSWD restricts vegetation removal to areas where it is mandated by law and/or necessary to maintain Project facilities, including the immediate vicinity of the powerhouse, recreation areas, and Project access road. Vegetation management would be limited to Project facilities and roads only, and all herbicide application would be supervised by a Qualified Applicator with direction of a licensed PCA. SSWD does not and would not use ground-disturbing equipment for vegetation clearing.

The two sewage ponds where American bullfrogs were observed are part of the Project's recreation areas; however, the presence of American bullfrogs in the area is not a function of the Project. As discussed in Section 3.3.5.4.2, numerous semi-permanent to permanent ponds suitable for American bullfrogs occur on private property in the surrounding area, especially northwest, east, and south of Camp Far West Reservoir.

No aquatic habitats suitable for CRLF breeding would be affected by construction of new Project facilities. However, construction of new recreation facilities could displace existing terrestrial habitats suitable for CRLF, including areas that may be used occasionally during dispersal. The potential for effects is limited because existing campgrounds and day-use picnic areas would be relocated into adjacent areas already used for recreation.

For these reasons, SSWD concludes that the Proposed Action may affect, but is unlikely to adversely affect CRLF and its designated Critical Habitat.

CV Steelhead DPS

SSWD found no accounts of CV steelhead DPS in the lower Bear River including a recent CNDDDB search, although steelhead have been reported to occur historically in Dry Creek, a tributary to the Bear River entering at RM 5. During SSWD's relicensing studies, *O. mykiss* were positively identified in 11 of 49 eDNA samples and in limited numbers during snorkel and seining efforts. These observations cannot differentiate between resident rainbow trout or steelhead life histories. SSWD also did not observe any CV steelhead DPS redds during surveys between January and March 2018, when CV steelhead DPS spawning would be expected.

SSWD analyzed effects to habitat quantity and quality for fall-run Chinook salmon lifestages (see Section 3.3.3.2 in this Exhibit E) that would be expected under the Proposed Action, and the results revealed trends that are generally applicable to CV steelhead DPS lifestages and associated habitats.

CV Steelhead DPS Adult Immigration and Holding

As stated above, under the Environmental Baseline there is sufficient hydraulic connectivity to allow access to spawning habitats throughout the lower Bear River during the CV steelhead DPS adult immigration and holding period. Access to spawning habitats would be maintained or improved under the Proposed Action, because minimum streamflows in the lower Bear River would be improved between mid-October or mid-November through March, depending on WY type, and otherwise maintained between August and mid-October or mid-November at the levels that exist under the Environmental Baseline. The EPA (2003) recommended 7DADM stream temperature for migrating adult steelhead is 18°C. Stream temperatures in the lower Bear River under the Proposed Action would be similar to those currently occurring under the Environmental Baseline. Stream temperatures in all water year types under the Proposed Action would remain unsuitable in August and September, marginally suitable in October, and become highly suitable from November through March. Implementation of fall pulse flows in wetter year types under the Proposed Action would potentially benefit CV steelhead DPS adult immigration and holding lifestage by stimulating upstream migration behaviors in years where water is more plentiful and spawning and rearing habitats would be generally more available, thereby, increasing the CV steelhead DPS production potential in the lower Bear River.

CV Steelhead DPS Spawning and Embryo Incubation

As discussed in Section 3.3.3.1.3, the results of SSWD's spawning gravel investigation showed that gravels and intragravel conditions suitable for salmonid spawning and embryo incubation are present in a variety of habitats throughout the lower Bear River, both within the low flow active channel and the bank-full channel. Gravels within the low flow active channel are readily available for spawning salmonids. Gravels outside of the low flow active channel but within the bank-full channel serve two potential functions: those in close proximity to the low flow active channel become available to spawning salmonids during regular rises in flows resulting from winter rainfall events, while those located further outside the low flow active channel serve as stores of gravel available for redistribution to the low flow active channel at bank-full and greater discharges. Additionally, the spawning habitat that currently exists in the lower Bear River has existed there since prior to construction of Camp Far West Dam, and is a result of the mass movement of sediments out of the upper Bear River basin during the gold mining era. Furthermore, the Proposed Action would not affect or change any of the mechanisms that contribute to persistence or degradation of spawning habitat, so the currently existing habitats are expected to persist throughout the proposed term of the new license.

Through implementation of water-year-type-specific flow schedules that provide greater minimum streamflows than occur under the Environmental Baseline, the Proposed Action would increase available habitat for spawning salmonids in all water year types as compared to the Environmental Baseline. The largest increases in spawning habitat availability would occur under the proposed Wet and Above Normal WYs, when water is more plentiful and opportunistic utilization of the lower Bear River by CV steelhead DPS is more likely. The increases would extend into May, which is when CV steelhead DPS spawning and incubation lifestages are expected to be complete in the lower Bear River. Minimum streamflows under the Environmental Baseline provide only 2 to 5 percent of Max WUA modeled spawning habitat area depending on Instream Flow Study site. The Proposed Action would provide up to approximately 75 to 80 percent of Max WUA modeled CV steelhead DPS spawning habitat area

during December through February of Wet WYs (Figure 3.3.3-31 in Section 3.3.3.1.3). Under the Proposed Action, stream temperatures that would be expected to occur during the spawning and incubation lifestage periods would not be substantially changed compared to the Environmental Baseline, remaining suitable (less than the EPA guideline of 13°C) in January, and generally becoming less suitable in a downstream direction in February and March. By April and May, temperatures throughout the lower Bear River would remain unsuitable under the Proposed Action, even in Wet WYs where the Proposed Action increases minimum streamflows the most (Table 3.3.3-36, -39, -42, -45, and -48 in Section 3.3.3.3.2).

CV Steelhead DPS Fry and Juvenile Rearing

The habitat-flow relationship for CV steelhead DPS fry resulting from the relicensing Instream Flow Study (see Section 3.3.3.1.3) shows that modeled fry habitat generally decreases with increasing streamflow up to approximately 75 to 100 cfs, depending on Instream Flow Study site, and then remains relatively constant at values of approximately 50 to 90 percent of Max WUA as flows continue to increase. Because of this, modeled CV steelhead DPS fry habitat availability under the Proposed Action would generally decrease compared to the Environmental Baseline. Despite being reduced, modeled CV steelhead fry rearing habitat would remain relatively highly available under the Proposed Action, never dropping below approximately 60 percent of Max WUA (Figure 3.3.3-32 in Section 3.3.3.1.3). On the other hand, modeled rearing habitat for juvenile CV steelhead, while relatively highly available (i.e., approximately 60% to 90% of Max WUA, depending on the Instream Flow Study site) under the Environmental Baseline, would increase or be maintained at existing availability in all WYs under the Proposed Action (Figure 3.3.3-33 in Section 3.3.3.1.3).

Similar to the Environmental Baseline, temperature conditions for fry and juvenile rearing stages of CV steelhead DPS, which are generally expected to extend from January through July for fry and potentially year-round for juveniles, would remain generally suitable or mostly suitable (less than the EPA 7DADM guideline of 16°C) from November through March throughout the entire lower river, marginally suitable downstream of Highway 65 in April and May, and unsuitable (exceeding the EPA guideline) in the lower Bear River under the Proposed Action in all WYs during the summer months (June through October upstream of Highway 65 and May through October downstream of Highway 65; Table 3.3.3-36, -39, -42, -45, and -48).

To reduce the negative impacts to rearing juvenile salmonids resulting from the lack of suitable summer and fall rearing temperatures that exist in the lower Bear River, the Proposed Action includes the implementation of spring pulse flows, as described in Measure AR2. Implementation of the spring pulse flows would provide juvenile CV steelhead DPS with a means of avoiding the unsuitable summer and fall conditions in the lower Bear River by initiating downstream migratory behaviors prior to the onset of unsuitable stream temperatures.

As shown in Figures 3.3.5-6 through 3.3.5-8, an evaluation of inflow temperatures into Camp Far West Reservoir and temperatures of Project releases into the lower Bear River shows that, under the Environmental Baseline, Project releases are cooler than water flowing into Camp Far West Reservoir in the summer and fall months (generally June through September or October) and otherwise similar in three WYs representing wet, normal, and dry water year conditions). The beneficial effect was found to be limited spatially, however, as at Highway 65, temperatures

in the lower Bear River were in equilibrium with ambient air temperatures and resembled temperature of inflow. Additionally, during the summer, temperatures upstream and downstream of Camp Far West Reservoir exceed the EPA temperature guideline for salmonid rearing.

SSWD extended that analysis to evaluate, in those same representative years, conditions that would occur under the Proposed Action and found that release temperatures under the Proposed Action would be slightly improved compared to Camp Far West Reservoir inflow temperatures during each of the three representative years (Figure 3.3.5-9, Figure 3.3.5-10, Figure 3.3.5-11), but that stream temperatures upstream and downstream of Camp Far West Reservoir would continue to exceed the EPA rearing salmonid temperature guideline during the summer months. These analyses indicate three key considerations regarding stream temperatures in the Bear River. First, summertime temperatures in the lower Bear River would be unsuitable for juvenile salmonid rearing according to the EPA guideline temperature even if the Project and Camp Far West Dam were not in place. The Project and Camp Far West Reservoir were not in place, the quantity of habitat available for anadromous salmonids, including CV steelhead DPS, would not increase substantially due to the historically-reported presence of a barrier waterfall immediately upstream of Camp Far West Dam. Second, the Project provides some benefit to temperatures in the lower Bear River during the summer and fall, although not enough to make conditions suitable for juvenile salmonid rearing. Third, the Project's ability to extend temperature benefits to the entire lower Bear River during the summer and fall months is nonexistent, since any benefit to temperature that is provided is lost to ambient air temperatures by Highway 65.

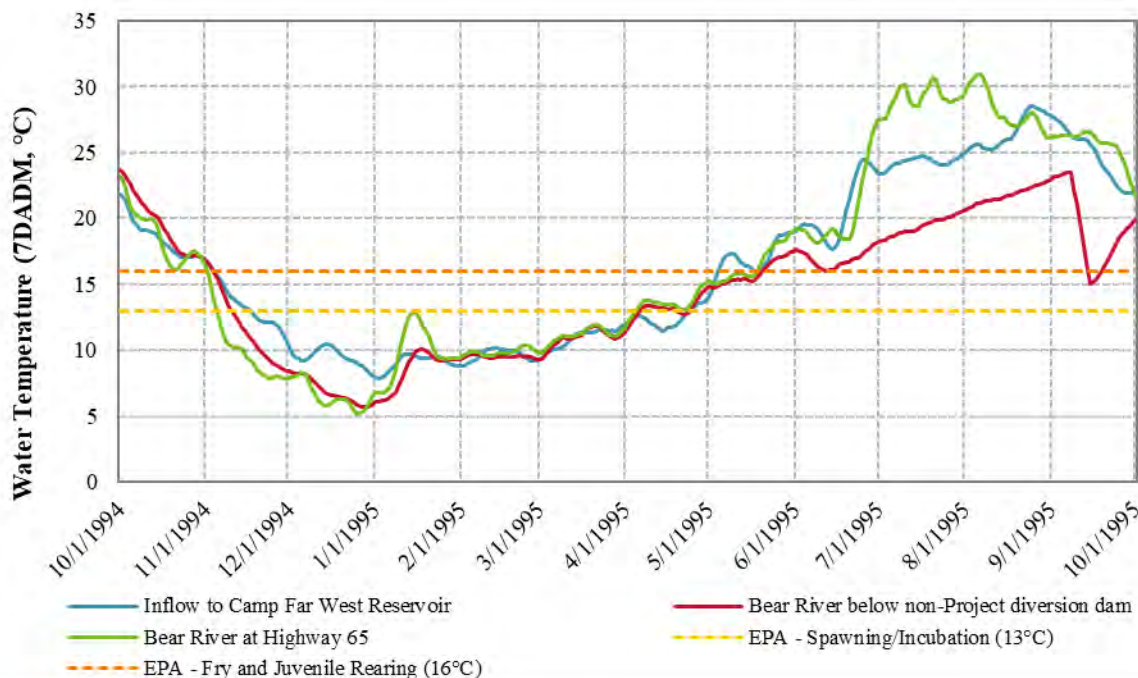


Figure 3.3.5-9. Modeled water temperatures in water year 1995 (a representative wet WY) under the Proposed Action.

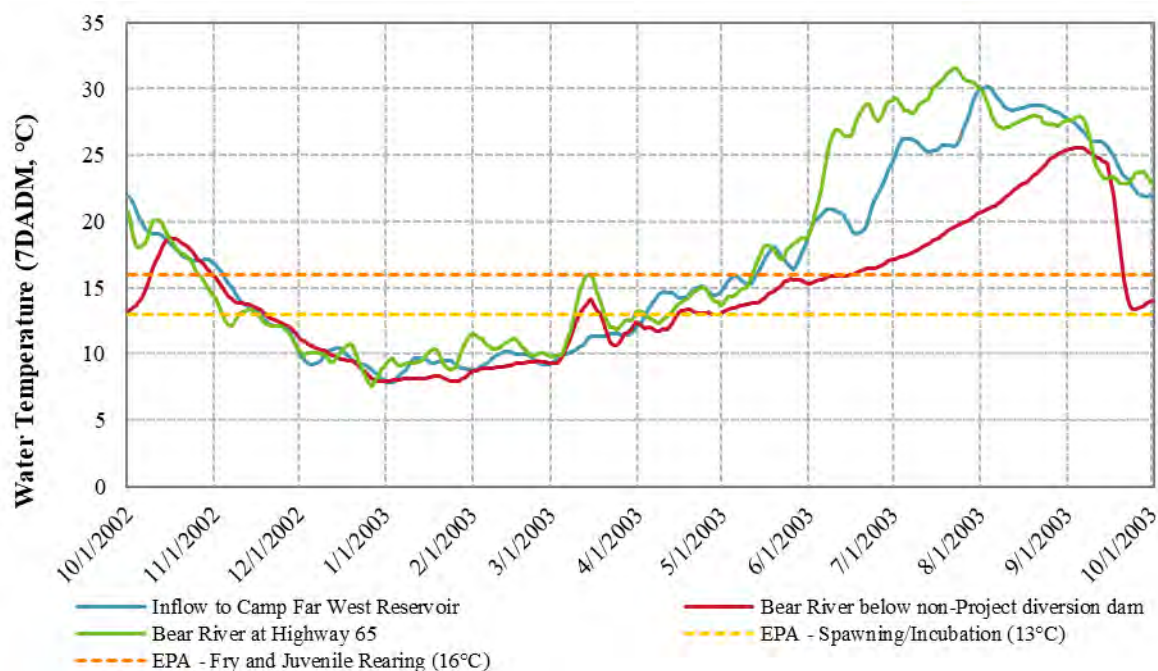


Figure 3.3.5-10. Modeled water temperatures in water year 2003 (a representative above normal WY) under the Proposed Action.

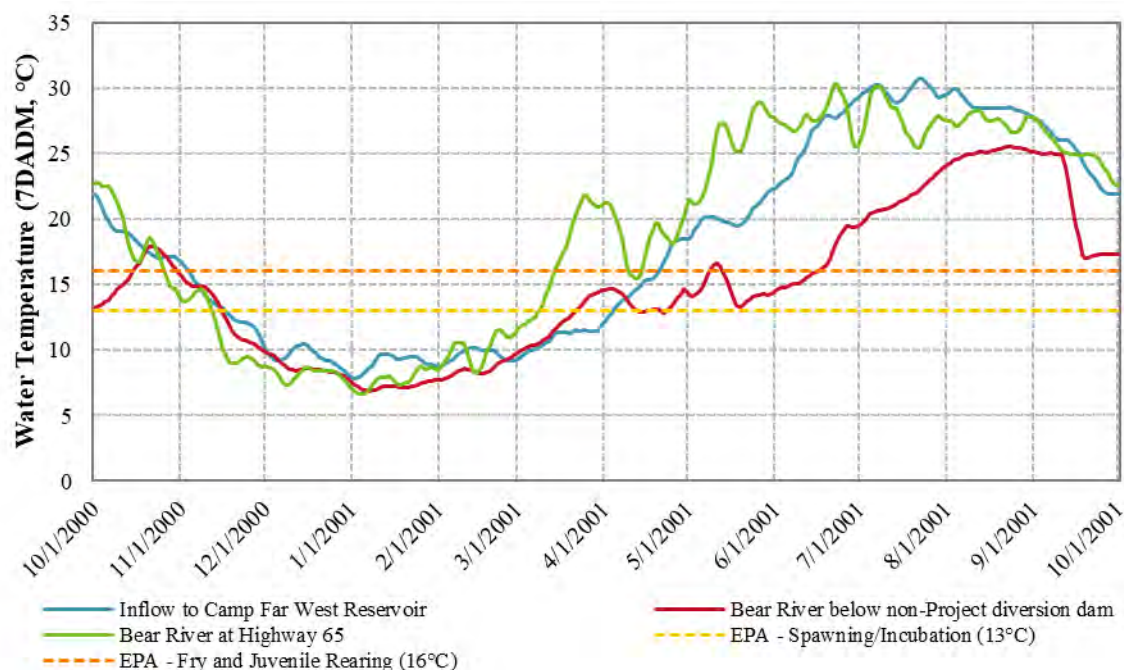


Figure 3.3.5-11. Modeled water temperatures in water year 2001 (a representative dry WY) under the Proposed Action.

To reduce the negative impacts to rearing juvenile CV steelhead DPS resulting from the lack of suitable summer and fall rearing temperatures that exist in the lower Bear River, the Proposed Action includes the implementation of spring and fall pulse flows, as described in Measure AR2. Implementation of the proposed spring pulse flows would provide juvenile CV steelhead with a means of avoiding the unsuitable summer and fall conditions in the lower Bear River by initiating downstream migratory behaviors prior to the onset of unsuitable stream temperatures.

Construction related activities would not affect CV steelhead DPS. Flow requirements in the new license would be maintained throughout construction and be released in a manner consistent with the Proposed Action. Any potential water quality impacts would be confined to the reservoir and permits related to construction will have appropriate mitigation requirements.

For the potential benefits described above, SSWD concludes that the Proposed Action may affect, but is unlikely to adversely affect CV steelhead DPS and its Critical Habitat.

CV Spring-run Chinook Salmon ESU

The lower Bear River is identified as Critical Habitat for CV spring-run Chinook salmon from its confluence with the Feather River to its confluence with Dry Creek, approximately 5 RM. NMFS (2014) acknowledges that conditions and habitat within the lower Bear River are not suitable for supporting a self-maintaining population of CV spring-run Chinook salmon ESU, but that the portion of the lower Bear River designated as Critical Habitat may serve, during high flow periods in the Feather River, as non-natal rearing refugia for juvenile CV spring-run Chinook salmon ESU originating from the Feather or Yuba rivers. Opportunistic usage of non-natal habitat does not result in specific management actions or lead to an increased potential for Project effect on the species. The Proposed Action would improve flow conditions in the lower 5 mi of the Bear River through increases to minimum streamflow requirements. The increases to flow, however, are not likely to substantially change the muted velocity signature of the Bear River at its confluence with the Feather River due to the substantial backwatering effect of the Feather River on the Bear River, as was observed during a 2018 water transfer that increased flows in the Bear River from approximately 10 cfs to 125 cfs. As a result, conditions that would attract migrating juvenile salmonids would remain minimal. Additionally, the Proposed Action would not change temperature conditions in that lowest portion of the river, as water temperatures reach equilibrium with ambient air temperatures well upstream of this Critical Habitat area.

Construction would not affect CV spring-run Chinook salmon ESU in the lower Bear River. Flow requirements in the new license would be maintained throughout construction and be released in a manner consistent with the Proposed Action. Any potential water quality impacts would be confined to the reservoir and permits related to construction will have appropriate mitigation requirements.

For the potential benefits described above, SSWD concludes that the Proposed Action may affect, but is unlikely to adversely affect CV spring-run Chinook salmon and its designated Critical Habitat.

Southern DPS of North American Green Sturgeon

No critical habitat for green sturgeon occurs in the lower Bear River, and no conclusive evidence exists that green sturgeon utilize the lower Bear River. Reported accounts generally do not confirm species (e.g., white or green sturgeon), but rather report generalized observations or are the result of angler harvest. Anglers are only allowed to harvest white sturgeon, which is not protected under the ESA.

Construction related activities would not affect green sturgeon that may occur in the lower Bear River. Flow requirements in the new license would be maintained throughout construction and be released in a manner consistent with the Proposed Action. Any potential water quality impacts would be confined to the reservoir and permits related to construction will have appropriate mitigation requirements.

SSWD cannot rule out that green sturgeon (adults or juveniles) may utilize the lower few miles of the Bear River, even though this is not documented. Typically, flow conditions in the Bear and Feather rivers cause backwatering (e.g., no positive flow) of the Bear River that results in deeper, slower moving water, which may improve conditions for green sturgeon. SSWD found that increasing summertime flows from 10 cfs to about 125 cfs during a 2018 water transfer allowed for this backwater effect in the lower 1 mi of the Bear River. Depending on flow conditions in the Bear River, green sturgeon could move upstream as far as the non-Project diversion dam. The ability of green sturgeon to access the upper 15 mi of the lower Bear River is impacted by flows below the non-Project diversion dam and natural barriers (e.g., beaver dams, giant cane grass blockages, and vertical barriers). There would be little effect from the Proposed Action on water temperature as it relates to green sturgeon in the lower Bear River because water temperatures reach equilibrium about 5 miles downstream of the non-Project diversion dam. The Proposed Action would provide increased minimum streamflows during the winter and spring of most WYs according to Measures WR1 and AR1, would provide spring and fall pulse flows in accordance with measure AR2, and would implement ramping rates according to measure AR3. While not specifically targeted at green sturgeon, implementation of these measures under the Proposed Action would likely benefit green sturgeon when water conditions allow for their opportunistic utilization of the lower Bear River. Specifically, increases to minimum streamflows during the winter and spring would improve passage conditions for sturgeon throughout the lower Bear River in all WY types, and implementation of ramping rates would reduce the potential for stranding as sturgeon are migrating out of the river when flows recede in the spring.

For the potential benefits described above, SSWD concludes the Proposed Action may affect, but is unlikely to adversely affect the Southern DPS of North American green sturgeon and its designated Critical Habitat.

3.3.5.4 Cumulative Effects

The Proposed Action would have no effect on Hartweg's Golden Sunburst and vernal pool fairy shrimp. The aggregate effect of the Proposed Action and other actions in the watershed are described below.

3.3.5.4.1 Hartweg's Golden Sunburst

As discussed in Section 3.3.5.3.1, the Proposed Project would have no effect on Hartweg's Golden Sunburst.

3.3.5.4.2 Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

While there are no direct effects on vernal pool fairy shrimp and vernal pool tadpole shrimp from the Proposed Action, cattle are allowed to graze freely in the area where vernal pools are located. Cattle grazing would impact these habitats and the ESA-listed species if they are present. The Proposed Action would have a *de minimis* effect compared to ongoing cattle grazing and other actions that could effect vernal pool fairy shrimp and vernal pool tadpole shrimp.

3.3.5.4.2 CRLF

One impact to CRLF with the potential to occur within the Project is from American bullfrogs introduced from outside of the Project and unrelated to the Proposed Action. The two sewage ponds located within the FERC boundary provide habitat for American bullfrogs, which are present currently. However, it is highly likely that other nearby water features also have American bullfrog present. SSWD's relicensing study identified 134 aquatic habitat locations potentially suitable for CRLF within 1-mi of the Project Boundary. Most of these features (i.e., 122 of the total) are constructed impoundments along drainages, or excavated ponds used to support livestock, hold irrigation water, or for undetermined purposes on private property. Aquatic habitat locations are largely concentrated northwest, east, and south of Camp Far West Reservoir. On the basis of apparently suitability hydrology, many of the aquatic habitats, particularly where supplemented by irrigation water, are potentially suitable habitat for CRLF and American bullfrog, and in most areas there are multiple suitable sites, which would facilitate dispersal of either species, including into the Project boundary independent of the Proposed Action. The Proposed Action would have a *de minimis* effect on American bullfrogs compared to nearby sources of the frog.

3.3.5.4.3 CV Steelhead DPS, CV spring-run Chinook Salmon ESU, and Southern DPS of North American Green Sturgeon

The cumulative effects resulting from past, present, and reasonably foreseeable future actions, including the Proposed Action, have the potential to affect ESA-listed fish (and habitat) in the lower Bear River. These activities include timber harvest, livestock grazing, mining, and operation of upstream and downstream water projects.

While timber harvest and grazing rates are likely to decline in the future, the effects of past impacts from these activities are likely negative to ESA-listed fish and include altered flows, sediment availability and transport, increased stream temperatures, and reduced availability of large woody material. The water projects on the Bear River, including the Proposed Action, further these effects by blocking sediment and large woody material from traveling downstream and further altering flow and temperature regimes.

Similarly, mining on the scale that occurred in the mid-1800s has ceased, but those activities significantly altered the geology and soils of the Bear River watershed. These activities moved large amounts of sediment, some of which were deposited in the lower Bear River channel. The effect of that deposition is mixed, since these gravels were deposited prior to the construction of the water projects and continue to be available to ESA-listed fish in the lower Bear River (e.g., spawning habitat for anadromous salmonids) despite reduced sediment transport caused by the various water projects, including the Proposed Action. Mining activities also introduced mercury and other harmful metals into the Bear River. Camp Far West and the other reservoirs provide an opportunity for these elements to settle and in the case of mercury be bioaccumulated in fish. Camp Far West Reservoir likely prevents additional sediment containing these metals to be transported downstream into the lower Bear River and beyond.

The ongoing operation of the various water projects on the Bear River, all of which went into operation prior to the Project, represent the most significant past and present actions in the Project area, and the operators of those projects are predicting increased demand for water in the foreseeable future. The upstream projects affect inflow into the Project, and the non-Project diversion dam immediately downstream affects the Project's water releases to the lower Bear River. The resulting hydrograph in the lower Bear River is impaired and can be unpredictable. Such a hydrograph likely has negative effects to ESA-listed fish through reduced streamflows, including the timing and magnitude of spring run-off flows, which may negatively impact available spawning and rearing habitats and alter stream temperatures.

Another cumulative effect on ESA-listed fish is the introduction and persistence of non-native species. These species have been introduced by resource agencies, the public, or by conveyance from upstream projects. Camp Far West Reservoir provides good habitat for non-native fish (especially black bass species) which compete with native species and could be transported downstream during spill events. Similarly, the Sacramento River basin has also been stocked with non-native fish which are now present in the Bear River. These non-native species often predate on juvenile salmonids including ESA-listed CV steelhead DPS and CV spring-run Chinook salmon ESU.

The net effect of these cumulative impacts to ESA-listed fish in the lower Bear River is negative and likely realized through lower productivity and survival rates resulting from reductions in suitable habitats, altered magnitude and timing of stream flows, increased stream temperatures, and interactions with non-native species. However, the Proposed Action includes measures that would reduce the negative effects to ESA listed fish species in the lower Bear River that result from these cumulative impacts.

3.3.5.5 Measures or Studies Recommended by Agencies and Not Adopted by SSWD

As described in Appendix E4 in this Exhibit E, besides others, USFWS and NMFS, each submitted written comments on SSWD's December 29, 2018, DLA. SSWD reviewed each letter and, with regards to ESA-listed species, identified two individual proposals to modify a SSWD proposed measure or add a new measure. In addition, during discussions with Relicensing Participants, USFWS recommended specific management measures to mitigate potential impacts at the recreation sewage ponds. Each of the comments is discussed below.

3.3.5.5.1 Future Collaboration with NMFS

In its comment letter on the DLA, NMFS states:

NMFS looks forward to working with the Licensee and FERC to develop license terms that mitigates the Projects' effects and enhance anadromous resources in the lower Bear River.

Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions. SSWD appreciates NMFS's collaboration on these conditions.

3.3.5.5.2 Spawning Gravels and Large Woody Material

In its comment letter on the DLA, NMFS states:

The Project effects on the recruitment of large woody material and spawning gravel should be mitigated for based on the length of the license. Even though these resources are available now, the Project will continue to inhibit the addition of new materials; future sediment/LWM surveys and new substrate augmentation are likely to be needed. This Project effect should be acknowledged and long-term mitigation measures should be developed.

and

NMFS does not agree that the Project is beneficial to anadromous fish resources in the Bear River. The Project's dam blocks any ongoing recruitment of large woody material and spawning gravels as well as operations altering the natural hydrograph, including the natural recession rates from high to low flows. NMFS also believes that fall-run Chinook salmon are not the only anadromous fish, "that is most sensitive to flow and temperature." CCV steelhead, North American green sturgeon, and CV spring-run Chinook salmon are also seasonal present and are sensitive to changes in flow and water temperature.

SSWD has not included in its FLA a PM&E measure for monitoring or augmenting LWM or spawning gravels in the Bear River downstream of Camp Far West Dam and the non-Project diversion dam for the following reasons. First, NMFS does not provide an adequate description of the rationale, scope, or estimated cost for the suggested monitoring and augmentation so that SSWD can respond in detail to NMFS's request. Without these details, SSWD can only evaluate and reply to NMFS's suggestion in general terms. Second, and in general terms, the need for monitoring is unclear, because the best available science shows that adequate quantities of these resources currently exist and continue to persist in the lower Bear River, and because NMFS does not provide adequate description of a mechanism by which these resources would become

depleted in the future. Finally, and also in general terms, the use of monitoring data and utility of LWM and gravel augmentation is unclear. Specifically, NMFS does not describe a mechanism to isolate in monitoring data Project-related effects from non-Project-related effects on these resources, and does not describe how monitoring data would be used to inform and guide augmentation activities.

SSWD clarifies that the Proposed Project, as described in Appendix E2 and evaluated in this section and in Section 3.3.3.2.2, is anticipated to be beneficial to anadromous fish resources in the Bear River because of the inclusion of flow-related measures that are being collaboratively developed by SSWD, agencies and NGOs. While SSWD is collaborating on proposed conditions to provide pulse flows and ramping rates, the proposed flow-related measures do not represent an attempt to mimic the 'natural hydrograph' but simply to provide more favorable conditions for aquatic resources in the lower Bear River. The Bear River does not experience a natural hydrograph because of the cumulative effects of the operations of four projects upstream of Camp Far West and the non-Project diversion dam downstream.

3.3.5.5.3 American Bullfrog Control

In its comment letter on the DLA, USFWS states:

The commission and Licensee should develop an Aquatic Invasive Species Management Plan that addresses species not addresses adequately in the DLA: Asian Clam, Brazilian waterweed, floating water primrose, parrot's feather milfoil, Eurasian water milfoil, and American bullfrog. Bullfrog management actions should be coordinately closely with measures to protect the California red-legged frog.

SSWD has not included in its FLA a measure for the control of American bullfrog. As discussed in Section 3.3.5.4.2, although American bullfrog control is possible through sustained efforts at small and medium ponds, American bullfrog populations control at the Project would be exceptionally difficult, unlikely to be successful, and require permanent, ongoing efforts, as there are uncontrollable source populations all around the Project and the population is already well established. It is likely that nearby water features have American bullfrog present. SSWD's relicensing study identified 134 aquatic habitat locations potentially suitable for CRLF within 1-mi of the Project Boundary, with most of these features constructed impoundments along drainages, or excavated ponds used to support livestock, hold irrigation water, or for undetermined purposes on private property. Many of these features likely support American bullfrog. These sources would assure a constant presence of American bullfrog in the Project area no matter what measures SSWD undertook to control them in the Project area.

3.3.5.5.4 Management of Sewage Ponds

During PM&E measure discussions, USFWS commented on vegetation management at the sewage ponds. SSWD said it maintained the ponds in compliance with a RWQCB permit that required certain measures, including that surrounding vegetation be kept trimmed so that seepage areas could be identified. USFWS said it would speak to the RWQCB. Until such time as the

RWQCB reissues the permit removing the requirement to manage vegetation, SSWD must continue to cut the vegetation around the ponds.

3.3.5.6 List of Attachments

Attachment 3.3.5A IPaC Report

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Attachment 3.3.5A
IPaC Report

IPaC Information for Planning and Consultation U.S. Fish & Wildlife Service

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME

Camp Far West Hydrorelicensing

LOCATION

Nevada, Placer and Yuba counties, California

**DESCRIPTION**

Relicensing

Final License Application, due June 2019.

Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

 (916) 414-6713 

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species

¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are not shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME

STATUS

Giant Garter Snake *Thamnophis gigas*

Threatened

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4482>

Amphibians

NAME

STATUS

California Red-legged Frog *Rana draytonii*

Threatened

There is final critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2891>

Fishes

NAME

STATUS

Delta Smelt *Hypomesus transpacificus*

Threatened

There is final critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/321>

Insects

NAME

STATUS

Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*

Threatened

There is final critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/7850>

Crustaceans

NAME

STATUS

Vernal Pool Fairy Shrimp *Branchinecta lynchi*

Threatened

There is final critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/498>Vernal Pool Tadpole Shrimp *Lepidurus packardii*

Endangered

There is final critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2246>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Jan 1 to Aug 31

Burrowing Owl *Athene cunicularia*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9737>

Breeds Mar 15 to Aug 31

California Thrasher *Toxostoma redivivum*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Jul 31

Clark's Grebe *Aechmophorus clarkii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Dec 31

Common Yellowthroat *Geothlypis trichas sinuosa*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/2084>

Breeds May 20 to Jul 31

Golden Eagle *Aquila chrysaetos*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

Breeds Jan 1 to Aug 31

| | |
|---|-------------------------|
| Lawrence's Goldfinch <i>Carduelis lawrencei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464 | Breeds Mar 20 to Sep 20 |
| Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408 | Breeds Apr 20 to Sep 30 |
| Long-billed Curlew <i>Numenius americanus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511 | Breeds elsewhere |
| Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481 | Breeds elsewhere |
| Nuttall's Woodpecker <i>Picoides nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA. https://ecos.fws.gov/ecp/species/9410 | Breeds Apr 1 to Jul 20 |
| Oak Titmouse <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656 | Breeds Mar 15 to Jul 15 |
| Rufous Hummingbird <i>Selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002 | Breeds elsewhere |
| Song Sparrow <i>Melospiza melodia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA | Breeds Feb 20 to Sep 5 |
| Spotted Towhee <i>Pipilo maculatus clementae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA. https://ecos.fws.gov/ecp/species/4243 | Breeds Apr 15 to Jul 20 |

Tricolored Blackbird *Agelaius tricolor*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3910>

Whimbrel *Numenius phaeopus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9483>

Wrentit *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie *Pica nuttalli*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9726>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

- The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (🟡)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (||)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

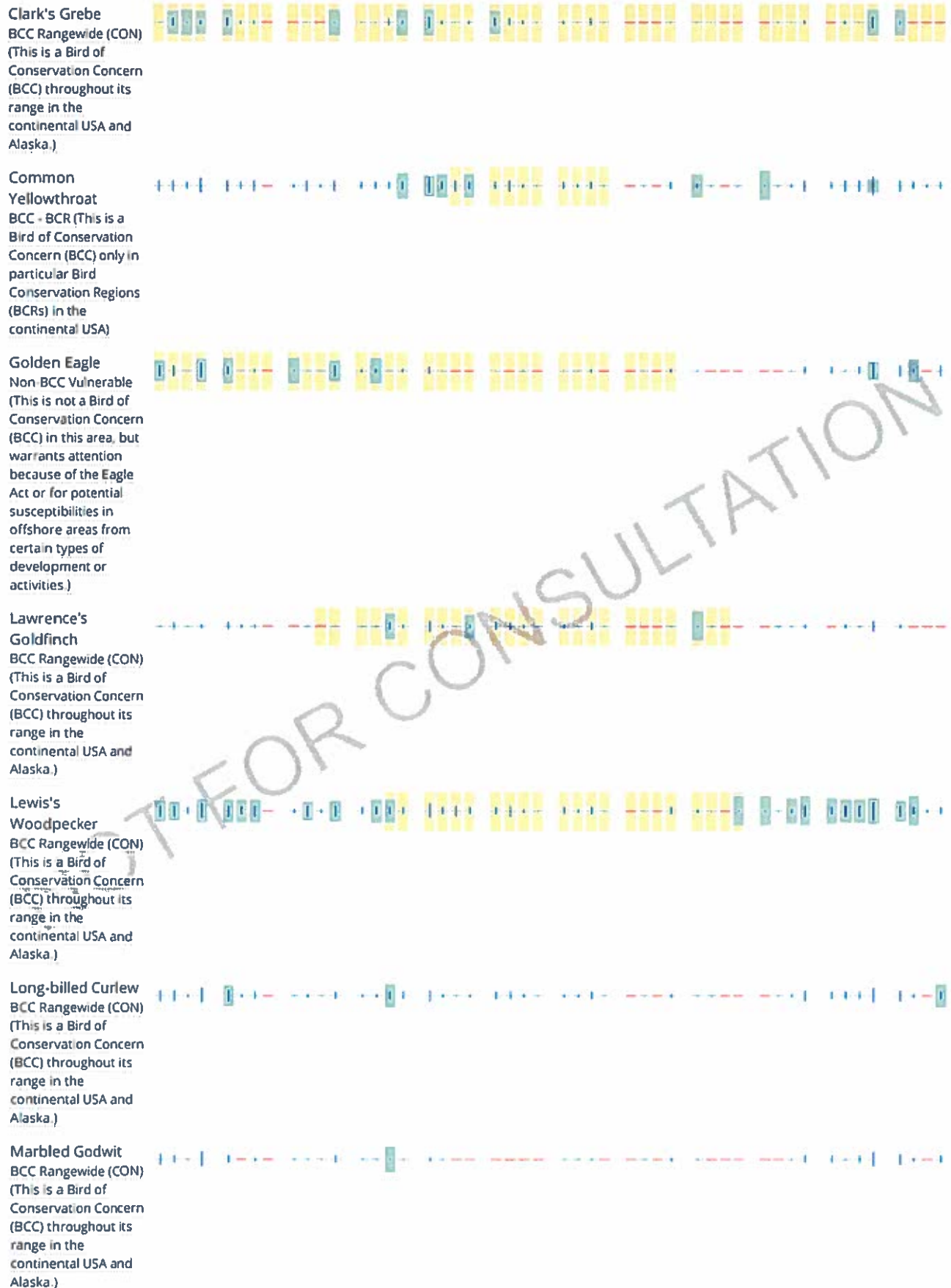
No Data (—)

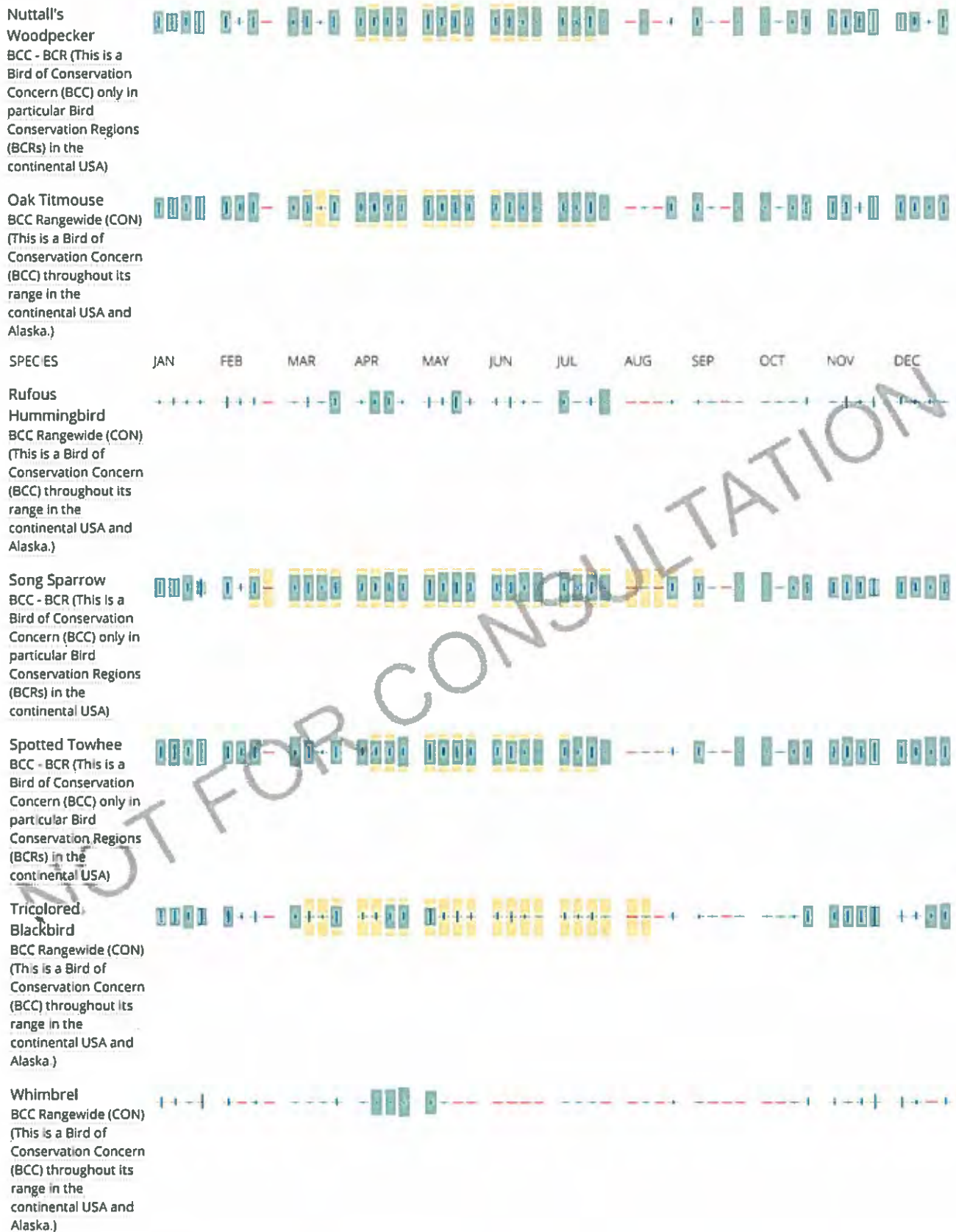
A week is marked as having no data if there were no survey events for that week.

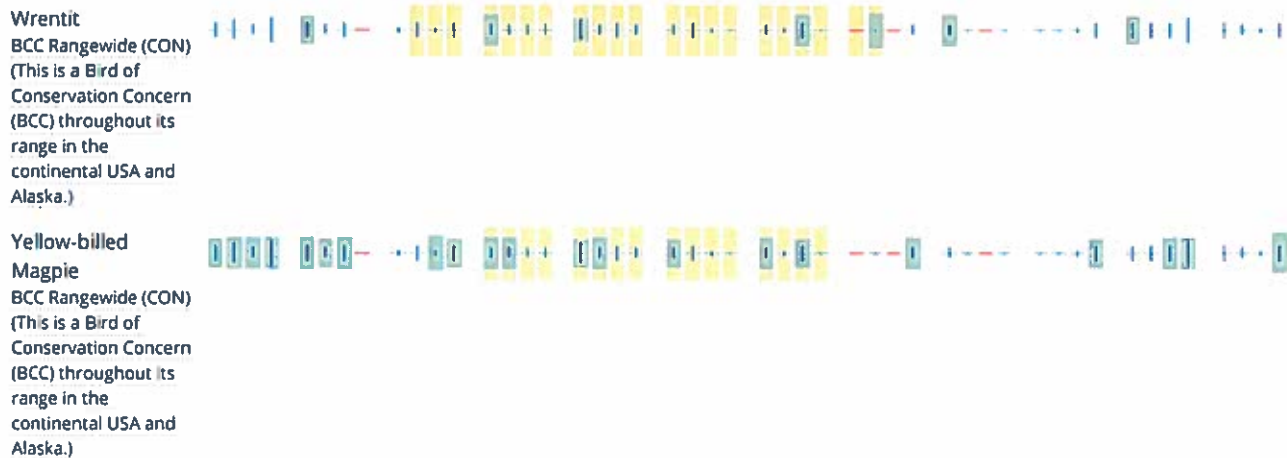
Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.









Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in

knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1C](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSS/EM1C](#)

[PSSC](#)

FRESHWATER POND

[PUBK](#)

LAKE

[L1UBK](#)

RIVERINE

[R4SBC](#)[R3UBH](#)[R2UBH](#)[R5UBFx](#)[R4SBA](#)[R5UBF](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

3.3.6 Recreation Resources

The discussion of recreation is divided into four sections. The affected environment (baseline) is discussed in Section 3.3.6.1, environmental effects of the Project are discussed in Section 3.3.6.2, unavoidable adverse effects are addressed in Section 3.3.6.3, and recreation resources-related measures or studies recommended by agencies but not adopted by SSWD are discussed in Section 3.3.6.4.

Where existing, relevant, and reasonably available information from SSWD's PAD was not sufficient to determine the potential effects of the Project on recreational resources, SSWD conducted one study: Study 6.1, *Recreation Use and Visitor Survey Study*. All field data associated with Study 6.1 are provided in Appendix E1.

3.3.6.1 Affected Environment

This section describes existing recreational resources and is divided into four sections: 1) existing recreational resources within the FERC Project Boundary; 2) recreational use; 3) visitor use characteristics and preferences; and 4) recreation opportunities downstream of the Project.

3.3.6.1.1 Recreation Opportunities and Facilities in and Around the Project

Recreation Opportunities

The Project provides developed and undeveloped recreation opportunities at Camp Far West Reservoir. Water-related recreational opportunities include water skiing, wakeboarding, power boating, jet skiing, wildlife viewing, non-motorized boating and warmwater fishing. Boating use and launching occurs year-round. Yuba County Ordinance 8.51.010 limits the speed of boats to 20 mi. per hour on the reservoir (Yuba County 2010a). Camp Far West Reservoir offers anglers shoreline and boat-based fishing opportunities for smallmouth bass, largemouth bass, striped bass, catfish and panfish (CDFW 2015a). The reservoir does not have any site-specific fishing regulations or limits (CDFW 2015b). Historically, CDFG stocked Camp Far West Reservoir with warmwater game fish species from 1964 to 1985 (CDFW 2015c). Refer to Section 3.3.3.1.4 for the fish stocking details.

Land-based recreation opportunities provided in the Project Vicinity include camping, wildlife viewing, hiking, biking and horseback riding. Facilities developed to support camping and other land-based recreation activities are described below. While the recreation areas do not provide formal trails for hiking, biking and horseback riding, the dispersed use areas provide a network of unpaved roads that provide a trail experience for visitors. In addition, informal trails occur within the FERC Project Boundary, primarily near the NMWSE, which are a result of non-Project cattle and ranch trails as well as Project user-created trails and paths due to the gentle sloping terrain adjacent to the shoreline. Dispersed camping is allowed outside the developed recreation areas, but is a very rare use and was not observed during Study 6.1. Informal shoreline use does occur outside the developed recreation areas, but this use occurs below the

NMWSE and for day uses related to water contact activities (e.g., swimming, water skiing, wakeboarding and fishing).

The concessionaire that operates the two developed recreation areas at Camp Far West Reservoir provides numerous and varied events at the recreation areas and reservoir, including bi-monthly fishing tournaments, boating and fishing club events, equestrian events and other group events.

Project Recreation Facilities

As a condition of its FERC license, SSWD provides recreational opportunities and facilities within the FERC Project Boundary. SSWD owns and maintains two developed recreation areas at Camp Far West Reservoir – the North Shore Recreation Area (NSRA) and South Shore Recreation Area (SSRA) (Table 3.3.6-1). The NSRA and SSRA are the only public vehicular access points to the reservoir for recreation due to private lands abutting the Project. Outside of the recreation areas, the remaining shoreline is only accessible by foot or boat, particularly when the reservoir water level is below the NMWSE. All of these facilities are located on SSWD-owned land and operated through a concessionaire. The recreation facilities were originally constructed using Davis-Grunsky Act funding prior to the Project, but became part of the Project as a condition of its FERC license. The NSRA boat ramp was reconstructed in 2005 using the California State Parks, Division of Boating and Waterways (DBOW) boat launching facilities grant funding. Below is a description of the developed facilities and recreation opportunities at Camp Far West Reservoir. SSWD considers the roads within the recreation areas to be recreation facilities, and are discussed as such in this Section 3.3.6.

Table 3.3.6-1. Recreation facilities at the NSRA and SSRA.

| Facility | Amenity | North Shore Recreation Area | South Shore Recreation Area |
|---------------------------------------|-------------------------|---|--|
| Family Campgrounds | No. Sites (standard) | 70 | 67 |
| | Sites (RV with hookups) | 10 | none |
| | Parking Spurs | 1 spur per site | 1 spur per site |
| | Overflow Parking Spaces | None | 18 single |
| | Restrooms | 2 flush | 1 flush, 2 vault |
| | Recreation Roads | 0.8 mi, 20 ft wide, paved 0.3 mi, 12 ft wide, dirt | 0.5 mi, 20 ft wide, paved 0.7 mi, 10 ft wide, paved |
| Group Campgrounds | Sites | 2, 25-person group sites, 1, 50-person horse camp site | 1, 50-person group site |
| | Parking Spaces | None ¹ | 10 |
| | Restrooms | 4 portable chemical toilets | None ² |
| | Recreation Roads | 0.05 mi, 10 ft wide, paved | 0.2 mi, 20 ft wide, paved |
| Day Use and Picnic Areas ³ | Picnic Sites | 20 | 33 |
| | Swim Beaches | 1 | 1 |
| | Parking Spaces | None ⁴ | 44 |
| | Restrooms | 1 flush | None ⁵ |
| | Recreation Roads | 0.05 mi, 20 ft wide, paved | 0.1 mi, 10 ft wide, paved (swim beach) 0.4 mi, 10 ft wide, dirt (picnic area) |
| Boat Ramps | Number | 1, 4-lane concrete ramp | 1, 2-lane concrete ramp |
| | Parking Spaces | 82 single, 73 vehicle with trailer | 52 vehicle with trailer |
| | Restrooms | 1 flush | 1 flush |
| | Recreation Roads | 0.2 mi, 24 ft wide, paved | None (entrance road access facility) |
| Dispersed Use Areas ⁶ | Sites | 2 | 2 |
| | Restrooms | 6 portable chemical toilets | 6 portable chemical toilets |
| | Recreation Roads | 3.7 mi, 10 ft wide, dirt | 1.7 mi, 10 ft wide, dirt |

Table 3.3.6-1. (continued)

| Facility | Amenity | North Shore Recreation Area | South Shore Recreation Area |
|--------------------------------------|-------------------------------|-----------------------------|-----------------------------|
| Recreational Water System Facilities | RV Dump Station & Sewage Pond | 1 | 1 |
| | Water Treatment Plant | 1 | None ⁷ |
| | Water Storage Tank | 1, 60,000-gallon tank | None ⁷ |
| | Recreation Roads | 0.8 mi, 10 ft wide, dirt | 0.1 mi, 10 ft wide, dirt |
| Entrance Facilities | Entrance Station | 1 | 1 |
| | Store | 1 | 1 |
| | Recreation Roads | 0.75 mi, 20 ft wide, paved | 0.5 mi, 20 ft wide, paved |
| Other Facilities | Concessionaire Trailers | 2 | 1 |
| | Recreation Roads | 0.4 mi, 10 ft wide, dirt | 0.3 mi, 10 ft wide, dirt |

¹ Parking is available in open areas adjacent to the group sites, but is not designated or defined.

² The group campsites use the adjoining family campground restroom building.

³ At NSRA, the picnic sites and swim beach are combined at one site; therefore, the site is categorized as a “day use area”. At SSRA, the picnic sites and swim beach are separate sites on opposite sides of the recreation area; therefore, each site is called a “picnic area” and a “swim beach”, respectively.

⁴ The day use area (picnic area and swim beach) uses the adjoining boat ramp parking area for parking.

⁵ The picnic area uses the adjoining boat ramp restroom building.

⁶ The dispersed use areas provide day use and overnight opportunities with minimal facilities (roads, portable chemical toilets and trash cans).

⁷ Water is piped under the reservoir to South Shore Recreation Area from the North Shore Recreation Area treatment plant and storage tank.

Based on site observations in 2015, SSWD provided a general assessment of the condition of each facility. Importantly, the facilities and site amenities (e.g., restrooms, tables, pedestal grills, roads and water spigots) at both recreation areas are mostly the same design, construction and/or model and are of similar age within each amenity type. Facilities and site elements (e.g., vehicle spurs, tables, fire rings, and ramps) are in “good” condition if they are functional, well-maintained, showed no signs of deterioration and have the majority of their useful life remaining. Facilities and components are considered in “poor” condition if they are non-functional, had missing or broken parts and/or major structural damage is evident. A facility is considered to be in “fair” condition when it has some minor structural damage that could be repaired with ease or is functional, but shows signs of wear and tear (e.g. cracked wood, broken windows or door handles). Facilities in “fair” condition generally have a portion of their useful life remaining, but do not need immediate replacement. In the facility descriptions below, SSWD has categorized the condition of each facility and site amenities. Notably, the most recent FERC Public Use and Environmental Inspection on July 19, 2007, noted only a single recreation facility issue at the NSRA (i.e., 2 overturned picnic tables), and no issues at the SSRA (FERC 2007).

North Shore Recreation Area

The NSRA is located on the north shoreline of the reservoir on a large peninsula. The NSRA is accessible by vehicle from the west and north via Camp Far West Road (Yuba Co. 42) and Spenceville Road. The access road is gated and an entrance station is located along the access road that regulates public access to the recreation area. The NSRA consists of a family campground, group campground, day use area with swimming beach, boat ramp and dispersed use areas (Figure 3.3.6-1). The NSRA also includes a general store at the entrance station for use by the public. The NSRA is open year-round for day use and overnight recreation opportunities. The NSRA is set in a partially wooded oak and grassland setting. The oak trees provide substantial shading throughout the recreation area, but especially within the campground

facilities. Due to the predominant grasses and lack of other ground-level vegetation, there is minimal screening between the individual sites with the campgrounds and day use areas.



Figure 3.3.6-1. Aerial site map of the North Shore Recreation Area.

Family Campground

The family campground is located in a semi-forested setting along the south shoreline of the NSRA. The facility consists of a total of 80 campsites including 70 standard sites and 10 recreational vehicle (RV) sites with hookups. RVs are allowed at all 80 campsites, but only 10 campsites have RV hookups. Representative photographs are provided in Figure 3.3.6-2.

The family campground is comprised primarily of 70 standard campsites with each consisting of a table (i.e., concrete or wood-metal construction), a rock fire ring, a parking spur (i.e., dirt or gravel), several tent pads and a trash can. Most of the sites also have a pedestal grill. Overall, the campsite amenities are in fair condition, with the exception of the remaining wood-metal construction tables and most pedestal grills that are aging and in poor condition. Potable water¹ is provided at seven spigots dispersed throughout the campground. The facility includes two flush restroom buildings each with eight stalls (i.e., 7 toilets and 1 urinal) and four sinks; and both are in aging and in fair-to-poor condition. A typical campsite provides opportunities for tent or RV camping, but does not have hookups for water, electric or sewer. The family campground also includes a loop with 10 RV sites each with full-service hookups including water, electric and sewer. In addition to the hookups, each site consists of a gravel spur, metal table, concrete fire ring, and a trash can. The RV campsites utilize a restroom facility at the adjacent standard campsite loop. Overall, the RV camping facilities are newer construction and in good condition. The circulation roads consist of a one-way, 10-ft-wide dirt road (0.3 mi long) and a two-way, 20-ft-wide paved road (0.8 mi long); and are in fair condition overall.

¹ Currently, temporary drinking restrictions are in place while SSWD completes water treatment infrastructure improvements.



Typical Family Campsite



Typical Family Campsite Amenities



Typical Restroom Building



Typical RV Campsite with Full Hookups



Typical Circulation Roads

Figure 3.3.6-2. Representative photographs (dated 7/21/15) of the family campground at the North Shore Recreation Area.

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Group Campground

The group campground is located in an open setting along the west shoreline of the NSRA to the north of the boat ramp and day use area. The facility consists of two group campsites (i.e., Tree and Point sites) serving 25 people-at-one-time (PAOT). Each of the campsites consists of a concrete table, rock fire ring, water spigot, portable chemical toilet, and two trash cans. The Tree site also includes a cinder-block preparation/storage area that does not exist at the other group site. The access road to the sites is a 10-ft-wide, one way dirt surface road (0.05 mi long). Overall, the facilities are aging and in fair-to-poor condition. Representative photographs are provided in Figure 3.3.6-3.



Figure 3.3.6-3. Representative photographs (dated 7/21/15) of the group campsites at the North Shore Recreation Area.

Horse Camp

The Horse Camp is located in the midst of the Boss Point dispersed use area and is tailored specifically for equestrian use with hitch-and-post facilities; as well as two portable chemical toilets, a large concrete fire ring, and trash cans. Overall, the facilities provided are in good condition. A representative photograph is provided in Figure 3.3.6-4.



Figure 3.3.6-4. Representative photographs (dated 7/21/15) of the Horse Camp at the North Shore Recreation Area.

Day Use Area

The day use area is located in a semi-forested setting along the west shoreline of the NSRA to the north of the boat ramp. The facility consists of 20 picnic sites, a swim beach and shares a parking area with the boat ramp. Each picnic site consists of a table and a trash can. Pedestal grills and water spigots are also dispersed throughout the area. The swim beach is located between the picnic sites and the reservoir. The facility includes one flush restroom building with eight stalls (i.e., 7 toilets and 1 urinal) and four sinks. The short access road is a 20-ft-wide, two-way paved road (0.05 mi long). Overall, the facilities are aging and in fair condition. A representative photograph is provided in Figure 3.3.6-5.



Typical Picnic Site



Typical Picnic Site Amenities



Typical Restroom Building

Figure 3.3.6-5. Representative photographs (dated 7/21/15) of the day use area at the North Shore Recreation Area.

Boat Ramp

The boat ramp is located on the south shoreline between the family campground and the day use area. The facility consists of a boat launching ramp, parking area, restroom building and picnic site. The boat ramp is a 4-lane concrete ramp with a floating courtesy dock and a 4-lane boat preparation area. The end of the concrete ramp is at 236.0 ft elevation; however, informal boat launching is still available down to 188.0 ft elevation. The parking area is divided into three separate lots, all of which are paved with striped spaces; and provides a total of 82 single vehicle spaces, including two accessible spaces, and 73 vehicle with trailer spaces, including three accessible spaces. At lower water levels, parking is allowed adjacent to the boat ramp in dirt parking areas. The facility includes one flush restroom building with four stalls, each with a toilet and sink. A water spigot, water fountain and trash receptacles are located at the restroom building. The accessible restroom building area includes an accessible picnic table connected by an accessible ramp. The access road is a 24-ft-wide, two-way paved road (0.2 mi long). This

facility was reconstructed in 2005 using a DBOV Boat Launch Facilities grant. The facilities are in very good condition. Representative photographs are provided in Figure 3.3.6-6.

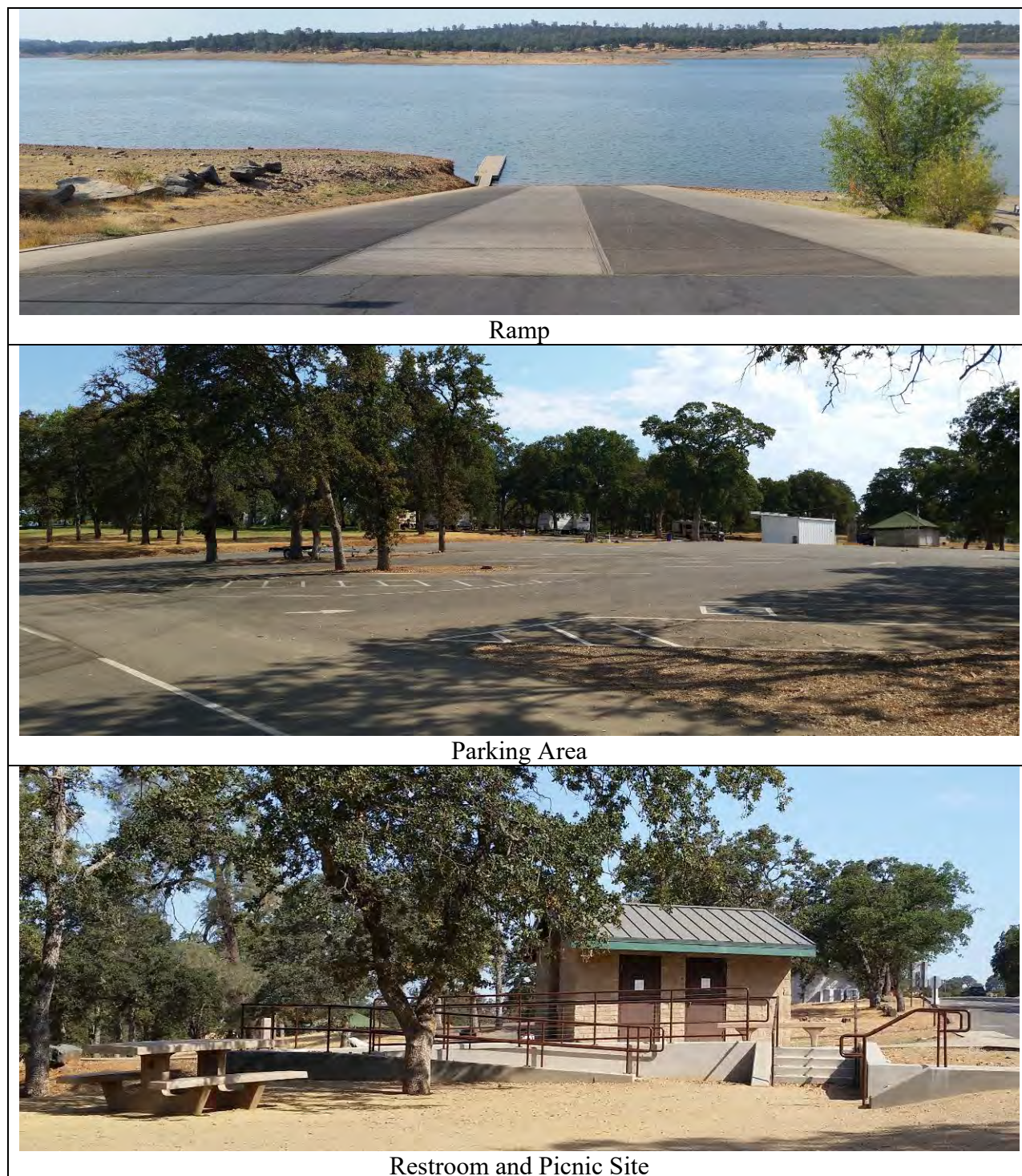


Figure 3.3.6-6. Representative photographs (dated 7/21/15) of the boat ramp facilities at the North Shore Recreation Area.

Dispersed Use Areas

The NSRA has two dispersed use areas within the recreation area, which are accessed by one-way and two-way dirt roads. Jet Ski Cove dispersed use area is located on the northwest portion of the recreation area. Facilities include two portable chemical toilets and trash cans dispersed throughout the area. In all, Jet Ski Cove dispersed use area encompasses 15 ac with approximately 0.5 mi of shoreline; all of which are accessed using a 12-ft-wide dirt road (0.6 mi in length). The second dispersed use area, Boss Point, is located in the northeast portion of the recreation area. Facilities include four portable chemical toilets and trash cans dispersed throughout the area. In all, Boss Point dispersed use area encompasses 55 ac with approximately 1.6 mi of shoreline; all of which are accessed using a network of 12-ft-wide dirt roads (3.1 mi in length). The dispersed use areas provide for largely undeveloped, dispersed day-use opportunities and overnight camping with minimal facilities and direct access to the reservoir shoreline. Overall, the few facilities provided are in good condition. Representative photographs are provided in Figure 3.3.6-7.



Typical View of the Jet Ski Cove Dispersed Use Area



Typical View of the Boss Point Area Dispersed Use Area

Figure 3.3.6-7. Representative photographs (dated 7/21/15) of the dispersed use areas at the North Shore Recreation Area.

Recreational Water System

A recreational water system provides water throughout the NSRA, excluding the dispersed use area. The water system source is the reservoir, where two pumps in the reservoir deliver water at 70 gallons/minute (5,000,000 gallons or 15.3 ac-ft per year) uphill via underground piping to the water treatment facility atop a hill within the NSRA. After being treated, the water is piped nearby to a 60,000-gallon storage tank constructed of belted steel and recently installed in 2011. From the storage tank, underground distribution piping sends the water throughout the NSRA, where water is accessible via water hydrants dispersed throughout the recreation area facilities. The system also includes a sewage pond with an aerator to handle the sanitary needs of the flush restroom buildings and the RV dump station. The sewage system uses a gravity-feed operation and is supplemented by a pump to get the sewage up to the sewage pond. The recreational water system is accessed using 10-ft-wide dirt roads (0.8 mi in length). (Figure 3.3.6-8)

Overall, much of the major above-ground components (i.e., water treatment plants, water storage tank, sewage pond, and aeration facilities) are in good to very good condition with the treatment plant and storage tank having been reconstructed or replaced recently. The below-ground components (i.e., distribution piping) are largely original construction are in fair condition; and the above-ground water hydrants and fountains are largely in poor condition.



Water Treatment Facility



Water Storage Tank



Sewage Pond

Figure 3.3.6-8. Photographs (dated 4/2/18) of the recreational water system components.

Other Facilities

The NSRA also includes a general store, RV dump station, and private concessionaire residences and maintenance buildings. The store is located near the entrance to the NSRA facilities and also serves as the entrance station for the NSRA. The RV dump station is located near the family campground and boat ramp; and provides a 1-lane facility connected to a sewer system for disposing of RV holding tanks. Overall, these facilities are in good condition. Private concessionaire residences are also located between the entrance station and the boat ramp facilities that include residences and maintenance buildings. Photographs of these facilities are provided in Figure 3.3.6-9.

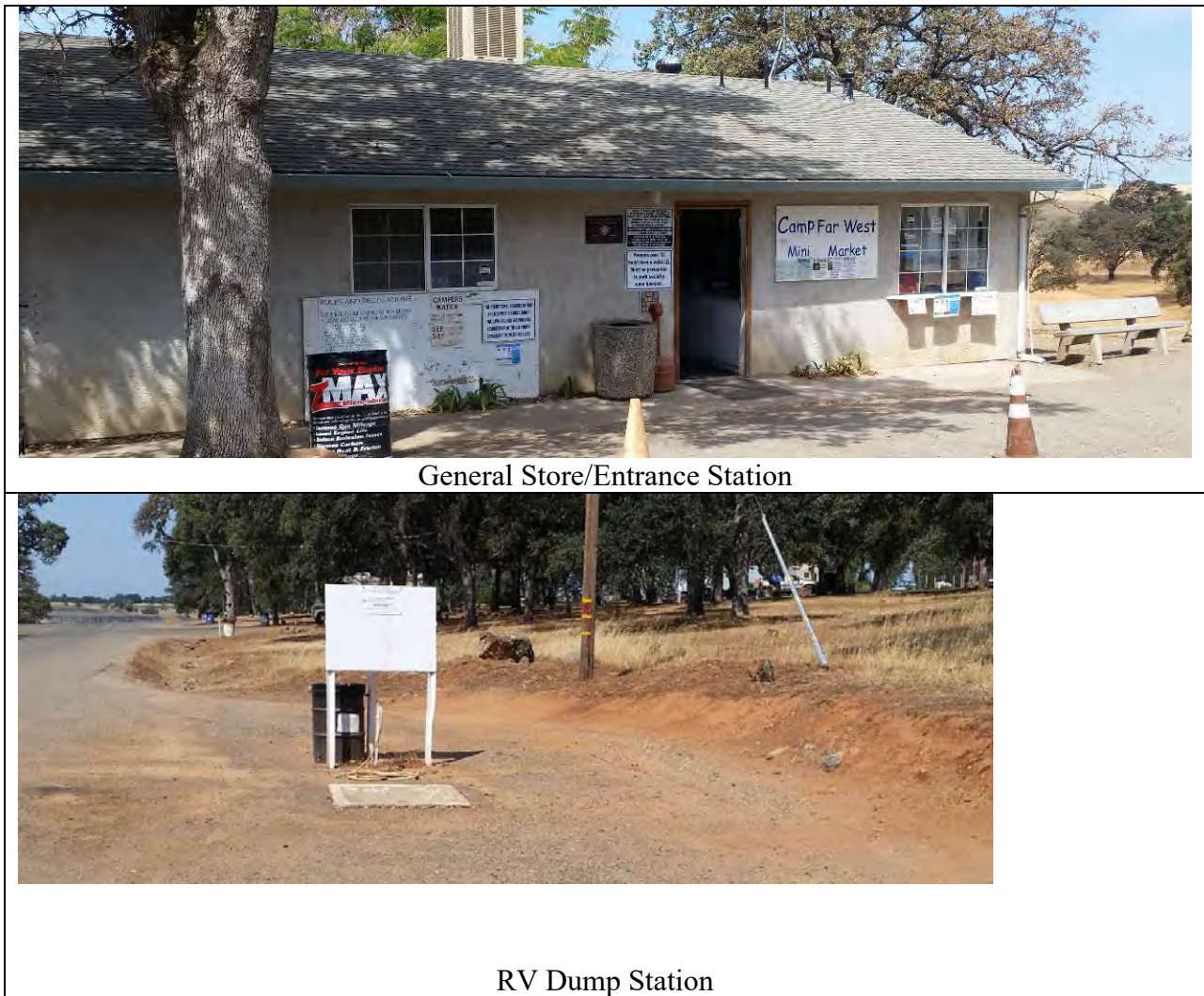


Figure 3.3.6-9. Photographs (dated 7/21/15) of the entrance station and RV dump station at the North Shore Recreation Area.

South Shore Recreation Area

The SSRA is located on the southwest shoreline of the reservoir on a long narrow peninsula. The SSRA is accessible by vehicle from the north and south via McCourtney Road (Placer Co. C6037). The access road is gated and an entrance station is located immediately after the gate that regulates public access to the recreation area. The SSRA consists of a family campground, group campsite, day use area, swim beach, boat ramp and dispersed use areas (Figure 3.3.6-10). The SSRA also includes a general store at the entrance station for use by the public located. The SSRA is generally open seasonally from April through October for day use and overnight recreation opportunities.² Similar to the NSRA, the SSRA is set in a partially wooded oak and grassland setting. The oak trees provide substantial shading throughout the recreation area. Due to the predominant grasses and lack of other ground-level vegetation there is minimal screening between the individual sites with the campgrounds and day use areas.

² The NSRA is open year-round for public use.



Figure 3.3.6-10. Aerial site map of the South Shore Recreation Area.

Family Campground

The family campground is located in a semi-forested setting on the north end of the recreation area. The facility consists of 67 standard campsites for either tent or RV camping, but the sites do not provide RV hookups. Each campsite consists of a table (i.e., concrete or wood-metal construction), a rock fire ring, a parking spur (i.e., dirt or gravel), several tent pads and a trash can. Most of the sites also have a pedestal grill. Six of the sites include a pull-through parking spur, whereas the remaining sites utilize back-in parking spurs. Water is provided at 12 spigots dispersed throughout the campground. Overall, the campsite amenities are in good condition, with the exception of the wood-metal construction tables that are aging and in fair-to-poor condition. The facility also includes one flush restroom buildings (i.e., 7 toilets, 1 urinal and 4 sinks) and two vault restroom buildings (i.e., each with 4 toilets), all of which are aging and in fair condition overall. The facility includes two overflow parking areas (paved) for a total of 18 single vehicles. The circulation roads consist of one-way, 12-ft-wide, and two-way, 20-ft-wide paved roads (1.2 mi in length). The parking areas and roads are in good condition. Representative photographs are provided in Figure 3.3.6-11.



Standard Campsite



Standard Campsite Table



Vault Restroom Building (4 stalls)

Figure 3.3.6-11. Photographs (dated 7/21/15) of the family campground at the South Shore Recreation Area.

Group Campground

The group campground consists of a single group campsite located in a forested setting on a bluff along the west shoreline of the SSRA. The facility consists of one group campsite serving 50 PAOT; and consists of wood-metal table, large concrete fire ring, large food preparation table/area, a pedestal grill, trash cans and a gravel parking area for 10 vehicles. The access road to the sites is a two-way paved road. A water spigot is located at the start of the access road to the group campsite. Overall, the amenities are aging, but in good condition, with the exception of the wood-metal construction table that is in poor condition. A restroom building is available at the nearby family campground. The access road is a 20-ft-wide, two-way paved road (0.2 mi in length). A representative photograph of the facility is provided in Figure 3.3.6-12.



Group Campsite



Campsite Amenities



Parking Area

Figure 3.3.6-12. Photograph (dated 7/21/15) of the group campsite at the South Shore Recreation Area.

Picnic Area

The picnic area is located in a semi-forested setting along the east shoreline of the SSRA. The facility consists of 33 picnic sites, each with a table, and a parking area for 44 single vehicles. Pedestal grills, water spigots and trash cans are dispersed throughout the area for picnickers. The facility utilizes the boat ramp's flush restroom building (i.e., 7 toilets, 1 urinal and 4 sinks) located at the top of the boat ramp facility. The circulation road is a 10-ft-wide, one-way dirt and paved asphalt road (0.4 mi in length). Overall, the facilities are in good condition. Representative photographs of the facilities are provided in Figure 3.3.6-13.



Picnic Area



Picnic Site Amenities



Parking Area

Figure 3.3.6-13. Photographs (dated 7/21/15) of the picnic area at the South Shore Recreation Area.

Swim Beach

The swim beach is located in an open setting along the west shoreline of the SSRA in a cove commonly referred to as “Quarter Mile Cove” (Figure 3.3.6-14). The site provides direct water access for swimming and other water play activities for the campground visitors. Trash cans are dispersed throughout the area. The circulation road is a 10-ft-wide, one-way dirt road (0.1 mi in length). Overall, the few facilities provided (i.e., trash cans) are good condition. The facility utilizes the family campground’s vault restroom buildings located near the swim beach area.



Figure 3.3.6-14. Photograph (dated 7/21/15) of the swim beach at the South Shore Recreation Area.

Boat Ramp

The boat ramp is located on the northeast shoreline between the family campground and the day use area. The facility consists of a boat launching ramp, parking area and restroom building. The boat ramp is a 2-lane concrete and asphalt ramp with a floating courtesy dock. The end of the concrete/asphalt ramp is at 220.0 ft elevation and boat launching below this level is not advisable. The concrete section of the ramp and the courtesy dock are in good condition; whereas the lower asphalt section of the ramp is in poor condition with eroding edges and extensive cracking. The parking area provides a total of 52 vehicles with trailer spaces in a gravel lot and paved lot paralleling the top of the ramp access road. The parking areas are in good condition. The facility includes one flush restroom building with seven toilets, one urinal and four sinks. The restroom building is in fair condition. The boat launch uses the main entrance access road is a 20-ft-wide, two-way paved road (0.5 mi in length), which is the main entrance road into the SSRA. Representative photographs of the facilities are provided in Figure 3.3.6-15.



Boat Ramp (concrete section)



Boat Ramp (asphalt section)



Parking Area



Restroom Building

Figure 3.3.6-15. Photographs (dated 7/21/15) of the boat ramp facility at the South Shore Recreation Area.

Dispersed Use Areas

The SSRA has two dispersed use areas located on the west shoreline (Quarter Mile Cove dispersed use area) and southeast shoreline adjacent to the entrance station (Entrance Gate dispersed use area). Both areas are accessed by 10-ft-wide dirt roads (1.7 mi in length). These areas allow for dispersed day use and overnight camping, but provide minimal facilities – roads, trash cans and six portable chemical toilets. Overall, the minimal facilities are good condition. Representative photographs of the facilities are provided in Figure 3.3.6-16.

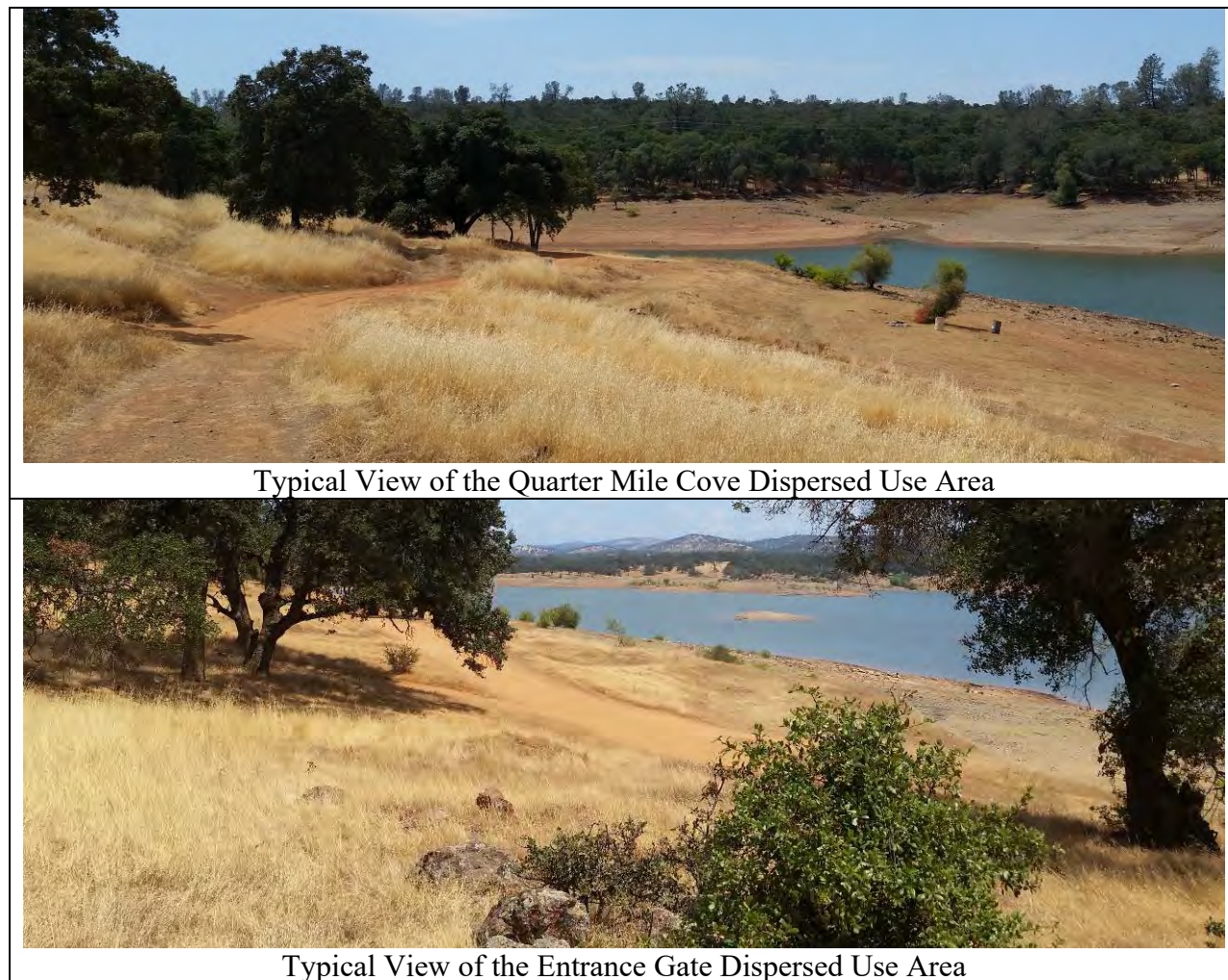


Figure 3.3.6-16. Photographs (dated 7/21/15) of the dispersed use areas at the South Shore Recreation Area.

Recreational Water System

A recreational water system provides water throughout the SSRA, excluding the dispersed use area. The SSRA receives water from the NSRA water treatment plant and storage tank via two pipes under the reservoir. The water is dispersed throughout the SSRA via underground

distribution piping, where water is accessible via water hydrants dispersed throughout the recreation area facilities. The SSRA system also includes a sewage pond with an aerator to handle the sanitary needs of the flush restroom buildings and the RV dump station. The SSRA sewage system is a gravity-fed system. The sewage pond is accessed using a 10-ft-wide dirt road (0.1 mi in length).

Other Facilities

The SSRA also includes an entrance station, general store, RV dump station, and private ranger residences and maintenance buildings. The store is located near the entrance to the SSRA facilities and also serves as the entrance station for the recreation area. A fuel station is also located at the general store. The RV dump station is located across from the general store and provides a 1-lane facility connected to a sewer system for RV holding tank disposal. The main entrance access road is a 20-ft-wide, two way asphalt road (0.5 mi long). Overall, these facilities are in good-to-very good condition. Private ranger residences are also located between the entrance station and the boat ramp facilities that include residences and maintenance buildings, which is accessed by a 10-ft-wide, one way dirt road (0.3 mi long). Photographs of these facilities are provided in Figure 3.3.6-17.



Figure 3.3.6-17. Photographs (dated 7/21/15) of the entrance station and RV dump station at the South Shore Recreation Area.

3.3.6.1.2 Recreational Use

Recreation Visitation

Current Recreational Use Estimates

In 2017, the total Project recreation use was 78,641 RDs with the majority of that use occurring in the peak season (66.6% or 52,397 RDs) compared to the non-peak season (33.4% or 26,244 RDs) (Table 3.3.6-2). Day-use (70.6% or 55,518 RDs) accounted for the majority of total use as compared to overnight use (29.4% or 23,123 RDs); and this day-use-to-overnight use ratio was similar during both the peak and non-peak season. When comparing use by day type overall, total use was highest on the weekends (39,599 RDs) as compared to weekdays (26,217 RDs) and holidays (12,825 RDs). When comparing overall use by recreation, NSRA accounted for the highest percentage of use (81.9% or 64,429 RDs) compared to the SSR (18.1% or 14,212 RDs), which was open on a limited bases in 2017 on select weekdays, weekends and holidays during the peak season. The SSRA was closed during the non-peak season.

Table 3.3.6-2. Project recreation use estimate in Recreation Days by season and day type.

| Recreation Area | Day Type | Use Estimate in Recreation Days (RDs) | | | | | | | | |
|-----------------------------|----------------|---------------------------------------|---------------|---------------|-----------------|---------------|---------------|----------------------|---------------|---------------|
| | | Peak Season | | | Non-peak Season | | | Overall ¹ | | |
| | | Overnight Use | Day Use | Total Use | Overnight Use | Day Use | Total Use | Overnight Use | Day Use | Total Use |
| North Shore Recreation Area | Overall | 10,690 | 27,495 | 38,185 | 7,267 | 18,977 | 26,244 | 17,957 | 46,472 | 64,429 |
| | Weekday | 5,602 | 7,665 | 13,267 | 4,214 | 5,417 | 9,631 | 9,816 | 13,082 | 22,898 |
| | Weekend | 2,937 | 12,207 | 15,144 | 3,053 | 13,560 | 16,613 | 5,990 | 25,767 | 31,757 |
| | Holiday | 2,151 | 7,623 | 9,774 | n/a | n/a | n/a | 2,151 | 7,623 | 9,774 |
| South Shore Recreation Area | Overall | 5,166 | 9,046 | 14,212 | closed | closed | closed | 5,166 | 9,046 | 14,212 |
| | Weekday | 2,408 | 911 | 3,319 | closed | closed | closed | 2,408 | 911 | 3,319 |
| | Weekend | 1,820 | 6,022 | 7,842 | closed | closed | closed | 1,820 | 6,022 | 7,842 |
| | Holiday | 938 | 2,113 | 3,051 | closed | closed | closed | 938 | 2,113 | 3,051 |
| Project Total | Overall | 15,856 | 36,541 | 52,397 | 7,267 | 18,977 | 26,244 | 23,123 | 55,518 | 78,641 |
| | Weekday | 8,010 | 8,576 | 16,586 | 4,214 | 5,417 | 9,631 | 12,224 | 13,993 | 26,217 |
| | Weekend | 4,757 | 18,229 | 22,986 | 3,053 | 13,560 | 16,613 | 7,810 | 31,789 | 39,599 |
| | Holiday | 3,089 | 9,736 | 12,825 | n/a | n/a | n/a | 3,089 | 9,736 | 12,825 |

Source: Camp Far West Reservoir recreation concessionaire entrance gate records (SSWD 2017).

Legend: n/a = no holidays during non-peak season.

Future Recreation Use Estimate through 2060

SSWD used the 2017 recreation use estimate for the Project as the baseline and applied the county population growth rates for the top 80 percent of the visitors surveyed (i.e., Sacramento, Placer, Yuba, and Sutter counties in California) to the peak season, non-peak season, and overall or annual use estimate by day type. SSWD obtained the California county population projections from the State of California Department of Finance³. Next, SSWD multiplied the weighted percentage for each county by the growth rate for each decade (2020 through 2060) and the 2017 use estimate. The weighted use estimate for each county was summed to get a

³ <http://www.dof.ca.gov/Forecasting/Demographics/Projections/>.

projected use estimate for the Project by type of season (overall or annual, peak and non-peak) and day type (weekday, weekend and holidays).

Overall, if population growth continues for relevant counties, recreation use is projected to increase by 38.5 percent by 2060 (Table 3.3.6-3). By 2060, the overall or annual recreation use is projected to increase to 116,400 RDs or an additional 30,259 RDs; peak season recreation use is projected to increase to 77,600 RD (+20,203 RDs); and non-peak season use is projected to increase to 38,900 RDs (+10,156 RDs).

Table 3.3.6-3. Annual recreation use estimate projections through 2060 based on county population growth rates for Sacramento, Placer, Yuba and Sutter counties.

| Use Season | Day Type | 2017 Use Estimate (RDs) | Use Projections ¹ (RDs) | | | | | Change (2017 to 2060) | |
|-----------------|----------------|-------------------------|------------------------------------|---------------|----------------|----------------|----------------|-----------------------|---------|
| | | | 2020 | 2030 | 2040 | 2050 | 2060 | RDs | Percent |
| Annual | Overall | 78,641 | 81,600 | 91,400 | 100,800 | 108,900 | 116,400 | 30,259 | 38.5 |
| | Weekday | 26,217 | 27,200 | 30,500 | 33,600 | 36,300 | 38,800 | 10,083 | |
| | Weekend | 39,599 | 41,100 | 46,000 | 50,700 | 54,800 | 58,600 | 15,201 | |
| | Holiday | 12,825 | 13,300 | 14,900 | 16,500 | 17,800 | 19,000 | 4,975 | |
| Peak Season | Overall | 52,397 | 43,400 | 60,900 | 67,300 | 72,600 | 77,600 | 20,203 | 38.5 |
| | Weekday | 16,586 | 14,500 | 19,300 | 21,300 | 23,000 | 24,600 | 6,414 | |
| | Weekend | 22,986 | 21,800 | 26,700 | 29,500 | 31,800 | 34,000 | 8,814 | |
| | Holiday | 12,825 | 7,100 | 14,900 | 16,500 | 17,800 | 19,000 | 4,975 | |
| Non-peak Season | Overall | 26,244 | 21,900 | 30,500 | 33,700 | 36,400 | 38,900 | 10,156 | 38.5 |
| | Weekday | 9,631 | 9,200 | 11,200 | 12,400 | 13,400 | 14,300 | 3,769 | |
| | Weekend | 16,613 | 12,700 | 19,300 | 21,300 | 23,000 | 24,600 | 6,387 | |
| | Holiday | n/a | N/A | N/A | N/A | N/A | N/A | N/A | |

¹ Projections are based on the county population growth rates for the top four counties accounting for 80% of the visitors surveyed (i.e., Sacramento, Placer, Yuba and Sutter counties in California).

Developed Facility Occupancy

Campgrounds

Family Campgrounds

In 2017, the combined Project family campground occupancy was 28.9 percent overall (Table 3.3.6-4). The family campground occupancy was slightly higher at SSRA (32.8% overall) than NSRA (27.8%); however, the SSRA was only open at peak use periods during the peak season, including select weekdays (large group events), weekends and holidays. The SSRA was closed for nearly all of the weekdays during the peak season and for the entire non-peak season. During the peak season, the overall NSRA family campground occupancy was higher (60.0%) compared to the SSRA family campground (32.8%). The overall occupancy levels by day type followed a typical pattern with holidays experiencing the highest occupancy followed by weekends and weekdays. Notably, neither of the family campgrounds was ever at full capacity during the 2017 season.

RV Campgrounds

The only Project RV campground (with full RV hookups) is located at the NSRA. In 2017, the overall campground occupancy was 22.6 percent, but with a substantial divergence between the peak season (56.7%) and the non-peak season (5.6%) (Table 3.3.6-4). The RV campground was never at full capacity during the 2017 season.

Group Campgrounds

The Project includes three group campsites, including two sites at the NSRA and one site at the SSRA. Combined in 2017, the overall group campground occupancy was 44.1 percent, but with a substantial divergence between the peak season (75.0%) and the non-peak season (16.7%) (Table 3.3.6-4). The group campgrounds did reach full capacity on occasion during the 2017 season, which is not uncommon given the small number of total sites (3 sites).

The Project also includes the Horse Camp at the NSRA, which is also a group site (1 site), tailored specifically for equestrian use with horse tie posts. In 2017, the overall occupancy was 25.9 percent, but with a substantial divergence between the peak season (66.7%) and the non-peak season (5.6%) (Table 3.3.6-4). The campground was at full capacity numerous times during the 2017 season, but any time the lone site was occupied, the site was considered at full occupancy.

Table 3.3.6-4. Project campground occupancy by season and day type.

| Recreation Area | Campground | Day Type | Average Occupancy (%) | | | Maximum Occupancy (%) | | |
|-----------------------------|------------------------------|----------------|-----------------------|-----------------|-------------|-----------------------|-----------------|--------------|
| | | | Peak Season | Non-peak Season | Overall | Peak Season | Non-peak Season | Overall |
| North Shore Recreation Area | Family Campground (70 sites) | Overall | 60.0 | 11.7 | 27.8 | 95.7 | 57.1 | 95.7 |
| | | Weekday | 28.6 | 7.6 | 12.9 | 37.1 | 25.7 | 37.1 |
| | | Weekend | 65.2 | 15.9 | 28.2 | 74.3 | 57.1 | 74.3 |
| | | Holiday | 86.2 | n/a | 86.2 | 95.7 | n/a | 95.7 |
| | RV Campground (10 sites) | Overall | 56.7 | 5.6 | 22.6 | 80.0 | 20.0 | 80.0 |
| | | Weekday | 23.3 | 3.3 | 8.3 | 50.0 | 10.0 | 50.0 |
| | | Weekend | 70.0 | 7.8 | 23.3 | 80.0 | 20.0 | 80.0 |
| | | Holiday | 76.7 | n/a | 76.7 | 80.0 | n/a | 80.0 |
| | Group Campground (2 sites) | Overall | 66.7 | 16.7 | 33.3 | 100.0 | 100.0 | 100.0 |
| | | Weekday | 16.7 | 11.1 | 12.5 | 50.0 | 50.0 | 50.0 |
| | | Weekend | 83.3 | 22.2 | 37.5 | 100.0 | 100.0 | 100.0 |
| | | Holiday | 100.0 | n/a | 100.0 | 100.0 | n/a | 100.0 |
| | Horse Camp (1 site) | Overall | 66.7 | 5.6 | 25.9 | 100.0 | 100.0 | 100.0 |
| | | Weekday | 33.3 | 11.1 | 16.7 | 100.0 | 100.0 | 100.0 |
| | | Weekend | 66.7 | 0.0 | 16.7 | 100.0 | 0.0 | 100.0 |
| | | Holiday | 100.0 | n/a | 100.0 | 100.0 | n/a | 100.0 |
| South Shore Recreation Area | Family Campground (67 sites) | Overall | 32.8 | closed | 32.8 | 49.3 | closed | 49.3 |
| | | Weekday | 20.9 | closed | 20.9 | 31.3 | closed | 31.3 |
| | | Weekend | 35.8 | closed | 35.8 | 49.3 | closed | 49.3 |
| | | Holiday | 40.3 | closed | 40.3 | 49.3 | closed | 49.3 |
| | Group Campground (1 site) | Overall | 85.7 | closed | 85.7 | 100.0 | closed | 100.0 |
| | | Weekday | 50.0 | closed | 50.0 | 100.0 | closed | 100.0 |
| | | Weekend | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | | Holiday | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |

Table 3.3.6-4. (continued)

| Recreation Area | Campground | Day Type | Average Occupancy (%) | | | Maximum Occupancy (%) | | |
|-----------------|--------------------------------|----------------|-----------------------|-----------------|-------------|-----------------------|-----------------|--------------|
| | | | Peak Season | Non-peak Season | Overall | Peak Season | Non-peak Season | Overall |
| Project-wide | Family Campgrounds (137 sites) | Overall | 48.1 | 11.7 | 28.9 | 95.7 | 57.1 | 95.7 |
| | | Weekday | 25.5 | 7.6 | 14.0 | 37.1 | 25.7 | 37.1 |
| | | Weekend | 50.5 | 15.9 | 29.7 | 74.3 | 57.1 | 74.3 |
| | | Holiday | 67.8 | n/a | 67.8 | 95.7 | n/a | 95.7 |
| | RV Campgrounds (10 sites) | Overall | 56.7 | 5.6 | 22.6 | 80.0 | 20.0 | 80.0 |
| | | Weekday | 23.3 | 3.3 | 8.3 | 50.0 | 10.0 | 50.0 |
| | | Weekend | 70.0 | 7.8 | 23.3 | 80.0 | 20.0 | 80.0 |
| | | Holiday | 76.7 | n/a | 76.7 | 80.0 | n/a | 80.0 |
| | Group Campgrounds (3 sites) | Overall | 75.0 | 16.7 | 44.1 | 100.0 | 100.0 | 100.0 |
| | | Weekday | 30.0 | 11.1 | 17.9 | 100.0 | 50.0 | 100.0 |
| | | Weekend | 91.7 | 22.2 | 50.0 | 100.0 | 100.0 | 100.0 |
| | | Holiday | 100.0 | n/a | 100.0 | 100.0 | n/a | 100.0 |
| | Horse Camp (1 site) | Overall | 66.7 | 5.6 | 25.9 | 100.0 | 100.0 | 100.0 |
| | | Weekday | 33.3 | 11.1 | 16.7 | 100.0 | 100.0 | 100.0 |
| | | Weekend | 66.7 | 0.0 | 16.7 | 100.0 | 0.0 | 100.0 |
| | | Holiday | 100.0 | n/a | 100.0 | 100.0 | n/a | 100.0 |

Source: on-site observations (SSWD 2017)

Legend: n/a = no holidays during non-peak season.

Projected Peak Season Campground Occupancy through 2060

At the NSRA, the overall peak season occupancy at the developed campgrounds is projected to be between 91.4 percent and 107.5 percent by 2060 (Table 3.3.6-5). When examining weekend occupancies at these campgrounds, all are projected to be between 105.2 percent and 134.4 percent occupancy by 2060. The Group Campground is the first campground projected to reach full capacity on weekends by 2030 followed by the RV Campground (2040), Horse Camp (2050) and Family Campground (2060).

At the SSRA, the overall peak season occupancy at the family and group campgrounds is projected to be between 53.0 percent and 138.3 percent by 2060 (Table 3.3.6-5). Again, the SSRA is only open during the peak season and primarily on weekends and holidays so the overall peak season occupancy levels are skewed without weekdays included. When examining weekend occupancies at these campgrounds, all are projected to be between 105.2 percent and 134.4 percent occupancy by 2060. The Group Campground is the first campground projected to reach full capacity on weekends by 2030 followed by the RV Campground (2040), Horse Camp (2050) and Family Campground (2060).

When examining the combined occupancy rates for the common types of campground facilities between the NSRA and SSRA, the family campgrounds are projected to reach 77.6 percent overall and 81.5 percent on weekends by 2060. The group campgrounds are projected to reach 121.0 percent overall and 147.9 percent on weekends by 2060.

Table 3.3.6-5. Average peak season occupancy projections by day type for the Project campgrounds, 2020-2060.

| Campground | Type of Day | 2017 Occupancy | Occupancy Projections ¹ | | | | |
|--|-------------|-------------------|------------------------------------|-------|-------|-------|-------|
| | | | 2020 | 2030 | 2040 | 2050 | 2060 |
| INDIVIDUAL CAMPGROUNDS | | | | | | | |
| NSRA Family Campground (70 sites) | Overall | 60.0 | 68.7 | 76.6 | 89.6 | 90.1 | 96.8 |
| | Weekday | 28.6 | 32.7 | 36.5 | 42.7 | 42.9 | 46.1 |
| | Weekend | 65.2 | 74.7 | 83.2 | 97.5 | 98.0 | 105.2 |
| | Holiday | 86.2 | 98.7 | 110.0 | 128.8 | 129.5 | 139.0 |
| NSRA RV Campground (10 sites) | Overall | 56.7 | 64.9 | 72.3 | 84.7 | 85.1 | 91.4 |
| | Weekday | 23.3 | 26.7 | 29.8 | 34.9 | 35.0 | 37.6 |
| | Weekend | 70.0 | 80.2 | 89.3 | 104.6 | 105.1 | 112.9 |
| | Holiday | 76.7 | 87.8 | 97.8 | 114.5 | 115.2 | 123.7 |
| NSRA Group Campground (2 sites) | Overall | 66.7 | 76.3 | 85.1 | 99.6 | 100.1 | 107.5 |
| | Weekday | 16.7 | 19.1 | 21.3 | 24.9 | 25.0 | 26.9 |
| | Weekend | 83.3 | 95.4 | 106.3 | 124.5 | 125.2 | 134.4 |
| | Holiday | 100.0 | 114.5 | 127.6 | 149.4 | 150.2 | 161.3 |
| NSRA Horse Camp (1 site) | Overall | 66.7 | 76.3 | 85.1 | 99.6 | 100.1 | 107.5 |
| | Weekday | 33.3 | 38.2 | 42.5 | 49.8 | 50.1 | 53.8 |
| | Weekend | 66.7 | 76.3 | 85.1 | 99.6 | 100.1 | 107.5 |
| | Holiday | 100.0 | 114.5 | 127.6 | 149.4 | 150.2 | 161.3 |
| SSRA Family Campground (67 sites) | Overall | 32.8 | 37.6 | 41.9 | 49.0 | 49.3 | 53.0 |
| | Weekday | 20.9 | 23.9 | 26.6 | 31.1 | 31.3 | 33.6 |
| | Weekend | 35.8 | 41.0 | 45.7 | 53.5 | 53.8 | 57.8 |
| | Holiday | 40.3 | 46.1 | 51.4 | 60.2 | 60.5 | 65.0 |
| SSRA Group Campground (1 site) | Overall | 85.7 | 98.1 | 109.4 | 128.1 | 128.7 | 138.3 |
| | Weekday | 50.0 | 57.3 | 63.8 | 74.7 | 75.1 | 80.7 |
| | Weekend | 100.0 | 114.5 | 127.6 | 149.4 | 150.2 | 161.3 |
| | Holiday | 100.0 | 114.5 | 127.6 | 149.4 | 150.2 | 161.3 |
| COMBINED NSRA & SSRA CAMPGROUNDS | | | | | | | |
| Family Campgrounds Combined (137 sites) | Overall | 48.1 | 55.1 | 61.4 | 71.9 | 72.3 | 77.6 |
| | Weekday | 25.5 | 29.2 | 32.5 | 38.1 | 38.3 | 41.1 |
| | Weekend | 50.5 | 57.9 | 64.5 | 75.5 | 75.9 | 81.5 |
| | Holiday | 67.8 | 77.7 | 86.6 | 101.4 | 101.9 | 109.4 |
| Group Campgrounds Combined (3 sites) | Overall | 75.0 | 85.9 | 95.7 | 112.1 | 112.7 | 121.0 |
| | Weekday | 30.0 | 34.4 | 38.3 | 44.8 | 45.1 | 48.4 |
| | Weekend | 91.7 | 105.0 | 117.0 | 137.0 | 137.7 | 147.9 |
| | Holiday | 100.0 | 114.5 | 127.6 | 149.4 | 150.2 | 161.3 |

¹ Developed Site Use index: 1.145 by 2020; 1.276 by 2030; 1.494 by 2040; 1.502 by 2050; and 1.613 by 2060 (Bowker et al. 2012).

Parking Areas

In 2017 at the NSRA Boat Launch (155 spaces), the parking area occupancy was 16.3 percent overall and slightly higher at 26.2 percent during the peak season (Table 3.3.6-6). The occupancy by day type was highest on holidays (48.4%) and weekends (27.1%) and dropped substantially on weekdays (3.2%). The parking area was never observed at full capacity with a maximum occupancy of 90.3 percent on a holiday. Notably, parking along the shoreline in the

dispersed use areas abutting the Boat Launch is allowed at NSRA, which is commonly utilized by visitors since it provides parking closer to the reservoir shoreline, particularly as the water level recedes.

In 2017 at the SSRA Boat Launch (52 spaces), the parking area occupancy was 24.0 percent overall with the highest average and maximum occupancy rates on weekends at 32.7 and 82.7 percent, respectively (Table 3.3.6-6). The parking area was never observed at full capacity.

In 2017 at the SSRA Day Use Area (44 spaces), the parking area occupancy was 20.8 percent overall with the highest average and maximum occupancy rates on holidays at 31.1 and 72.7 percent, respectively (Table 3.3.6-6). The parking area was never observed at full capacity.

Table 3.3.6-6. Project parking area occupancy by season and day type.

| Facility | Day Type | Average Occupancy (%) | | | Maximum Occupancy (%) | | |
|-----------------------------------|----------------|-----------------------|-----------------|-------------|-----------------------|-----------------|-------------|
| | | Peak Season | Non-peak Season | Overall | Peak Season | Non-peak Season | Overall |
| NSRA Boat Launch (155 spaces) | Overall | 26.2 | 11.4 | 16.3 | 90.3 | 46.5 | 90.3 |
| | Weekday | 3.2 | 4.0 | 3.8 | 5.2 | 7.7 | 7.7 |
| | Weekend | 27.1 | 17.2 | 19.5 | 38.7 | 46.5 | 46.5 |
| | Holiday | 48.4 | n/a | 48.4 | 90.3 | n/a | 90.3 |
| SSRA Boat Launch (52 spaces) | Overall | 24.0 | closed | 24.0 | 82.7 | closed | 82.7 |
| | Weekday | 3.8 | closed | 3.8 | 3.8 | closed | 3.8 |
| | Weekend | 32.7 | closed | 32.7 | 82.7 | closed | 82.7 |
| | Holiday | 28.9 | closed | 28.9 | 63.5 | closed | 63.5 |
| SSRA Day Use Area (44 spaces) | Overall | 20.8 | closed | 20.8 | 72.7 | closed | 72.7 |
| | Weekday | 2.3 | closed | 2.3 | 2.3 | closed | 2.3 |
| | Weekend | 22.7 | closed | 22.7 | 59.1 | closed | 59.1 |
| | Holiday | 31.1 | closed | 31.1 | 72.7 | closed | 72.7 |
| Combined Boat Launch (207 spaces) | Overall | 25.2 | 11.4 | 18.1 | 90.3 | 46.5 | 90.3 |
| | Weekday | 3.5 | 4.0 | 3.8 | 5.2 | 7.7 | 7.7 |
| | Weekend | 29.9 | 17.2 | 22.0 | 82.7 | 46.5 | 82.7 |
| | Holiday | 38.6 | n/a | 38.6 | 90.3 | n/a | 90.3 |

Source: on-site observations (SSWD 2017)

Legend: n/a = no holidays during non-peak season.

Projected Peak Season Parking Area Occupancy through 2060

At the NSRA Boat Launch, the peak season parking area occupancy is projected to be 41.4 percent overall and 42.7 percent on weekends by 2060 (Table 3.3.6-7). At the SSRA Boat Launch, the peak season parking area occupancy is projected to be 41.2 percent overall and 56.0 percent on weekends by 2060. The combined peak season occupancy is projected to be 41.4 percent overall and 49.1 percent on weekends. At the SSRA Day Use Area, the peak season parking area occupancy is projected to be 34.6 percent overall and 37.9 percent on weekends by 2060.

Table 3.3.6-7. Average peak season parking area occupancy projections by day type, 2020-2060.

| Facility | Day Type | 2017 Occupancy | Occupancy Projections | | | | |
|-------------------------------------|----------|-------------------|-----------------------|--------------------|--------------------|--------------------|--------------------|
| | | | 2020 Projection | 2030 Projection | 2040 Projection | 2050 Projection | 2060 Projection |
| INDIVIDUAL FACILITIES | | | | | | | |
| NSRA Boat Launch (155 spaces) | Overall | 26.2 | 29.8 | 32.7 | 35.8 | 38.3 | 41.4 |
| | Weekday | 3.2 | 3.7 | 4.0 | 4.4 | 4.7 | 5.1 |
| | Weekend | 27.1 | 30.8 | 33.8 | 36.9 | 39.5 | 42.7 |
| | Holiday | 48.4 | 54.9 | 60.4 | 65.9 | 70.6 | 76.3 |
| SSRA Boat Launch (52 spaces) | Overall | 24.0 | 27.8 | 30.9 | 35.3 | 37.5 | 41.2 |
| | Weekday | 3.8 | 4.4 | 4.9 | 5.6 | 5.9 | 6.5 |
| | Weekend | 32.7 | 37.8 | 42.1 | 48.1 | 50.9 | 56.0 |
| | Holiday | 28.9 | 33.3 | 37.2 | 42.4 | 45.0 | 49.5 |
| SSRA Day Use Area (44 spaces) | Overall | 20.8 | 23.9 | 26.7 | 30.7 | 31.9 | 34.6 |
| | Weekday | 2.3 | 2.6 | 3.0 | 3.4 | 3.5 | 3.8 |
| | Weekend | 22.7 | 26.2 | 29.2 | 33.6 | 34.9 | 37.9 |
| | Holiday | 31.1 | 35.8 | 39.9 | 45.9 | 47.7 | 51.8 |
| COMBINED FACILITIES | | | | | | | |
| Boat Launches Combined (207 spaces) | Overall | 25.2 | 28.9 | 32.0 | 36.3 | 38.1 | 41.4 |
| | Weekday | 3.5 | 4.0 | 4.4 | 5.0 | 5.2 | 5.7 |
| | Weekend | 29.9 | 34.3 | 38.0 | 43.1 | 45.2 | 49.1 |
| | Holiday | 38.6 | 44.2 | 49.1 | 55.6 | 58.3 | 63.4 |

Picnic Sites

In 2017, picnic site usage was very low at both the NSRA and SSRA day use areas based on average and maximum occupancy rates. At the NSRA Day Use Area (22 sites), the picnic site occupancy was 3.2 percent overall, on average, with a maximum occupancy of 13.6 percent (Table 3.3.6-8). Occupancy was slightly higher during the peak season (6.6%) compared to the non-peak season (1.5%). At the SSRA Day Use Area (33 sites), the picnic site occupancy was slightly higher at 5.7 percent overall, on average, with a maximum occupancy of 24.2 percent (Table 3.3.6-8). The combined occupancy was a modes 3.8 percent.

Table 3.3.6-8. Project picnic area occupancy by season and day type.

| Facility | Day Type | Average Occupancy (%) | | | Maximum Occupancy (%) | | |
|------------------------------|----------------|-----------------------|-----------------|------------|-----------------------|-----------------|-------------|
| | | Peak Season | Non-peak Season | Overall | Peak Season | Non-peak Season | Overall |
| NSRA Day Use Area (20 sites) | Overall | 6.6 | 1.5 | 3.2 | 13.6 | 9.1 | 13.6 |
| | Weekday | 1.5 | 0.0 | 0.4 | 4.5 | 0.0 | 4.5 |
| | Weekend | 10.6 | 2.7 | 4.5 | 13.6 | 9.1 | 13.6 |
| | Holiday | 7.6 | n/a | 7.6 | 13.6 | n/a | 13.6 |
| SSRA Day Use Area (33 sites) | Overall | 5.7 | closed | 5.7 | 24.2 | closed | 24.2 |
| | Weekday | 3.0 | closed | 3.0 | 3.0 | closed | 3.0 |
| | Weekend | 3.0 | closed | 3.0 | 9.1 | closed | 9.1 |
| | Holiday | 10.1 | closed | 10.1 | 24.2 | closed | 24.2 |

Table 3.3.6-8. (continued)

| Facility | Day Type | Average Occupancy (%) | | | Maximum Occupancy (%) | | |
|-----------------------------------|----------------|-----------------------|-----------------|------------|-----------------------|-----------------|-------------|
| | | Peak Season | Non-peak Season | Overall | Peak Season | Non-peak Season | Overall |
| Day Use Areas Combined (53 sites) | Overall | 6.1 | 1.5 | 3.8 | 24.2 | 9.1 | 24.2 |
| | Weekday | 2.1 | 0.0 | 0.8 | 4.5 | 0.0 | 4.5 |
| | Weekend | 6.8 | 2.7 | 4.3 | 13.6 | 9.1 | 13.6 |
| | Holiday | 8.8 | n/a | 8.8 | 24.2 | n/a | 24.2 |

Source: on-site observations (SSWD 2017).

Legend: n/a = no holidays during non-peak season.

Projected Peak Season Picnic Site Occupancy through 2060

At the NSRA Day Use Area, the peak season parking area occupancy is projected to be 10.6 percent overall and 17.1 percent on weekends by 2060 (Table 3.3.6-9). At the SSRA Day Use Area, the peak season parking area occupancy is projected to be 9.2 percent overall and 4.9 percent on weekends by 2060. The combined peak season occupancy is projected to be 9.8 percent overall and 11.0 percent on weekends.

Table 3.3.6-9. Average peak season picnic area occupancy projections by day type, 2020-2060.

| Picnic Area | Type of Day | 2012 Occupancy | Occupancy Projections | | | | |
|---|----------------|----------------|-----------------------|-----------------|-----------------|-----------------|-----------------|
| | | | 2020 Projection | 2030 Projection | 2040 Projection | 2050 Projection | 2060 Projection |
| North Shore Recreation Area Day Use Area (20 sites) | Overall | 6.6 | 7.5 | 8.4 | 9.8 | 9.8 | 10.6 |
| | Weekday | 1.5 | 1.7 | 1.9 | 2.2 | 2.3 | 2.4 |
| | Weekend | 10.6 | 12.1 | 13.5 | 15.8 | 15.9 | 17.1 |
| | Holiday | 7.6 | 8.7 | 9.7 | 11.3 | 11.4 | 12.2 |
| South Shore Recreation Area Day Use Area (33 sites) | Overall | 5.7 | 6.5 | 7.2 | 8.5 | 8.5 | 9.2 |
| | Weekday | 3.0 | 3.4 | 3.8 | 4.5 | 4.5 | 4.8 |
| | Weekend | 3.0 | 3.5 | 3.9 | 4.5 | 4.6 | 4.9 |
| | Holiday | 10.1 | 11.6 | 12.9 | 15.1 | 15.2 | 16.3 |
| Day Use Areas Combined (53 sites) | Overall | 6.1 | 7.0 | 7.8 | 9.1 | 9.2 | 9.8 |
| | Weekday | 2.1 | 2.4 | 2.7 | 3.1 | 3.2 | 3.4 |
| | Weekend | 6.8 | 7.8 | 8.7 | 10.2 | 10.2 | 11.0 |
| | Holiday | 8.8 | 10.1 | 11.2 | 13.1 | 13.2 | 14.2 |

Dispersed Use Areas

The four dispersed use areas at Camp Far West Reservoir do not have any developed camping, picnic or parking facilities; and thus, do not have occupancy rates. However, a substantial amount of recreation occurs in these areas. The following section summarizes the vehicle data for the areas.

NSRA

Jet Ski Cove Dispersed Use Area

Overall at Jet Ski Cove dispersed use area, SSWD observed an average of 31.9 total vehicles. The majority were vehicles only (i.e., 15.5 vehicles-at-one-time or VAOT) and RV/campers (i.e., 5.3 VAOT) (Table 3.3.6-10). During the peak season, SSWD observed an average of 63.3 total vehicles. These were comprised mostly of vehicles only (i.e., 24.9 VAOT) and RV/campers (i.e., 12.3 VAOT). Overall, holiday days had the highest total vehicle observations (i.e., 126.0 VAOT) followed by weekends (i.e., 25.5 VAOT) and weekdays (i.e., 13.6 VAOT).

The overall average number of shoreline users was 101.0 people-at-one-time (PAOT) (Table 3.3.6-10). The peak average number of shoreline users occurred during the peak season on holidays (i.e., 432.4 PAOT) and weekends (i.e., 146.7 PAOT).

Table 3.3.6-10. Average observed vehicles and shoreline users at the NSRA Jet Ski Cove dispersed use area by season and day type, 2017.

| Dispersed Use Area | Day Type | Season | Average Observed Vehicles in 2017 | | | | | | | | Total Shoreline Users ¹ |
|---------------------------|---------------|----------|-----------------------------------|---------------------------|----------------------------|--------------|------------|-------------|---------------|----------------|------------------------------------|
| | | | Vehicle Only | Vehicle with Boat Trailer | Vehicle with Other Trailer | Trailer Only | RV/ Camper | Motor-cycle | Other Vehicle | Total Vehicles | |
| NSRA Jet Ski Cove (15 ac) | All Day Types | Overall | 15.5 | 3.8 | 3.6 | 3.1 | 5.3 | 0.3 | 0.3 | 31.9 | 101.1 |
| | | Peak | 24.9 | 9.6 | 8.0 | 7.4 | 12.3 | 0.7 | 0.4 | 63.3 | 208.8 |
| | | Non-peak | 10.8 | 0.9 | 1.4 | 1.0 | 1.8 | 0.1 | 0.2 | 16.1 | 43.0 |
| | Weekday | Overall | 10.5 | 0.5 | 0.3 | 1.3 | 0.9 | 0.0 | 0.1 | 13.6 | 36.1 |
| | | Peak | 1.3 | 1.7 | 0.7 | 3.3 | 1.7 | 0.0 | 0.3 | 9.0 | 32.6 |
| | | Non-peak | 14.0 | 0.1 | 0.1 | 0.5 | 0.6 | 0.0 | 0.0 | 15.4 | 27.3 |
| | Weekend | Overall | 12.0 | 2.8 | 3.8 | 2.8 | 3.8 | 0.2 | 0.2 | 25.5 | 76.6 |
| | | Peak | 24.7 | 7.0 | 8.0 | 7.3 | 7.3 | 0.7 | 0.0 | 55.0 | 146.7 |
| | | Non-peak | 8.2 | 1.5 | 2.5 | 1.4 | 2.7 | 0.1 | 0.3 | 16.7 | 59.4 |
| | Holiday | Overall | 48.7 | 20.0 | 15.3 | 11.7 | 28.0 | 1.3 | 1.0 | 126.0 | 432.4 |
| | | Peak | 48.7 | 20.0 | 15.3 | 11.7 | 28.0 | 1.3 | 1.0 | 126.0 | 432.4 |
| | | Non-peak | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |

¹ SSWD calculated the number of shoreline users by using the average people and vehicle per group data from the visitor survey responses and multiplying by the average observed vehicles.

Boss Point Dispersed Use Area

Overall at Boss Point dispersed use area, SSWD observed an average of 37.1 total vehicles. These were comprised mostly of vehicles only (i.e., 23.2 VAOT), vehicles with boat or other trailers (i.e., 7.0 VAOT), and RV/campers (i.e., 3.6 VAOT) (Table 3.3.6-11). During the peak season, SSWD observed an average of 57.2 total vehicles. These were comprised mostly of vehicles only (i.e., 36.3 VAOT) vehicles with boat or other trailers (i.e., 8.5 VAOT), and RV/campers (i.e., 6.8 VAOT). Overall, holiday days had the highest total vehicle observations (i.e., 117.3 VAOT) followed by weekends (i.e., 35.0 VAOT) and weekdays (i.e., 5.0 VAOT).

The overall average number of shoreline users was 122.2 PAOT overall (Table 3.3.6-11). The highest average number of shoreline users occurred during the peak season on holidays (i.e., 370.3 PAOT) and weekends (i.e., 133.7 PAOT).

Table 3.3.6-11. Average observed vehicles and shoreline users at the NSRA Boss Point dispersed use area by season and day type, 2017.

| Dispersed Use Area | Day Type | Season | Average Observed Vehicles in 2017 | | | | | | | | Total Shoreline Users ¹ |
|-------------------------|---------------|----------|-----------------------------------|---------------------------|----------------------------|--------------|------------|-------------|---------------|----------------|------------------------------------|
| | | | Vehicle Only | Vehicle with Boat Trailer | Vehicle with Other Trailer | Trailer Only | RV/ Camper | Motor-cycle | Other Vehicle | Total Vehicles | |
| NSRA Boss Point (55 ac) | All Day Types | Overall | 23.2 | 4.0 | 3.0 | 3.0 | 3.6 | 0.1 | 0.1 | 37.1 | 122.2 |
| | | Peak | 36.3 | 5.3 | 3.2 | 5.1 | 6.8 | 0.2 | 0.2 | 57.2 | 179.9 |
| | | Non-peak | 10.1 | 2.7 | 2.8 | 0.9 | 0.4 | 0.0 | 0.0 | 16.9 | 64.7 |
| | Weekday | Overall | 3.1 | 0.0 | 0.6 | 0.3 | 1.0 | 0.0 | 0.0 | 5.0 | 15.0 |
| | | Peak | 6.7 | 0.0 | 1.0 | 0.7 | 2.3 | 0.0 | 0.0 | 10.7 | 37.3 |
| | | Non-peak | 0.5 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 1.5 |
| | Weekend | Overall | 23.8 | 4.3 | 4.0 | 1.6 | 1.4 | 0.0 | 0.0 | 35.0 | 121.5 |
| | | Peak | 33.7 | 3.3 | 2.7 | 1.7 | 2.3 | 0.0 | 0.0 | 43.7 | 133.7 |
| | | Non-peak | 17.8 | 4.8 | 4.8 | 1.6 | 0.8 | 0.0 | 0.0 | 29.8 | 122.0 |
| | Holiday | Overall | 68.7 | 12.7 | 6.0 | 13.0 | 15.7 | 0.7 | 0.7 | 117.3 | 370.3 |
| | | Peak | 68.7 | 12.7 | 6.0 | 13.0 | 15.7 | 0.7 | 0.7 | 117.3 | 370.3 |
| | | Non-peak | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |

¹ SSWD calculated the number of shoreline users by using the average people and vehicle per group data from the visitor survey responses and multiplying by the average observed vehicles.

SSRA

Entrance Gate Dispersed Use Area

During the peak season at the Entrance Gate dispersed use area, SSWD observed an average of 19.0 total vehicles. These were comprised mostly of vehicles only (i.e., 11.5 VAOT) with some vehicles with boat or other trailers (i.e., 2.9 VAOT), and RV/campers (i.e., 2.0 VAOT) (Table 3.3.6-12). Overall, holiday days had the highest total vehicle observations (i.e., 35.0 VAOT) followed by weekends (i.e., 13.0 VAOT) and weekdays (i.e., 3.5 VAOT).

The overall average number of shoreline users was 74.2 PAOT overall (Table 3.3.6-12). The highest average number of shoreline users occurred during the peak season on holidays (i.e., 148.4 PAOT) and weekends (i.e., 46.1 PAOT).

Table 3.3.6-12. Average observed vehicles and shoreline users at the SSRA Entrance Gate dispersed use area by season and day type, 2017.

| Dispersed Use Area | Day Type | Season | Average Observed Vehicles in 2017 | | | | | | | | Total Shoreline Users ¹ |
|----------------------------|---------------|----------|-----------------------------------|---------------------------|----------------------------|--------------|------------|-------------|---------------|----------------|------------------------------------|
| | | | Vehicle Only | Vehicle with Boat Trailer | Vehicle with Other Trailer | Trailer Only | RV/ Camper | Motor-cycle | Other Vehicle | Total Vehicles | |
| SSRA Entrance Gate (24 ac) | All Day Types | Overall | 11.5 | 2.0 | 0.9 | 2.5 | 2.0 | 0.1 | 0.0 | 19.0 | 74.2 |
| | | Peak | 11.5 | 2.0 | 0.9 | 2.5 | 2.0 | 0.1 | 0.0 | 19.0 | 74.2 |
| | | Non-peak | closed | closed | closed | closed | closed | closed | closed | closed | closed |

Table 3.3.6-12. (continued)

| Dispersed Use Area | Day Type | Season | Average Observed Vehicles in 2017 | | | | | | | | Total Shoreline Users ¹ |
|----------------------------|----------|----------|-----------------------------------|---------------------------|----------------------------|--------------|------------|-------------|---------------|----------------|------------------------------------|
| | | | Vehicle Only | Vehicle with Boat Trailer | Vehicle with Other Trailer | Trailer Only | RV/ Camper | Motor-cycle | Other Vehicle | Total Vehicles | |
| SSRA Entrance Gate (24 ac) | Weekday | Overall | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 14.0 |
| | | Peak | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 14.0 |
| | | Non-peak | closed | closed | closed | closed | closed | closed | closed | closed | closed |
| | Weekend | Overall | 8.3 | 1.7 | 1.3 | 0.7 | 0.7 | 0.3 | 0.0 | 13.0 | 46.1 |
| | | Peak | 8.3 | 1.7 | 1.3 | 0.7 | 0.7 | 0.3 | 0.0 | 13.0 | 46.1 |
| | | Non-peak | closed | closed | closed | closed | closed | closed | closed | closed | closed |
| | Holiday | Overall | 20.0 | 3.7 | 1.0 | 6.0 | 4.7 | 0.0 | 0.0 | 35.3 | 148.4 |
| | | Peak | 20.0 | 3.7 | 1.0 | 6.0 | 4.7 | 0.0 | 0.0 | 35.3 | 148.4 |
| | | Non-peak | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |

¹ SSWD used data from the visitor survey responses to calculate the number of shoreline users by using the average people and vehicle per group and multiplying by the average observed vehicles.

Quarter Mile Cove Dispersed Use Area

During the peak season at Quarter Mile Cove dispersed use area, SSWD observed an average of 19.1 total vehicles. These were comprised mostly of vehicles only (i.e., 12.3 VAOT) with some vehicles with boat or other trailers (i.e., 3.9 VAOT), and RV/campers (i.e., 2.8 VAOT) (Table 3.3.6-13). Overall, holiday days had the highest total vehicle observations (i.e., 49.3 VAOT) followed by weekends (i.e., 1.3 VAOT) and weekdays (i.e., 0.5 VAOT).

The overall average number of shoreline users was 55.3 PAOT overall (Table 3.3.6-13). The highest average number of shoreline users occurred during the peak season on holidays (i.e., 135.7 PAOT).

Table 3.3.6-13. Average observed vehicles and shoreline users at the SSRA Quarter Mile Cove dispersed use area by season and day type, 2017.

| Dispersed Use Area | Day Type | Season | Average Observed Vehicles in 2017 | | | | | | | | Total Shoreline Users ¹ |
|-------------------------------|---------------|----------|-----------------------------------|---------------------------|----------------------------|--------------|------------|-------------|---------------|----------------|------------------------------------|
| | | | Vehicle Only | Vehicle with Boat Trailer | Vehicle with Other Trailer | Trailer Only | RV/ Camper | Motor-cycle | Other Vehicle | Total Vehicles | |
| SSRA Quarter-Mile Cove (8 ac) | All Day Types | Overall | 12.3 | 3.3 | 0.6 | 0.3 | 2.8 | 0.0 | 0.0 | 19.1 | 55.3 |
| | | Peak | 12.3 | 3.3 | 0.6 | 0.3 | 2.8 | 0.0 | 0.0 | 19.1 | 55.3 |
| | | Non-peak | closed | closed | closed | closed | closed | closed | closed | closed | closed |
| | Weekday | Overall | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.5 |
| | | Peak | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.5 |
| | | Non-peak | closed | closed | closed | closed | closed | closed | closed | closed | closed |
| | Weekend | Overall | 1.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 4.0 |
| | | Peak | 1.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 4.0 |
| | | Non-peak | closed | closed | closed | closed | closed | closed | closed | closed | closed |
| | Holiday | Overall | 31.3 | 8.7 | 1.3 | 0.7 | 7.3 | 0.0 | 0.0 | 49.3 | 135.7 |
| | | Peak | 31.3 | 8.7 | 1.3 | 0.7 | 7.3 | 0.0 | 0.0 | 49.3 | 135.7 |
| | | Non-peak | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |

¹ SSWD calculated the number of shoreline users by using the average people and vehicle per group data from the visitor survey responses and multiplying by the average observed vehicles.

3.3.6.1.3 Visitor Use Characteristics and Preferences

SSWD received 349 completed visitor surveys at the two Project recreation areas, including 309 surveys at NSRA and 40 surveys at SSRA (Table 3.3.6-14). The results are summarized below.

Table 3.3.6-14. Summary of completed visitor surveys by recreation area, facility and season.

| Recreation Area | Recreation Facility | Number of Completed Visitor Surveys | | |
|-----------------|-----------------------------|-------------------------------------|-----------------|------------|
| | | Peak Season | Non-peak Season | Overall |
| NSRA | Boat Launch | 26 | 54 | 80 |
| | Family Campground | 31 | 36 | 67 |
| | RV Campground | 11 | 8 | 19 |
| | Horse Camp | 2 | 4 | 6 |
| | Group Camp | 14 | 9 | 23 |
| | Day Use Area | 19 | 12 | 31 |
| | Boss Point Dispersed | 33 | 17 | 50 |
| | Jet Ski Cove Dispersed | 23 | 10 | 33 |
| | Total | 159 | 150 | 309 |
| SSRA | Boat Launch | 2 | closed | 2 |
| | Family Campground | 8 | closed | 8 |
| | Group Camp | 3 | closed | 3 |
| | Day Use Area | 7 | closed | 7 |
| | Swim Beach | 5 | closed | 5 |
| | Quarter-Mile Cove Dispersed | 5 | closed | 5 |
| | Entrance Gate Dispersed | 10 | closed | 10 |
| | Total | 40 | closed | 40 |
| Total | | 199 | 150 | 349 |

General Visitor Characteristics

The results of the visitor surveys demonstrated the majority of use (i.e., 60%) was overnight use at the Project overall. The population of visitors was not ethnically diverse, with most identifying as white (i.e., 74%) and English speaking (i.e., 91%). The majority of overnight and day-use visitors (i.e., 79%) were from Sacramento, Placer, Yuba and Sutter counties in California.

Overnight Visitors

On average, overnight visitors spent 2.4 days during their trip overall; first visited the Project in 2005; and have visited 66 times since their first visit. The only significant difference in responses between the NSRA and SSRA was the number of times visited since their first visit with NSRA survey respondents visiting 72 times compared to 32 times for SSRA survey respondents. Regarding respondent's group composition, overnight visitor's group size was 9 people travelling in approximately 3 vehicles and with 1 RV/camper, on average. Jet skis were the most popular watercraft with approximately 1 per group, on average; most other water craft averaged less than 1 craft per group. Family or family and friends described the majority of groups by composition for overnight visitors overall. All of the overnight visitors indicated they utilized either the Project campgrounds (49%) or dispersed use areas (51%) for their overnight facility.

Day-use Visitors

On average, day-use visitors spent 6 hours, 25 minutes during their trips overall; first visited the Project in 2000; and have visited 119 times since their first visit. When comparing the responses by recreation area, the year first visited and times visited showed a difference. Specifically, NSRA respondents first visited in 2000 and 114 times since compared to 1993 and 192 times for SSRA respondents. Regarding day-use group composition, respondents identified 5 people travelling in approximately 2 vehicles and most commonly with powerboats greater than 15 horsepower (0.6 craft) and jet skis (0.5 craft), on average. Family or family and friends described the majority of groups by composition for day-use visitors overall.

Detailed visitor survey responses related to trip characteristics and demographics are provided in the Recreation Use and Visitor Survey study data summary provided in Attachment 3.3.6A.

Activity Participation

In 2017, the primary recreational activities for the majority of the Project visitors surveyed (i.e., 85%) were camping (38%), fishing (21%), jet skiing (11%), motorized boating (9%) and swimming (6%). The only difference in the top five activities between the recreation areas was that SSRA survey respondents participated more frequently in water skiing/wakeboarding instead of jet skiing, which was more popular at the NSRA. In 2017, visitors to the Project most commonly visit Folsom Lake, Collins Lake, Lake Oroville, Rollins Lake, New Bullards Bar Reservoir, Lake Berryessa, Camanche Reservoir, Englebright Lake, Clear Lake and Lake Tahoe to participate in similar recreational activities. A small minority of visitors surveyed (i.e., 3%) indicated that a barrier existed that prevented them or a member of their group from participating in a recreation activity at the Project. The barriers identified by the visitors surveyed were varied, but included difficulties in launching a boat alone, inability to access water due to the steep shoreline, and boats located too close to shore prohibiting waterplay activities.

Detailed visitor survey responses related to recreation activity participation are provided in the Recreation Use and Visitor Survey study data summary provided in Attachment 3.3.6A.

Reservoir Level and Recreational Uses

Visitors were asked if the reservoir level affected their ability to use the beach, safely swim, launch or take out a boat, safely boat, fish along the shoreline, access the shoreline or utilize trails. For all these uses, the majority of overnight and day-use visitors responded that the reservoir level was “not a problem” (i.e., between 65% and 75%), with most of the remaining respondents indicating it was only a “small problem” (i.e., between 8% and 16%) or had no opinion or response (i.e., 1% and 5%). When comparing the responses between recreation areas, day-use versus overnight visitors, and seasons, the responses were similar overall. A slightly higher percentage of respondents indicated their ability to utilize the reservoir or shoreline was a “small problem” during the peak season compared to the non-peak season, but the difference was nominal (i.e., 5% or less) overall.

Detailed visitor survey responses related to reservoir levels and recreational uses are provided in the Recreation Use and Visitor Survey study data summary provided in Attachment 3.3.6A.

Functional Use Periods of Project's Developed Boat Ramps

SSWD found that the functional range of the NSRA developed boat ramp is 65.7 vertical ft, which ranges from Camp Far West Reservoir's proposed NMWSE at 305 ft down to the functional end of the ramp at 239.3 ft. Note that a boat ramp is considered functional if the reservoir water level is at least 3 vertical ft above the constructed end of the ramp. In addition, SSWD found the functional range of the NSRA low-water undeveloped (dirt, 1-lane) ramp is 114.0 vertical ft, which ranges from Camp Far West Reservoir's proposed NMWSE at 305 ft down to the functional end of the ramp at 191.0 ft. The NSRA boat ramp is open year-round. In 2017, the developed and undeveloped boat ramps were functional the entire year as the reservoir WSE never dropped below 248 ft. Table 3.3.6-15 and Figure 3.3.6-18 compares the end of the ramp to the median WSE for each water year type (WY) based on SSWD's Ops Model run results of the Near-Term Condition – Proposed Project for WYs 1976 through 2014. Overall, at NSRA, the undeveloped boat ramp is available year-round and the developed boat ramp is available most of the year, including the peak recreation season (Memorial Day through Labor Day holiday weekends), except in Critical WYs when the boat ramp is only available March 1 through July 17, which includes only the first half of the peak recreation season.

Table 3.3.6-15. Summary of functional range of NSRA and SSRA boat ramps by water year (WY) type.

| Boat Ramp | Water Year (WY) Type ¹ | | | | |
|---|-----------------------------------|--|---|---|-----------------------|
| | Wet | Above Normal | Below Normal | Dry | Critical |
| NSRA Developed Boat Ramp Minimum Elevation (239.3 ft) | Year-round | January 1 - September 30, December 21 - 31 | January 1 - September 30, December 1 - 31 | February 20 - November 16 | March 1 - July 17 |
| NSRA Low-water Undeveloped Boat Ramp Minimum Elevation (191.0 ft) | Year-round | Year-round | Year-round | Year-round | Year-round |
| SSRA Developed Boat Ramp Minimum Elevation (233.0 ft) | Year-round | January 1 - September 30, December 17 - 31 | January 1 - September 28, October 1 - 14, November 24 - December 31 | January 1 - September 21, October 1 - December 31 | February 13 - July 27 |

¹ WY types are based on end of year WY type and are not updated based on wintertime WY types.

SSWD found that the functional range of the SSRA developed boat ramp is 72.0 vertical ft, which ranges from Camp Far West Reservoir's proposed NMWSE at 305 ft down to the functional end of the ramp at 233.0 ft. The SSRA does not have an undeveloped ramp. The SSRA is typically only open during the peak recreation season. In 2017, the developed boat ramp was functional the entire year as the reservoir WSE never dropped below 248 ft. Overall, when comparing the boat ramp elevations for each WY type at SSRA, the developed boat ramp is available most of the year in all WY types, including the peak recreation season (Memorial Day through Labor Day holiday weekends), except in Critical WYs when the boat ramp is only available February 13 through July 17, which includes only the first half of the peak recreation season (Table 3.3.6-15 and Figure 3.3.6-18).

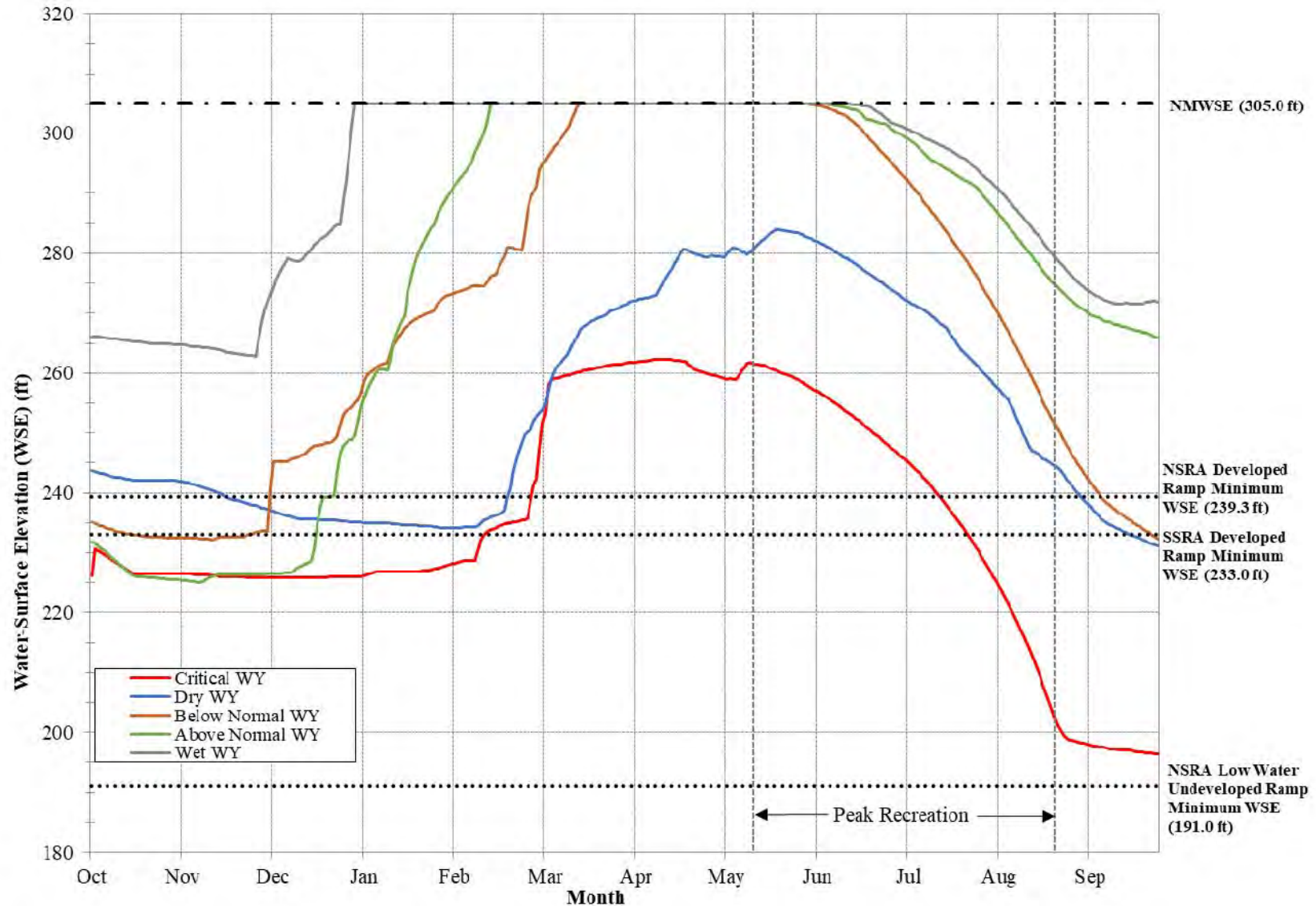


Figure 3.3.6-18. Functional use periods for the NSRA and SSRA boat ramps by median WSE and WY type based on SSWD's Ops Model run results of the Near-Term Condition – Proposed Project for WYs 1976 through WY 2014.

Acceptability of Existing Facilities and Conditions

Visitors to the reservoir also had the opportunity to rate the level of acceptability for the existing facilities at the recreation areas, including the campsites, picnic sites, restrooms, potable water, parking areas, boat ramps, roads, trails, signage, visitor information and reservoir WSE information. Overall, respondents rated a majority of facilities as acceptable (i.e., responses of “acceptable” or “slightly acceptable”) or had no opinion, did not use the facility, or had no response. A small minority of survey respondents (i.e., 5% or less) rated the facilities as unacceptable (i.e., responses of “unacceptable” or “slightly unacceptable”), except for restrooms (25%), potable water (18%), and roads (9%). The most common reasons and comments from visitors on the unacceptable existing condition of the facilities were categorized into the following categories:

- Potable water: lack of/need for potable water and poor condition of water hydrants
- Restrooms: cleanliness issues, lack of maintenance, poor overall condition, old/aging facilities, and lack of permanent restrooms in the dispersed use areas
- Roads: poor condition (e.g. cracking, eroding edges, potholes, and uneven surface), need for resurfacing

Detailed visitor survey responses related to the acceptability of existing facilities and conditions are provided in the Recreation Use and Visitor Survey study data summary provided in Attachment 3.3.6A.

User Conflict and Safety Issues

Visitors were also asked about conflict and safety issues at Camp Far West Reservoir. The majority of overnight visitors surveyed (89%) and day-use (96%) did not experience conflicts with very little difference between the recreation areas and the season. Of the minority of overnight visitors surveyed who did experience conflict, a range of reasons were identified such as proximity of motorized boaters and jet skiers, and rowdiness/loudness related to campers. For day-use visitors surveyed, motorized boaters and jet skiers were identified as the predominant sources of conflict.

Visitors were asked if there was anywhere in the recreation areas or on the reservoir that they felt unsafe. A minority of visitors surveyed (i.e., 7%) indicated they felt unsafe overall with very similar results between day-use and overnight visitors. Unsafe responses were slightly higher during the non-peak season as compared to the peak season. The predominant reasons for feeling unsafe were the presence/behavior of motorized boaters and jet skiers, low water boating hazards, boat ramp/courtesy dock congestion and lack of boater etiquette, and restroom conditions.

Detailed visitor survey responses related to user conflict and safety are provided in the Recreation Use and Visitor Survey study data summary provided in Attachment 3.3.6A.

Perceived Crowding

Respondents' level of perceived crowding was also measured, and overall the majority of visitors surveyed (i.e., 80% and higher) did not feel crowded; and results were similar between overnight and day-use visitors as well as between the recreation areas. When comparing the seasons, the non-peak season had slightly higher percentages of visitors surveyed that did not feel crowded (i.e., 85% and higher generally). For the respondents that did feel crowded, very few (i.e., 7%) modified their plans or most moved to a new location.

Detailed visitor survey responses related to crowding are provided in the Recreation Use and Visitor Survey study data summary provided in Attachment 3.3.6A.

Potential Facility Improvements

Visitors were asked their preference for potential facility improvements. Overall, visitors surveyed had low preferences (i.e., 30% or less) for facility improvements, with the exception of restrooms and potable water. Most visitors surveyed (i.e., 61% overall) indicated a preference for improved restroom facilities; and particularly overnight visitors (i.e., 67%) and those visiting during the peak season (i.e., 67%). In particular, visitors surveyed at SSRA indicated a higher preference for improved restroom facilities (i.e., 83%) and potable water facilities (i.e., 77%) when compared to NSRA (i.e., 64% and 55%, respectively).

Several other facility improvements were preferred by the majority of visitors surveyed when further examining preferences by type of user, recreation area or season. Many visitors surveyed also indicated a preference for improved potable water facilities, but particularly overnight visitors (i.e., 58%) and visitors during the peak season (i.e., 56%). In addition, visitors surveyed during the non-peak season indicated a higher preference for boat ramp-related improvements at NSRA as compared to the peak season. In particular, day-use visitors at NSRA indicated a preference for extending the boat ramp (i.e., 53.5%), adding boat ramp lanes (i.e., 43.5%) and improving the courtesy dock (i.e., 55.4%). Overnight visitors surveyed indicated a higher preference for campsite improvements than day-users at both recreation areas (i.e., 48%) and group campsite improvements (i.e., 43%).

Detailed visitor survey responses related to potential facility improvements are provided in the Recreation Use and Visitor Survey study data summary provided in Attachment 3.3.6A.

Angling at Camp Far West Reservoir

Angling at the Project was a primary recreational use. Overall, 25 percent of all visitors surveyed indicated that fishing was their primary recreation activity during their trip to Camp Far West Reservoir in 2017, which equates to nearly 20,000 RDs or visits specifically to fish at the Project. Visitors were asked a series of angling-specific questions on the recreation questionnaire.

Of the visitors surveyed who responded to the angling questions, the majority were general anglers (i.e., 57%) as compared to fishing for a target species (i.e., 43%). The predominant

target species of choice was bass. Overall, the anglers surveyed fished for approximately 3 hours, on average; with a longer fishing period during the non-peak season (i.e., 4 hours) as compared to the peak season (i.e., 2 hours). Day-use visitors also fished for a longer period (i.e., 5 hours) as compared to overnight visitors (i.e., 2 hours). The anglers surveyed also rated their fishing experience between average (i.e., 36%) and good (i.e., 29%) overall with similar results across types of users, seasons and recreation areas. One-fifth of the anglers surveyed indicated that the reservoir water level noticeably affected their angling experience. The reasons were varied, and included muddy/turbid water, inability to reach typical fishing spots due to low water level, floating debris at high water levels, and submerged debris/hazards at low water levels.

The majority of anglers surveyed fished from a boat (i.e., 52%) with most of the remaining anglers fishing from the shoreline fishing (i.e., 41%). Boat anglers surveyed primarily used a cast and retrieve approach. Most anglers surveyed used artificial lures (i.e., 57%) or bait (i.e., 50%).

Detailed visitor survey responses related to angling are provided in the Recreation Use and Visitor Survey study data summary provided in Attachment 3.3.6A.

Unmet Demand and Regional Uniqueness

SSWD identified potential activities with high unmet demand in the Project Area based on the review of unmet demand information from the visitor surveys and by reviewing relevant regional unmet demand sources such as the California Department of Parks and Recreation (CDPR) 2015 California Statewide Comprehensive Outdoor Recreation Plan (SCORP) and the 2012 Survey on Public Opinions and Attitudes on Outdoor Recreation (SPOA) in California. County general and master plans did not have relevant or specific information regarding unmet demand.

Visitor Survey Unmet Demand Information

Visitors to the recreation areas were asked if there were any activities or opportunities that they would like to participate in, but were unable to during their visit. The majority of respondents to the Project Area (i.e., 90%) indicated there were no activities that they felt they were unable to participate in at the Project Area or they did not respond. Only 10 percent of the visitors surveyed (36 respondents) indicated they wanted to participate in a recreational activity but were unable to. The predominant unmet recreational opportunity identified by visitors surveyed were boat-related rentals (16 responses) such as powerboat, jet-ski, pontoon boat, kayaks and ski boat rentals. The second most common response were children-related opportunities (5 responses) such as a playground area, children bike park/ramps, waterslide area, etc.). Other responses for unmet demand opportunities/activities included off-highway vehicle/4x4/ATV areas (2 responses) and swim beach amenities (2 responses). Overall, the visitor survey responses are related more to additional services (i.e., boat rentals and additional swim beach features), whereby the visitors are able to participate in boating and swimming activities, but wish to have more services that cater to those activities.

Regional Unmet Demand Sources

The 2012 SPOA identifies the top 15 recreational activities in California with the highest latent demand. Additionally, the SCORP divides California into seven regions to identify how

recreation activity participation varies by region throughout the state. The Project overlaps the Northern California and Central Valley regions. Table 3.3.6-15 summarizes the activities that Californians would participate in, from a statewide and regional perspective, if more facilities and opportunities were provided (CDPR 2014).

The Project provides opportunities for 12 of the 15 statewide and regional activities to some degree (Table 3.3.6-16). The three activities not provided at the Project (i.e., swimming in a pool, visiting outdoor nature museums, and shopping at a farmer's market) are not recreation activities typically provided at reservoir-based recreational settings such as the Project.

Overall, the Project currently provides opportunities for visitors to participate in nearly all of the applicable outdoor activities that visitors indicated they would like to participate in more frequently (i.e., have high latent/unmet demand) statewide and regionally. And, those activities that the Project does not provide are not common to reservoir-based recreation areas.

Unmet demand information is provided in the Recreation Use and Visitor Survey study data summary provided in Attachment 3.3.6A.

Table 3.3.6-16. Summary of completed visitor surveys by recreation area, facility and season.

| Order | Top 15 Activities Statewide | Available at Project | Top 15 Activities in the Northern California Region | Available at Project | Top 15 Activities in the Central Valley Region | Available at Project |
|-------|---|----------------------|--|----------------------|--|----------------------|
| 1 | Picnicking in picnic areas | Yes | Picnicking in picnic areas | Yes | Picnicking in picnic areas | Yes |
| 2 | Walking for fitness or pleasure on paved surfaces | Yes | Camping in developed sites with facilities such as tables and toilets | Yes | Walking for fitness or pleasure on paved surfaces | Yes |
| 3 | Camping in developed sites with facilities such as tables and toilets | Yes | Beach activities | Yes | Driving on paved surfaces for pleasure, sightseeing, driving through natural scenery | Yes |
| 4 | Beach activities | Yes | Shopping at a farmer's market | No | Camping in developed sites with facilities such as tables and toilets | Yes |
| 5 | Swimming in a pool | No | Walking for fitness or pleasure on paved surfaces | Yes | Swimming in a pool | No |
| 6 | Day hiking on unpaved trails | Yes | Visiting outdoor nature museums, zoos, gardens, or arboretums | No | Visiting historic or cultural sites | Yes |
| 7 | Attending outdoor cultural events | Yes | Attending outdoor cultural events | Yes | Attending outdoor cultural events | Yes |
| 8 | Visiting outdoor nature museums, zoos, gardens or arboretums | No | Swimming in freshwater lakes, rivers and/or streams | Yes | Visiting outdoor nature museums, zoos, gardens, or arboretums | No |
| 9 | Shopping at a farmer's market | No | Day hiking on un-paved trails | Yes | Bicycling on paved surfaces | Yes |
| 10 | Visiting historic or cultural sites | Yes | Driving on paved surfaces for pleasure, sightseeing, driving through natural scenery | Yes | Shopping at a farmer's market | No |
| 11 | Wildlife viewing, bird watching, viewing natural scenery | Yes | Visiting historic or cultural sites | Yes | Swimming in freshwater lakes, rivers and/or streams | Yes |

Table 3.3.6-16. (continued)

| Order | Top 15 Activities Statewide | Available at Project | Top 15 Activities in the Northern California Region | Available at Project | Top 15 Activities in the Central Valley Region | Available at Project |
|-------|--|----------------------|--|----------------------|--|----------------------|
| 12 | Driving on paved surfaces for pleasure, sightseeing, driving through natural scenery | Yes | Fishing – freshwater | Yes | Day hiking on un-paved trails | Yes |
| 13 | Swimming in fresh water lakes, rivers and/or streams | Yes | Wildlife viewing, bird watching, viewing natural scenery | Yes | Wildlife viewing, bird watching, viewing natural scenery | Yes |
| 14 | Jogging and running for exercise | Yes | Swimming in a pool | No | Beach activities | Yes |
| 15 | Bicycling on paved surfaces | Yes | Outdoor photography | Yes | Fishing – freshwater | Yes |

Regional Significance and Uniqueness

Similar Regional Recreation Opportunities

SSWD identified regional recreational opportunities by focusing on alternatives located within the five bordering counties (i.e., Yuba, Sutter, Nevada, Placer, and Sacramento). These five counties include the four most popular counties where the majority (i.e., 78.5%) of the visitors surveyed had their primary residence, including Sacramento, Placer, Yuba, and Sutter counties.

Further, SSWD focused on alternatives located in a similar valley and foothill setting. Overall, SSWD used a 35-mile radius from Camp Far West Reservoir as the delineation for similar regional opportunities, as shown in Table 3.3.6-17.

Table 3.3.6-17. Similar reservoir-based public recreation opportunities within 35 mi of the Project.

| Distance from Project | Public Reservoir Recreation Area |
|-----------------------|--|
| 0 - 25 mi | Folsom Lake, Rollins Lake, Englebright Lake and Collins Lake |
| 26 - 30 mi | New Bullards Bar Reservoir, Scotts Flat Lake, Sugar Pine Reservoir and Lake Natoma |
| 31 - 35 mi | Lake Oroville |

SSWD then reviewed guidebooks, online web resources, state and national park information, Forest Service information, and tourism information and compared the recreation opportunities at the regional reservoirs against the top primary activities at Camp Far West Reservoir. Based on the visitor use survey, the top recreational activities at the Project are camping, fishing, jet skiing, motorized boating, water skiing/wake boarding, and swimming. A listing of regional recreational alternatives can be found in Table 3.3.6-18.

Table 3.3.6-18. Regional alternatives to Camp Far West Reservoir.

| Facility Name | County | Surface Ac | Elevation (ft, msl) | Developed Camping | Motorized Boating | Jet Skiing | Water Skiing/Wake-boarding | Fishing | Swimming |
|-------------------|--------------|------------|---------------------|-------------------|-------------------|------------|----------------------------|---------|----------|
| Folsom Lake | Sacramento | 11,930 | 480 | X | X | X | X | X | X |
| Rollins Reservoir | Yuba, Placer | 788 | 2,171 | X | X | X | X | X | X |

Table 3.3.6-18. (continued)

| Facility Name | County | Surface Ac | Elevation (ft, msl) | Developed Camping | Motorized Boating | Jet Skiing | Water Skiing/ Wakeboarding | Fishing | Swimming |
|----------------------------|--------------|------------|---------------------|-------------------|-------------------|------------|----------------------------|---------|----------|
| Englebright Reservoir | Yuba, Nevada | 815 | 527 | X | X | X | X | X | X |
| Collins Lake | Yuba | 1,000 | 1,200 | X | X | -- | X (seasonal) | X | X |
| New Bullards Bar Reservoir | Yuba | 4,790 | 1,956 | X | X | X | X | X | X |
| Scotts Flat Lake | Nevada | 850 | 3,100 | X | X | -- | X | X | X |
| Sugar Pine Reservoir | Placer | 160 | 3,618 | X | 10 mph | -- | -- | X | X |
| Lake Natoma | Sacramento | 500 | 128 | X | 5 mph | -- | -- | X | X |
| Lake Oroville | Butte | 15,500 | 902 | X | X | X | X | X | X |

Source: D. Dirksen and J. Dirksen, Recreation Lakes of California, 16th Ed. (2014); Stienstra, California Recreation Lakes and Rivers, 4th ed. (2008); Collins Lake (www.collinslake.com), Scotts Flat Lake, Rollins Reservoir (www.nidwater.com/recreation); Sugar Pine Reservoir (<https://www.fs.usda.gov/recarea/tahoe/recarea/?recid=55736>); Folsom Lake (https://www.parks.ca.gov/?page_id=500); New Bullards Bar Reservoir (www.yubawater.org/253/New-Bullards-Bar).

All of the eight similar alternative reservoirs provide at least four of the top six primary activities offered at the Project; and five of the eight alternatives offer all six of the Project's primary recreation activities. Overall, the Project offers similar recreational activities and opportunities to much of the regional alternatives.

Regional Uniqueness

SSWS analyzed all of the visitor survey responses to the question that asked visitors to rate the relative uniqueness of Camp Far West Reservoir. The overall rating for the Project was 3.0, which equates to a uniqueness rating of "somewhat common."⁴ For the visitors surveyed who responded Camp Far West Project was unique (54 responses or 32% overall), the predominant reasons (categorized by SSWD) were as follows. Note that respondents could provide more than one reason for the uniqueness so the uniqueness reasons are greater than the number of respondents (i.e., 54 respondents).

- Close proximity/ease of accessing the reservoir (38 responses)
- Peaceful, uncrowded setting (16 responses)
- Fewer/limited regulations (13 responses)
- Open/dispersed use areas for camping and shoreline access (12 responses)

Detailed visitor survey responses related to regional uniqueness are provided in the Recreation Use and Visitor Survey study data summary provided in Attachment 3.3.6A.

⁴ Rating scale: 1.0 = extremely common; 1.1 to 2.0 = common; 2.1 to 3.0 = somewhat common; 3.1 to 4.0 = somewhat unique; 4.1 to 4.9 = unique; and 5.0 = extremely unique.

3.3.6.1.4 Recreation Facilities and Opportunities Downstream of the Project

Developed recreation facilities do not exist along the Bear River downstream of Camp Far West Dam. The public has limited access for recreational fishing and other activities where public roads run adjacent to or intersect the Bear River (SSWD 2003). The limiting factor for public access is pervasive private lands adjacent to the Bear River. This reach is not recognized as a whitewater boating reach due to the lack of gradient and whitewater features. No federal land occurs along the Bear River downstream of the Project.

Private recreational use occurs at the non-Project diversion dam impoundment, where SSWD leases non-Project SSWD-owned land to a local waterskiing club. Access to the area is gated. The site provides private access to the impoundment for recreational uses, primarily waterskiing.

3.3.6.2 Environmental Effects

This section discusses the potential environmental effects of SSWD's Proposed Project, as described in Section 2.2 of this Exhibit E. As part of the Proposed Project, SSWD proposes a Pool Raise, modifications of existing recreation facilities, and modification of the existing Project Boundary. SSWD's Proposed Project include one measure, RR1, Recreation Plan, specifically related to recreation resources.

3.3.6.2.1 Effects of Construction-Related Activities

Recreation Facilities Rehabilitation and Enhancements

The construction of recreation facilities has the potential to affect the availability of recreation facilities and opportunities to the public. SSWD will minimize impacts to the public availability of recreation facilities during construction by: 1) undertaking construction activities during periods outside of the facilities peak recreation season, where possible (e.g., swim beaches and campgrounds); and 2) undertaking construction activities in a portion of the facilities and keep the remainder of the facility open to the public (e.g., campgrounds and picnic areas). By using these two approaches, the public would continue to have access to all of the types of recreation facilities and opportunities normally available at each recreation area except at a more limited basis. For instance, at campgrounds, SSWD will undertake construction on a single loop or several loops depending upon the total available number of loops in order to continue to provide camping facilities for the public while recreation construction or rehabilitation activities occur. At boat launches, SSWD will aim to construct/reconstruct the boat launches during the non-peak recreation season in order to minimize the effects to the public's ability to utilize the boat launches. During all recreation construction work, SSWD will take necessary measures to minimize potential impacts on nearby recreation users' experience such as the noise and proximity of construction equipment and staff. In addition, SSWD will make recreationists aware of planned construction work by posting notices of upcoming planned work on kiosks and at entrance gates.

Camp Far West Reservoir Dam Pool Raise

Construction of the Camp Far West Reservoir pool raise from 300 ft to 305 ft would have an affect on the recreational facilities along the shoreline at both the NSRA and SSRA. Overall, the Pool Raise would affect 104 recreational facilities or site features along the shoreline at the NSRA and SSRA (refer to Attachment 3.3.6B for figures showing the affected areas and features and Table 3.3.6-18 and 3.3.6-19 for a list of the features). Most of the affected features (i.e., 59%) would be directly affected by the pool raise by either partially or fully inundating the features. In these instances, the inundated features would be relocated, re-routed or re-aligned to avoid inundation. The remaining affected features (i.e., 41%) would be indirectly affected, whereby the Pool Raise would not inundate the feature, but would closely abut the feature likely resulting in flooding and/or erosion impacts to the features due to wind, wave or high flow events. In a few instances, a feature would be indirectly affected and require relocation because an inundated segment of a circulation road would likely be re-aligned through these features.

The construction work to relocate, re-route or realign the affected features would be completed in one calendar year. Overall, the majority of the construction would occur outside the peak recreation season (i.e., Memorial Day through Labor Day holiday weekends). In instances where construction would be necessary during the peak season, the work would be restricted to select areas and conducted during low-use periods (i.e., weekdays) to minimize any impacts to the recreation facilities and visitor experiences.

At NSRA, 57 site features would be affected, including 21 campsite living spaces (i.e., table and/or grill area), 19 campsite vehicle spurs, 13 circulation road segments (i.e., 2,410 ft of dirt roads and 480 ft of paved roads), 2 boat ramp and parking area segments, 1 picnic site, and 1 water hydrant (Table 3.3.6-19 and 3.3.6-20). The majority of the affected recreational site features at NSRA would be at the family campground (i.e., 43 affected features) followed by the dispersed use areas (i.e., 6 affected features – all dirt roads), group campground (i.e., 4 affected features), and the day use area and boat launch facilities (i.e., each with 2 affected features). At the family campground, most of the affected features would be campsite living spaces and vehicle spurs (i.e., each with 19 affected sites) with a five affected road (dirt surface) segments. At the group campground, one of the two group campsites would be fully inundated. At the dispersed use areas, all of the affected features would be the dirt roads (i.e., 1,410 ft) that provide shoreline access. Overall, most of the affected features at NSRA (i.e., 61%) would be directly affected by the pool raise and the remaining affected features would be indirectly affected (i.e., features abutting the 305 ft NMWSE).

Table 3.3.6-19. Summary of facilities and features affected at the North and South Shore Recreation areas by Pool Raise to 305 ft elevation.

| Recreation Area | Facility | Affected Features | | | | | | | Total Features |
|-----------------|-------------------|-------------------|---------------|-----------|--------------|--------------|----------------|-------|----------------|
| | | Road Segments | Vehicle Spurs | Campsites | Picnic Sites | Swim Beaches | Water Hydrants | Other | |
| NSRA | Family Campground | 5 | 19 | 19 | -- | -- | -- | -- | 43 |
| | Group Campground | 1 | -- | 2 | -- | -- | 1 | -- | 4 |
| | Day Use Area | 1 | -- | -- | 1 | -- | -- | -- | 2 |
| | Swim Beach | -- | -- | -- | -- | -- | -- | -- | 0 |
| | Boat Launch | 2 | -- | -- | -- | -- | -- | -- | 2 |

Table 3.3.6-19. (continued)

| Recreation Area | Facility | Affected Features | | | | | | | |
|-----------------|--------------------|-------------------|---------------|-----------|--------------|--------------|----------------|-----------|----------------|
| | | Road Segments | Vehicle Spurs | Campsites | Picnic Sites | Swim Beaches | Water Hydrants | Other | Total Features |
| NSRA | Dispersed Use Area | 6 | -- | -- | -- | -- | -- | -- | 6 |
| | Total | 15 | 19 | 21 | 1 | -- | 1 | -- | 57 |
| SSRA | Family Campground | 3 | 7 | 11 | -- | -- | -- | 1 | 22 |
| | Group Campground | -- | -- | -- | -- | -- | -- | -- | 0 |
| | Day Use Area | 4 | -- | -- | 9 | -- | 1 | -- | 14 |
| | Swim Beach | 1 | -- | -- | -- | 1 | -- | -- | 2 |
| | Boat Launch | 1 | -- | -- | -- | -- | -- | -- | 1 |
| | Dispersed Use Area | 9 | -- | -- | -- | -- | -- | -- | 9 |
| | Total | 17 | 7 | 11 | 9 | 1 | 1 | 1 | 47 |
| Overall | Family Campground | 8 | 26 | 30 | -- | -- | -- | 1 | 65 |
| | Group Campground | 1 | -- | 2 | -- | -- | 1 | -- | 4 |
| | Day Use Area | 5 | -- | -- | 10 | -- | 1 | -- | 16 |
| | Swim Beach | 3 | -- | -- | -- | 1 | -- | -- | 4 |
| | Boat Launch | 3 | -- | -- | -- | -- | -- | -- | 3 |
| | Dispersed Use Area | 15 | -- | -- | -- | -- | -- | -- | 15 |
| | Total | 32 | 26 | 32 | 10 | 1 | 2 | 1 | 104 |

Table 3.3.6-20. Summary of roads, parking areas and vehicle surfacing areas affected at the North and South Shore recreation areas by Pool Raise to 305 ft elevation

| Recreation Area | Facility | Type of Vehicle Surface Affected | | | | | | | | | |
|-----------------|--------------------|----------------------------------|--------------|--------------|--------------|---------------|-------------|------------|-------------|-----------|--------------|
| | | Roads (Paved) | | Roads (Dirt) | | Parking Areas | | Boat Ramps | | Total | |
| | | Segments | Length (ft) | Segments | Length (ft) | Segments | Length (ft) | Segments | Length (ft) | Segments | Length (ft) |
| NSRA | Boat Launch | 1 | 180 | -- | -- | -- | -- | 1 | 65 | 2 | 245 |
| | Day Use Area | -- | -- | 1 | 120 | -- | -- | -- | -- | 1 | 120 |
| | Dispersed Use Area | -- | -- | 6 | 1,410 | -- | -- | -- | -- | 6 | 1,410 |
| | Family Campground | 1 | 300 | 4 | 705 | -- | -- | -- | -- | 5 | 1,005 |
| | Group Campground | -- | -- | 1 | 175 | -- | -- | -- | -- | 1 | 175 |
| | Total | 2 | 480 | 12 | 2,410 | -- | -- | 1 | 65 | 15 | 2,955 |
| SSRA | Boat Launch | 1 | 70 | -- | -- | -- | -- | -- | -- | 1 | 70 |
| | Day Use Area | -- | -- | 4 | 1,010 | -- | -- | -- | -- | 4 | 1,010 |
| | Dispersed Use Area | -- | -- | 9 | 2,710 | -- | -- | -- | -- | 9 | 2,710 |
| | Family Campground | 2 | 1,070 | -- | -- | 1 | 260 | -- | -- | 3 | 1,330 |
| | Group Campground | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | Total | 3 | 1,140 | 13 | 3,720 | 1 | 260 | -- | -- | 17 | 5,120 |
| Overall | Boat Launch | 2 | 250 | -- | -- | -- | -- | 1 | 65 | 3 | 315 |
| | Day Use Area | -- | -- | 5 | 1,130 | -- | -- | -- | -- | 5 | 1,130 |
| | Dispersed Use Area | -- | -- | 15 | 4,120 | -- | -- | -- | -- | 15 | 4,120 |
| | Family Campground | 3 | 1,370 | 4 | 705 | 1 | 260 | -- | -- | 8 | 2,335 |
| | Group Campground | -- | -- | 1 | 175 | -- | -- | -- | -- | 1 | 175 |
| | Total | 5 | 1,620 | 25 | 6,130 | 1 | 260 | 1 | 65 | 32 | 8,075 |

At SSRA, 47 site features would be affected, including 15 circulation road segments (i.e., 3,720 ft of dirt roads and 1,140 ft of paved roads), 11 campsite living spaces (i.e., table and/or grill area), 9 picnic sites, 7 campsite vehicle spurs, 1 boat ramp turnaround area, 1 parking area, 1 swim beach, 1 water hydrant, and 1 stage (Table 3.3.6-19 and 3.3.6-20). The majority of the affected recreational site features at SSRA would be at the family campground (i.e., 22 affected features) followed by the day use area (i.e., 14 affected features), dispersed use areas (i.e., 9

affected features – all dirt road segments), the swim beach (i.e., 2 affected features), and the boat launch (i.e., 1 affected feature). At the family campground, most of the affected features would be campsite living spaces (i.e., 11 sites), vehicle spurs (i.e., 7 sites) and road segments (i.e., 3 segments). At the dispersed use areas, all of the affected features would be the dirt roads (i.e., 2,710 ft) that provide shoreline access. The entire swim beach would be inundated. Overall, most of the affected features at SSRA (i.e., 55%) would be directly affected by the Pool Raise and the remaining affected features would be indirectly affected (i.e., features abutting the 305 ft NMWSE). Notably, at five campsites in the family campground, the campsite living space and vehicle spurs would be indirectly affected and require relocation because an inundated segment of the campground circulation road would likely be re-aligned through these campsites. SSWD would obtain all necessary permits and approvals including FERC approval for relocating the affected recreation facilities (i.e., survey work, facility design, and on-site resource evaluations); and would adhere to all permit terms and conditions, which would mitigate effects to water quality, cultural resources, and aquatic resources.

SSWD will replace all the impacted recreation facilities in-kind (i.e., one-to-one replacement) within each respective recreation area. SSWD anticipates that all of the affected facilities will be relocated within the each existing respective recreation area boundary and FERC Project Boundary. However, if necessary, SSWD would utilize lands outside the existing recreation area and the FERC Project Boundary in the vicinity of the existing recreation areas. If this occurs, SSWD will amend the FERC Project Boundary at that time.

3.3.6.2.2 Effects of Proposed Project Operations and Maintenance

SSWD's relicensing studies determined that the existing Project recreational facilities are adequate to meet recreational demand associated with the Project now and in the reasonably foreseeable future. While a few of the camping facilities (e.g., RV campgrounds and group campgrounds) at Camp Far West Reservoir are approaching capacity on non-holiday weekend days (i.e., between 70 and 92 percent in 2017), both Project RAs provide extensive dispersed use areas that allow for group and RV camping outside of the developed facilities, including along the shoreline of the RA. These dispersed use areas are capable of providing for additional camping uses over the term of the new license.

While the Project RAs are able to meet the current and future recreational demand, some of the recreation facilities are in need of replacement or rehabilitation to maintain the proper functioning condition of the facility and to provide for ADA compliance on private lands. Nearly all of the facilities will require replacement or rehabilitation during the term of the new license to maintain the facilities in proper functioning condition; and, particularly the restrooms, potable water system and the circulation roads, which will need near-term rehabilitation in order to provide facilities in a safe and proper functioning condition. When constructing or rehabilitating Project recreation facilities, SSWD will obtain all necessary permits and approval for survey work, facility design and on-site resource evaluations.

To address these issues, SSWD's Proposed Project includes a Recreation Facilities Plan. The primary goal of the plan is to manage public recreation use of the Project's recreation facilities

over the term of the new license, and minimize recreation use impacts to sensitive resources within the Project Area.

Provided below is an assessment of the effects related to recreation resources and how SSWD proposes to address them over the new license term.

Developed Facilities

Campgrounds

Overall, the family and group campground facilities at both the NSRA and SSRA are in fair to poor condition. The RV Campground at NSRA is in good condition with newer amenities. During the new license term, as the campground facilities require replacement-in-kind, SSWD will upgrade the camping facilities to provide safe, reliable, and accessible opportunities commensurate with accessibility standards at that time. Since 30 family campsites will be affected due to the pool raise, SSWD is proposing to replace the lost family campsites in-kind within the existing RAs. SSWD proposes in the *Recreation Facilities Plan* to rehabilitate these facilities as they near the end of their useful life.

In 2017, the combined peak season occupancy at the NSRA and SSRA developed family campgrounds was 48 percent overall and 51 percent on weekends; and is projected to reach 78 percent overall and 82 percent on weekends by 2060. Based on these projections, the family campground facilities are adequate to meet the long-term demand over the term of the new license. The group campgrounds (3 campsites total) had a combined peak season occupancy of 75 percent overall and 92 percent on weekends; and are projected to reach full capacity overall by 2040 and on weekends by 2020. Similarly, the RV Campground (only at NSRA) had a combined peak season occupancy of 57 percent overall and 70 percent on weekends; and is projected to reach 91 percent overall by 2060 and full capacity on weekends by 2040. The Horse Camp (1 site; only at NSRA) had a combined peak season occupancy of 67 percent overall and on weekends; and is projected to reach full capacity overall and on weekends by 2040. Overall, while the developed group, RV and horse camp facilities will approach capacity over the term of the new license, the expansive dispersed use areas at both NSRA and SSRA (i.e., 92 ac and nearly 4 mi of shoreline) provide ample space for these camping uses in the near and long-term.

Day Use Facilities

Overall, the day-use facilities at New Bullards Bar had mostly very low picnic site utilization in 2017. The combined peak season picnic site occupancy was at or below 7 percent overall and on weekend; and is projected to reach 10 percent overall and 11 percent on weekends by 2060. As a result, the current picnic facilities are expected to still be adequate and to meet the increased demand throughout the term of the new license by 2060 overall and on weekends.

The other recreational demand aspect of the day-use facilities is the parking areas. The lone day-use facility parking area is located at the SSRA (44 spaces). The peak season occupancy of the parking area was 21 percent overall and 23 percent on weekends in 2017; and is projected to reach 35 percent overall and 38 percent on weekends by 2060. Based on these projections, the current day-use facility parking area is expected to still be adequate and to meet the increased demand throughout the term of the new license by 2060 overall and on weekends.

Overall, the condition of most of the day-use facilities (i.e., picnic sites and parking areas) were in fair condition, but will eventually require rehabilitation during the term of the license to ensure the facilities provide quality and accessible recreation opportunities throughout the license term. The restroom building at the NSRA day-use facility is in poor condition and will require near-term replacement to meet the near-term and long-term demands of the facility. SSWD proposes in the *Recreation Facilities Plan* to rehabilitate these facilities as they near the end of their useful life.

Boat Launch Facilities

Camp Far West Reservoir has two developed boat launch facilities – one each at NSRA and SSRA. The NSRA boat launch facility was reconstructed in 2005 using the California State Parks DBOW boat launching facilities grant funding; and provides up-to-date 3-lane concrete boat ramp with floating courtesy dock, a paved boat trailer turnaround area, boat launch preparation area, paved parking areas with 155 spaces, a flush restroom building and an accessible picnic site. The SSRA boat launch is less developed with a 2-lane concrete ramp to start and then a 1-lane asphalt boat ramp, dirt parking areas with 52 spaces, a paved boat trailer turnaround, and flush restroom building – all of these features are original construction and showing signs of aging. However, the SSRA is typically only open during the peak season on weekends and holidays and does not receive the same level of use consistently throughout the peak season or year-round that the NSRA boat launch facility experiences.

In 2017, the combined peak season occupancy at the NSRA and SSRA developed boat launch facilities was 25 percent overall and 30 percent on weekends; and is projected to reach 41 percent overall and 49 percent on weekends by 2060. Based on these projections, the boat launch facilities have adequate parking capacity to meet the long-term demand over the term of the new license.

The NSRA boat ramp is open year-round and has a functional range of 65.7 vertical ft (down to 239.3 ft). In addition, an undeveloped ramp abuts the developed ramp to provide low-water launching. The undeveloped ramp has a functional range of 114.0 vertical ft (down to 191.0 ft). Overall, at NSRA, the undeveloped boat ramp is available year-round and the developed boat ramp is available most of the year, including the peak recreation season (Memorial Day through Labor Day holiday weekends), except in Critical WYs when the boat ramp is only available March 1 through July 17, which includes only the first half of the peak recreation season.

The SSRA boat ramp is typically only open during the peak season and has a functional range of 67.0 vertical ft (down to 233.0 ft). The SSRA does not have an undeveloped ramp. In 2017, the all three boat ramps were functional the entire year as the reservoir WSE never dropped below 248 ft. Overall, when comparing the boat ramp elevations for each WY type at SSRA, the developed boat ramp is available most of the year in all WY types, including the peak recreation season (Memorial Day through Labor Day holiday weekends), except in Critical WYs when the boat ramp is only available February 13 through July 17, which includes only the first half of the peak recreation season.

Overall, the condition of the NSRA boat launch facility is good to excellent as it was constructed in 2005 to DBOW standards. However, the SSRA boat launch facility is original construction and is showing signs of aging. The boat ramp surface is a combination of concrete and asphalt

surfacing that shows signs of disrepair. However, the SSRA boat ramp receives significantly less use than the NSRA boat ramp since the SSRA is only open during peak use periods (i.e., weekends and holidays) during the peak season. The SSRA boat launch facility, particularly the boat ramp will require rehabilitation during the new license term to ensure they provide a quality recreation opportunity. The NSRA boat launch facility may require rehabilitation late in the new license period considering the facility was recently reconstructed.

Camp Far West Reservoir provides a significant amount of available water surface area for boating with a maximum surface areas of 1,886 ac at NMWSE and observed boating patterns spread the boating use between the main boat of the reservoir near the dam and the Bear River and Rock Creek arms. The visitors surveyed did not indicate any reservoir boating capacity issues as 78 percent responded that they were able to safely boat or did not perceive a problem. In addition, 81 percent of visitors surveyed responded that the reservoir water surface was not at all crowded or slightly crowded.

Dispersed Use Areas

The dispersed use areas at both the NSRA and SSRA provide expansive areas (i.e., 92 ac and nearly 4 mi of shoreline) for visitors to participate in recreation activities in an undeveloped setting with easy access to the shoreline and camping areas. These areas provide basic facilities (i.e., portable chemical restrooms, trash cans and dirt access roads), yet the open, dispersed shoreline setting was one of the main reasons some visitors found Camp Far West Reservoir unique. Overall, the dispersed use areas allow visitors to participate in virtually all the same activities as the developed areas of the recreation areas, but with the freedom to find areas that are best suited to their preferred uses. Camping (tent and RV/camper) is prevalent in these areas along with a wide variety of day-use activities such as swimming, general water play, jet skiing, hiking, wildlife viewing, picnicking, equestrian riding and camping, and boating. Visitors have the ability to bring small watercraft, typically jet skis into the dispersed areas and launch directly from the shoreline. All of these uses appears to minimize any crowding or conflict at the developed areas (i.e., family and group campgrounds, boat launch parking areas, and day-use areas) by providing expansive and varied dispersed recreation options for visitors with access to the reservoir shoreline.

Recreational Water System

Over the past three years, the recreational water system at Camp Far West Reservoir has not provided potable water due to issues with the aging water treatment facility. In response to these issues, SSWD is in the process of finishing the installation of a new water treatment facility. SSWD anticipates that the system will be providing potable water in 2019. In addition, in 2011, SSWD installed a new, steel-belted 60,000-gallon water storage tank adjacent to the new water treatment facility. SSWD expects that the updated water treatment system will provide reliable potable water to the NSRA and SSRA throughout the term of the new license with routine maintenance. The water distribution system is largely the original construction distribution system, which has undergone select areas of replacement, but the majority of the underground distribution will likely need to be replaced during the new license term to ensure the distribution of reliable potable water throughout the two recreation areas. In addition, the above-ground water hydrants and fountains will require near-term replacement to meet the demands of the new water treatment facility and upgraded water distribution system. SSWD proposes in the

Recreation Facilities Plan to rehabilitate these facilities as they near the end of their useful life. In the *Recreation Facilities Plan*, SSWD did not provide a schedule for the replacement of the recreational water system overall as the need/timing for replacement of the wide-ranging and numerous elements of the recreational water system (i.e., underground distribution pipes and connections and above ground hydrants/fountains) varies widely from feature to feature, which makes developing a schedule problematic.

Regarding the underground features, which are mostly original construction, SSWD will replace segments or portions of the underground distribution as condition warrants or leaks or inefficiencies in the system are identified, which will occur on a case-by-case basis. Overall, the underground distribution system facilities are classified as "fair" condition, the system is currently operating adequately and, at this time, SSWD is not aware of any underground distribution features that require immediate replacement. As a whole, SSWD anticipates that all of the underground distribution system will be replaced or rehabilitated before the end of the new license term. Further, when replacing the underground distribution piping on a case-by-case basis, SSWD will replace the existing piping with Schedule 80 PVC, HDPE or steel pipe depending upon the specific segment and location. SSWD will excavate trenches for the installation of the water system piping segments where an issue or inefficiency is identified. In general, the excavated area for the trench will be 2 feet wide and up to 4 feet deep and the excavated material will be stored adjacent to the trench. After the system piping is installed and tested, SSWD will backfill the trenches using the material from the trenching. SSWD does not anticipate widespread replacement of the underground distribution system, but rather segment-by-segment replacement as water system issues or inefficiencies are identified. Regarding the above-ground hydrants and fountains, which are largely in poor condition, SSWD will replace all these facilities within the first 3 years of the new license based on the specific condition of each individual hydrant or fountain.

3.3.6.2.3 Effects of Proposed Changes to the Existing FERC Project Boundary

SSWD proposed the addition of three areas between the existing FERC Project Boundary and Camp Far West Road in the NSRA Boss Point Dispersed Area. These lands are currently being used as part of the NSRA for the same dispersed uses as currently described in the Boss Point Dispersed Use Area in Section 3.3.6.1.1. These proposed changes are essentially making corrections to the Project Boundary.

3.3.6.3 Unavoidable Adverse Effects

SSWD's Proposed Project would not create any major, unavoidable adverse effects. The Project provides extensive recreational facilities including developed campgrounds, day-use areas, boat launches, dispersed use areas, facility access and circulation roads at Camp Far West Reservoir. All of the facilities provide a beneficial effect and minimize any adverse effects by providing the public with opportunities to recreate along the shoreline and on the Project reservoirs in varying natural settings and recreation settings from highly developed experiences to more primitive, undeveloped experiences, and by focusing these activities to appropriate and manageable areas around the reservoir.

Rehabilitation of the existing recreation facilities or replacement of inundated facilities due to the pool raise has short-term, minor adverse impacts (e.g., noise, ground disturbance including vegetation and erosion and water quality); however, SSWD has proposed appropriate resource protection measures and plans to minimize the short-term impacts from construction activities. In addition, the rehabilitation/construction work on recreation facilities would also have a minor short-term effect on recreation by closing some facilities during construction. SSWD will minimize this effect by undertaking construction activities during non-peak periods and periods when the facilities are closed, where possible; and undertaking construction activities in phases by working on portions of the facilities and keeping the remainder of the facility open to the public.

The construction of the Camp Far West Reservoir pool raise from 300 ft to 305 ft would have an effect on some of the shoreline recreational facilities at NSRA and SSRA, but only temporarily. SSWD proposes to replace the affected/inundated recreation facilities (mostly family campsites) with new, in-kind camping facilities. As with the rehabilitation of the existing recreation facilities, there will be short-term, minor adverse impacts (e.g., noise, ground disturbance including vegetation and erosion and water quality). However, SSWD has proposed appropriate resource protection measures and plans to minimize the short-term impacts from these construction activities.

3.3.6.4 Measures or Studies Recommended by Agencies and Not Adopted by SSWD

As described in Appendix E4 in this Exhibit E, USFWS, NMFS, CDFW, SWRCB and FWN each submitted written comments on SSWD's December 29, 2018, DLA. CDFW's and FWN's comment letters each recommended modifications to SSWD's Recreation Facilities Plan in SSWD's Proposed Condition RR1, and no other comment letters addressed recreation resources.

General South Shore Recreation Area Enhancement and Improvement

In CDFW's April 14, 2019, letter commenting on the DLA, it stated:

The Recreation Facilities Plan is included as an appendix in Volume II of the DLA. At a March 1st 2019, meeting between the Department, SSWD, and other RP's, the Department made several recommendations that are under consideration by the Licensee. These recommendations include the following;

- improving the boat ramp at the South Shore Recreation Area (SSRA) to allow for better access to visitors
- a 1:1 campground replacement and less condensed sites
- replacement of the swim beach
- opening the SSRA for a longer season
- permanent fish cleaning stations
- wildlife proof trash cans

The Department plans to work with Licensee and other Relicensing Participants in the next several months to attempt to reach a collaborative agreement on this measure for inclusion in the new license.

In FWN's April 15, 2019 letter commenting on the DLA, it stated:

In general, the Network supports the Recreation Facilities Plan (Plan) and the work done to date by SSWD and consultants in its development. However, the current plan does not take into account the growing demand for recreation opportunities in the area and the need for diverse types of recreation for jet skiers, boaters and families. The current practice is for the South Shore facilities to be closed unless the North Shore facilities fill to capacity during the peak season.

For this reason, the Network recommends opening the South Shore facilities for a longer season and improvement of the South Shore boat ramp to allow better access for recreational users. The Network looks forward to working with SSWD and the resource agencies towards a collaborative agreement on recreational issues for inclusion in the new license.

Neither CDFW nor FWN recommended additional studies related to recreation resources.

As reported in SSWD's summary of the PM&E Resolution Meeting in Appendix E6 in this Exhibit E, SSWD, CDFW and FWN have reached agreement on the one-to-one replacement of all inundated recreation facilities, including the swim beach at SSRA as a result of the Pool Raise, installing trash receptacles with secured lids, and not to include measures in SSWD's Recreation Facilities Plan to improve the SSRA boat ramp or install permanent fish cleaning stations.

One-to-One Replacement Due to Pool Raise

CDFW and FWN suggested that SSWD modify its Recreation Facilities Plan to include a one-to-one replacement of all inundated facilities as a result of the Pool Raise. At the May 13, 2019 PM&E Resolution Meeting, SSWD stated that this was SSWD's intention and that SSWD would clarify this in the FLA. As a result, SSWD included in Section 3.3.6.2.1 above and Section 3.3 of the Recreation Facilities Plan of SSWD's FLA states that SSWD will replace one-for-one all inundated recreation facilities as a result of the Pool Raise, including the swim beach.

SSRA Boat Ramp Improvements

Currently, the NSRA boat ramp is adequate to meet the existing and future recreational demand at Camp Far West Reservoir and the limited demand and open periods at the SSRA do not warrant the investment to improve the boat ramp at this time. Further, 95 percent of the visitors surveyed at the SSRA rated the SSRA boat ramp condition as acceptable or offered no opinion at all; and only 15 percent of visitors surveyed preferred adding more lanes to the boat ramp (see Section 3.3.6, Attachment E3.3.6A-Visitor Survey Questionnaire Results). Further, in 2005, when SSWD upgraded the NSRA boat ramp using the DBOW grant funding, the DBOW would not provide funding to upgrade the SSRA boat ramp because the SSRA boat ramp did not receive enough use to warrant the upgrades. Based on the relicensing use data, the use still does

not warrant the upgrade and the NSRA remains adequate to meet the boat launching demand and is open year-round. After discussion at the May 13, 2019 PM&E Resolution Meeting, the agencies and interested parties stated they agreed with SSWD. At this time, SSWD considers this difference to be resolved.

Permanent Fish Cleaning Station Installation

The relicensing visitor survey data did not indicate a need for permanent fish cleaning stations. Further, SSWD explained that permanent fish cleaning stations at the boat ramps would not be widely used by anglers for several reasons. First, many anglers moor or beach their boats at the shoreline near their campsites or day use sites in the campgrounds and dispersed use areas following fishing on the reservoir; and, as a result, most anglers do not exit via the boat ramp where a permanent fish cleaning station would likely be sited. Second, the reservoir provides a warmwater fishery with mostly bass species, which typically require a lengthy cleaning process and anglers are unlikely to do this at a permanent fish cleaning station versus where they are camping, beached for the day, or back at home. Third, while the Project provides numerous fishing tournaments throughout the year, these events are catch-and-release events, which have not demand for a fish cleaning station. After discussion at the May 13, 2019 PM&E Resolution Meeting, the agencies and interested parties stated they agreed with SSWD. At this time, SSWD considers this difference to be resolved.

Wildlife-Proof Trash Receptacle Installation

The relicensing visitor survey data did not indicate a need for enhanced trash receptacles. More specifically, approximately 95 percent of the visitors surveyed at both the NSRA and SSRA indicated the camping and picnicking site amenities (i.e., where the majority of the trash receptacles are located) were acceptable or offered no opinion (see Section 3.3.6, Attachment E3.3.6A-Visitor Survey Questionnaire Results). Further, SSWD's concessionaire is located on site at both recreation areas and provides frequent trash patrols to ensure trash build up is not an issue. Wildlife-proof trash receptacles are highly engineered and expensive trash receptacles that are primarily intended to keep bears out of trash, but bears are not an issue at the Project recreations areas; thus, providing such types of trash receptacles is not necessary or cost-effective to protect the resources. CDFW clarified that the term "wildlife-proof" was not to mean new heavy-duty receptacles designed primarily for bears, but simply attaching lids to the existing receptacles in order to provide an improved level of wildlife deterrence. Given this clarification, SSWD agreed to include a measure in SSWD's Recreation Facilities Plan to provide attached lids on the existing trash receptacles at the NSRA and SSRA. At this time, SSWD considers this difference to be resolved.

The remaining recommendation not adopted by SSWD including the reason it was not adopted is described below.

Opening the SSRA for Longer Periods

SSWD currently opens the SSRA based upon the recreational demand at the Project, which is typically during peak recreation use periods (i.e., most weekends or Friday through Sunday) during the peak recreation season (i.e., late May through early September), and during special events. Per the occupancy rates in Section 3.3.6.1.2 above, the NSRA facilities are more than adequate to meet the recreational demand during the weekdays during the peak recreation season

and on weekends and weekdays outside the peak recreation season, as shown in Table 3.3.6-4 (campground occupancy), Table 3.3.6-5 (parking area occupancy), and Table 3.3.6-8 (picnic site occupancy). Thus, the current recreational demand does not warrant SSWD opening the SSRA beyond the periods that SSWD currently opens it, which is responsive to the recreational demand (i.e., most weekends during the peak recreation season and during special events). After discussion at the May 13, 2019 PM&E Resolution Meeting, the agencies and interested parties indicated they would review the recreational use data and potentially provide draft language for triggers related to opening the SSRA more often, and SSWD agreed to review any language provided and continue discussions. At this time, SSWD has not received any draft trigger language from the agencies or interested parties to review. As a result, SSWD considers this difference to be unresolved.

3.3.6.5 List of Attachments

Attachment 3.3.6A Recreation Use and Visitor Survey Results

Attachment 3.3.6B Pool Raise Recreation Impact Figures

Attachment E3.3.6A

Recreation Visitor Questionnaire Results by Question

Question 1: Please select the recreation site you are currently visiting?

| Recreation Area | Recreation Facility | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|-----------------|--------------------------------------|------------------|-----------------|---------|--------------------|-----------------|---------|--------------|-----------------|---------|
| | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| NSRA | Family Campground | 2 | 6 | 8 | 29 | 30 | 59 | 31 | 36 | 67 |
| | RV Campground | 1 | 0 | 1 | 10 | 8 | 18 | 11 | 8 | 19 |
| | Group Campground | 0 | 3 | 3 | 14 | 6 | 20 | 14 | 9 | 23 |
| | Horse Camp | 0 | 3 | 3 | 2 | 1 | 3 | 2 | 4 | 6 |
| | Day Use Area | 10 | 12 | 22 | 9 | 0 | 9 | 19 | 12 | 31 |
| | Boat Launch | 16 | 51 | 67 | 10 | 3 | 13 | 26 | 54 | 80 |
| | Boss Point Dispersed Use Area | 3 | 12 | 15 | 30 | 5 | 35 | 33 | 17 | 50 |
| | Jet Ski Cove Dispersed Use Area | 6 | 5 | 11 | 17 | 5 | 22 | 23 | 10 | 33 |
| | Total | 38 | 92 | 130 | 121 | 58 | 179 | 159 | 150 | 309 |
| SSRA | Family Campground | 0 | closed | 0 | 8 | closed | 8 | 8 | closed | 8 |
| | Group Campground | 0 | closed | 0 | 3 | closed | 3 | 3 | closed | 3 |
| | Day Use Area | 3 | closed | 3 | 4 | closed | 4 | 7 | closed | 7 |
| | Swim Beach | 2 | closed | 2 | 3 | closed | 3 | 5 | closed | 5 |
| | Boat Launch | 1 | closed | 1 | 1 | closed | 1 | 2 | closed | 2 |
| | Quarter-Mile Cove Dispersed Use Area | 3 | closed | 3 | 2 | closed | 2 | 5 | closed | 5 |
| | Entrance Gate Dispersed Use Area | 1 | closed | 1 | 9 | closed | 9 | 10 | closed | 10 |
| | Total | 10 | closed | 10 | 30 | closed | 30 | 40 | closed | 40 |
| Overall | Family Campground | 2 | 6 | 8 | 37 | 30 | 67 | 39 | 36 | 75 |
| | RV Campground | 1 | 0 | 1 | 10 | 8 | 18 | 11 | 8 | 19 |
| | Group Campground | 0 | 3 | 3 | 17 | 6 | 23 | 17 | 9 | 26 |
| | Horse Camp | 0 | 3 | 3 | 2 | 1 | 3 | 2 | 4 | 6 |
| | Day Use Area | 13 | 12 | 25 | 13 | 0 | 13 | 26 | 12 | 38 |
| | Swim Beach | 2 | closed | 2 | 3 | closed | 3 | 5 | closed | 5 |
| | Boat Launch | 17 | 51 | 68 | 11 | 3 | 14 | 28 | 54 | 82 |
| | Dispersed Use Areas | 13 | 17 | 30 | 58 | 10 | 68 | 71 | 27 | 98 |
| | Total | 48 | 92 | 140 | 151 | 58 | 209 | 199 | 150 | 349 |

Question 2: Where are you staying or camping today?

| Type of Visit | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|-------------------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|--------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Day visit only | NSRA | Number | 38 | 92 | 130 | n/a | n/a | n/a | 38 | 92 | 130 |
| | | Percent | 79.2 | 100.0 | 92.9 | n/a | n/a | n/a | 19.1 | 61.3 | 37.2 |
| | SSRA | Number | 10 | n/a | 10 | n/a | n/a | n/a | 10 | n/a | 10 |
| | | Percent | 20.8 | n/a | 7.1 | n/a | n/a | n/a | 5.0 | n/a | 2.9 |
| | Overall | Number | 48 | 92 | 140 | n/a | n/a | n/a | 48 | 92 | 140 |
| | | Percent | 100.0 | 100.0 | 100.0 | n/a | n/a | n/a | 24.1 | 61.3 | 40.1 |
| Project Campground | NSRA | Number | n/a | n/a | n/a | 49 | 41 | 90 | 49 | 41 | 90 |
| | | Percent | n/a | n/a | n/a | 32.5 | 70.7 | 43.1 | 24.6 | 27.3 | 25.8 |
| | SSRA | Number | n/a | n/a | n/a | 12 | n/a | 12 | 12 | n/a | 12 |
| | | Percent | n/a | n/a | n/a | 7.9 | n/a | 5.7 | 6.0 | n/a | 3.4 |
| | Overall | Number | n/a | n/a | n/a | 61 | 41 | 102 | 61 | 41 | 102 |
| | | Percent | n/a | n/a | n/a | 40.4 | 70.7 | 48.8 | 30.7 | 27.3 | 29.2 |
| Camping in Dispersed Use Area | NSRA | Number | n/a | n/a | n/a | 72 | 17 | 89 | 72 | 17 | 89 |
| | | Percent | n/a | n/a | n/a | 47.7 | 29.3 | 42.6 | 36.2 | 11.3 | 25.5 |
| | SSRA | Number | n/a | n/a | n/a | 18 | n/a | 18 | 18 | n/a | 18 |
| | | Percent | n/a | n/a | n/a | 11.9 | n/a | 8.6 | 9.0 | n/a | 5.2 |
| | Overall | Number | n/a | n/a | n/a | 90 | 17 | 107 | 90 | 17 | 107 |
| | | Percent | n/a | n/a | n/a | 59.6 | 29.3 | 51.2 | 45.2 | 11.3 | 30.7 |
| Overall | NSRA | Number | 38 | 92 | 130 | 121 | 58 | 179 | 159 | 150 | 309 |
| | | Percent | 79.2 | 100.0 | 92.9 | 80.1 | 100.0 | 85.6 | 79.9 | 100.0 | 88.5 |
| | SSRA | Number | 10 | n/a | 10 | 30 | n/a | 30 | 40 | n/a | 40 |
| | | Percent | 20.8 | n/a | 7.1 | 19.9 | n/a | 14.4 | 20.1 | n/a | 11.5 |
| | Overall | Number | 48 | 92 | 140 | 151 | 58 | 209 | 199 | 150 | 349 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Question 3,4, 5 and 7: Visitors' trip and group characteristics.

| Characteristic | Recreation Area | Average Visitor Responses | | | | | |
|--|-----------------|---------------------------|-----------------|---------|--------------------|-----------------|---------|
| | | Day-use Visitors | | | Overnight Visitors | | |
| | | Peak Season | Off-peak Season | Overall | Peak Season | Off-peak Season | Overall |
| Question 3: Length of Stay (hours:minutes for day-use; days for overnight) | NSRA | 6:30 | 6:15 | 6:20 | 2.7 days | 1.7 | 2.4 |
| | SSRA | 7:30 | closed | 7:30 | 2.6 | closed | 2.6 |
| | Total | 6:42 | 6:15 | 6:25 | 2.7 | 1.7 | 2.4 |
| Question 4: What year did you first visit Camp Far West Reservoir? | NSRA | 2000 | 2000 | 2000 | 2005 | 2004 | 2004 |
| | SSRA | 1993 | closed | 1993 | 2006 | closed | 2006 |
| | Total | 1999 | 2000 | 2000 | 2005 | 2004 | 2005 |
| Question 5: How many times have you visited since your first visit? | NSRA | 143.7 | 101.3 | 113.6 | 76.7 | 62.4 | 72.0 |
| | SSRA | 192.2 | closed | 192.2 | 31.7 | closed | 31.7 |
| | Total | 154.0 | 101.3 | 119.3 | 67.7 | 62.4 | 66.2 |
| Question 7a: Number of people in group | NSRA | 7.5 | 4.1 | 5.1 | 9.9 | 6.7 | 8.9 |
| | SSRA | 4.2 | closed | 4.2 | 10.2 | closed | 10.2 |
| | Total | 6.8 | 4.1 | 5.0 | 10.0 | 6.7 | 9.1 |
| Question 7b: Number of vehicles used to travel to the area | NSRA | 3.8 | 1.4 | 2.1 | 2.9 | 1.9 | 2.6 |
| | SSRA | 1.3 | closed | 1.3 | 2.6 | closed | 2.6 |
| | Total | 3.3 | 1.4 | 2.0 | 2.8 | 1.9 | 2.6 |
| Question 7c: Number of campers in group | NSRA | 0.1 | 0.0 | 0.1 | 1.0 | 0.7 | 0.9 |
| | SSRA | 0.0 | closed | 0.0 | 0.4 | closed | 0.4 |
| | Total | 0.1 | 0.0 | 0.1 | 0.9 | 0.7 | 0.8 |
| Question 7d: Number of powerboats <15 hp in group | NSRA | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| | SSRA | 0.0 | closed | 0.0 | 0.3 | closed | 0.3 |
| | Total | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| Question 7e: Number of powerboats >= 15 hp in group | NSRA | 0.7 | 0.6 | 0.6 | 0.3 | 0.3 | 0.3 |
| | SSRA | 0.3 | closed | 0.3 | 0.3 | closed | 0.3 |
| | Total | 0.6 | 0.6 | 0.6 | 0.3 | 0.3 | 0.3 |
| Question 7f: Number of PWCs in group | NSRA | 0.8 | 0.3 | 0.5 | 1.6 | 0.6 | 1.2 |
| | SSRA | 0.1 | closed | 0.1 | 0.3 | closed | 0.3 |
| | Total | 0.7 | 0.3 | 0.5 | 1.3 | 0.6 | 1.1 |
| Question 7g: Number of canoes/kayaks/other non-motorized watercraft in group | NSRA | 0.3 | 0.1 | 0.2 | 0.3 | 0.3 | 0.3 |
| | SSRA | 0.2 | closed | 0.2 | 0.3 | closed | 0.3 |
| | Total | 0.3 | 0.1 | 0.2 | 0.3 | 0.3 | 0.3 |
| Question 7h: Number of fishing tubes in group | NSRA | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 |
| | SSRA | 0.1 | closed | 0.1 | 0.4 | closed | 0.4 |
| | Total | 0.0 | 0.0 | 0.0 | 0.2 | 0.1 | 0.1 |
| Question 7i: Number of other | NSRA | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| | SSRA | 0.1 | closed | 0.1 | 0.0 | closed | 0.0 |
| | Total | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |

Question 6: Which of the following best describes your recreation group at this area.

| Recreation Area | Recreation Group | Statistic | Day-use Visitor | | | Overnight Visitor | | | Total | | |
|-----------------|------------------------|-----------|-----------------|-----------------|---------|-------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| NSRA | Alone | Number | 3 | 13 | 16 | 0 | 3 | 3 | 3 | 16 | 19 |
| | | Percent | 7.9 | 14.6 | 12.6 | 0.0 | 5.2 | 1.7 | 1.9 | 10.9 | 6.2 |
| | Family | Number | 13 | 30 | 43 | 42 | 15 | 57 | 55 | 45 | 100 |
| | | Percent | 34.2 | 33.7 | 33.9 | 35.0 | 25.9 | 32.0 | 34.8 | 30.6 | 32.8 |
| | Multiple Families | Number | 1 | 5 | 6 | 12 | 5 | 17 | 13 | 10 | 23 |
| | | Percent | 2.6 | 5.6 | 4.7 | 10.0 | 8.6 | 9.6 | 8.2 | 6.8 | 7.5 |
| | Friends | Number | 4 | 22 | 26 | 9 | 7 | 16 | 13 | 29 | 42 |
| | | Percent | 10.5 | 24.7 | 20.5 | 7.5 | 12.1 | 9.0 | 8.2 | 19.7 | 13.8 |
| | Family & Friends | Number | 16 | 12 | 28 | 55 | 26 | 81 | 71 | 38 | 109 |
| | | Percent | 42.1 | 13.5 | 22.0 | 45.8 | 44.8 | 45.5 | 44.9 | 25.9 | 35.7 |
| | Organized Outing Group | Number | 1 | 7 | 8 | 2 | 2 | 4 | 3 | 9 | 12 |
| | | Percent | 2.6 | 7.9 | 6.3 | 1.7 | 3.4 | 2.2 | 1.9 | 6.1 | 3.9 |
| | Other | Number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Total | Number | 38 | 89 | 127 | 120 | 58 | 178 | 158 | 147 | 305 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| SSRA | Alone | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Family | Number | 5 | closed | 5 | 7 | closed | 7 | 12 | closed | 12 |
| | | Percent | 50.0 | closed | 50.0 | 23.3 | closed | 23.3 | 30.0 | closed | 30.0 |
| | Multiple Families | Number | 0 | closed | 0 | 4 | closed | 4 | 4 | closed | 4 |
| | | Percent | 0.0 | closed | 0.0 | 13.3 | closed | 13.3 | 10.0 | closed | 10.0 |
| | Friends | Number | 1 | closed | 1 | 3 | closed | 3 | 4 | closed | 4 |
| | | Percent | 10.0 | closed | 10.0 | 10.0 | closed | 10.0 | 10.0 | closed | 10.0 |
| | Family & Friends | Number | 4 | closed | 4 | 15 | closed | 15 | 19 | closed | 19 |
| | | Percent | 40.0 | closed | 40.0 | 50.0 | closed | 50.0 | 47.5 | closed | 47.5 |
| | Organized Outing Group | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Other | Number | 0 | closed | 0 | 1 | closed | 1 | 1 | closed | 1 |
| | | Percent | 0.0 | closed | 0.0 | 3.3 | closed | 3.3 | 2.5 | closed | 2.5 |
| | Total | Number | 10 | closed | 10 | 30 | closed | 30 | 40 | closed | 40 |
| | | Percent | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| Overall | Alone | Number | 3 | 13 | 16 | 0 | 3 | 3 | 3 | 16 | 19 |
| | | Percent | 6.3 | 14.6 | 11.7 | 0.0 | 5.2 | 1.4 | 1.5 | 10.9 | 5.5 |
| | Family | Number | 18 | 30 | 48 | 49 | 15 | 64 | 67 | 45 | 112 |
| | | Percent | 37.5 | 33.7 | 35.0 | 32.7 | 25.9 | 30.8 | 33.8 | 30.6 | 32.5 |
| | Multiple Families | Number | 1 | 5 | 6 | 16 | 5 | 21 | 17 | 10 | 27 |
| | | Percent | 2.1 | 5.6 | 4.4 | 10.7 | 8.6 | 10.1 | 8.6 | 6.8 | 7.8 |
| | Friends | Number | 5 | 22 | 27 | 12 | 7 | 19 | 17 | 29 | 46 |
| | | Percent | 10.4 | 24.7 | 19.7 | 8.0 | 12.1 | 9.1 | 8.6 | 19.7 | 13.3 |
| | Family & Friends | Number | 20 | 12 | 32 | 70 | 26 | 96 | 90 | 38 | 128 |
| | | Percent | 41.7 | 13.5 | 23.4 | 46.7 | 44.8 | 46.2 | 45.5 | 25.9 | 37.1 |
| | Organized Outing Group | Number | 1 | 7 | 8 | 2 | 2 | 4 | 3 | 9 | 12 |
| | | Percent | 2.1 | 7.9 | 5.8 | 1.3 | 3.4 | 1.9 | 1.5 | 6.1 | 3.5 |
| | Other | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.5 | 0.5 | 0.0 | 0.3 |
| | ----- | Number | 48 | 89 | 137 | 150 | 58 | 208 | 198 | 147 | 345 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Question 8: Which activities did you participate in during your current visit?

| Activity Participation | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|---------------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Camping | NSRA | Number | 3 | 6 | 9 | 118 | 55 | 173 | 121 | 61 | 182 |
| | | Percent | 7.9 | 6.5 | 6.9 | 97.5 | 94.8 | 96.6 | 76.1 | 40.7 | 58.9 |
| | SSRA | Number | 0 | closed | 0 | 30 | closed | 30 | 30 | closed | 30 |
| | | Percent | 0.0 | closed | 0.0 | 100.0 | closed | 100.0 | 75.0 | closed | 75.0 |
| | Overall | Number | 3 | 6 | 9 | 148 | 55 | 203 | 151 | 61 | 212 |
| | | Percent | 6.3 | 6.5 | 6.4 | 98.0 | 94.8 | 97.1 | 75.9 | 40.7 | 60.7 |
| Fishing | NSRA | Number | 9 | 65 | 74 | 44 | 33 | 77 | 53 | 98 | 151 |
| | | Percent | 23.7 | 70.7 | 56.9 | 36.4 | 56.9 | 43.0 | 33.3 | 65.3 | 48.9 |
| | SSRA | Number | 1 | closed | 1 | 15 | closed | 15 | 16 | closed | 16 |
| | | Percent | 10.0 | closed | 10.0 | 50.0 | closed | 50.0 | 40.0 | closed | 40.0 |
| | Overall | Number | 10 | 65 | 75 | 59 | 33 | 92 | 69 | 98 | 167 |
| | | Percent | 20.8 | 70.7 | 53.6 | 39.1 | 56.9 | 44.0 | 34.7 | 65.3 | 47.9 |
| Picnicking | NSRA | Number | 13 | 23 | 36 | 70 | 30 | 100 | 83 | 53 | 136 |
| | | Percent | 34.2 | 25.0 | 27.7 | 57.9 | 51.7 | 55.9 | 52.2 | 35.3 | 44.0 |
| | SSRA | Number | 7 | closed | 7 | 18 | closed | 18 | 25 | closed | 25 |
| | | Percent | 70.0 | closed | 70.0 | 60.0 | closed | 60.0 | 62.5 | closed | 62.5 |
| | Overall | Number | 20 | 23 | 43 | 88 | 30 | 118 | 108 | 53 | 161 |
| | | Percent | 41.7 | 25.0 | 30.7 | 58.3 | 51.7 | 56.5 | 54.3 | 35.3 | 46.1 |
| Motorized Boating | NSRA | Number | 16 | 27 | 43 | 55 | 17 | 72 | 71 | 44 | 115 |
| | | Percent | 42.1 | 29.3 | 33.1 | 45.5 | 29.3 | 40.2 | 44.7 | 29.3 | 37.2 |
| | SSRA | Number | 4 | closed | 4 | 16 | closed | 16 | 20 | closed | 20 |
| | | Percent | 40.0 | closed | 40.0 | 53.3 | closed | 53.3 | 50.0 | closed | 50.0 |
| | Overall | Number | 20 | 27 | 47 | 71 | 17 | 88 | 91 | 44 | 135 |
| | | Percent | 41.7 | 29.3 | 33.6 | 47.0 | 29.3 | 42.1 | 45.7 | 29.3 | 38.7 |
| Non-motorized Boating | NSRA | Number | 7 | 5 | 12 | 17 | 11 | 28 | 24 | 16 | 40 |
| | | Percent | 18.4 | 5.4 | 9.2 | 14.0 | 19.0 | 15.6 | 15.1 | 10.7 | 12.9 |
| | SSRA | Number | 2 | closed | 2 | 6 | closed | 6 | 8 | closed | 8 |
| | | Percent | 20.0 | closed | 20.0 | 20.0 | closed | 20.0 | 20.0 | closed | 20.0 |
| | Overall | Number | 9 | 5 | 14 | 23 | 11 | 34 | 32 | 16 | 48 |
| | | Percent | 18.8 | 5.4 | 10.0 | 15.2 | 19.0 | 16.3 | 16.1 | 10.7 | 13.8 |
| Water Skiing/Wakeboarding | NSRA | Number | 9 | 12 | 21 | 42 | 7 | 49 | 51 | 19 | 70 |
| | | Percent | 23.7 | 13.0 | 16.2 | 34.7 | 12.1 | 27.4 | 32.1 | 12.7 | 22.7 |
| | SSRA | Number | 0 | closed | 0 | 11 | closed | 11 | 11 | closed | 11 |
| | | Percent | 0.0 | closed | 0.0 | 36.7 | closed | 36.7 | 27.5 | closed | 27.5 |
| | Overall | Number | 9 | 12 | 21 | 53 | 7 | 60 | 62 | 19 | 81 |
| | | Percent | 18.8 | 13.0 | 15.0 | 35.1 | 12.1 | 28.7 | 31.2 | 12.7 | 23.2 |
| Swimming | NSRA | Number | 24 | 20 | 44 | 110 | 29 | 139 | 134 | 49 | 183 |
| | | Percent | 63.2 | 21.7 | 33.8 | 90.9 | 50.0 | 77.7 | 84.3 | 32.7 | 59.2 |
| | SSRA | Number | 7 | closed | 7 | 29 | closed | 29 | 36 | closed | 36 |
| | | Percent | 70.0 | closed | 70.0 | 96.7 | closed | 96.7 | 90.0 | closed | 90.0 |
| | Overall | Number | 31 | 20 | 51 | 139 | 29 | 168 | 170 | 49 | 219 |
| | | Percent | 64.6 | 21.7 | 36.4 | 92.1 | 50.0 | 80.4 | 85.4 | 32.7 | 62.8 |
| Hiking/Walking | NSRA | Number | 3 | 5 | 8 | 35 | 22 | 57 | 38 | 27 | 65 |
| | | Percent | 7.9 | 5.4 | 6.2 | 28.9 | 37.9 | 31.8 | 23.9 | 18.0 | 21.0 |
| | SSRA | Number | 1 | closed | 1 | 11 | closed | 11 | 12 | closed | 12 |
| | | Percent | 10.0 | closed | 10.0 | 36.7 | closed | 36.7 | 30.0 | closed | 30.0 |
| | Overall | Number | 4 | 5 | 9 | 46 | 22 | 68 | 50 | 27 | 77 |
| | | Percent | 8.3 | 5.4 | 6.4 | 30.5 | 37.9 | 32.5 | 25.1 | 18.0 | 22.1 |

Question 8 (continued): Which activities did you participate in during your current visit?

| Activity Participation | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|------------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Mountain Biking | NSRA | Number | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 2 |
| | | Percent | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 | 1.1 | 1.3 | 0.0 | 0.6 |
| | SSRA | Number | 0 | closed | 0 | 4 | closed | 4 | 4 | closed | 4 |
| | | Percent | 0.0 | closed | 0.0 | 13.3 | closed | 13.3 | 10.0 | closed | 10.0 |
| | Overall | Number | 0 | 0 | 0 | 6 | 0 | 6 | 6 | 0 | 6 |
| | | Percent | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 2.9 | 3.0 | 0.0 | 1.7 |
| Horseback Riding | NSRA | Number | 0 | 1 | 1 | 5 | 2 | 7 | 5 | 3 | 8 |
| | | Percent | 0.0 | 1.1 | 0.8 | 4.1 | 3.4 | 3.9 | 3.1 | 2.0 | 2.6 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 1 | 1 | 5 | 2 | 7 | 5 | 3 | 8 |
| | | Percent | 0.0 | 1.1 | 0.7 | 3.3 | 3.4 | 3.3 | 2.5 | 2.0 | 2.3 |
| Wildlife Viewing | NSRA | Number | 5 | 14 | 19 | 19 | 13 | 32 | 24 | 27 | 51 |
| | | Percent | 13.2 | 15.2 | 14.6 | 15.7 | 22.4 | 17.9 | 15.1 | 18.0 | 16.5 |
| | SSRA | Number | 2 | closed | 2 | 7 | closed | 7 | 9 | closed | 9 |
| | | Percent | 20.0 | closed | 20.0 | 23.3 | closed | 23.3 | 22.5 | closed | 22.5 |
| | Overall | Number | 7 | 14 | 21 | 26 | 13 | 39 | 33 | 27 | 60 |
| | | Percent | 14.6 | 15.2 | 15.0 | 17.2 | 22.4 | 18.7 | 16.6 | 18.0 | 17.2 |
| Jet Skiing | NSRA | Number | 11 | 6 | 17 | 24 | 3 | 27 | 35 | 9 | 44 |
| | | Percent | 28.9 | 6.5 | 13.1 | 19.8 | 5.2 | 15.1 | 22.0 | 6.0 | 14.2 |
| | SSRA | Number | 0 | closed | 0 | 1 | closed | 1 | 1 | closed | 1 |
| | | Percent | 0.0 | closed | 0.0 | 3.3 | closed | 3.3 | 2.5 | closed | 2.5 |
| | Overall | Number | 11 | 6 | 17 | 25 | 3 | 28 | 36 | 9 | 45 |
| | | Percent | 22.9 | 6.5 | 12.1 | 16.6 | 5.2 | 13.4 | 18.1 | 6.0 | 12.9 |
| Other Activity | NSRA | Number | 2 | 2 | 4 | 2 | 5 | 7 | 4 | 7 | 11 |
| | | Percent | 5.3 | 2.2 | 3.1 | 1.7 | 8.6 | 3.9 | 2.5 | 4.7 | 3.6 |
| | SSRA | Number | 2 | closed | 2 | 2 | closed | 2 | 4 | closed | 4 |
| | | Percent | 20.0 | closed | 20.0 | 6.7 | closed | 6.7 | 10.0 | closed | 10.0 |
| | Overall | Number | 4 | 2 | 6 | 4 | 5 | 9 | 8 | 7 | 15 |
| | | Percent | 8.3 | 2.2 | 4.3 | 2.6 | 8.6 | 4.3 | 4.0 | 4.7 | 4.3 |

Question 9: What is your primary recreation activity for your visit?

| Primary Activity | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|-------------------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Camping | NSRA | Number | 0 | 1 | 1 | 78 | 34 | 112 | 78 | 35 | 113 |
| | | Percent | 0.0 | 1.1 | 0.8 | 64.5 | 58.6 | 62.6 | 49.1 | 23.3 | 36.6 |
| | SSRA | Number | 0 | closed | 0 | 18 | closed | 18 | 18 | closed | 18 |
| | | Percent | 0.0 | closed | 0.0 | 60.0 | closed | 60.0 | 45.0 | closed | 45.0 |
| | Overall | Number | 0 | 1 | 1 | 96 | 34 | 130 | 96 | 35 | 131 |
| | | Percent | 0.0 | 1.1 | 0.7 | 63.6 | 58.6 | 62.2 | 48.2 | 23.3 | 37.5 |
| Fishing | NSRA | Number | 6 | 58 | 64 | 2 | 6 | 8 | 8 | 64 | 72 |
| | | Percent | 15.8 | 63.0 | 49.2 | 1.7 | 10.3 | 4.5 | 5.0 | 42.7 | 23.3 |
| | SSRA | Number | 0 | closed | 0 | 3 | closed | 3 | 3 | closed | 3 |
| | | Percent | 0.0 | closed | 0.0 | 10.0 | closed | 10.0 | 7.5 | closed | 7.5 |
| | Overall | Number | 6 | 58 | 64 | 5 | 6 | 11 | 11 | 64 | 75 |
| | | Percent | 12.5 | 63.0 | 45.7 | 3.3 | 10.3 | 5.3 | 5.5 | 42.7 | 21.5 |
| Picnicking | NSRA | Number | 2 | 7 | 9 | 0 | 2 | 2 | 2 | 9 | 11 |
| | | Percent | 5.3 | 7.6 | 6.9 | 0.0 | 3.4 | 1.1 | 1.3 | 6.0 | 3.6 |
| | SSRA | Number | 1 | closed | 1 | 0 | closed | 0 | 1 | closed | 1 |
| | | Percent | 10.0 | closed | 10.0 | 0.0 | closed | 0.0 | 2.5 | closed | 2.5 |
| | Overall | Number | 3 | 7 | 10 | 0 | 2 | 2 | 3 | 9 | 12 |
| | | Percent | 6.3 | 7.6 | 7.1 | 0.0 | 3.4 | 1.0 | 1.5 | 6.0 | 3.4 |
| Motorized Boating | NSRA | Number | 6 | 9 | 15 | 7 | 2 | 9 | 13 | 11 | 24 |
| | | Percent | 15.8 | 9.8 | 11.5 | 5.8 | 3.4 | 5.0 | 8.2 | 7.3 | 7.8 |
| | SSRA | Number | 2 | closed | 2 | 7 | closed | 7 | 9 | closed | 9 |
| | | Percent | 20.0 | closed | 20.0 | 23.3 | closed | 23.3 | 22.5 | closed | 22.5 |
| | Overall | Number | 8 | 9 | 17 | 14 | 2 | 16 | 22 | 11 | 33 |
| | | Percent | 16.7 | 9.8 | 12.1 | 9.3 | 3.4 | 7.7 | 11.1 | 7.3 | 9.5 |
| Non-motorized Boating | NSRA | Number | 2 | 2 | 4 | 3 | 0 | 3 | 5 | 2 | 7 |
| | | Percent | 5.3 | 2.2 | 3.1 | 2.5 | 0.0 | 1.7 | 3.1 | 1.3 | 2.3 |
| | SSRA | Number | 1 | closed | 1 | 0 | closed | 0 | 1 | closed | 1 |
| | | Percent | 10.0 | closed | 10.0 | 0.0 | closed | 0.0 | 2.5 | closed | 2.5 |
| | Overall | Number | 3 | 2 | 5 | 3 | 0 | 3 | 6 | 2 | 8 |
| | | Percent | 6.3 | 2.2 | 3.6 | 2.0 | 0.0 | 1.4 | 3.0 | 1.3 | 2.3 |
| Water Skiing/ Wakeboarding | NSRA | Number | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 2 |
| | | Percent | 2.6 | 0.0 | 0.8 | 0.8 | 0.0 | 0.6 | 1.3 | 0.0 | 0.6 |
| | SSRA | Number | 0 | closed | 0 | 2 | closed | 2 | 2 | closed | 2 |
| | | Percent | 0.0 | closed | 0.0 | 6.7 | closed | 6.7 | 5.0 | closed | 5.0 |
| | Overall | Number | 1 | 0 | 1 | 3 | 0 | 3 | 4 | 0 | 4 |
| | | Percent | 2.1 | 0.0 | 0.7 | 2.0 | 0.0 | 1.4 | 2.0 | 0.0 | 1.1 |
| Swimming | NSRA | Number | 7 | 2 | 9 | 5 | 2 | 7 | 12 | 4 | 16 |
| | | Percent | 18.4 | 2.2 | 6.9 | 4.1 | 3.4 | 3.9 | 7.5 | 2.7 | 5.2 |
| | SSRA | Number | 5 | closed | 5 | 0 | closed | 0 | 5 | closed | 5 |
| | | Percent | 50.0 | closed | 50.0 | 0.0 | closed | 0.0 | 12.5 | closed | 12.5 |
| | Overall | Number | 12 | 2 | 14 | 5 | 2 | 7 | 17 | 4 | 21 |
| | | Percent | 25.0 | 2.2 | 10.0 | 3.3 | 3.4 | 3.3 | 8.5 | 2.7 | 6.0 |
| Hiking/ Walking | NSRA | Number | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 2 | 2 |
| | | Percent | 0.0 | 1.1 | 0.8 | 0.0 | 1.7 | 0.6 | 0.0 | 1.3 | 0.6 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 2 | 2 |
| | | Percent | 0.0 | 1.1 | 0.7 | 0.0 | 1.7 | 0.5 | 0.0 | 1.3 | 0.6 |

Question 9 (continued): What is your primary recreation activity for your visit?

| Primary Activity | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|-------------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Horseback Riding | NSRA | Number | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2 | 2 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 1.1 | 0.0 | 1.3 | 0.6 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2 | 2 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 1.0 | 0.0 | 1.3 | 0.6 |
| Wildlife Viewing | NSRA | Number | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.6 | 0.0 | 0.7 | 0.3 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.5 | 0.0 | 0.7 | 0.3 |
| Jet Skiing | NSRA | Number | 10 | 8 | 18 | 16 | 3 | 19 | 26 | 11 | 37 |
| | | Percent | 26.3 | 8.7 | 13.8 | 13.2 | 5.2 | 10.6 | 16.4 | 7.3 | 12.0 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 10 | 8 | 18 | 16 | 3 | 19 | 26 | 11 | 37 |
| | | Percent | 20.8 | 8.7 | 12.9 | 10.6 | 5.2 | 9.1 | 13.1 | 7.3 | 10.6 |
| Relaxation/ Outdoors | NSRA | Number | 0 | 0 | 0 | 2 | 2 | 4 | 2 | 2 | 4 |
| | | Percent | 0.0 | 0.0 | 0.0 | 1.7 | 3.4 | 2.2 | 1.3 | 1.3 | 1.3 |
| | SSRA | Number | 1 | closed | 1 | 0 | closed | 0 | 1 | closed | 1 |
| | | Percent | 10.0 | closed | 10.0 | 0.0 | closed | 0.0 | 2.5 | closed | 2.5 |
| | Overall | Number | 1 | 0 | 1 | 2 | 2 | 4 | 3 | 2 | 5 |
| | | Percent | 2.1 | 0.0 | 0.7 | 1.3 | 3.4 | 1.9 | 1.5 | 1.3 | 1.4 |
| Drinking | NSRA | Number | 1 | 1 | 2 | 0 | 0 | 0 | 1 | 1 | 2 |
| | | Percent | 2.6 | 1.1 | 1.5 | 0.0 | 0.0 | 0.0 | 0.6 | 0.7 | 0.6 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 1 | 1 | 2 | 0 | 0 | 0 | 1 | 1 | 2 |
| | | Percent | 2.1 | 1.1 | 1.4 | 0.0 | 0.0 | 0.0 | 0.5 | 0.7 | 0.6 |
| Fun/Good Time | NSRA | Number | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 2 |
| | | Percent | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 | 1.1 | 1.3 | 0.0 | 0.6 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 2 |
| | | Percent | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 1.0 | 1.0 | 0.0 | 0.6 |
| Family Time/ Reunion | NSRA | Number | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 2 |
| | | Percent | 2.6 | 0.0 | 0.8 | 0.8 | 0.0 | 0.6 | 1.3 | 0.0 | 0.6 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 2 |
| | | Percent | 2.1 | 0.0 | 0.7 | 0.7 | 0.0 | 0.5 | 1.0 | 0.0 | 0.6 |
| Water Play | NSRA | Number | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| | | Percent | 2.6 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.3 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| | | Percent | 2.1 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 |

Question 9 (continued): What is your primary recreation activity for your visit?

| Primary Activity | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Concert | NSRA | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.6 | 0.6 | 0.0 | 0.3 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.5 | 0.5 | 0.0 | 0.3 |
| Hunting | NSRA | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.6 | 0.6 | 0.0 | 0.3 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.5 | 0.5 | 0.0 | 0.3 |
| Metal Detecting | NSRA | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 1.1 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.3 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 1.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.3 |
| No Response | NSRA | Number | 1 | 2 | 3 | 2 | 3 | 5 | 3 | 5 | 8 |
| | | Percent | 2.6 | 2.2 | 2.3 | 1.7 | 5.2 | 2.8 | 1.9 | 3.3 | 2.6 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 1 | 2 | 3 | 2 | 3 | 5 | 3 | 5 | 8 |
| | | Percent | 2.1 | 2.2 | 2.1 | 1.3 | 5.2 | 2.4 | 1.5 | 3.3 | 2.3 |
| Overall | NSRA | Number | 38 | 92 | 130 | 121 | 58 | 179 | 159 | 150 | 309 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 10 | closed | 10 | 30 | closed | 30 | 40 | closed | 40 |
| | | Percent | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Overall | Number | 48 | 92 | 140 | 151 | 58 | 209 | 199 | 150 | 349 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Question 10: Other areas in Northern California you visit for your primary activity.

| Other Similar Area Visited | Number | Other Similar Area Visited | Number | Other Similar Area Visited | Number |
|--------------------------------|--------|--|--------|--|------------|
| Folsom Lake | 103 | Sly Creek Reservoir | 2 | Mineral Bar/Iowa Hill | 1 |
| Collins Lake | 59 | Sonora, CA | 2 | Monterey, CA | 1 |
| Lake Oroville | 46 | Sycamore Ranch | 2 | Mossdale Lake | 1 |
| Rollins Reservoir | 37 | Thermolito Afterbay | 2 | North coast of California | 1 |
| New Bullards Bar Reservoir | 29 | Trinity Lake | 2 | North Fork | 1 |
| Lake Berryessa | 24 | Tulloch Lake | 2 | Ocean Cove Campground (Jenner, CA) | 1 |
| Camanche Reservoir | 22 | Woodward Reservoir | 2 | Off-roading in Sierras | 1 |
| Englebright Lake | 22 | Any dispersed camping in Central Valley CA | 1 | Pardee Reservoir | 1 |
| Clear Lake | 21 | Any national park | 1 | Penn Valley, CA | 1 |
| Lake Tahoe | 20 | Auburn River | 1 | Philbrook Lake | 1 |
| Delta | 18 | Auburn State Recreation Area | 1 | Pinecrest Lake | 1 |
| Shasta Lake | 14 | Bass Lake | 1 | Pipi Valley | 1 |
| Ice House Reservoir | 12 | Beale Lake | 1 | Pismo Beach, CA | 1 |
| Sacramento River | 12 | Bear Lake | 1 | Piut Lake | 1 |
| Scotts Flat Reservoir | 11 | Bear River | 1 | Pleasanton, CA | 1 |
| American River | 8 | Black Butte Reservoir | 1 | Pollock Pines, CA | 1 |
| Feather River | 8 | Bowman Lake | 1 | Pyramid Lake | 1 |
| Sly Park Reservoir | 8 | Branan Island State Recreation Area | 1 | Redwoods | 1 |
| East Park Reservoir | 7 | Bridgeport State Park | 1 | Rubicon Lake | 1 |
| New Hogan Reservoir | 7 | Colfax, CA | 1 | Russian River | 1 |
| Sugar Pine Reservoir | 6 | Cowboy Camp Horse Camp | 1 | San Joaquin River | 1 |
| Lake Amador | 5 | Cronan Ranch | 1 | Sandy Beach Park | 1 |
| Lake Francis | 5 | Delta-Discovery Bay | 1 | Santa Cruz Campground | 1 |
| New Melones Lake | 5 | Delta-Sherman Island | 1 | Santa Cruz, CA | 1 |
| Stonyford Recreation Area | 5 | Dutch Flats | 1 | Sardine Lake | 1 |
| Don Pedro Lake | 4 | Eagle Lake | 1 | Sierra Foothills | 1 |
| Donner Lake | 4 | Freeport | 1 | Stampede Reservoir | 1 |
| French Meadows Reservoir | 4 | Frenchmen Lake | 1 | Stony Gorge Reservoir | 1 |
| Lake Clementine | 4 | Fulbright | 1 | Strawberry | 1 |
| Loon Lake | 4 | Fuller Lake | 1 | Stumpy Meadows Reservoir | 1 |
| Union Valley Reservoir | 4 | Gerle Creek Reservoir | 1 | Sun River, OR | 1 |
| Yuba River | 4 | Gracagle, CA | 1 | Thousand Trails Resort | 1 |
| Boca Reservoir | 3 | Grass Valley, CA | 1 | Undeveloped camps near Turlock, CA | 1 |
| Bodega Bay, CA | 3 | Grover Sierra Hot Springs | 1 | Whiskeytown Recreation Area | 1 |
| Dillons Beach State Park | 3 | Hidden Falls Regional Park | 1 | Wild Plum Campground (Sierra City, CA) | 1 |
| Indian Valley Reservoir | 3 | Hogan Reservoir | 1 | Wrights Lake | 1 |
| Lake Almanor | 3 | Humbolt, CA | 1 | Yosemite National Park | 1 |
| Lake McClure | 3 | Jackson Meadows Reservoir | 1 | Yuba Gap | 1 |
| Afterbay | 2 | Lake Davis | 1 | Total | 677 |
| Antelope Lake | 2 | Lake Solano | 1 | | |
| Bucks Lake | 2 | Lake Spaulding | 1 | | |
| Calaveras Big Trees State Park | 2 | Lassen National Park | 1 | | |
| Foresthill, CA | 2 | Lawsons Landing (Dillon Beach, CA) | 2 | | |
| Fort Bragg, CA | 2 | Leggett, CA | 1 | | |
| Gold Lake | 2 | Lindsey Lake | 1 | | |
| Hollister, CA | 2 | Mather Lake | 1 | | |
| Lake Natoma | 2 | McSwain Reservoir | 1 | | |
| Little Grass Valley Reservoir | 2 | Medicine Lake | 1 | | |
| Rancho Seco Lake | 2 | Middle Meadows Group Campground | 1 | | |

Question 11a: Are you fishing for a target species or are you a “general angler”?

| Type of Angler | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|-----------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| General Angler | NSRA | Number | 5 | 20 | 25 | 13 | 27 | 40 | 18 | 47 | 65 |
| | | Percent | 13.2 | 21.7 | 19.2 | 10.7 | 46.6 | 22.3 | 11.3 | 31.3 | 21.0 |
| | SSRA | Number | 0 | closed | 0 | 9 | closed | 9 | 9 | closed | 9 |
| | | Percent | 0.0 | closed | 0.0 | 30.0 | closed | 30.0 | 22.5 | closed | 22.5 |
| | Overall | Number | 5 | 20 | 25 | 22 | 27 | 49 | 27 | 47 | 74 |
| | | Percent | 10.4 | 21.7 | 17.9 | 14.6 | 46.6 | 23.4 | 13.6 | 31.3 | 21.2 |
| Target Species Angler | NSRA | Number | 4 | 41 | 45 | 7 | 2 | 9 | 11 | 43 | 54 |
| | | Percent | 10.5 | 44.6 | 34.6 | 5.8 | 3.4 | 5.0 | 6.9 | 28.7 | 17.5 |
| | SSRA | Number | 0 | closed | 0 | 2 | closed | 2 | 2 | closed | 2 |
| | | Percent | 0.0 | closed | 0.0 | 6.7 | closed | 6.7 | 5.0 | closed | 5.0 |
| | Overall | Number | 4 | 41 | 45 | 9 | 2 | 11 | 13 | 43 | 56 |
| | | Percent | 8.3 | 44.6 | 32.1 | 6.0 | 3.4 | 5.3 | 6.5 | 28.7 | 16.0 |
| Did not fish | NSRA | Number | 29 | 31 | 60 | 101 | 29 | 130 | 130 | 60 | 190 |
| | | Percent | 76.3 | 33.7 | 46.2 | 83.5 | 50.0 | 72.6 | 81.8 | 40.0 | 61.5 |
| | SSRA | Number | 10 | closed | 10 | 19 | closed | 19 | 29 | closed | 29 |
| | | Percent | 100.0 | closed | 100.0 | 63.3 | closed | 63.3 | 72.5 | closed | 72.5 |
| | Overall | Number | 39 | 31 | 70 | 120 | 29 | 149 | 159 | 60 | 219 |
| | | Percent | 81.3 | 33.7 | 50.0 | 79.5 | 50.0 | 71.3 | 79.9 | 40.0 | 62.8 |
| Overall | NSRA | Number | 38 | 92 | 130 | 121 | 58 | 179 | 159 | 150 | 309 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 10 | closed | 10 | 30 | closed | 30 | 40 | closed | 40 |
| | | Percent | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Overall | Number | 48 | 92 | 140 | 151 | 58 | 209 | 199 | 150 | 349 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Question 11b: Target Species.

| Target Species | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Bass | NSRA | Number | 3 | 26 | 29 | 3 | 2 | 5 | 6 | 28 | 34 |
| | | Percent | 75.0 | 63.4 | 64.4 | 42.9 | 100.0 | 55.6 | 54.5 | 65.1 | 63.0 |
| | SSRA | Number | 0 | closed | 0 | 1 | closed | 1 | 1 | closed | 1 |
| | | Percent | 0.0 | closed | 0.0 | 50.0 | closed | 50.0 | 50.0 | closed | 50.0 |
| | Overall | Number | 3 | 26 | 29 | 4 | 2 | 6 | 7 | 28 | 35 |
| | | Percent | 75.0 | 63.4 | 64.4 | 44.4 | 100.0 | 54.5 | 53.8 | 65.1 | 62.5 |
| Black Bass | NSRA | Number | 0 | 8 | 8 | 0 | 0 | 0 | 0 | 8 | 8 |
| | | Percent | 0.0 | 19.5 | 17.8 | 0.0 | 0.0 | 0.0 | 0.0 | 18.6 | 14.8 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 8 | 8 | 0 | 0 | 0 | 0 | 8 | 8 |
| | | Percent | 0.0 | 19.5 | 17.8 | 0.0 | 0.0 | 0.0 | 0.0 | 18.6 | 14.3 |
| Large-mouth Bass | NSRA | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 2.4 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 1.9 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 2.4 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 1.8 |
| Carp | NSRA | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 2.4 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 1.9 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 2.4 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 1.8 |
| Crappie | NSRA | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 2.4 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 1.9 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 2.4 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 1.8 |
| Catfish | NSRA | Number | 0 | 0 | 0 | 3 | 0 | 3 | 3 | 0 | 3 |
| | | Percent | 0.0 | 0.0 | 0.0 | 42.9 | 0.0 | 33.3 | 27.3 | 0.0 | 5.6 |
| | SSRA | Number | 0 | closed | 0 | 1 | closed | 1 | 1 | closed | 1 |
| | | Percent | 0.0 | closed | 0.0 | 50.0 | closed | 50.0 | 50.0 | closed | 50.0 |
| | Overall | Number | 0 | 0 | 0 | 4 | 0 | 4 | 4 | 0 | 4 |
| | | Percent | 0.0 | 0.0 | 0.0 | 44.4 | 0.0 | 36.4 | 30.8 | 0.0 | 7.1 |
| Spotted Bass | NSRA | Number | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 |
| | | Percent | 0.0 | 9.8 | 8.9 | 0.0 | 0.0 | 0.0 | 0.0 | 9.3 | 7.4 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 |
| | | Percent | 0.0 | 9.8 | 8.9 | 0.0 | 0.0 | 0.0 | 0.0 | 9.3 | 7.1 |
| No Response | NSRA | Number | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 2 |
| | | Percent | 25.0 | 0.0 | 2.2 | 14.3 | 0.0 | 11.1 | 18.2 | 0.0 | 3.7 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 2 |
| | | Percent | 25.0 | 0.0 | 2.2 | 11.1 | 0.0 | 9.1 | 15.4 | 0.0 | 3.6 |
| Overall | NSRA | Number | 4 | 41 | 45 | 7 | 2 | 9 | 11 | 43 | 54 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 0 | closed | 0 | 2 | closed | 2 | 2 | closed | 2 |
| | | Percent | 0.0 | closed | 0.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Overall | Number | 4 | 41 | 45 | 9 | 2 | 11 | 13 | 43 | 56 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Question 12: Number of fish by species and size category that you caught today?

| Season | Statistic | Number of Fish 0-11 in. Kept | Number of Fish 0- 11 in. Released | Number of Fish 12-24 in. Kept | Number of Fish 12-24 in. Released | Number of Fish >24 in. Kept | Number of Fish >24 in. Released | Number of Fish 0-11 in. Kept | Number of Fish 0- 11 in. Released | Number of Fish 12-24 in. Kept | Number of Fish 12-24 in. Released | Number of Fish >24 in. Kept | Number of Fish >24 in. Released |
|--------------------|-----------|---------------------------------------|--|--|--|--------------------------------------|--|---------------------------------------|--|--|--|--------------------------------------|--|
| | | BASS | | | | | | BLUEGILL | | | | | |
| Peak Season | Average | 0.1 | 1.0 | 0.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum | 2 | 10 | 8 | 20 | 0 | 0 | 0 | 4 | 3 | 1 | 0 | 0 |
| Off Peak Season | Average | 0.0 | 1.6 | 0.1 | 1.6 | 0.1 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum | 0 | 40 | 2 | 25 | 2 | 30 | 10 | 4 | 0 | 0 | 0 | 0 |
| Overall | Average | 0.0 | 1.4 | 0.1 | 1.4 | 0.1 | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum | 2 | 40 | 8 | 25 | 2 | 30 | 10 | 4 | 3 | 1 | 0 | 0 |
| | | CATFISH | | | | | | CRAPPIE | | | | | |
| Peak Season | Average | 0.0 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum | 1 | 3 | 1 | 6 | 0 | 0 | 2 | 18 | 0 | 0 | 0 | 0 |
| Off Peak Season | Average | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Overall | Average | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum | 1 | 3 | 1 | 6 | 0 | 0 | 2 | 18 | 0 | 0 | 0 | 0 |
| | | TROUT | | | | | | SALMON | | | | | |
| Peak Season | Average | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Off Peak Season | Average | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Overall | Average | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Question 13: How many hours did you fish today?

| Recreation Area | Statistic | Hours Fished | | | | | | | | |
|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
| | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| NSRA | Average | 2.4 | 4.9 | 4.6 | 2.1 | 2.0 | 2.0 | 2.2 | 3.9 | 3.5 |
| | Maximum | 6 | 12 | 12 | 5 | 8 | 8 | 6 | 12 | 12 |
| SSRA | Average | 0.0 | closed | 0.0 | 1.5 | closed | 1.5 | 1.5 | closed | 1.5 |
| | Maximum | 0 | closed | 0 | 3 | closed | 3 | 3 | closed | 3 |
| Overall | Average | 2.4 | 4.9 | 4.6 | 1.9 | 2.0 | 1.9 | 2.0 | 3.9 | 3.3 |
| | Maximum | 6 | 12 | 12 | 5 | 8 | 8 | 6 | 12 | 12 |

Question 14a: What fishing technique did you use at this recreation area today?

| Fishing Technique | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|---------------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Spin Technique | NSRA | Number | 3 | 11 | 14 | 7 | 5 | 12 | 10 | 16 | 26 |
| | | Percent | 33.3 | 18.0 | 20.0 | 36.8 | 17.9 | 25.5 | 35.7 | 18.0 | 22.2 |
| | SSRA | Number | 0 | closed | 0 | 3 | closed | 3 | 3 | closed | 3 |
| | | Percent | 0.0 | closed | 0.0 | 27.3 | closed | 27.3 | 27.3 | closed | 27.3 |
| | Overall | Number | 3 | 11 | 14 | 10 | 5 | 15 | 13 | 16 | 29 |
| | | Percent | 33.3 | 18.0 | 20.0 | 33.3 | 17.9 | 25.9 | 33.3 | 18.0 | 22.7 |
| Artificial Lure Technique | NSRA | Number | 4 | 50 | 54 | 6 | 9 | 15 | 10 | 59 | 69 |
| | | Percent | 44.4 | 82.0 | 77.1 | 31.6 | 32.1 | 31.9 | 35.7 | 66.3 | 59.0 |
| | SSRA | Number | 0 | closed | 0 | 4 | closed | 4 | 4 | closed | 4 |
| | | Percent | 0.0 | closed | 0.0 | 36.4 | closed | 36.4 | 36.4 | closed | 36.4 |
| | Overall | Number | 4 | 50 | 54 | 10 | 9 | 19 | 14 | 59 | 73 |
| | | Percent | 44.4 | 82.0 | 77.1 | 33.3 | 32.1 | 32.8 | 35.9 | 66.3 | 57.0 |
| Bait Technique | NSRA | Number | 3 | 18 | 21 | 16 | 18 | 34 | 19 | 36 | 55 |
| | | Percent | 33.3 | 29.5 | 30.0 | 84.2 | 64.3 | 72.3 | 67.9 | 40.4 | 47.0 |
| | SSRA | Number | 0 | closed | 0 | 9 | closed | 9 | 9 | closed | 9 |
| | | Percent | 0.0 | closed | 0.0 | 81.8 | closed | 81.8 | 81.8 | closed | 81.8 |
| | Overall | Number | 3 | 18 | 21 | 25 | 18 | 43 | 28 | 36 | 64 |
| | | Percent | 33.3 | 29.5 | 30.0 | 83.3 | 64.3 | 74.1 | 71.8 | 40.4 | 50.0 |
| Fly Technique | NSRA | Number | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 2 |
| | | Percent | 0.0 | 1.6 | 1.4 | 5.3 | 0.0 | 2.1 | 3.6 | 1.1 | 1.7 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 2 |
| | | Percent | 0.0 | 1.6 | 1.4 | 3.3 | 0.0 | 1.7 | 2.6 | 1.1 | 1.6 |

Question 14b: What fishing method did you use at this recreation area today?

| Fishing Location | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|-------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Boat Fishing | NSRA | Number | 5 | 46 | 51 | 3 | 8 | 11 | 8 | 54 | 62 |
| | | Percent | 55.6 | 75.4 | 72.9 | 15.8 | 28.6 | 23.4 | 28.6 | 60.7 | 53.0 |
| | SSRA | Number | 0 | closed | 0 | 4 | closed | 4 | 4 | closed | 4 |
| | | Percent | 0.0 | closed | 0.0 | 36.4 | closed | 36.4 | 36.4 | closed | 36.4 |
| | Overall | Number | 5 | 46 | 51 | 7 | 8 | 15 | 12 | 54 | 66 |
| | | Percent | 55.6 | 75.4 | 72.9 | 23.3 | 28.6 | 25.9 | 30.8 | 60.7 | 51.6 |
| Wading | NSRA | Number | 0 | 1 | 1 | 3 | 0 | 3 | 3 | 1 | 4 |
| | | Percent | 0.0 | 1.6 | 1.4 | 15.8 | 0.0 | 6.4 | 10.7 | 1.1 | 3.4 |
| | SSRA | Number | 0 | closed | 0 | 1 | closed | 1 | 1 | closed | 1 |
| | | Percent | 0.0 | closed | 0.0 | 9.1 | closed | 9.1 | 9.1 | closed | 9.1 |
| | Overall | Number | 0 | 1 | 1 | 4 | 0 | 4 | 4 | 1 | 5 |
| | | Percent | 0.0 | 1.6 | 1.4 | 13.3 | 0.0 | 6.9 | 10.3 | 1.1 | 3.9 |
| Shoreline Fishing | NSRA | Number | 4 | 12 | 16 | 13 | 14 | 27 | 17 | 26 | 43 |
| | | Percent | 44.4 | 19.7 | 22.9 | 68.4 | 50.0 | 57.4 | 60.7 | 29.2 | 36.8 |
| | SSRA | Number | 0 | closed | 0 | 10 | closed | 10 | 10 | closed | 10 |
| | | Percent | 0.0 | closed | 0.0 | 90.9 | closed | 90.9 | 90.9 | closed | 90.9 |
| | Overall | Number | 4 | 12 | 16 | 23 | 14 | 37 | 27 | 26 | 53 |
| | | Percent | 44.4 | 19.7 | 22.9 | 76.7 | 50.0 | 63.8 | 69.2 | 29.2 | 41.4 |

Question 14c: What fishing approach did you use at this recreation area today?

| Boat Fishing Approach | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|-----------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Troll | NSRA | Number | 0 | 8 | 8 | 0 | 2 | 2 | 0 | 10 | 10 |
| | | Percent | 0.0 | 17.4 | 15.7 | 0.0 | 16.7 | 12.5 | 0.0 | 17.2 | 14.9 |
| | SSRA | Number | 0 | closed | 0 | 3 | closed | 3 | 3 | closed | 3 |
| | | Percent | 0.0 | closed | 0.0 | 75.0 | closed | 75.0 | 75.0 | closed | 75.0 |
| | Overall | Number | 0 | 8 | 8 | 3 | 2 | 5 | 3 | 10 | 13 |
| | | Percent | 0.0 | 17.4 | 15.7 | 37.5 | 16.7 | 25.0 | 23.1 | 17.2 | 18.3 |
| Cast & Retrieve | NSRA | Number | 5 | 38 | 43 | 2 | 4 | 6 | 7 | 42 | 49 |
| | | Percent | 100.0 | 82.6 | 84.3 | 50.0 | 33.3 | 37.5 | 77.8 | 72.4 | 73.1 |
| | SSRA | Number | 0 | closed | 0 | 4 | closed | 4 | 4 | closed | 4 |
| | | Percent | 0.0 | closed | 0.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Overall | Number | 5 | 38 | 43 | 6 | 4 | 10 | 11 | 42 | 53 |
| | | Percent | 100.0 | 82.6 | 84.3 | 75.0 | 33.3 | 50.0 | 84.6 | 72.4 | 74.6 |
| Plunking | NSRA | Number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Drifting | NSRA | Number | 1 | 1 | 2 | 0 | 3 | 3 | 1 | 4 | 5 |
| | | Percent | 20.0 | 2.2 | 3.9 | 0.0 | 25.0 | 18.8 | 11.1 | 6.9 | 7.5 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 1 | 1 | 2 | 0 | 3 | 3 | 1 | 4 | 5 |
| | | Percent | 20.0 | 2.2 | 3.9 | 0.0 | 25.0 | 15.0 | 7.7 | 6.9 | 7.0 |

Question 14c (continued): What fishing approach did you use at this recreation area today?

| Boat Fishing Approach | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|-----------------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Other | NSRA | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 25.0 | 0.0 | 6.3 | 11.1 | 0.0 | 1.5 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 12.5 | 0.0 | 5.0 | 7.7 | 0.0 | 1.4 |
| No | NSRA | Number | 5 | 46 | 51 | 2 | 8 | 10 | 7 | 54 | 61 |
| | | Percent | 100.0 | 100.0 | 100.0 | 50.0 | 66.7 | 62.5 | 77.8 | 93.1 | 91.0 |
| | SSRA | Number | 0 | closed | 0 | 4 | closed | 4 | 4 | closed | 4 |
| | | Percent | 0.0 | closed | 0.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Overall | Number | 5 | 46 | 51 | 6 | 8 | 14 | 11 | 54 | 65 |
| | | Percent | 100.0 | 100.0 | 100.0 | 75.0 | 66.7 | 70.0 | 84.6 | 93.1 | 91.5 |
| No response | NSRA | Number | 0 | 0 | 0 | 1 | 4 | 5 | 1 | 4 | 5 |
| | | Percent | 0.0 | 0.0 | 0.0 | 25.0 | 33.3 | 31.3 | 11.1 | 6.9 | 7.5 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 0 | 0 | 1 | 4 | 5 | 1 | 4 | 5 |
| | | Percent | 0.0 | 0.0 | 0.0 | 12.5 | 33.3 | 25.0 | 7.7 | 6.9 | 7.0 |
| Overall | NSRA | Number | 5 | 46 | 51 | 4 | 12 | 16 | 9 | 58 | 67 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 0 | closed | 0 | 4 | closed | 4 | 4 | closed | 4 |
| | | Percent | 0.0 | closed | 0.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Overall | Number | 5 | 46 | 51 | 8 | 12 | 20 | 13 | 58 | 71 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Question 15a: Did the water level of the reservoir noticeably affect your angling experience?

| Response | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|-------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Yes | NSRA | Number | 2 | 13 | 15 | 2 | 7 | 9 | 4 | 20 | 24 |
| | | Percent | 22.2 | 21.3 | 21.4 | 10.0 | 25.0 | 18.8 | 13.8 | 22.5 | 20.3 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 2 | 13 | 15 | 2 | 7 | 9 | 4 | 20 | 24 |
| | | Percent | 22.2 | 21.3 | 21.4 | 6.5 | 25.0 | 15.3 | 10.0 | 22.5 | 18.6 |
| No | NSRA | Number | 7 | 48 | 55 | 18 | 20 | 38 | 25 | 68 | 93 |
| | | Percent | 77.8 | 78.7 | 78.6 | 90.0 | 71.4 | 79.2 | 86.2 | 76.4 | 78.8 |
| | SSRA | Number | 0 | closed | 0 | 11 | closed | 11 | 11 | closed | 11 |
| | | Percent | 0.0 | closed | 0.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Overall | Number | 7 | 48 | 55 | 29 | 20 | 49 | 36 | 68 | 104 |
| | | Percent | 77.8 | 78.7 | 78.6 | 93.5 | 71.4 | 83.1 | 90.0 | 76.4 | 80.6 |
| No Response | NSRA | Number | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 2.1 | 0.0 | 1.1 | 0.8 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 1.7 | 0.0 | 1.1 | 0.8 |
| Overall | NSRA | Number | 9 | 61 | 70 | 20 | 28 | 48 | 29 | 89 | 118 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 0 | closed | 0 | 11 | closed | 11 | 11 | closed | 11 |
| | | Percent | 0.0 | closed | 0.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Overall | Number | 9 | 61 | 70 | 31 | 28 | 59 | 40 | 89 | 129 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Question 15b: Reasons the water level of the reservoir noticeably affected your angling experience.

| Recreation Area | Reason | Number of Responses |
|-----------------|--|---------------------|
| NSRA | Muddy water | 4 |
| | Access to good fishing areas | 1 |
| | Can't reach the back | 1 |
| | Couldn't get to my fishing spots because of the water level | 1 |
| | Dropping water level hurts fishing | 1 |
| | Fluctuation of 4-6 inches a day affects fishing-generally in a negative way | 1 |
| | Higher water=submerged trees=fishing spots | 1 |
| | Incoming water makes the bite turn on and allows for reaction bite all day. | 1 |
| | Lake is down too low; ruins the fish beds | 1 |
| | Low water limits fishing area | 1 |
| | Murky | 1 |
| | Nice to have full -- better looking and less mud | 1 |
| | Of course it does. Anytime you drop water levels 4-6 inches a day it affects fishing, generally in a negative manner. Today was an exception due to perfect conditions | 1 |
| | Partially submerged trees and rocks were more accessible today | 1 |
| | Shallow | 1 |
| | Some debris issues | 1 |
| | Too low | 1 |
| | Too shallow to fish from shore | 1 |
| | Very low in some areas I usually fish | 1 |
| | Water level was very low | 1 |
| SSRA | None | 0 |
| Overall | | 19 |

Question 16: How would you rate the quality of your fishing experience?

| Rating | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|-----------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Very Good | NSRA | Number | 3 | 5 | 8 | 1 | 4 | 5 | 4 | 9 | 13 |
| | | Percent | 33.3 | 8.2 | 11.4 | 5.0 | 14.3 | 10.4 | 13.8 | 10.1 | 11.0 |
| | SSRA | Number | 0 | closed | 0 | 5 | closed | 5 | 5 | closed | 5 |
| | | Percent | 0.0 | closed | 0.0 | 45.5 | closed | 45.5 | 45.5 | closed | 45.5 |
| | Overall | Number | 3 | 5 | 8 | 6 | 4 | 10 | 9 | 9 | 18 |
| | | Percent | 33.3 | 8.2 | 11.4 | 19.4 | 14.3 | 16.9 | 22.5 | 10.1 | 14.0 |
| Good | NSRA | Number | 4 | 19 | 23 | 5 | 7 | 12 | 9 | 26 | 35 |
| | | Percent | 44.4 | 31.1 | 32.9 | 25.0 | 25.0 | 25.0 | 31.0 | 29.2 | 29.7 |
| | SSRA | Number | 0 | closed | 0 | 3 | closed | 3 | 3 | closed | 3 |
| | | Percent | 0.0 | closed | 0.0 | 27.3 | closed | 27.3 | 27.3 | closed | 27.3 |
| | Overall | Number | 4 | 19 | 23 | 8 | 7 | 15 | 12 | 26 | 38 |
| | | Percent | 44.4 | 31.1 | 32.9 | 25.8 | 25.0 | 25.4 | 30.0 | 29.2 | 29.5 |
| Average | NSRA | Number | 0 | 22 | 22 | 12 | 11 | 23 | 12 | 33 | 45 |
| | | Percent | 0.0 | 36.1 | 31.4 | 60.0 | 39.3 | 47.9 | 41.4 | 37.1 | 38.1 |
| | SSRA | Number | 0 | closed | 0 | 2 | closed | 2 | 2 | closed | 2 |
| | | Percent | 0.0 | closed | 0.0 | 18.2 | closed | 18.2 | 18.2 | closed | 18.2 |
| | Overall | Number | 0 | 22 | 22 | 14 | 11 | 25 | 14 | 33 | 47 |
| | | Percent | 0.0 | 36.1 | 31.4 | 45.2 | 39.3 | 42.4 | 35.0 | 37.1 | 36.4 |

Question 16 (continued): How would you rate the quality of your fishing experience?

| Rating | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | Overall | | |
|-------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|-------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Poor | NSRA | Number | 2 | 10 | 12 | 1 | 2 | 3 | 3 | 12 | 15 |
| | | Percent | 22.2 | 16.4 | 17.1 | 5.0 | 7.1 | 6.3 | 10.3 | 13.5 | 12.7 |
| | SSRA | Number | 0 | closed | 0 | 1 | closed | 1 | 1 | closed | 1 |
| | | Percent | 0.0 | closed | 0.0 | 9.1 | closed | 9.1 | 9.1 | closed | 9.1 |
| | Overall | Number | 2 | 10 | 12 | 2 | 2 | 4 | 4 | 12 | 16 |
| | | Percent | 22.2 | 16.4 | 17.1 | 6.5 | 7.1 | 6.8 | 10.0 | 13.5 | 12.4 |
| Very Poor | NSRA | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 1.6 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.8 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 1.6 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.8 |
| No response | NSRA | Number | 0 | 4 | 4 | 1 | 4 | 5 | 1 | 8 | 9 |
| | | Percent | 0.0 | 6.6 | 5.7 | 5.0 | 14.3 | 10.4 | 3.4 | 9.0 | 7.6 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Overall | Number | 0 | 4 | 4 | 1 | 4 | 5 | 1 | 8 | 9 |
| | | Percent | 0.0 | 6.6 | 5.7 | 3.2 | 14.3 | 8.5 | 2.5 | 9.0 | 7.0 |
| Overall | NSRA | Number | 9 | 61 | 70 | 20 | 28 | 48 | 29 | 89 | 118 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 0 | closed | 0 | 11 | closed | 11 | 11 | closed | 11 |
| | | Percent | 0.0 | closed | 0.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Overall | Number | 9 | 61 | 70 | 31 | 28 | 59 | 40 | 89 | 129 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Question 17a: Did the Reservoir Level Effect Your Ability to Use Beach Area?

| Recreation Area | Scale of Problem | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Large problem | 0 | 0.0 | 1 | 2.1 | 1 | 1.2 | 4 | 3.5 | 2 | 4.1 | 6 | 3.7 | 4 | 2.7 | 3 | 3.1 | 7 | 2.9 |
| | A moderate problem | 3 | 9.1 | 3 | 6.3 | 6 | 7.4 | 6 | 5.2 | 4 | 8.2 | 10 | 6.1 | 9 | 6.1 | 7 | 7.2 | 16 | 6.5 |
| | Neither | 0 | 0.0 | 5 | 10.4 | 5 | 6.2 | 12 | 10.4 | 5 | 10.2 | 17 | 10.4 | 12 | 8.1 | 10 | 10.3 | 22 | 9.0 |
| | A small problem | 10 | 30.3 | 5 | 10.4 | 15 | 18.5 | 20 | 17.4 | 5 | 10.2 | 25 | 15.2 | 30 | 20.3 | 10 | 10.3 | 40 | 16.3 |
| | Not a problem | 19 | 57.6 | 34 | 70.8 | 53 | 65.4 | 73 | 63.5 | 32 | 65.3 | 105 | 64.0 | 92 | 62.2 | 66 | 68.0 | 158 | 64.5 |
| | No opinion/response | 1 | 3.0 | 0 | 0.0 | 1 | 1.2 | 0 | 0.0 | 1 | 2.0 | 1 | 0.6 | 1 | 0.7 | 1 | 1.0 | 2 | 0.8 |
| | Total | 33 | 100.0 | 48 | 100.0 | 81 | 100.0 | 115 | 100.0 | 49 | 100.0 | 164 | 100.0 | 148 | 100.0 | 97 | 100.0 | 245 | 100.0 |
| SSRA | Large problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.7 | closed | closed | 1 | 3.7 | 1 | 2.8 | closed | closed | 1 | 2.8 |
| | A moderate problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.7 | closed | closed | 1 | 3.7 | 1 | 2.8 | closed | closed | 1 | 2.8 |
| | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 11.1 | closed | closed | 3 | 11.1 | 3 | 8.3 | closed | closed | 3 | 8.3 |
| | A small problem | 1 | 11.1 | closed | closed | 1 | 11.1 | 5 | 18.5 | closed | closed | 5 | 18.5 | 6 | 16.7 | closed | closed | 6 | 16.7 |
| | Not a problem | 8 | 88.9 | closed | closed | 8 | 88.9 | 17 | 63.0 | closed | closed | 17 | 63.0 | 25 | 69.4 | closed | closed | 25 | 69.4 |
| | No opinion/response | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Total | 9 | 100.0 | closed | closed | 9 | 100.0 | 27 | 100.0 | closed | closed | 27 | 100.0 | 36 | 100.0 | closed | closed | 36 | 100.0 |
| Total | Large problem | 0 | 0.0 | 1 | 2.1 | 1 | 1.1 | 5 | 3.5 | 2 | 4.1 | 7 | 3.7 | 5 | 2.7 | 3 | 3.1 | 8 | 2.8 |
| | A moderate problem | 3 | 7.1 | 3 | 6.3 | 6 | 6.7 | 7 | 4.9 | 4 | 8.2 | 11 | 5.8 | 10 | 5.4 | 7 | 7.2 | 17 | 6.0 |
| | Neither | 0 | 0.0 | 5 | 10.4 | 5 | 5.6 | 15 | 10.6 | 5 | 10.2 | 20 | 10.5 | 15 | 8.2 | 10 | 10.3 | 25 | 8.9 |
| | A small problem | 11 | 26.2 | 5 | 10.4 | 16 | 17.8 | 25 | 17.6 | 5 | 10.2 | 30 | 15.7 | 36 | 19.6 | 10 | 10.3 | 46 | 16.4 |
| | Not a problem | 27 | 64.3 | 34 | 70.8 | 61 | 67.8 | 90 | 63.4 | 32 | 65.3 | 122 | 63.9 | 117 | 63.6 | 66 | 68.0 | 183 | 65.1 |
| | No opinion/response | 1 | 2.4 | 0 | 0.0 | 1 | 1.1 | 0 | 0.0 | 1 | 2.0 | 1 | 0.5 | 1 | 0.5 | 1 | 1.0 | 2 | 0.7 |
| | Total | 42 | 100.0 | 48 | 100.0 | 90 | 100.0 | 142 | 100.0 | 49 | 100.0 | 191 | 100.0 | 184 | 100.0 | 97 | 100.0 | 281 | 100.0 |

Question 17b: Did the Reservoir Level Effect Your Ability to Safely Swim?

| Recreation Area | Scale of Problem | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Large problem | | | 0 | 0.0 | 0 | 0.0 | | | 5 | 11.4 | 5 | 3.1 | | | 5 | 5.7 | 5 | 2.1 |
| | A moderate problem | 0 | 0.0 | 4 | 9.3 | 4 | 5.3 | 8 | 6.7 | 0 | 0.0 | 8 | 4.9 | 8 | 5.3 | 4 | 4.6 | 12 | 5.0 |
| | Neither | 1 | 3.0 | 5 | 11.6 | 6 | 7.9 | 4 | 3.4 | 5 | 11.4 | 9 | 5.5 | 5 | 3.3 | 10 | 11.5 | 15 | 6.3 |
| | A small problem | 2 | 6.1 | 4 | 9.3 | 6 | 7.9 | 17 | 14.3 | 4 | 9.1 | 21 | 12.9 | 19 | 12.5 | 8 | 9.2 | 27 | 11.3 |
| | Not a problem | 29 | 87.9 | 30 | 69.8 | 59 | 77.6 | 88 | 73.9 | 29 | 65.9 | 117 | 71.8 | 117 | 77.0 | 59 | 67.8 | 176 | 73.6 |
| | No opinion/response | 1 | 3.0 | 0 | 0.0 | 1 | 1.3 | 2 | 1.7 | 1 | 2.3 | 3 | 1.8 | 3 | 2.0 | 1 | 1.1 | 4 | 1.7 |
| | Total | 33 | 100.0 | 43 | 100.0 | 76 | 100.0 | 119 | 100.0 | 44 | 100.0 | 163 | 100.0 | 152 | 100.0 | 87 | 100.0 | 239 | 100.0 |
| SSRA | Large problem | 1 | 11.1 | closed | closed | 1 | 11.1 | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 2.8 | closed | closed | 1 | 2.8 |
| | A moderate problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 11.1 | closed | closed | 3 | 11.1 | 3 | 8.3 | closed | closed | 3 | 8.3 |
| | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.7 | closed | closed | 1 | 3.7 | 1 | 2.8 | closed | closed | 1 | 2.8 |
| | A small problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 18.5 | closed | closed | 5 | 18.5 | 5 | 13.9 | closed | closed | 5 | 13.9 |
| | Not a problem | 8 | 88.9 | closed | closed | 8 | 88.9 | 18 | 66.7 | closed | closed | 18 | 66.7 | 26 | 72.2 | closed | closed | 26 | 72.2 |
| | No opinion/response | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Total | 9 | 100.0 | closed | closed | 9 | 100.0 | 27 | 100.0 | closed | closed | 27 | 100.0 | 36 | 100.0 | closed | closed | 36 | 100.0 |
| Total | Large problem | 1 | 2.4 | 0 | 0.0 | 1 | 1.2 | 0 | 0.0 | 5 | 11.4 | 5 | 2.6 | 1 | 0.5 | 5 | 5.7 | 6 | 2.2 |
| | A moderate problem | 0 | 0.0 | 4 | 9.3 | 4 | 4.7 | 11 | 7.5 | 0 | 0.0 | 11 | 5.8 | 11 | 5.9 | 4 | 4.6 | 15 | 5.5 |
| | Neither | 1 | 2.4 | 5 | 11.6 | 6 | 7.1 | 5 | 3.4 | 5 | 11.4 | 10 | 5.3 | 6 | 3.2 | 10 | 11.5 | 16 | 5.8 |
| | A small problem | 2 | 4.8 | 4 | 9.3 | 6 | 7.1 | 22 | 15.1 | 4 | 9.1 | 26 | 13.7 | 24 | 12.8 | 8 | 9.2 | 32 | 11.6 |
| | Not a problem | 37 | 88.1 | 30 | 69.8 | 67 | 78.8 | 106 | 72.6 | 29 | 65.9 | 135 | 71.1 | 143 | 76.1 | 59 | 67.8 | 202 | 73.5 |
| | No opinion/response | 1 | 2.4 | 0 | 0.0 | 1 | 1.2 | 2 | 1.4 | 1 | 2.3 | 3 | 1.6 | 3 | 1.6 | 1 | 1.1 | 4 | 1.5 |
| | Total | 42 | 100.0 | 43 | 100.0 | 85 | 100.0 | 146 | 100.0 | 44 | 100.0 | 190 | 100.0 | 188 | 100.0 | 87 | 100.0 | 275 | 100.0 |

Question 17c: Did the Reservoir Level Effect Your Ability to Launch or Take Out a Boat?

| Recreation Area | Scale of Problem | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Large problem | | | 3 | 3.7 | 3 | 2.7 | | | 0 | 0.0 | 0 | 0.0 | | | 3 | 2.5 | 3 | 1.3 |
| | A moderate problem | 0 | 0.0 | 4 | 4.9 | 4 | 3.6 | 2 | 2.3 | 3 | 7.7 | 5 | 4.0 | 2 | 1.7 | 7 | 5.8 | 9 | 3.8 |
| | Neither | 0 | 0.0 | 3 | 3.7 | 3 | 2.7 | 6 | 6.9 | 4 | 10.3 | 10 | 7.9 | 6 | 5.2 | 7 | 5.8 | 13 | 5.5 |
| | A small problem | 2 | 6.9 | 9 | 11.1 | 11 | 10.0 | 14 | 16.1 | 8 | 20.5 | 22 | 17.5 | 16 | 13.8 | 17 | 14.2 | 33 | 14.0 |
| | Not a problem | 26 | 89.7 | 62 | 76.5 | 88 | 80.0 | 61 | 70.1 | 23 | 59.0 | 84 | 66.7 | 87 | 75.0 | 85 | 70.8 | 172 | 72.9 |
| | No opinion/response | 1 | 3.4 | 0 | 0.0 | 1 | 0.9 | 4 | 4.6 | 1 | 2.6 | 5 | 4.0 | 5 | 4.3 | 1 | 0.8 | 6 | 2.5 |
| | Total | 29 | 100.0 | 81 | 100.0 | 110 | 100.0 | 87 | 100.0 | 39 | 100.0 | 126 | 100.0 | 116 | 100.0 | 120 | 100.0 | 236 | 100.0 |
| SSRA | Large problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | A moderate problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 5.0 | closed | closed | 1 | 5.0 | 1 | 3.6 | closed | closed | 1 | 3.6 |
| | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 5.0 | closed | closed | 1 | 5.0 | 1 | 3.6 | closed | closed | 1 | 3.6 |
| | A small problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 25.0 | closed | closed | 5 | 25.0 | 5 | 17.9 | closed | closed | 5 | 17.9 |
| | Not a problem | 8 | 100.0 | closed | closed | 8 | 100.0 | 13 | 65.0 | closed | closed | 13 | 65.0 | 21 | 75.0 | closed | closed | 21 | 75.0 |
| | No opinion/response | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Total | 8 | 100.0 | closed | closed | 8 | 100.0 | 20 | 100.0 | closed | closed | 20 | 100.0 | 28 | 100.0 | closed | closed | 28 | 100.0 |
| Total | Large problem | | | 3 | 3.7 | 3 | 2.5 | | | 0 | 0.0 | 0 | 0.0 | | | 3 | 2.5 | 3 | 1.1 |
| | A moderate problem | 0 | 0.0 | 4 | 4.9 | 4 | 3.4 | 3 | 2.8 | 3 | 7.7 | 6 | 4.1 | 3 | 2.1 | 7 | 5.8 | 10 | 3.8 |
| | Neither | 0 | 0.0 | 3 | 3.7 | 3 | 2.5 | 7 | 6.5 | 4 | 10.3 | 11 | 7.5 | 7 | 4.9 | 7 | 5.8 | 14 | 5.3 |
| | A small problem | 2 | 5.4 | 9 | 11.1 | 11 | 9.3 | 19 | 17.8 | 8 | 20.5 | 27 | 18.5 | 21 | 14.6 | 17 | 14.2 | 38 | 14.4 |
| | Not a problem | 34 | 91.9 | 62 | 76.5 | 96 | 81.4 | 74 | 69.2 | 23 | 59.0 | 97 | 66.4 | 108 | 75.0 | 85 | 70.8 | 193 | 73.1 |
| | No opinion/response | 1 | 2.7 | 0 | 0.0 | 1 | 0.8 | 4 | 3.7 | 1 | 2.6 | 5 | 3.4 | 5 | 3.5 | 1 | 0.8 | 6 | 2.3 |
| | Total | 37 | 100.0 | 81 | 100.0 | 118 | 100.0 | 107 | 100.0 | 39 | 100.0 | 146 | 100.0 | 144 | 100.0 | 120 | 100.0 | 264 | 100.0 |

Question 17d: Did the Reservoir Level Effect Your Ability to Safely Boat?

| Recreation Area | Scale of Problem | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Large problem | 0 | 0.0 | 1 | 1.3 | 1 | 0.9 | 1 | 1.2 | 0 | 0.0 | 1 | 0.8 | 1 | 0.9 | 1 | 0.9 | 2 | 0.9 |
| | A moderate problem | 1 | 3.4 | 5 | 6.3 | 6 | 5.6 | 4 | 4.7 | 5 | 13.5 | 9 | 7.3 | 5 | 4.3 | 10 | 8.6 | 15 | 6.5 |
| | Neither | 0 | 0.0 | 2 | 2.5 | 2 | 1.9 | 4 | 4.7 | 3 | 8.1 | 7 | 5.7 | 4 | 3.5 | 5 | 4.3 | 9 | 3.9 |
| | A small problem | 2 | 6.9 | 6 | 7.6 | 8 | 7.4 | 18 | 20.9 | 4 | 10.8 | 22 | 17.9 | 20 | 17.4 | 10 | 8.6 | 30 | 13.0 |
| | Not a problem | 26 | 89.7 | 64 | 81.0 | 90 | 83.3 | 56 | 65.1 | 24 | 64.9 | 80 | 65.0 | 82 | 71.3 | 88 | 75.9 | 170 | 73.6 |
| | No opinion/response | 0 | 0.0 | 1 | 1.3 | 1 | 0.9 | 3 | 3.5 | 1 | 2.7 | 4 | 3.3 | 3 | 2.6 | 2 | 1.7 | 5 | 2.2 |
| | Total | 29 | 100.0 | 79 | 100.0 | 108 | 100.0 | 86 | 100.0 | 37 | 100.0 | 123 | 100.0 | 115 | 100.0 | 116 | 100.0 | 231 | 100.0 |
| SSRA | Large problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | A moderate problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 5.0 | closed | closed | 1 | 5.0 | 1 | 3.6 | closed | closed | 1 | 3.6 |
| | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 10.0 | closed | closed | 2 | 10.0 | 2 | 7.1 | closed | closed | 2 | 7.1 |
| | A small problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 4 | 20.0 | closed | closed | 4 | 20.0 | 4 | 14.3 | closed | closed | 4 | 14.3 |
| | Not a problem | 8 | 100.0 | closed | closed | 8 | 100.0 | 13 | 65.0 | closed | closed | 13 | 65.0 | 21 | 75.0 | closed | closed | 21 | 75.0 |
| | No opinion/response | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Total | 8 | 100.0 | closed | closed | 8 | 100.0 | 20 | 100.0 | closed | closed | 20 | 100.0 | 28 | 100.0 | closed | closed | 28 | 100.0 |
| Total | Large problem | 0 | 0.0 | 1 | 1.3 | 1 | 0.9 | 1 | 0.9 | 0 | 0.0 | 1 | 0.7 | 1 | 0.7 | 1 | 0.9 | 2 | 0.8 |
| | A moderate problem | 1 | 2.7 | 5 | 6.3 | 6 | 5.2 | 5 | 4.7 | 5 | 13.5 | 10 | 7.0 | 6 | 4.2 | 10 | 8.6 | 16 | 6.2 |
| | Neither | 0 | 0.0 | 2 | 2.5 | 2 | 1.7 | 6 | 5.7 | 3 | 8.1 | 9 | 6.3 | 6 | 4.2 | 5 | 4.3 | 11 | 4.2 |
| | A small problem | 2 | 5.4 | 6 | 7.6 | 8 | 6.9 | 22 | 20.8 | 4 | 10.8 | 26 | 18.2 | 24 | 16.8 | 10 | 8.6 | 34 | 13.1 |
| | Not a problem | 34 | 91.9 | 64 | 81.0 | 98 | 84.5 | 69 | 65.1 | 24 | 64.9 | 93 | 65.0 | 103 | 72.0 | 88 | 75.9 | 191 | 73.7 |
| | No opinion/response | 0 | 0.0 | 1 | 1.3 | 1 | 0.9 | 3 | 2.8 | 1 | 2.7 | 4 | 2.8 | 3 | 2.1 | 2 | 1.7 | 5 | 1.9 |
| | Total | 37 | 100.0 | 79 | 100.0 | 116 | 100.0 | 106 | 100.0 | 37 | 100.0 | 143 | 100.0 | 143 | 100.0 | 116 | 100.0 | 259 | 100.0 |

Question 17e: Did the Reservoir Level Effect Your Ability to Fish Along the Shoreline?

| Recreation Area | Scale of Problem | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Large problem | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | A moderate problem | 0 | 0.0 | 2 | 3.4 | 2 | 2.6 | 5 | 11.1 | 3 | 8.6 | 8 | 10.0 | 5 | 7.7 | 5 | 5.4 | 10 | 6.3 |
| | Neither | 0 | 0.0 | 3 | 5.2 | 3 | 3.8 | 3 | 6.7 | 5 | 14.3 | 8 | 10.0 | 3 | 4.6 | 8 | 8.6 | 11 | 7.0 |
| | A small problem | 3 | 15.0 | 2 | 3.4 | 5 | 6.4 | 9 | 20.0 | 2 | 5.7 | 11 | 13.8 | 12 | 18.5 | 4 | 4.3 | 16 | 10.1 |
| | Not a problem | 16 | 80.0 | 50 | 86.2 | 66 | 84.6 | 26 | 57.8 | 25 | 71.4 | 51 | 63.8 | 42 | 64.6 | 75 | 80.6 | 117 | 74.1 |
| | No opinion/response | 1 | 5.0 | 1 | 1.7 | 2 | 2.6 | 2 | 4.4 | 0 | 0.0 | 2 | 2.5 | 3 | 4.6 | 1 | 1.1 | 4 | 2.5 |
| | Total | 20 | 100.0 | 58 | 100.0 | 78 | 100.0 | 45 | 100.0 | 35 | 100.0 | 80 | 100.0 | 65 | 100.0 | 93 | 100.0 | 158 | 100.0 |
| SSRA | Large problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | A moderate problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 5.3 | closed | closed | 1 | 5.3 | 1 | 4.2 | closed | closed | 1 | 4.2 |
| | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 15.8 | closed | closed | 3 | 15.8 | 3 | 12.5 | closed | closed | 3 | 12.5 |
| | A small problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 5.3 | closed | closed | 1 | 5.3 | 1 | 4.2 | closed | closed | 1 | 4.2 |
| | Not a problem | 4 | 80.0 | closed | closed | 4 | 80.0 | 14 | 73.7 | closed | closed | 14 | 73.7 | 18 | 75.0 | closed | closed | 18 | 75.0 |
| | No opinion/response | 1 | 20.0 | closed | closed | 1 | 20.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 4.2 | closed | closed | 1 | 4.2 |
| | Total | 5 | 100.0 | closed | closed | 5 | 100.0 | 19 | 100.0 | closed | closed | 19 | 100.0 | 24 | 100.0 | closed | closed | 24 | 100.0 |
| Total | Large problem | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | A moderate problem | 0 | 0.0 | 2 | 3.4 | 2 | 2.4 | 6 | 9.4 | 3 | 8.6 | 9 | 9.1 | 6 | 6.7 | 5 | 5.4 | 11 | 6.0 |
| | Neither | 0 | 0.0 | 3 | 5.2 | 3 | 3.6 | 6 | 9.4 | 5 | 14.3 | 11 | 11.1 | 6 | 6.7 | 8 | 8.6 | 14 | 7.7 |
| | A small problem | 3 | 12.0 | 2 | 3.4 | 5 | 6.0 | 10 | 15.6 | 2 | 5.7 | 12 | 12.1 | 13 | 14.6 | 4 | 4.3 | 17 | 9.3 |
| | Not a problem | 20 | 80.0 | 50 | 86.2 | 70 | 84.3 | 40 | 62.5 | 25 | 71.4 | 65 | 65.7 | 60 | 67.4 | 75 | 80.6 | 135 | 74.2 |
| | No opinion/response | 2 | 8.0 | 1 | 1.7 | 3 | 3.6 | 2 | 3.1 | 0 | 0.0 | 2 | 2.0 | 4 | 4.5 | 1 | 1.1 | 5 | 2.7 |
| | Total | 25 | 100.0 | 58 | 100.0 | 83 | 100.0 | 64 | 100.0 | 35 | 100.0 | 99 | 100.0 | 89 | 100.0 | 93 | 100.0 | 182 | 100.0 |

Question 17f: Did the Reservoir Level Effect Your Ability to Access the Shoreline?

| Recreation Area | Scale of Problem | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Large problem | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 1.7 | 2 | 3.8 | 4 | 2.4 | 2 | 1.3 | 2 | 1.6 | 4 | 1.4 |
| | A moderate problem | 8 | 21.6 | 4 | 5.5 | 12 | 10.9 | 8 | 6.9 | 5 | 9.6 | 13 | 7.7 | 16 | 10.5 | 9 | 7.2 | 25 | 9.0 |
| | Neither | 0 | 0.0 | 4 | 5.5 | 4 | 3.6 | 5 | 4.3 | 5 | 9.6 | 10 | 6.0 | 5 | 3.3 | 9 | 7.2 | 14 | 5.0 |
| | A small problem | 3 | 8.1 | 5 | 6.8 | 8 | 7.3 | 21 | 18.1 | 3 | 5.8 | 24 | 14.3 | 24 | 15.7 | 8 | 6.4 | 32 | 11.5 |
| | Not a problem | 25 | 67.6 | 60 | 82.2 | 85 | 77.3 | 80 | 69.0 | 37 | 71.2 | 117 | 69.6 | 105 | 68.6 | 97 | 77.6 | 202 | 72.7 |
| | No opinion/response | 1 | 2.7 | 0 | 0.0 | 1 | 0.9 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.7 | 0 | 0.0 | 1 | 0.4 |
| | Total | 37 | 100.0 | 73 | 100.0 | 110 | 100.0 | 116 | 100.0 | 52 | 100.0 | 168 | 100.0 | 153 | 100.0 | 125 | 100.0 | 278 | 100.0 |
| SSRA | Large problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | A moderate problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.4 | closed | closed | 1 | 3.4 | 1 | 2.6 | closed | closed | 1 | 2.6 |
| | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.9 | closed | closed | 2 | 6.9 | 2 | 5.1 | closed | closed | 2 | 5.1 |
| | A small problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 17.2 | closed | closed | 5 | 17.2 | 5 | 12.8 | closed | closed | 5 | 12.8 |
| | Not a problem | 10 | 100.0 | closed | closed | 10 | 100.0 | 21 | 72.4 | closed | closed | 21 | 72.4 | 31 | 79.5 | closed | closed | 31 | 79.5 |
| | No opinion/response | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 29 | 100.0 | closed | closed | 29 | 100.0 | 39 | 100.0 | closed | closed | 39 | 100.0 |
| Total | Large problem | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 1.4 | 2 | 3.8 | 4 | 2.0 | 2 | 1.0 | 2 | 1.6 | 4 | 1.3 |
| | A moderate problem | 8 | 17.0 | 4 | 5.5 | 12 | 10.0 | 9 | 6.2 | 5 | 9.6 | 14 | 7.1 | 17 | 8.9 | 9 | 7.2 | 26 | 8.2 |
| | Neither | 0 | 0.0 | 4 | 5.5 | 4 | 3.3 | 7 | 4.8 | 5 | 9.6 | 12 | 6.1 | 7 | 3.6 | 9 | 7.2 | 16 | 5.0 |
| | A small problem | 3 | 6.4 | 5 | 6.8 | 8 | 6.7 | 26 | 17.9 | 3 | 5.8 | 29 | 14.7 | 29 | 15.1 | 8 | 6.4 | 37 | 11.7 |
| | Not a problem | 35 | 74.5 | 60 | 82.2 | 95 | 79.2 | 101 | 69.7 | 37 | 71.2 | 138 | 70.1 | 136 | 70.8 | 97 | 77.6 | 233 | 73.5 |
| | No opinion/response | 1 | 2.1 | | | 1 | 0.8 | 0 | 0.0 | | | 0 | 0.0 | 1 | 0.5 | | | 1 | 0.3 |
| | Total | 47 | 100.0 | 73 | 100.0 | 120 | 100.0 | 145 | 100.0 | 52 | 100.0 | 197 | 100.0 | 192 | 100.0 | 125 | 100.0 | 317 | 100.0 |

Question 17g: Did the Reservoir Level Effect Your Ability to Utilize Trails?

| Recreation Area | Scale of Problem | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Large problem | 0 | 0.0 | 1 | 2.5 | 1 | 1.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.1 | 1 | 0.5 |
| | A moderate problem | 1 | 5.3 | 5 | 12.5 | 6 | 10.2 | 7 | 8.9 | 1 | 2.1 | 8 | 6.3 | 8 | 8.2 | 6 | 6.9 | 14 | 7.6 |
| | Neither | 2 | 10.5 | 4 | 10.0 | 6 | 10.2 | 6 | 7.6 | 7 | 14.9 | 13 | 10.3 | 8 | 8.2 | 11 | 12.6 | 19 | 10.3 |
| | A small problem | 2 | 10.5 | 0 | 0.0 | 2 | 3.4 | 9 | 11.4 | 6 | 12.8 | 15 | 11.9 | 11 | 11.2 | 6 | 6.9 | 17 | 9.2 |
| | Not a problem | 11 | 57.9 | 29 | 72.5 | 40 | 67.8 | 51 | 64.6 | 33 | 70.2 | 84 | 66.7 | 62 | 63.3 | 62 | 71.3 | 124 | 67.0 |
| | No opinion/response | 3 | 15.8 | 1 | 2.5 | 4 | 6.8 | 6 | 7.6 | 0 | 0.0 | 6 | 4.8 | 9 | 9.2 | 1 | 1.1 | 10 | 5.4 |
| | Total | 19 | 100.0 | 40 | 100.0 | 59 | 100.0 | 79 | 100.0 | 47 | 100.0 | 126 | 100.0 | 98 | 100.0 | 87 | 100.0 | 185 | 100.0 |
| SSRA | Large problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | A moderate problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 5.6 | closed | closed | 1 | 5.6 | 1 | 4.2 | closed | closed | 1 | 4.2 |
| | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 5.6 | closed | closed | 1 | 5.6 | 1 | 4.2 | closed | closed | 1 | 4.2 |
| | A small problem | 1 | 16.7 | closed | closed | 1 | 16.7 | 2 | 11.1 | closed | closed | 2 | 11.1 | 3 | 12.5 | closed | closed | 3 | 12.5 |
| | Not a problem | 5 | 83.3 | closed | closed | 5 | 83.3 | 13 | 72.2 | closed | closed | 13 | 72.2 | 18 | 75.0 | closed | closed | 18 | 75.0 |
| | No opinion/response | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 5.6 | closed | closed | 1 | 5.6 | 1 | 4.2 | closed | closed | 1 | 4.2 |
| | Total | 6 | 100.0 | closed | closed | 6 | 100.0 | 18 | 100.0 | closed | closed | 18 | 100.0 | 24 | 100.0 | closed | closed | 24 | 100.0 |
| Total | Large problem | | | 1 | 2.5 | 1 | 1.5 | | | 0 | 0.0 | 0 | 0.0 | | | 1 | 1.1 | 1 | 0.5 |
| | A moderate problem | 1 | 4.0 | 5 | 12.5 | 6 | 9.2 | 8 | 8.2 | 1 | 2.1 | 9 | 6.3 | 9 | 7.4 | 6 | 6.9 | 15 | 7.2 |
| | Neither | 2 | 8.0 | 4 | 10.0 | 6 | 9.2 | 7 | 7.2 | 7 | 14.9 | 14 | 9.7 | 9 | 7.4 | 11 | 12.6 | 20 | 9.6 |
| | A small problem | 3 | 12.0 | 0 | 0.0 | 3 | 4.6 | 11 | 11.3 | 6 | 12.8 | 17 | 11.8 | 14 | 11.5 | 6 | 6.9 | 20 | 9.6 |
| | Not a problem | 16 | 64.0 | 29 | 72.5 | 45 | 69.2 | 64 | 66.0 | 33 | 70.2 | 97 | 67.4 | 80 | 65.6 | 62 | 71.3 | 142 | 67.9 |
| | No opinion/response | 3 | 12.0 | 1 | 2.5 | 4 | 6.2 | 7 | 7.2 | 0 | 0.0 | 7 | 4.9 | 10 | 8.2 | 1 | 1.1 | 11 | 5.3 |
| | Total | 25 | 100.0 | 40 | 100.0 | 65 | 100.0 | 97 | 100.0 | 47 | 100.0 | 144 | 100.0 | 122 | 100.0 | 87 | 100.0 | 209 | 100.0 |

Question 17h: Did the Reservoir Level Effect the Scenic Quality of the Shoreline?

| Recreation Area | Scale of Problem | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | | Peak Season | | Off-peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Large problem | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 0 | 0.0 | 2 | 3.7 | 2 | 1.2 | 0 | 0.0 | 3 | 2.1 | 3 | 1.0 |
| | A moderate problem | 1 | 2.7 | 8 | 9.2 | 9 | 7.3 | 12 | 10.3 | 3 | 5.6 | 15 | 8.8 | 13 | 8.4 | 11 | 7.8 | 24 | 8.1 |
| | Neither | 5 | 13.5 | 3 | 3.4 | 8 | 6.5 | 13 | 11.1 | 11 | 20.4 | 24 | 14.0 | 18 | 11.7 | 14 | 9.9 | 32 | 10.8 |
| | A small problem | 3 | 8.1 | 1 | 1.1 | 4 | 3.2 | 13 | 11.1 | 4 | 7.4 | 17 | 9.9 | 16 | 10.4 | 5 | 3.5 | 21 | 7.1 |
| | Not a problem | 27 | 73.0 | 73 | 83.9 | 100 | 80.6 | 75 | 64.1 | 33 | 61.1 | 108 | 63.2 | 102 | 66.2 | 106 | 75.2 | 208 | 70.5 |
| | No opinion/response | 1 | 2.7 | 1 | 1.1 | 2 | 1.6 | 4 | 3.4 | 1 | 1.9 | 5 | 2.9 | 5 | 3.2 | 2 | 1.4 | 7 | 2.4 |
| | Total | 37 | 100.0 | 87 | 100.0 | 124 | 100.0 | 117 | 100.0 | 54 | 100.0 | 171 | 100.0 | 154 | 100.0 | 141 | 100.0 | 295 | 100.0 |
| SSRA | Large problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | A moderate problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | A small problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 4 | 13.8 | closed | closed | 4 | 13.8 | 4 | 10.3 | closed | closed | 4 | 10.3 |
| | Not a problem | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 17.2 | closed | closed | 5 | 17.2 | 5 | 12.8 | closed | closed | 5 | 12.8 |
| | No opinion/response | 10 | 100.0 | closed | closed | 10 | 100.0 | 20 | 69.0 | closed | closed | 20 | 69.0 | 30 | 76.9 | closed | closed | 30 | 76.9 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 29 | 100.0 | closed | closed | 29 | 100.0 | 39 | 100.0 | closed | closed | 39 | 100.0 |
| Total | Large problem | 0 | 0.0 | 1 | 1.1 | 1 | 0.7 | 0 | 0.0 | 2 | 3.7 | 2 | 1.0 | 0 | 0.0 | 3 | 2.1 | 3 | 0.9 |
| | A moderate problem | 1 | 2.1 | 8 | 9.2 | 9 | 6.7 | 12 | 8.2 | 3 | 5.6 | 15 | 7.5 | 13 | 6.7 | 11 | 7.8 | 24 | 7.2 |
| | Neither | 5 | 10.6 | 3 | 3.4 | 8 | 6.0 | 17 | 11.6 | 11 | 20.4 | 28 | 14.0 | 22 | 11.4 | 14 | 9.9 | 36 | 10.8 |
| | A small problem | 3 | 6.4 | 1 | 1.1 | 4 | 3.0 | 18 | 12.3 | 4 | 7.4 | 22 | 11.0 | 21 | 10.9 | 5 | 3.5 | 26 | 7.8 |
| | Not a problem | 37 | 78.7 | 73 | 83.9 | 110 | 82.1 | 95 | 65.1 | 33 | 61.1 | 128 | 64.0 | 132 | 68.4 | 106 | 75.2 | 238 | 71.3 |
| | No opinion/response | 1 | 2.1 | 1 | 1.1 | 2 | 1.5 | 4 | 2.7 | 1 | 1.9 | 5 | 2.5 | 5 | 2.6 | 2 | 1.4 | 7 | 2.1 |
| | Total | 47 | 100.0 | 87 | 100.0 | 134 | 100.0 | 146 | 100.0 | 54 | 100.0 | 200 | 100.0 | 193 | 100.0 | 141 | 100.0 | 334 | 100.0 |

Question 18a: Did you experience any conflict with other recreation users today?

| Recreation Area | Did You Experience Any Conflict? | Day-use | | | | | | Overnight | | | | | | All Visitors | | | | | |
|-----------------|----------------------------------|-------------|-------|-----------------|--------|---------|-------|-------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Yes | 1 | 2.6 | 5 | 5.4 | 6 | 4.6 | 13 | 10.7 | 6 | 10.3 | 19 | 10.6 | 14 | 8.8 | 11 | 7.3 | 25 | 8.1 |
| | No | 37 | 97.4 | 87 | 94.6 | 124 | 95.4 | 108 | 89.3 | 52 | 89.7 | 160 | 89.4 | 145 | 91.2 | 139 | 92.7 | 284 | 91.9 |
| | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| SSRA | Yes | 0 | 0.0 | closed | closed | 0 | 0.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | No | 10 | 100.0 | closed | closed | 10 | 100.0 | 26 | 86.7 | closed | closed | 26 | 86.7 | 36 | 90.0 | closed | closed | 36 | 90.0 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| Total | Yes | 1 | 2.1 | 5 | 5.4 | 6 | 4.3 | 17 | 11.3 | 6 | 10.3 | 23 | 11.0 | 18 | 9.0 | 11 | 7.3 | 29 | 8.3 |
| | No | 47 | 97.9 | 87 | 94.6 | 134 | 95.7 | 134 | 88.7 | 52 | 89.7 | 186 | 89.0 | 181 | 91.0 | 139 | 92.7 | 320 | 91.7 |
| | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 18b: If you experienced conflict, what was the activity of the other recreation user?

| Recreation Area | Activity | Day-use | | | | | | Overnight | | | | | | All Visitors | | | | | |
|-----------------|------------------|-------------|-------|-----------------|--------|---------|-------|-------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Camper | 0 | 0.0 | 1 | 20.0 | 1 | 16.7 | 7 | 41.2 | 3 | 33.3 | 10 | 38.5 | 7 | 38.9 | 4 | 28.6 | 11 | 34.4 |
| | Motorized boater | 0 | 0.0 | 3 | 60.0 | 3 | 50.0 | 5 | 29.4 | 3 | 33.3 | 8 | 30.8 | 5 | 27.8 | 6 | 42.9 | 11 | 34.4 |
| | Vehicle use | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 5.9 | 0 | 0.0 | 1 | 3.8 | 1 | 5.6 | 0 | 0.0 | 1 | 3.1 |
| | Other | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 5.9 | 1 | 11.1 | 2 | 7.7 | 1 | 5.6 | 1 | 7.1 | 2 | 6.3 |
| | Jet skier | 1 | 100.0 | 0 | 0.0 | 1 | 16.7 | 0 | 0.0 | 2 | 22.2 | 2 | 7.7 | 1 | 5.6 | 2 | 14.3 | 3 | 9.4 |
| | Hiker | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 5.9 | 0 | 0.0 | 1 | 3.8 | 1 | 5.6 | 0 | 0.0 | 1 | 3.1 |
| | No response | 0 | 0.0 | 1 | 20.0 | 1 | 16.7 | 2 | 11.8 | 0 | 0.0 | 2 | 7.7 | 2 | 11.1 | 1 | 7.1 | 3 | 9.4 |
| | Total | 1 | 100.0 | 5 | 100.0 | 6 | 100.0 | 17 | 100.0 | 9 | 100.0 | 26 | 100.0 | 18 | 100.0 | 14 | 100.0 | 32 | 100.0 |
| SSRA | Camper | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 40.0 | closed | closed | 2 | 40.0 | 2 | 40.0 | closed | closed | 2 | 40.0 |
| | Jet skier | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 40.0 | closed | closed | 2 | 40.0 | 2 | 40.0 | closed | closed | 2 | 40.0 |
| | Motorized boater | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 20.0 | closed | closed | 1 | 20.0 | 1 | 20.0 | closed | closed | 1 | 20.0 |
| | Total | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 100.0 | closed | closed | 5 | 100.0 | 5 | 100.0 | closed | closed | 5 | 100.0 |
| Total | Camper | 0 | 0.0 | 1 | 20.0 | 1 | 16.7 | 9 | 40.9 | 3 | 33.3 | 12 | 38.7 | 9 | 39.1 | 4 | 28.6 | 13 | 35.1 |
| | Motorized boater | 0 | 0.0 | 3 | 60.0 | 3 | 50.0 | 6 | 27.3 | 3 | 33.3 | 9 | 29.0 | 6 | 26.1 | 6 | 42.9 | 12 | 32.4 |
| | Vehicle Use | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 4.5 | 0 | 0.0 | 1 | 3.2 | 1 | 4.3 | 0 | 0.0 | 1 | 2.7 |
| | Other | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 4.5 | 1 | 11.1 | 2 | 6.5 | 1 | 4.3 | 1 | 7.1 | 2 | 5.4 |
| | Jet skier | 1 | 100.0 | 0 | 0.0 | 1 | 16.7 | 2 | 9.1 | 2 | 22.2 | 4 | 12.9 | 3 | 13.0 | 2 | 14.3 | 5 | 13.5 |
| | Hiker | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 4.5 | 0 | 0.0 | 1 | 3.2 | 1 | 4.3 | 0 | 0.0 | 1 | 2.7 |
| | No response | 0 | 0.0 | 1 | 20.0 | 1 | 16.7 | 2 | 9.1 | 0 | 0.0 | 2 | 6.5 | 2 | 8.7 | 1 | 7.1 | 3 | 8.1 |
| | Total | 1 | 100.0 | 5 | 100.0 | 6 | 100.0 | 22 | 100.0 | 9 | 100.0 | 31 | 100.0 | 23 | 100.0 | 14 | 100.0 | 37 | 100.0 |

Question 18c: If you experienced conflict, please check the reasons that contributed to the conflict?

| Recreation Area | Reason | Day-use | | | | | | Overnight | | | | | | All Visitors | | | | | |
|-----------------|-----------|-------------|-------|-----------------|--------|---------|-------|-------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Proximity | 0 | 0.0 | 2 | 50.0 | 2 | 40.0 | 5 | 20.0 | 2 | 28.6 | 7 | 21.9 | 5 | 19.2 | 4 | 36.4 | 9 | 24.3 |
| | Rowdiness | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 24.0 | 1 | 14.3 | 7 | 21.9 | 6 | 23.1 | 1 | 9.1 | 7 | 18.9 |
| | Loudness | 0 | 0.0 | 2 | 50.0 | 2 | 40.0 | 10 | 40.0 | 3 | 42.9 | 13 | 40.6 | 10 | 38.5 | 5 | 45.5 | 15 | 40.5 |
| | Other | 1 | 100.0 | 0 | 0.0 | 1 | 20.0 | 4 | 16.0 | 1 | 14.3 | 5 | 15.6 | 5 | 19.2 | 1 | 9.1 | 6 | 16.2 |
| | Total | 1 | 100.0 | 4 | 100.0 | 5 | 100.0 | 25 | 100.0 | 7 | 100.0 | 32 | 100.0 | 26 | 100.0 | 11 | 100.0 | 37 | 100.0 |
| SSRA | Proximity | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 60.0 | closed | closed | 3 | 60.0 | 3 | 60.0 | closed | closed | 3 | 60.0 |
| | Rowdiness | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 20.0 | closed | closed | 1 | 20.0 | 1 | 20.0 | closed | closed | 1 | 20.0 |
| | Loudness | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 20.0 | closed | closed | 1 | 20.0 | 1 | 20.0 | closed | closed | 1 | 20.0 |
| | Other | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Total | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 100.0 | closed | closed | 5 | 100.0 | 5 | 100.0 | closed | closed | 5 | 100.0 |
| Total | Proximity | 0 | 0.0 | 2 | 50.0 | 2 | 40.0 | 8 | 26.7 | 2 | 28.6 | 10 | 27.0 | 8 | 25.8 | 4 | 36.4 | 12 | 28.6 |
| | Rowdiness | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 7 | 23.3 | 1 | 14.3 | 8 | 21.6 | 7 | 22.6 | 1 | 9.1 | 8 | 19.0 |
| | Loudness | 0 | 0.0 | 2 | 50.0 | 2 | 40.0 | 11 | 36.7 | 3 | 42.9 | 14 | 37.8 | 11 | 35.5 | 5 | 45.5 | 16 | 38.1 |
| | Other | 1 | 100.0 | 0 | 0.0 | 1 | 20.0 | 4 | 13.3 | 1 | 14.3 | 5 | 13.5 | 5 | 16.1 | 1 | 9.1 | 6 | 14.3 |
| | Total | 1 | 100.0 | 4 | 100.0 | 5 | 100.0 | 30 | 100.0 | 7 | 100.0 | 37 | 100.0 | 31 | 100.0 | 11 | 100.0 | 42 | 100.0 |

Question 19a: Are there any places in this recreation area where you feel unsafe?

| Recreation Area | Response | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|-------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | | # | | # | | # | | # | | # | | # | | # | | # | |
| NSRA | Yes | 2 | 5.3 | 9 | 9.8 | 11 | 8.5 | 7 | 5.8 | 5 | 8.6 | 12 | 6.7 | 9 | 5.7 | 14 | 9.3 | 23 | 7.4 |
| | No | 35 | 92.1 | 74 | 80.4 | 109 | 83.8 | 112 | 92.6 | 50 | 86.2 | 162 | 90.5 | 147 | 92.5 | 124 | 82.7 | 271 | 87.7 |
| | No response | 1 | 2.6 | 9 | 9.8 | 10 | 7.7 | 2 | 1.7 | 3 | 5.2 | 5 | 2.8 | 3 | 1.9 | 12 | 8.0 | 15 | 4.9 |
| | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| SSRA | Yes | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | No | 10 | 100.0 | closed | closed | 10 | 100.0 | 25 | 83.3 | closed | closed | 25 | 83.3 | 35 | 87.5 | closed | closed | 35 | 87.5 |
| | No response | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| Total | Yes | 2 | 4.2 | 9 | 9.8 | 11 | 7.9 | 10 | 6.6 | 5 | 8.6 | 15 | 7.2 | 12 | 6.0 | 14 | 9.3 | 26 | 7.4 |
| | No | 45 | 93.8 | 74 | 80.4 | 119 | 85.0 | 137 | 90.7 | 50 | 86.2 | 187 | 89.5 | 182 | 91.5 | 124 | 82.7 | 306 | 87.7 |
| | No response | 1 | 2.1 | 9 | 9.8 | 10 | 7.1 | 4 | 2.6 | 3 | 5.2 | 7 | 3.3 | 5 | 2.5 | 12 | 8.0 | 17 | 4.9 |
| | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 19b: If you felt unsafe, please identify the location where you felt unsafe?

| Recreation Area | Reason for Feeling Unsafe (categorized) | Day-use | | | Overnight | | | All Visitors | | |
|-----------------|--|-------------|-----------------|---------|-------------|-----------------|---------|--------------|-----------------|---------|
| | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| | | # | # | # | # | # | # | # | # | # |
| NSRA | Boat ramp/courtesy dock congestion | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 2 | 2 |
| | Busy/congested shoreline areas | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | High water/current near dam | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Rude human behavior | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | Low water levels/hazards | 2 | 1 | 3 | 0 | 1 | 1 | 2 | 2 | 4 |
| | Other | 0 | 1 | 1 | 2 | 0 | 2 | 2 | 1 | 3 |
| | Presence/behavior of boaters and/or jet skiers | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 3 | 3 |
| | Restroom conditions | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | Road conditions | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 2 |
| | Speeding vehicles | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 2 |
| | Unleashed dogs | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Unsafe boating within 200 ft of shoreline/boat ramps | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | No response | 1 | 10 | 11 | 2 | 3 | 5 | 3 | 13 | 16 |
| | Total | 3 | 18 | 21 | 9 | 8 | 17 | 12 | 26 | 38 |
| SSRA | Presence/behavior of boaters and jet skiers | 0 | closed | 0 | 2 | closed | 2 | 2 | closed | 2 |
| | Restroom conditions | 0 | closed | 0 | 1 | closed | 1 | 1 | closed | 1 |
| | No response | 0 | closed | 0 | 2 | closed | 2 | 2 | closed | 2 |
| | Total | 0 | closed | 0 | 5 | closed | 5 | 5 | closed | 5 |

Question 20a: Please rate the acceptability of the CAMPSITES at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-------------------|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Campsites | NSRA | Unacceptable | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.8 | 1 | 1.7 | 2 | 1.1 | 1 | 0.6 | 1 | 0.7 | 2 | 0.6 |
| | | Slightly Unacceptable | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.8 | 1 | 1.7 | 2 | 1.1 | 1 | 0.6 | 1 | 0.7 | 2 | 0.6 |
| | | Neither | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 2 | 1.7 | 2 | 3.4 | 4 | 2.2 | 2 | 1.3 | 3 | 2.0 | 5 | 1.6 |
| | | Slightly Acceptable | 7 | 18.4 | 2 | 2.2 | 9 | 6.9 | 25 | 20.7 | 9 | 15.5 | 34 | 19.0 | 32 | 20.1 | 11 | 7.3 | 43 | 13.9 |
| | | Acceptable | 12 | 31.6 | 29 | 31.5 | 41 | 31.5 | 77 | 63.6 | 44 | 75.9 | 121 | 67.6 | 89 | 56.0 | 73 | 48.7 | 162 | 52.4 |
| | | No response/opinion | 19 | 50.0 | 60 | 65.2 | 79 | 60.8 | 15 | 12.4 | 1 | 1.7 | 16 | 8.9 | 34 | 21.4 | 61 | 40.7 | 95 | 30.7 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Slightly Unacceptable | 1 | 10.0 | closed | closed | 1 | 10.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Slightly Acceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Acceptable | 4 | 40.0 | closed | closed | 4 | 40.0 | 20 | 66.7 | closed | closed | 20 | 66.7 | 24 | 60.0 | closed | closed | 24 | 60.0 |
| | | No response/opinion | 5 | 50.0 | closed | closed | 5 | 50.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 7 | 17.5 | closed | closed | 7 | 17.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 1.3 | 1 | 1.7 | 3 | 1.4 | 2 | 1.0 | 1 | 0.7 | 3 | 0.9 |
| | | Slightly Unacceptable | 1 | 2.1 | 0 | 0.0 | 1 | 0.7 | 1 | 0.7 | 1 | 1.7 | 2 | 1.0 | 2 | 1.0 | 1 | 0.7 | 3 | 0.9 |
| | | Neither | 0 | 0.0 | 1 | 1.1 | 1 | 0.7 | 4 | 2.6 | 2 | 3.4 | 6 | 2.9 | 4 | 2.0 | 3 | 2.0 | 7 | 2.0 |
| | | Slightly Acceptable | 7 | 14.6 | 2 | 2.2 | 9 | 6.4 | 30 | 19.9 | 9 | 15.5 | 39 | 18.7 | 37 | 18.6 | 11 | 7.3 | 48 | 13.8 |
| | | Acceptable | 16 | 33.3 | 29 | 31.5 | 45 | 32.1 | 97 | 64.2 | 44 | 75.9 | 141 | 67.5 | 113 | 56.8 | 73 | 48.7 | 186 | 53.3 |
| | | No response/opinion | 24 | 50.0 | 60 | 65.2 | 84 | 60.0 | 17 | 11.3 | 1 | 1.7 | 18 | 8.6 | 41 | 20.6 | 61 | 40.7 | 102 | 29.2 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20b: Please rate the acceptability of the PICNIC SITES at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-------------------|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Picnic sites | NSRA | Unacceptable | 1 | 2.6 | 0 | 0.0 | 1 | 0.8 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.6 | 0 | 0.0 | 1 | 0.3 |
| | | Slightly Unacceptable | 0 | 0.0 | 2 | 2.2 | 2 | 1.5 | 1 | 0.8 | 0 | 0.0 | 1 | 0.6 | 1 | 0.6 | 2 | 1.3 | 3 | 1.0 |
| | | Neither | 0 | 0.0 | 3 | 3.3 | 3 | 2.3 | 8 | 6.6 | 5 | 8.6 | 13 | 7.3 | 8 | 5.0 | 8 | 5.3 | 16 | 5.2 |
| | | Slightly Acceptable | 2 | 5.3 | 7 | 7.6 | 9 | 6.9 | 16 | 13.2 | 14 | 24.1 | 30 | 16.8 | 18 | 11.3 | 21 | 14.0 | 39 | 12.6 |
| | | Acceptable | 17 | 44.7 | 29 | 31.5 | 46 | 35.4 | 57 | 47.1 | 36 | 62.1 | 93 | 52.0 | 74 | 46.5 | 65 | 43.3 | 139 | 45.0 |
| | | No response/opinion | 18 | 47.4 | 51 | 55.4 | 69 | 53.1 | 39 | 32.2 | 3 | 5.2 | 42 | 23.5 | 57 | 35.8 | 54 | 36.0 | 111 | 35.9 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Slightly Unacceptable | 1 | 10.0 | closed | closed | 1 | 10.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Slightly Acceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Acceptable | 5 | 50.0 | closed | closed | 5 | 50.0 | 7 | 23.3 | closed | closed | 7 | 23.3 | 12 | 30.0 | closed | closed | 12 | 30.0 |
| | | No response/opinion | 4 | 40.0 | closed | closed | 4 | 40.0 | 13 | 43.3 | closed | closed | 13 | 43.3 | 17 | 42.5 | closed | closed | 17 | 42.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 1 | 2.1 | | | 1 | 0.7 | 1 | 0.7 | | | 1 | 0.5 | 2 | 1.0 | | | 2 | 0.6 |
| | | Slightly Unacceptable | 1 | 2.1 | 2 | 2.2 | 3 | 2.1 | 3 | 2.0 | 0 | 0.0 | 3 | 1.4 | 4 | 2.0 | 2 | 1.3 | 6 | 1.7 |
| | | Neither | 0 | 0.0 | 3 | 3.3 | 3 | 2.1 | 12 | 7.9 | 5 | 8.6 | 17 | 8.1 | 12 | 6.0 | 8 | 5.3 | 20 | 5.7 |
| | | Slightly Acceptable | 2 | 4.2 | 7 | 7.6 | 9 | 6.4 | 19 | 12.6 | 14 | 24.1 | 33 | 15.8 | 21 | 10.6 | 21 | 14.0 | 42 | 12.0 |
| | | Acceptable | 22 | 45.8 | 29 | 31.5 | 51 | 36.4 | 64 | 42.4 | 36 | 62.1 | 100 | 47.8 | 86 | 43.2 | 65 | 43.3 | 151 | 43.3 |
| | | No response/opinion | 22 | 45.8 | 51 | 55.4 | 73 | 52.1 | 52 | 34.4 | 3 | 5.2 | 55 | 26.3 | 74 | 37.2 | 54 | 36.0 | 128 | 36.7 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20c: Please rate the acceptability of the RESTROOMS at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-------------------|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Restroom | NSRA | Unacceptable | 0 | 0.0 | 5 | 5.4 | 5 | 3.8 | 13 | 10.7 | 8 | 13.8 | 21 | 11.7 | 13 | 8.2 | 13 | 8.7 | 26 | 8.4 |
| | | Slightly Unacceptable | 7 | 18.4 | 9 | 9.8 | 16 | 12.3 | 20 | 16.5 | 8 | 13.8 | 28 | 15.6 | 27 | 17.0 | 17 | 11.3 | 44 | 14.2 |
| | | Neither | 2 | 5.3 | 4 | 4.3 | 6 | 4.6 | 6 | 5.0 | 5 | 8.6 | 11 | 6.1 | 8 | 5.0 | 9 | 6.0 | 17 | 5.5 |
| | | Slightly Acceptable | 4 | 10.5 | 10 | 10.9 | 14 | 10.8 | 33 | 27.3 | 12 | 20.7 | 45 | 25.1 | 37 | 23.3 | 22 | 14.7 | 59 | 19.1 |
| | | Acceptable | 24 | 63.2 | 44 | 47.8 | 68 | 52.3 | 42 | 34.7 | 21 | 36.2 | 63 | 35.2 | 66 | 41.5 | 65 | 43.3 | 131 | 42.4 |
| | | No response/opinion | 1 | 2.6 | 20 | 21.7 | 21 | 16.2 | 7 | 5.8 | 4 | 6.9 | 11 | 6.1 | 8 | 5.0 | 24 | 16.0 | 32 | 10.4 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 1 | 10.0 | closed | closed | 1 | 10.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 7 | 17.5 | closed | closed | 7 | 17.5 |
| | | Slightly Unacceptable | 2 | 20.0 | closed | closed | 2 | 20.0 | 9 | 30.0 | closed | closed | 9 | 30.0 | 11 | 27.5 | closed | closed | 11 | 27.5 |
| | | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Slightly Acceptable | 2 | 20.0 | closed | closed | 2 | 20.0 | 7 | 23.3 | closed | closed | 7 | 23.3 | 9 | 22.5 | closed | closed | 9 | 22.5 |
| | | Acceptable | 5 | 50.0 | closed | closed | 5 | 50.0 | 7 | 23.3 | closed | closed | 7 | 23.3 | 12 | 30.0 | closed | closed | 12 | 30.0 |
| | | No response/opinion | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 1 | 2.1 | 5 | 5.4 | 6 | 4.3 | 19 | 12.6 | 8 | 13.8 | 27 | 12.9 | 20 | 10.1 | 13 | 8.7 | 33 | 9.5 |
| | | Slightly Unacceptable | 9 | 18.8 | 9 | 9.8 | 18 | 12.9 | 29 | 19.2 | 8 | 13.8 | 37 | 17.7 | 38 | 19.1 | 17 | 11.3 | 55 | 15.8 |
| | | Neither | 2 | 4.2 | 4 | 4.3 | 6 | 4.3 | 7 | 4.6 | 5 | 8.6 | 12 | 5.7 | 9 | 4.5 | 9 | 6.0 | 18 | 5.2 |
| | | Slightly Acceptable | 6 | 12.5 | 10 | 10.9 | 16 | 11.4 | 40 | 26.5 | 12 | 20.7 | 52 | 24.9 | 46 | 23.1 | 22 | 14.7 | 68 | 19.5 |
| | | Acceptable | 29 | 60.4 | 44 | 47.8 | 73 | 52.1 | 49 | 32.5 | 21 | 36.2 | 70 | 33.5 | 78 | 39.2 | 65 | 43.3 | 143 | 41.0 |
| | | No response/opinion | 1 | 2.1 | 20 | 21.7 | 21 | 15.0 | 7 | 4.6 | 4 | 6.9 | 11 | 5.3 | 8 | 4.0 | 24 | 16.0 | 32 | 9.2 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20d: Please rate the acceptability of the POTABLE WATER at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-------------------|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Potable Water | NSRA | Unacceptable | 1 | 2.6 | 6 | 6.5 | 7 | 5.4 | 14 | 11.6 | 10 | 17.2 | 24 | 13.4 | 15 | 9.4 | 16 | 10.7 | 31 | 10.0 |
| | | Slightly Unacceptable | 1 | 2.6 | 4 | 4.3 | 5 | 3.8 | 11 | 9.1 | 1 | 1.7 | 12 | 6.7 | 12 | 7.5 | 5 | 3.3 | 17 | 5.5 |
| | | Neither | 3 | 7.9 | 12 | 13.0 | 15 | 11.5 | 7 | 5.8 | 8 | 13.8 | 15 | 8.4 | 10 | 6.3 | 20 | 13.3 | 30 | 9.7 |
| | | Slightly Acceptable | 0 | 0.0 | 5 | 5.4 | 5 | 3.8 | 17 | 14.0 | 5 | 8.6 | 22 | 12.3 | 17 | 10.7 | 10 | 6.7 | 27 | 8.7 |
| | | Acceptable | 8 | 21.1 | 12 | 13.0 | 20 | 15.4 | 25 | 20.7 | 21 | 36.2 | 46 | 25.7 | 33 | 20.8 | 33 | 22.0 | 66 | 21.4 |
| | | No response/opinion | 25 | 65.8 | 53 | 57.6 | 78 | 60.0 | 47 | 38.8 | 13 | 22.4 | 60 | 33.5 | 72 | 45.3 | 66 | 44.0 | 138 | 44.7 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | | Slightly Unacceptable | 2 | 20.0 | closed | closed | 2 | 20.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 7 | 17.5 | closed | closed | 7 | 17.5 |
| | | Neither | 2 | 20.0 | closed | closed | 2 | 20.0 | 7 | 23.3 | closed | closed | 7 | 23.3 | 9 | 22.5 | closed | closed | 9 | 22.5 |
| | | Slightly Acceptable | 2 | 20.0 | closed | closed | 2 | 20.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Acceptable | 2 | 20.0 | closed | closed | 2 | 20.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | No response/opinion | 2 | 20.0 | closed | closed | 2 | 20.0 | 8 | 26.7 | closed | closed | 8 | 26.7 | 10 | 25.0 | closed | closed | 10 | 25.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 1 | 2.1 | 6 | 6.5 | 7 | 5.0 | 20 | 13.2 | 10 | 17.2 | 30 | 14.4 | 21 | 10.6 | 16 | 10.7 | 37 | 10.6 |
| | | Slightly Unacceptable | 3 | 6.3 | 4 | 4.3 | 7 | 5.0 | 16 | 10.6 | 1 | 1.7 | 17 | 8.1 | 19 | 9.5 | 5 | 3.3 | 24 | 6.9 |
| | | Neither | 5 | 10.4 | 12 | 13.0 | 17 | 12.1 | 14 | 9.3 | 8 | 13.8 | 22 | 10.5 | 19 | 9.5 | 20 | 13.3 | 39 | 11.2 |
| | | Slightly Acceptable | 2 | 4.2 | 5 | 5.4 | 7 | 5.0 | 19 | 12.6 | 5 | 8.6 | 24 | 11.5 | 21 | 10.6 | 10 | 6.7 | 31 | 8.9 |
| | | Acceptable | 10 | 20.8 | 12 | 13.0 | 22 | 15.7 | 27 | 17.9 | 21 | 36.2 | 48 | 23.0 | 37 | 18.6 | 33 | 22.0 | 70 | 20.1 |
| | | No response/opinion | 27 | 56.3 | 53 | 57.6 | 80 | 57.1 | 55 | 36.4 | 13 | 22.4 | 68 | 32.5 | 82 | 41.2 | 66 | 44.0 | 148 | 42.4 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20e: Please rate the acceptability of the PARKING AREAS at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-------------------|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Parking Areas | NSRA | Unacceptable | 1 | 2.6 | 0 | 0.0 | 1 | 0.8 | 0 | 0.0 | 1 | 1.7 | 1 | 0.6 | 1 | 0.6 | 1 | 0.7 | 2 | 0.6 |
| | | Slightly Unacceptable | 1 | 2.6 | 2 | 2.2 | 3 | 2.3 | 2 | 1.7 | 0 | 0.0 | 2 | 1.1 | 3 | 1.9 | 2 | 1.3 | 5 | 1.6 |
| | | Neither | 0 | 0.0 | 2 | 2.2 | 2 | 1.5 | 8 | 6.6 | 5 | 8.6 | 13 | 7.3 | 8 | 5.0 | 7 | 4.7 | 15 | 4.9 |
| | | Slightly Acceptable | 6 | 15.8 | 8 | 8.7 | 14 | 10.8 | 20 | 16.5 | 7 | 12.1 | 27 | 15.1 | 26 | 16.4 | 15 | 10.0 | 41 | 13.3 |
| | | Acceptable | 28 | 73.7 | 77 | 83.7 | 105 | 80.8 | 78 | 64.5 | 43 | 74.1 | 121 | 67.6 | 106 | 66.7 | 120 | 80.0 | 226 | 73.1 |
| | | No response/opinion | 2 | 5.3 | 3 | 3.3 | 5 | 3.8 | 13 | 10.7 | 2 | 3.4 | 15 | 8.4 | 15 | 9.4 | 5 | 3.3 | 20 | 6.5 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Slightly Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | | Slightly Acceptable | 3 | 30.0 | closed | closed | 3 | 30.0 | 9 | 30.0 | closed | closed | 9 | 30.0 | 12 | 30.0 | closed | closed | 12 | 30.0 |
| | | Acceptable | 6 | 60.0 | closed | closed | 6 | 60.0 | 13 | 43.3 | closed | closed | 13 | 43.3 | 19 | 47.5 | closed | closed | 19 | 47.5 |
| | | No response/opinion | 1 | 10.0 | closed | closed | 1 | 10.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 1 | 2.1 | 0 | 0.0 | 1 | 0.7 | 0 | 0.0 | 1 | 1.7 | 1 | 0.5 | 1 | 0.5 | 1 | 0.7 | 2 | 0.6 |
| | | Slightly Unacceptable | 1 | 2.1 | 2 | 2.2 | 3 | 2.1 | 2 | 1.3 | 0 | 0.0 | 2 | 1.0 | 3 | 1.5 | 2 | 1.3 | 5 | 1.4 |
| | | Neither | 0 | 0.0 | 2 | 2.2 | 2 | 1.4 | 14 | 9.3 | 5 | 8.6 | 19 | 9.1 | 14 | 7.0 | 7 | 4.7 | 21 | 6.0 |
| | | Slightly Acceptable | 9 | 18.8 | 8 | 8.7 | 17 | 12.1 | 29 | 19.2 | 7 | 12.1 | 36 | 17.2 | 38 | 19.1 | 15 | 10.0 | 53 | 15.2 |
| | | Acceptable | 34 | 70.8 | 77 | 83.7 | 111 | 79.3 | 91 | 60.3 | 43 | 74.1 | 134 | 64.1 | 125 | 62.8 | 120 | 80.0 | 245 | 70.2 |
| | | No response/opinion | 3 | 6.3 | 3 | 3.3 | 6 | 4.3 | 15 | 9.9 | 2 | 3.4 | 17 | 8.1 | 18 | 9.0 | 5 | 3.3 | 23 | 6.6 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20f: Please rate the acceptability of the BOAT RAMP at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-------------------|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Boat Ramp | NSRA | Unacceptable | 0 | 0.0 | 5 | 5.4 | 5 | 3.8 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 3.3 | 5 | 1.6 |
| | | Slightly Unacceptable | 1 | 2.6 | 4 | 4.3 | 5 | 3.8 | 1 | 0.8 | 0 | 0.0 | 1 | 0.6 | 2 | 1.3 | 4 | 2.7 | 6 | 1.9 |
| | | Neither | 1 | 2.6 | 4 | 4.3 | 5 | 3.8 | 10 | 8.3 | 8 | 13.8 | 18 | 10.1 | 11 | 6.9 | 12 | 8.0 | 23 | 7.4 |
| | | Slightly Acceptable | 6 | 15.8 | 6 | 6.5 | 12 | 9.2 | 10 | 8.3 | 5 | 8.6 | 15 | 8.4 | 16 | 10.1 | 11 | 7.3 | 27 | 8.7 |
| | | Acceptable | 20 | 52.6 | 59 | 64.1 | 79 | 60.8 | 46 | 38.0 | 25 | 43.1 | 71 | 39.7 | 66 | 41.5 | 84 | 56.0 | 150 | 48.5 |
| | | No response/opinion | 10 | 26.3 | 14 | 15.2 | 24 | 18.5 | 54 | 44.6 | 20 | 34.5 | 74 | 41.3 | 64 | 40.3 | 34 | 22.7 | 98 | 31.7 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Slightly Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Slightly Acceptable | 3 | 30.0 | closed | closed | 3 | 30.0 | 11 | 36.7 | closed | closed | 11 | 36.7 | 14 | 35.0 | closed | closed | 14 | 35.0 |
| | | Acceptable | 4 | 40.0 | closed | closed | 4 | 40.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 10 | 25.0 | closed | closed | 10 | 25.0 |
| | | No response/opinion | 3 | 30.0 | closed | closed | 3 | 30.0 | 11 | 36.7 | closed | closed | 11 | 36.7 | 14 | 35.0 | closed | closed | 14 | 35.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 0 | 0.0 | 5 | 5.4 | 5 | 3.6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 3.3 | 5 | 1.4 |
| | | Slightly Unacceptable | 1 | 2.1 | 4 | 4.3 | 5 | 3.6 | 1 | 0.7 | 0 | 0.0 | 1 | 0.5 | 2 | 1.0 | 4 | 2.7 | 6 | 1.7 |
| | | Neither | 1 | 2.1 | 4 | 4.3 | 5 | 3.6 | 12 | 7.9 | 8 | 13.8 | 20 | 9.6 | 13 | 6.5 | 12 | 8.0 | 25 | 7.2 |
| | | Slightly Acceptable | 9 | 18.8 | 6 | 6.5 | 15 | 10.7 | 21 | 13.9 | 5 | 8.6 | 26 | 12.4 | 30 | 15.1 | 11 | 7.3 | 41 | 11.7 |
| | | Acceptable | 24 | 50.0 | 59 | 64.1 | 83 | 59.3 | 52 | 34.4 | 25 | 43.1 | 77 | 36.8 | 76 | 38.2 | 84 | 56.0 | 160 | 45.8 |
| | | No response/opinion | 13 | 27.1 | 14 | 15.2 | 27 | 19.3 | 65 | 43.0 | 20 | 34.5 | 85 | 40.7 | 78 | 39.2 | 34 | 22.7 | 112 | 32.1 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20g: Please rate the acceptability of the ROADS at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|----------------------------------|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Roads within the Recreation Area | NSRA | Unacceptable | 0 | 0.0 | 3 | 3.3 | 3 | 2.3 | 2 | 1.7 | 1 | 1.7 | 3 | 1.7 | 2 | 1.3 | 4 | 2.7 | 6 | 1.9 |
| | | Slightly Unacceptable | 1 | 2.6 | 7 | 7.6 | 8 | 6.2 | 11 | 9.1 | 4 | 6.9 | 15 | 8.4 | 12 | 7.5 | 11 | 7.3 | 23 | 7.4 |
| | | Neither | 7 | 18.4 | 2 | 2.2 | 9 | 6.9 | 11 | 9.1 | 9 | 15.5 | 20 | 11.2 | 18 | 11.3 | 11 | 7.3 | 29 | 9.4 |
| | | Slightly Acceptable | 3 | 7.9 | 25 | 27.2 | 28 | 21.5 | 26 | 21.5 | 14 | 24.1 | 40 | 22.3 | 29 | 18.2 | 39 | 26.0 | 68 | 22.0 |
| | | Acceptable | 24 | 63.2 | 52 | 56.5 | 76 | 58.5 | 67 | 55.4 | 27 | 46.6 | 94 | 52.5 | 91 | 57.2 | 79 | 52.7 | 170 | 55.0 |
| | | No response/opinion | 3 | 7.9 | 3 | 3.3 | 6 | 4.6 | 4 | 3.3 | 3 | 5.2 | 7 | 3.9 | 7 | 4.4 | 6 | 4.0 | 13 | 4.2 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Slightly Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Neither | 1 | 10.0 | closed | closed | 1 | 10.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Slightly Acceptable | 4 | 40.0 | closed | closed | 4 | 40.0 | 7 | 23.3 | closed | closed | 7 | 23.3 | 11 | 27.5 | closed | closed | 11 | 27.5 |
| | | Acceptable | 5 | 50.0 | closed | closed | 5 | 50.0 | 17 | 56.7 | closed | closed | 17 | 56.7 | 22 | 55.0 | closed | closed | 22 | 55.0 |
| | | No response/opinion | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 0 | 0.0 | 3 | 3.3 | 3 | 2.1 | 3 | 2.0 | 1 | 1.7 | 4 | 1.9 | 3 | 1.5 | 4 | 2.7 | 7 | 2.0 |
| | | Slightly Unacceptable | 1 | 2.1 | 7 | 7.6 | 8 | 5.7 | 12 | 7.9 | 4 | 6.9 | 16 | 7.7 | 13 | 6.5 | 11 | 7.3 | 24 | 6.9 |
| | | Neither | 8 | 16.7 | 2 | 2.2 | 10 | 7.1 | 15 | 9.9 | 9 | 15.5 | 24 | 11.5 | 23 | 11.6 | 11 | 7.3 | 34 | 9.7 |
| | | Slightly Acceptable | 7 | 14.6 | 25 | 27.2 | 32 | 22.9 | 33 | 21.9 | 14 | 24.1 | 47 | 22.5 | 40 | 20.1 | 39 | 26.0 | 79 | 22.6 |
| | | Acceptable | 29 | 60.4 | 52 | 56.5 | 81 | 57.9 | 84 | 55.6 | 27 | 46.6 | 111 | 53.1 | 113 | 56.8 | 79 | 52.7 | 192 | 55.0 |
| | | No response/opinion | 3 | 6.3 | 3 | 3.3 | 6 | 4.3 | 4 | 2.6 | 3 | 5.2 | 7 | 3.3 | 7 | 3.5 | 6 | 4.0 | 13 | 3.7 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20h: Please rate the acceptability of the FOOT TRAILS AROUND THE SHORELINE at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|----------------------------------|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Foot Trails around the Shoreline | NSRA | Unacceptable | 1 | 2.6 | 1 | 1.1 | 2 | 1.5 | 0 | 0.0 | 1 | 1.7 | 1 | 0.6 | 1 | 0.6 | 2 | 1.3 | 3 | 1.0 |
| | | Slightly Unacceptable | 2 | 5.3 | 4 | 4.3 | 6 | 4.6 | 2 | 1.7 | 2 | 3.4 | 4 | 2.2 | 4 | 2.5 | 6 | 4.0 | 10 | 3.2 |
| | | Neither | 2 | 5.3 | 7 | 7.6 | 9 | 6.9 | 14 | 11.6 | 11 | 19.0 | 25 | 14.0 | 16 | 10.1 | 18 | 12.0 | 34 | 11.0 |
| | | Slightly Acceptable | 0 | 0.0 | 12 | 13.0 | 12 | 9.2 | 20 | 16.5 | 11 | 19.0 | 31 | 17.3 | 20 | 12.6 | 23 | 15.3 | 43 | 13.9 |
| | | Acceptable | 14 | 36.8 | 25 | 27.2 | 39 | 30.0 | 61 | 50.4 | 26 | 44.8 | 87 | 48.6 | 75 | 47.2 | 51 | 34.0 | 126 | 40.8 |
| | | No response/opinion | 19 | 50.0 | 43 | 46.7 | 62 | 47.7 | 24 | 19.8 | 7 | 12.1 | 31 | 17.3 | 43 | 27.0 | 50 | 33.3 | 93 | 30.1 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Slightly Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Slightly Acceptable | 3 | 30.0 | closed | closed | 3 | 30.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 7 | 17.5 | closed | closed | 7 | 17.5 |
| | | Acceptable | 4 | 40.0 | closed | closed | 4 | 40.0 | 15 | 50.0 | closed | closed | 15 | 50.0 | 19 | 47.5 | closed | closed | 19 | 47.5 |
| | | No response/opinion | 3 | 30.0 | closed | closed | 3 | 30.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 8 | 20.0 | closed | closed | 8 | 20.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 1 | 2.1 | 1 | 1.1 | 2 | 1.4 | 1 | 0.7 | 1 | 1.7 | 2 | 1.0 | 2 | 1.0 | 2 | 1.3 | 4 | 1.1 |
| | | Slightly Unacceptable | 2 | 4.2 | 4 | 4.3 | 6 | 4.3 | 2 | 1.3 | 2 | 3.4 | 4 | 1.9 | 4 | 2.0 | 6 | 4.0 | 10 | 2.9 |
| | | Neither | 2 | 4.2 | 7 | 7.6 | 9 | 6.4 | 19 | 12.6 | 11 | 19.0 | 30 | 14.4 | 21 | 10.6 | 18 | 12.0 | 39 | 11.2 |
| | | Slightly Acceptable | 3 | 6.3 | 12 | 13.0 | 15 | 10.7 | 24 | 15.9 | 11 | 19.0 | 35 | 16.7 | 27 | 13.6 | 23 | 15.3 | 50 | 14.3 |
| | | Acceptable | 18 | 37.5 | 25 | 27.2 | 43 | 30.7 | 76 | 50.3 | 26 | 44.8 | 102 | 48.8 | 94 | 47.2 | 51 | 34.0 | 145 | 41.5 |
| | | No response/opinion | 22 | 45.8 | 43 | 46.7 | 65 | 46.4 | 29 | 19.2 | 7 | 12.1 | 36 | 17.2 | 51 | 25.6 | 50 | 33.3 | 101 | 28.9 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20i: Please rate the acceptability of the SIGNAGE at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|------------------------------------|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Signage within the Recreation Area | NSRA | Unacceptable | 1 | 2.6 | 0 | 0.0 | 1 | 0.8 | 1 | 0.8 | 2 | 3.4 | 3 | 1.7 | 2 | 1.3 | 2 | 1.3 | 4 | 1.3 |
| | | Slightly Unacceptable | 0 | 0.0 | 3 | 3.3 | 3 | 2.3 | 7 | 5.8 | 2 | 3.4 | 9 | 5.0 | 7 | 4.4 | 5 | 3.3 | 12 | 3.9 |
| | | Neither | 1 | 2.6 | 10 | 10.9 | 11 | 8.5 | 12 | 9.9 | 9 | 15.5 | 21 | 11.7 | 13 | 8.2 | 19 | 12.7 | 32 | 10.4 |
| | | Slightly Acceptable | 2 | 5.3 | 9 | 9.8 | 11 | 8.5 | 24 | 19.8 | 11 | 19.0 | 35 | 19.6 | 26 | 16.4 | 20 | 13.3 | 46 | 14.9 |
| | | Acceptable | 29 | 76.3 | 60 | 65.2 | 89 | 68.5 | 68 | 56.2 | 33 | 56.9 | 101 | 56.4 | 97 | 61.0 | 93 | 62.0 | 190 | 61.5 |
| | | No response/opinion | 5 | 13.2 | 10 | 10.9 | 15 | 11.5 | 9 | 7.4 | 1 | 1.7 | 10 | 5.6 | 14 | 8.8 | 11 | 7.3 | 25 | 8.1 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Slightly Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Slightly Acceptable | 4 | 40.0 | closed | closed | 4 | 40.0 | 7 | 23.3 | closed | closed | 7 | 23.3 | 11 | 27.5 | closed | closed | 11 | 27.5 |
| | | Acceptable | 5 | 50.0 | closed | closed | 5 | 50.0 | 15 | 50.0 | closed | closed | 15 | 50.0 | 20 | 50.0 | closed | closed | 20 | 50.0 |
| | | No response/opinion | 1 | 10.0 | closed | closed | 1 | 10.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 1 | 2.1 | 0 | 0.0 | 1 | 0.7 | 2 | 1.3 | 2 | 3.4 | 4 | 1.9 | 3 | 1.5 | 2 | 1.3 | 5 | 1.4 |
| | | Slightly Unacceptable | 0 | 0.0 | 3 | 3.3 | 3 | 2.1 | 9 | 6.0 | 2 | 3.4 | 11 | 5.3 | 9 | 4.5 | 5 | 3.3 | 14 | 4.0 |
| | | Neither | 1 | 2.1 | 10 | 10.9 | 11 | 7.9 | 17 | 11.3 | 9 | 15.5 | 26 | 12.4 | 18 | 9.0 | 19 | 12.7 | 37 | 10.6 |
| | | Slightly Acceptable | 6 | 12.5 | 9 | 9.8 | 15 | 10.7 | 31 | 20.5 | 11 | 19.0 | 42 | 20.1 | 37 | 18.6 | 20 | 13.3 | 57 | 16.3 |
| | | Acceptable | 34 | 70.8 | 60 | 65.2 | 94 | 67.1 | 83 | 55.0 | 33 | 56.9 | 116 | 55.5 | 117 | 58.8 | 93 | 62.0 | 210 | 60.2 |
| | | No response/opinion | 6 | 12.5 | 10 | 10.9 | 16 | 11.4 | 9 | 6.0 | 1 | 1.7 | 10 | 4.8 | 15 | 7.5 | 11 | 7.3 | 26 | 7.4 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20j: Please rate the acceptability of the RECREATION VISITOR INFORMATION at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|--------------------------------|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Recreation Visitor Information | NSRA | Unacceptable | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.7 | 1 | 0.6 | 0 | 0.0 | 1 | 0.7 | 1 | 0.3 |
| | | Slightly Unacceptable | 0 | 0.0 | 5 | 5.4 | 5 | 3.8 | 3 | 2.5 | 2 | 3.4 | 5 | 2.8 | 3 | 1.9 | 7 | 4.7 | 10 | 3.2 |
| | | Neither | 2 | 5.3 | 10 | 10.9 | 12 | 9.2 | 20 | 16.5 | 12 | 20.7 | 32 | 17.9 | 22 | 13.8 | 22 | 14.7 | 44 | 14.2 |
| | | Slightly Acceptable | 0 | 0.0 | 14 | 15.2 | 14 | 10.8 | 13 | 10.7 | 10 | 17.2 | 23 | 12.8 | 13 | 8.2 | 24 | 16.0 | 37 | 12.0 |
| | | Acceptable | 31 | 81.6 | 33 | 35.9 | 64 | 49.2 | 75 | 62.0 | 29 | 50.0 | 104 | 58.1 | 106 | 66.7 | 62 | 41.3 | 168 | 54.4 |
| | | No response/opinion | 5 | 13.2 | 30 | 32.6 | 35 | 26.9 | 10 | 8.3 | 4 | 6.9 | 14 | 7.8 | 15 | 9.4 | 34 | 22.7 | 49 | 15.9 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Slightly Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Slightly Acceptable | 4 | 40.0 | closed | closed | 4 | 40.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 9 | 22.5 | closed | closed | 9 | 22.5 |
| | | Acceptable | 4 | 40.0 | closed | closed | 4 | 40.0 | 17 | 56.7 | closed | closed | 17 | 56.7 | 21 | 52.5 | closed | closed | 21 | 52.5 |
| | | No response/opinion | 2 | 20.0 | closed | closed | 2 | 20.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.7 | 1 | 1.7 | 2 | 1.0 | 1 | 0.5 | 1 | 0.7 | 2 | 0.6 |
| | | Slightly Unacceptable | 0 | 0.0 | 5 | 5.4 | 5 | 3.6 | 3 | 2.0 | 2 | 3.4 | 5 | 2.4 | 3 | 1.5 | 7 | 4.7 | 10 | 2.9 |
| | | Neither | 2 | 4.2 | 10 | 10.9 | 12 | 8.6 | 23 | 15.2 | 12 | 20.7 | 35 | 16.7 | 25 | 12.6 | 22 | 14.7 | 47 | 13.5 |
| | | Slightly Acceptable | 4 | 8.3 | 14 | 15.2 | 18 | 12.9 | 18 | 11.9 | 10 | 17.2 | 28 | 13.4 | 22 | 11.1 | 24 | 16.0 | 46 | 13.2 |
| | | Acceptable | 35 | 72.9 | 33 | 35.9 | 68 | 48.6 | 92 | 60.9 | 29 | 50.0 | 121 | 57.9 | 127 | 63.8 | 62 | 41.3 | 189 | 54.2 |
| | | No response/opinion | 7 | 14.6 | 30 | 32.6 | 37 | 26.4 | 14 | 9.3 | 4 | 6.9 | 18 | 8.6 | 21 | 10.6 | 34 | 22.7 | 55 | 15.8 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20k: Please rate the acceptability of the RESERVOIR WATER SURFACE ELEVATION INFORMATION at this recreation area today.

| Existing Facility | Recreation Area | Acceptability Rating | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|---|-----------------|-----------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Reservoir Water Surface Elevation Information | NSRA | Unacceptable | 1 | 2.6 | 5 | 5.4 | 6 | 4.6 | 2 | 1.7 | 2 | 3.4 | 4 | 2.2 | 3 | 1.9 | 7 | 4.7 | 10 | 3.2 |
| | | Slightly Unacceptable | 0 | 0.0 | 2 | 2.2 | 2 | 1.5 | 2 | 1.7 | 2 | 3.4 | 4 | 2.2 | 2 | 1.3 | 4 | 2.7 | 6 | 1.9 |
| | | Neither | 4 | 10.5 | 7 | 7.6 | 11 | 8.5 | 20 | 16.5 | 11 | 19.0 | 31 | 17.3 | 24 | 15.1 | 18 | 12.0 | 42 | 13.6 |
| | | Slightly Acceptable | 2 | 5.3 | 14 | 15.2 | 16 | 12.3 | 6 | 5.0 | 8 | 13.8 | 14 | 7.8 | 8 | 5.0 | 22 | 14.7 | 30 | 9.7 |
| | | Acceptable | 16 | 42.1 | 25 | 27.2 | 41 | 31.5 | 40 | 33.1 | 21 | 36.2 | 61 | 34.1 | 56 | 35.2 | 46 | 30.7 | 102 | 33.0 |
| | | No response/opinion | 15 | 39.5 | 39 | 42.4 | 54 | 41.5 | 51 | 42.1 | 14 | 24.1 | 65 | 36.3 | 66 | 41.5 | 53 | 35.3 | 119 | 38.5 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Slightly Unacceptable | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Neither | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Slightly Acceptable | 2 | 20.0 | closed | closed | 2 | 20.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | | Acceptable | 3 | 30.0 | closed | closed | 3 | 30.0 | 7 | 23.3 | closed | closed | 7 | 23.3 | 10 | 25.0 | closed | closed | 10 | 25.0 |
| | | No response/opinion | 5 | 50.0 | closed | closed | 5 | 50.0 | 14 | 46.7 | closed | closed | 14 | 46.7 | 19 | 47.5 | closed | closed | 19 | 47.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Unacceptable | 1 | 2.1 | 5 | 5.4 | 6 | 4.3 | 4 | 2.6 | 2 | 3.4 | 6 | 2.9 | 5 | 2.5 | 7 | 4.7 | 12 | 3.4 |
| | | Slightly Unacceptable | 0 | 0.0 | 2 | 2.2 | 2 | 1.4 | 3 | 2.0 | 2 | 3.4 | 5 | 2.4 | 3 | 1.5 | 4 | 2.7 | 7 | 2.0 |
| | | Neither | 4 | 8.3 | 7 | 7.6 | 11 | 7.9 | 22 | 14.6 | 11 | 19.0 | 33 | 15.8 | 26 | 13.1 | 18 | 12.0 | 44 | 12.6 |
| | | Slightly Acceptable | 4 | 8.3 | 14 | 15.2 | 18 | 12.9 | 10 | 6.6 | 8 | 13.8 | 18 | 8.6 | 14 | 7.0 | 22 | 14.7 | 36 | 10.3 |
| | | Acceptable | 19 | 39.6 | 25 | 27.2 | 44 | 31.4 | 47 | 31.1 | 21 | 36.2 | 68 | 32.5 | 66 | 33.2 | 46 | 30.7 | 112 | 32.1 |
| | | No response/opinion | 20 | 41.7 | 39 | 42.4 | 59 | 42.1 | 65 | 43.0 | 14 | 24.1 | 79 | 37.8 | 85 | 42.7 | 53 | 35.3 | 138 | 39.5 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 20l: AVERAGE visitor acceptability rating of the existing facilities on a 5-point scale [1=unacceptable; 5=acceptable].

| Existing Facility | Recreation Area | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|---|-----------------|------------------|-----------------|---------|--------------------|-----------------|---------|--------------|-----------------|---------|
| | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Campsites | NSRA | 4.6 | 4.9 | 4.8 | 4.7 | 4.6 | 4.7 | 4.7 | 4.7 | 4.7 |
| | SSRA | 4.4 | closed | 4.4 | 4.5 | closed | 4.5 | 4.5 | closed | 4.5 |
| | Total | 4.6 | 4.9 | 4.8 | 4.6 | 4.6 | 4.6 | 4.6 | 4.7 | 4.7 |
| Picnic Sites | NSRA | 4.7 | 4.5 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| | SSRA | 4.5 | closed | 4.5 | 3.8 | closed | 3.8 | 4.0 | closed | 4.0 |
| | Total | 4.7 | 4.5 | 4.6 | 4.4 | 4.6 | 4.5 | 4.5 | 4.6 | 4.5 |
| Restrooms | NSRA | 4.2 | 4.1 | 4.1 | 3.6 | 3.6 | 3.6 | 3.8 | 3.9 | 3.8 |
| | SSRA | 3.8 | closed | 3.8 | 3.0 | closed | 3.0 | 3.2 | closed | 3.2 |
| | Total | 4.1 | 4.1 | 4.1 | 3.5 | 3.6 | 3.5 | 3.6 | 3.9 | 3.7 |
| Potable Water | NSRA | 4.0 | 3.3 | 3.5 | 3.4 | 3.6 | 3.5 | 3.5 | 3.5 | 3.5 |
| | SSRA | 3.5 | closed | 3.5 | 2.5 | closed | 2.5 | 2.8 | closed | 2.8 |
| | Total | 3.8 | 3.3 | 3.5 | 3.2 | 3.6 | 3.3 | 3.3 | 3.5 | 3.4 |
| Parking Areas | NSRA | 4.6 | 4.8 | 4.8 | 4.6 | 4.6 | 4.6 | 4.6 | 4.7 | 4.7 |
| | SSRA | 4.7 | closed | 4.7 | 4.3 | closed | 4.3 | 4.4 | closed | 4.4 |
| | Total | 4.6 | 4.8 | 4.7 | 4.5 | 4.6 | 4.6 | 4.6 | 4.7 | 4.6 |
| Boat Ramp | NSRA | 4.6 | 4.4 | 4.5 | 4.5 | 4.4 | 4.5 | 4.5 | 4.4 | 4.5 |
| | SSRA | 4.6 | closed | 4.6 | 4.2 | closed | 4.2 | 4.3 | closed | 4.3 |
| | Total | 4.6 | 4.4 | 4.5 | 4.4 | 4.4 | 4.4 | 4.5 | 4.4 | 4.5 |
| Roads within Recreation Area | NSRA | 4.4 | 4.3 | 4.3 | 4.2 | 4.1 | 4.2 | 4.3 | 4.2 | 4.3 |
| | SSRA | 4.4 | closed | 4.4 | 4.3 | closed | 4.3 | 4.3 | closed | 4.3 |
| | Total | 4.4 | 4.3 | 4.3 | 4.2 | 4.1 | 4.2 | 4.3 | 4.2 | 4.3 |
| Foot Trails Around the Shoreline | NSRA | 4.3 | 4.1 | 4.2 | 4.4 | 4.2 | 4.3 | 4.4 | 4.2 | 4.3 |
| | SSRA | 4.6 | closed | 4.6 | 4.3 | closed | 4.3 | 4.3 | closed | 4.3 |
| | Total | 4.3 | 4.1 | 4.2 | 4.4 | 4.2 | 4.3 | 4.4 | 4.2 | 4.3 |
| Signage | NSRA | 4.8 | 4.5 | 4.6 | 4.3 | 4.2 | 4.3 | 4.4 | 4.4 | 4.4 |
| | SSRA | 4.6 | closed | 4.6 | 4.1 | closed | 4.1 | 4.2 | closed | 4.2 |
| | Total | 4.7 | 4.5 | 4.6 | 4.3 | 4.2 | 4.3 | 4.4 | 4.4 | 4.4 |
| Recreation Visitor Information | NSRA | 4.9 | 4.2 | 4.4 | 4.4 | 4.2 | 4.4 | 4.5 | 4.2 | 4.4 |
| | SSRA | 4.5 | closed | 4.5 | 4.4 | closed | 4.4 | 4.4 | closed | 4.4 |
| | Total | 4.8 | 4.2 | 4.4 | 4.4 | 4.2 | 4.4 | 4.5 | 4.2 | 4.4 |
| Reservoir Water Surface Elevation Information | NSRA | 4.4 | 4.0 | 4.1 | 4.1 | 4.0 | 4.1 | 4.2 | 4.0 | 4.1 |
| | SSRA | 4.6 | closed | 4.6 | 3.8 | closed | 3.8 | 4.0 | closed | 4.0 |
| | Total | 4.4 | 4.0 | 4.1 | 4.1 | 4.0 | 4.1 | 4.2 | 4.0 | 4.1 |

Question 21a1: Did/do you feel crowded at any of the following locations during your visit to this recreation area today?

| Recreation Area | Perceived Crowding Response (9-point Likert Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|--|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Not at all Crowded (1) | 11 | 28.9 | 23 | 25.0 | 34 | 26.2 | 52 | 43.0 | 30 | 51.7 | 82 | 45.8 | 63 | 39.6 | 53 | 35.3 | 116 | 37.5 |
| | Not at all Crowded (2) | 4 | 10.5 | 6 | 6.5 | 10 | 7.7 | 19 | 15.7 | 15 | 25.9 | 34 | 19.0 | 23 | 14.5 | 21 | 14.0 | 44 | 14.2 |
| | Slightly Crowded (3) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 12 | 9.9 | 4 | 6.9 | 16 | 8.9 | 12 | 7.5 | 4 | 2.7 | 16 | 5.2 |
| | Slightly Crowded (4) | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 9 | 7.4 | 3 | 5.2 | 12 | 6.7 | 9 | 5.7 | 4 | 2.7 | 13 | 4.2 |
| | Moderately Crowded (5) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 3.3 | 1 | 1.7 | 5 | 2.8 | 4 | 2.5 | 1 | 0.7 | 5 | 1.6 |
| | Moderately Crowded (6) | 1 | 2.6 | 0 | 0.0 | 1 | 0.8 | 2 | 1.7 | 2 | 3.4 | 4 | 2.2 | 3 | 1.9 | 2 | 1.3 | 5 | 1.6 |
| | Moderately Crowded (7) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 2.5 | 2 | 3.4 | 5 | 2.8 | 3 | 1.9 | 2 | 1.3 | 5 | 1.6 |
| | Extremely Crowded (8) | 1 | 2.6 | 0 | 0.0 | 1 | 0.8 | 2 | 1.7 | 1 | 1.7 | 3 | 1.7 | 3 | 1.9 | 1 | 0.7 | 4 | 1.3 |
| | Extremely Crowded (9) | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 1 | 0.8 | 0 | 0 | 1 | 0.6 | 1 | 0.6 | 0 | 0 | 1 | 0.3 |
| | No Opinion/Did Not Use | 21 | 55.3 | 62 | 67.4 | 83 | 63.8 | 17 | 14.0 | 0 | 0.0 | 17 | 9.5 | 38 | 23.9 | 62 | 41.3 | 100 | 32.4 |
| | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| SSRA | Not at all Crowded (1) | 2 | 20.0 | closed | closed | 2 | 20.0 | 19 | 63.3 | closed | closed | 19 | 63.3 | 21 | 52.5 | closed | closed | 21 | 52.5 |
| | Not at all Crowded (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Slightly Crowded (3) | 1 | 10.0 | closed | closed | 1 | 10.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | Slightly Crowded (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (5) | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | Moderately Crowded (6) | 1 | 10.0 | closed | closed | 1 | 10.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | Moderately Crowded (7) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Extremely Crowded (8) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Extremely Crowded (9) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | No Opinion/Did Not Use | 6 | 60.0 | closed | closed | 6 | 60.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 10 | 25.0 | closed | closed | 10 | 25.0 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| Total | Not at all Crowded (1) | 13 | 27.1 | 23 | 25.0 | 36 | 25.7 | 71 | 47.0 | 30 | 51.7 | 101 | 48.3 | 84 | 42.2 | 53 | 35.3 | 137 | 39.3 |
| | Not at all Crowded (2) | 4 | 8.3 | 6 | 6.5 | 10 | 7.1 | 19 | 12.6 | 15 | 25.9 | 34 | 16.3 | 23 | 11.6 | 21 | 14.0 | 44 | 12.6 |
| | Slightly Crowded (3) | 1 | 2.1 | 0 | 0.0 | 1 | 0.7 | 15 | 9.9 | 4 | 6.9 | 19 | 9.1 | 16 | 8.0 | 4 | 2.7 | 20 | 5.7 |
| | Slightly Crowded (4) | 0 | 0.0 | 1 | 1.1 | 1 | 0.7 | 10 | 6.6 | 3 | 5.2 | 13 | 6.2 | 10 | 5.0 | 4 | 2.7 | 14 | 4.0 |
| | Moderately Crowded (5) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 4.0 | 1 | 1.7 | 7 | 3.3 | 6 | 3.0 | 1 | 0.7 | 7 | 2.0 |
| | Moderately Crowded (6) | 2 | 4.2 | 0 | 0.0 | 2 | 1.4 | 3 | 2.0 | 2 | 3.4 | 5 | 2.4 | 5 | 2.5 | 2 | 1.3 | 7 | 2.0 |
| | Moderately Crowded (7) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 2.0 | 2 | 3.4 | 5 | 2.4 | 3 | 1.5 | 2 | 1.3 | 5 | 1.4 |
| | Extremely Crowded (8) | 1 | 2.1 | 0 | 0.0 | 1 | 0.7 | 2 | 1.3 | 1 | 1.7 | 3 | 1.4 | 3 | 1.5 | 1 | 0.7 | 4 | 1.1 |
| | Extremely Crowded (9) | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 1 | 0.7 | 0 | 0 | 1 | 0.5 | 1 | 0.5 | 0 | 0 | 1 | 0.3 |
| | No Opinion/Did Not Use | 27 | 56.3 | 62 | 67.4 | 89 | 63.6 | 21 | 13.9 | 0 | 0.0 | 21 | 10.0 | 48 | 24.1 | 62 | 41.3 | 110 | 31.5 |
| | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 21a2: Did/do you feel crowded at the PICNIC AREA during your visit to this recreation area today?

| Recreation Area | Perceived Crowding Response (9-point Likert Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Not at all Crowded (1) | 15 | 39.5 | 26 | 28.3 | 41 | 31.5 | 39 | 32.2 | 29 | 50.0 | 68 | 38.0 | 54 | 34.0 | 55 | 36.7 | 109 | 35.3 |
| | Not at all Crowded (2) | 4 | 10.5 | 6 | 6.5 | 10 | 7.7 | 15 | 12.4 | 11 | 19.0 | 26 | 14.5 | 19 | 11.9 | 17 | 11.3 | 36 | 11.7 |
| | Slightly Crowded (3) | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 4 | 3.3 | 2 | 3.4 | 6 | 3.4 | 4 | 2.5 | 3 | 2.0 | 7 | 2.3 |
| | Slightly Crowded (4) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 3.3 | 1 | 1.7 | 5 | 2.8 | 4 | 2.5 | 1 | 0.7 | 5 | 1.6 |
| | Moderately Crowded (5) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.7 | 1 | 0.6 | 0 | 0.0 | 1 | 0.7 | 1 | 0.3 |
| | Moderately Crowded (6) | 2 | 5.3 | 0 | 0.0 | 2 | 1.5 | 1 | 0.8 | 1 | 1.7 | 2 | 1.1 | 3 | 1.9 | 1 | 0.7 | 4 | 1.3 |
| | Moderately Crowded (7) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.7 | 1 | 0.6 | 0 | 0.0 | 1 | 0.7 | 1 | 0.3 |
| | Extremely Crowded (8) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.8 | 0 | 0.0 | 1 | 0.6 | 1 | 0.6 | 0 | 0.0 | 1 | 0.3 |
| | Extremely Crowded (9) | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 3 | 2.5 | 0 | 0 | 3 | 1.7 | 3 | 1.9 | 0 | 0 | 3 | 1.0 |
| | No Opinion/Did Not Use | 17 | 44.7 | 59 | 64.1 | 76 | 58.5 | 54 | 44.6 | 12 | 20.7 | 66 | 36.9 | 71 | 44.7 | 71 | 47.3 | 142 | 46.0 |
| | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| SSRA | Not at all Crowded (1) | 4 | 40.0 | closed | closed | 4 | 40.0 | 10 | 33.3 | closed | closed | 10 | 33.3 | 14 | 35.0 | closed | closed | 14 | 35.0 |
| | Not at all Crowded (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Slightly Crowded (3) | 1 | 10.0 | closed | closed | 1 | 10.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | Slightly Crowded (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | Moderately Crowded (5) | 1 | 10.0 | closed | closed | 1 | 10.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (6) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Moderately Crowded (7) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Extremely Crowded (8) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Extremely Crowded (9) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | No Opinion/Did Not Use | 4 | 40.0 | closed | closed | 4 | 40.0 | 16 | 53.3 | closed | closed | 16 | 53.3 | 20 | 50.0 | closed | closed | 20 | 50.0 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| Total | Not at all Crowded (1) | 19 | 39.6 | 26 | 28.3 | 45 | 32.1 | 49 | 32.5 | 29 | 50.0 | 78 | 37.3 | 68 | 34.2 | 55 | 36.7 | 123 | 35.2 |
| | Not at all Crowded (2) | 4 | 8.3 | 6 | 6.5 | 10 | 7.1 | 15 | 9.9 | 11 | 19.0 | 26 | 12.4 | 19 | 9.5 | 17 | 11.3 | 36 | 10.3 |
| | Slightly Crowded (3) | 1 | 2.1 | 1 | 1.1 | 2 | 1.4 | 6 | 4.0 | 2 | 3.4 | 8 | 3.8 | 7 | 3.5 | 3 | 2.0 | 10 | 2.9 |
| | Slightly Crowded (4) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 4.0 | 1 | 1.7 | 7 | 3.3 | 6 | 3.0 | 1 | 0.7 | 7 | 2.0 |
| | Moderately Crowded (5) | 1 | 2.1 | 0 | 0.0 | 1 | 0.7 | 0 | 0.0 | 1 | 1.7 | 1 | 0.5 | 1 | 0.5 | 1 | 0.7 | 2 | 0.6 |
| | Moderately Crowded (6) | 2 | 4.2 | 0 | 0.0 | 2 | 1.4 | 1 | 0.7 | 1 | 1.7 | 2 | 1.0 | 3 | 1.5 | 1 | 0.7 | 4 | 1.1 |
| | Moderately Crowded (7) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.7 | 1 | 0.5 | 0 | 0.0 | 1 | 0.7 | 1 | 0.3 |
| | Extremely Crowded (8) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.7 | 0 | 0.0 | 1 | 0.5 | 1 | 0.5 | 0 | 0.0 | 1 | 0.3 |
| | Extremely Crowded (9) | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 3 | 2.0 | 0 | 0 | 3 | 1.4 | 3 | 1.5 | 0 | 0 | 3 | 0.9 |
| | No Opinion/Did Not Use | 21 | 43.8 | 59 | 64.1 | 80 | 57.1 | 70 | 46.4 | 12 | 20.7 | 82 | 39.2 | 91 | 45.7 | 71 | 47.3 | 162 | 46.4 |
| | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 21a3: Did/do you feel crowded at the SWIM BEACH during your visit to this recreation area today?

| Recreation Area | Perceived Crowding Response (9-point Likert Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Not at all Crowded (1) | 18 | 47.4 | 26 | 28.3 | 44 | 33.8 | 48 | 39.7 | 24 | 41.4 | 72 | 40.2 | 66 | 41.5 | 50 | 33.3 | 116 | 37.5 |
| | Not at all Crowded (2) | 5 | 13.2 | 8 | 8.7 | 13 | 10.0 | 29 | 24.0 | 11 | 19.0 | 40 | 22.3 | 34 | 21.4 | 19 | 12.7 | 53 | 17.2 |
| | Slightly Crowded (3) | 1 | 2.6 | 0 | 0.0 | 1 | 0.8 | 8 | 6.6 | 2 | 3.4 | 10 | 5.6 | 9 | 5.7 | 2 | 1.3 | 11 | 3.6 |
| | Slightly Crowded (4) | 1 | 2.6 | 0 | 0.0 | 1 | 0.8 | 5 | 4.1 | 0 | 0.0 | 5 | 2.8 | 6 | 3.8 | 0 | 0.0 | 6 | 1.9 |
| | Moderately Crowded (5) | 5 | 13.2 | 0 | 0.0 | 5 | 3.8 | 5 | 4.1 | 1 | 1.7 | 6 | 3.4 | 10 | 6.3 | 1 | 0.7 | 11 | 3.6 |
| | Moderately Crowded (6) | 1 | 2.6 | 0 | 0.0 | 1 | 0.8 | 3 | 2.5 | 1 | 1.7 | 4 | 2.2 | 4 | 2.5 | 1 | 0.7 | 5 | 1.6 |
| | Moderately Crowded (7) | 1 | 2.6 | 0 | 0.0 | 1 | 0.8 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.6 | 0 | 0.0 | 1 | 0.3 |
| | Extremely Crowded (8) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.7 | 1 | 0.6 | 0 | 0.0 | 1 | 0.7 | 1 | 0.3 |
| | Extremely Crowded (9) | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 2 | 1.7 | 0 | 0 | 2 | 1.1 | 2 | 1.3 | 0 | 0 | 2 | 0.6 |
| | No Opinion/Did Not Use | 6 | 15.8 | 58 | 63.0 | 64 | 49.2 | 21 | 17.4 | 18 | 31.0 | 39 | 21.8 | 27 | 17.0 | 76 | 50.7 | 103 | 33.3 |
| | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| SSRA | Not at all Crowded (1) | 4 | 40.0 | closed | closed | 4 | 40.0 | 17 | 56.7 | closed | closed | 17 | 56.7 | 21 | 52.5 | closed | closed | 21 | 52.5 |
| | Not at all Crowded (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Slightly Crowded (3) | 1 | 10.0 | closed | closed | 1 | 10.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | Slightly Crowded (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (5) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Moderately Crowded (6) | 1 | 10.0 | closed | closed | 1 | 10.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (7) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Extremely Crowded (8) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Extremely Crowded (9) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | No Opinion/Did Not Use | 4 | 40.0 | closed | closed | 4 | 40.0 | 9 | 30.0 | closed | closed | 9 | 30.0 | 13 | 32.5 | closed | closed | 13 | 32.5 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| Total | Not at all Crowded (1) | 22 | 45.8 | 26 | 28.3 | 48 | 34.3 | 65 | 43.0 | 24 | 41.4 | 89 | 42.6 | 87 | 43.7 | 50 | 33.3 | 137 | 39.3 |
| | Not at all Crowded (2) | 5 | 10.4 | 8 | 8.7 | 13 | 9.3 | 30 | 19.9 | 11 | 19.0 | 41 | 19.6 | 35 | 17.6 | 19 | 12.7 | 54 | 15.5 |
| | Slightly Crowded (3) | 2 | 4.2 | 0 | 0.0 | 2 | 1.4 | 9 | 6.0 | 2 | 3.4 | 11 | 5.3 | 11 | 5.5 | 2 | 1.3 | 13 | 3.7 |
| | Slightly Crowded (4) | 1 | 2.1 | 0 | 0.0 | 1 | 0.7 | 6 | 4.0 | 0 | 0.0 | 6 | 2.9 | 7 | 3.5 | 0 | 0.0 | 7 | 2.0 |
| | Moderately Crowded (5) | 5 | 10.4 | 0 | 0.0 | 5 | 3.6 | 5 | 3.3 | 1 | 1.7 | 6 | 2.9 | 10 | 5.0 | 1 | 0.7 | 11 | 3.2 |
| | Moderately Crowded (6) | 2 | 4.2 | 0 | 0.0 | 2 | 1.4 | 3 | 2.0 | 1 | 1.7 | 4 | 1.9 | 5 | 2.5 | 1 | 0.7 | 6 | 1.7 |
| | Moderately Crowded (7) | 1 | 2.1 | 0 | 0.0 | 1 | 0.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.5 | 0 | 0.0 | 1 | 0.3 |
| | Extremely Crowded (8) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.7 | 1 | 1.7 | 2 | 1.0 | 1 | 0.5 | 1 | 0.7 | 2 | 0.6 |
| | Extremely Crowded (9) | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 2 | 1.3 | 0 | 0 | 2 | 1.0 | 2 | 1.0 | 0 | 0 | 2 | 0.6 |
| | No Opinion/Did Not Use | 10 | 20.8 | 58 | 63.0 | 68 | 48.6 | 30 | 19.9 | 18 | 31.0 | 48 | 23.0 | 40 | 20.1 | 76 | 50.7 | 116 | 33.2 |
| | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 21a4: Did/do you feel crowded at the BOAT LAUNCH during your visit to this recreation area today?

| Recreation Area | Perceived Crowding Response (9-point Likert Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Not at all Crowded (1) | 15 | 39.5 | 49 | 53.3 | 64 | 49.2 | 39 | 32.2 | 19 | 32.8 | 58 | 32.4 | 54 | 34.0 | 68 | 45.3 | 122 | 39.5 |
| | Not at all Crowded (2) | 4 | 10.5 | 10 | 10.9 | 14 | 10.8 | 12 | 9.9 | 8 | 13.8 | 20 | 11.2 | 16 | 10.1 | 18 | 12.0 | 34 | 11.0 |
| | Slightly Crowded (3) | 2 | 5.3 | 10 | 10.9 | 12 | 9.2 | 9 | 7.4 | 1 | 1.7 | 10 | 5.6 | 11 | 6.9 | 11 | 7.3 | 22 | 7.1 |
| | Slightly Crowded (4) | 4 | 10.5 | 0 | 0.0 | 4 | 3.1 | 3 | 2.5 | 2 | 3.4 | 5 | 2.8 | 7 | 4.4 | 2 | 1.3 | 9 | 2.9 |
| | Moderately Crowded (5) | 1 | 2.6 | 2 | 2.2 | 3 | 2.3 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.6 | 2 | 1.3 | 3 | 1.0 |
| | Moderately Crowded (6) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.8 | 1 | 1.7 | 2 | 1.1 | 1 | 0.6 | 1 | 0.7 | 2 | 0.6 |
| | Moderately Crowded (7) | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 2 | 1.7 | 0 | 0.0 | 2 | 1.1 | 2 | 1.3 | 1 | 0.7 | 3 | 1.0 |
| | Extremely Crowded (8) | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.7 | 1 | 0.3 |
| | Extremely Crowded (9) | 0 | 0.0 | 2 | 0.0217 | 2 | 1.5 | 0 | 0.0 | 1 | 0.0172 | 1 | 0.6 | 0 | 0.0 | 3 | 0.02 | 3 | 1.0 |
| | No Opinion/Did Not Use | 12 | 31.6 | 17 | 18.5 | 29 | 22.3 | 55 | 45.5 | 26 | 44.8 | 81 | 45.3 | 67 | 42.1 | 43 | 28.7 | 110 | 35.6 |
| | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| SSRA | Not at all Crowded (1) | 4 | 40.0 | closed | closed | 4 | 40.0 | 15 | 50.0 | closed | closed | 15 | 50.0 | 19 | 47.5 | closed | closed | 19 | 47.5 |
| | Not at all Crowded (2) | 1 | 10.0 | closed | closed | 1 | 10.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | Slightly Crowded (3) | 1 | 10.0 | closed | closed | 1 | 10.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | Slightly Crowded (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (5) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (6) | 1 | 10.0 | closed | closed | 1 | 10.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (7) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Extremely Crowded (8) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Extremely Crowded (9) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | No Opinion/Did Not Use | 3 | 30.0 | closed | closed | 3 | 30.0 | 10 | 33.3 | closed | closed | 10 | 33.3 | 13 | 32.5 | closed | closed | 13 | 32.5 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| Total | Not at all Crowded (1) | 19 | 39.6 | 49 | 53.3 | 68 | 48.6 | 54 | 35.8 | 19 | 32.8 | 73 | 34.9 | 73 | 36.7 | 68 | 45.3 | 141 | 40.4 |
| | Not at all Crowded (2) | 5 | 10.4 | 10 | 10.9 | 15 | 10.7 | 13 | 8.6 | 8 | 13.8 | 21 | 10.0 | 18 | 9.0 | 18 | 12.0 | 36 | 10.3 |
| | Slightly Crowded (3) | 3 | 6.3 | 10 | 10.9 | 13 | 9.3 | 11 | 7.3 | 1 | 1.7 | 12 | 5.7 | 14 | 7.0 | 11 | 7.3 | 25 | 7.2 |
| | Slightly Crowded (4) | 4 | 8.3 | 0 | 0.0 | 4 | 2.9 | 4 | 2.6 | 2 | 3.4 | 6 | 2.9 | 8 | 4.0 | 2 | 1.3 | 10 | 2.9 |
| | Moderately Crowded (5) | 1 | 2.1 | 2 | 2.2 | 3 | 2.1 | 1 | 0.7 | 0 | 0.0 | 1 | 0.5 | 2 | 1.0 | 2 | 1.3 | 4 | 1.1 |
| | Moderately Crowded (6) | 1 | 2.1 | 0 | 0.0 | 1 | 0.7 | 1 | 0.7 | 1 | 1.7 | 2 | 1.0 | 2 | 1.0 | 1 | 0.7 | 3 | 0.9 |
| | Moderately Crowded (7) | 0 | 0.0 | 1 | 1.1 | 1 | 0.7 | 2 | 1.3 | 0 | 0.0 | 2 | 1.0 | 2 | 1.0 | 1 | 0.7 | 3 | 0.9 |
| | Extremely Crowded (8) | 0 | 0.0 | 1 | 1.1 | 1 | 0.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.7 | 1 | 0.3 |
| | Extremely Crowded (9) | 0 | 0.0 | 2 | 0.0217 | 2 | 1.4 | 0 | 0.0 | 1 | 0.0172 | 1 | 0.5 | 0 | 0.0 | 3 | 0.02 | 3 | 0.9 |
| | No Opinion/Did Not Use | 15 | 31.3 | 17 | 18.5 | 32 | 22.9 | 65 | 43.0 | 26 | 44.8 | 91 | 43.5 | 80 | 40.2 | 43 | 28.7 | 123 | 35.2 |
| | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 21a5: Did/do you feel crowded at the DISPERSED USE AREA during your visit to this recreation area today?

| Recreation Area | Perceived Crowding Response (9-point Likert Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|--|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Not at all Crowded (1) | 19 | 50.0 | 32 | 34.8 | 51 | 39.2 | 57 | 47.1 | 27 | 46.6 | 84 | 46.9 | 76 | 47.8 | 59 | 39.3 | 135 | 43.7 |
| | Not at all Crowded (2) | 3 | 7.9 | 9 | 9.8 | 12 | 9.2 | 20 | 16.5 | 14 | 24.1 | 34 | 19.0 | 23 | 14.5 | 23 | 15.3 | 46 | 14.9 |
| | Slightly Crowded (3) | 2 | 5.3 | 2 | 2.2 | 4 | 3.1 | 7 | 5.8 | 2 | 3.4 | 9 | 5.0 | 9 | 5.7 | 4 | 2.7 | 13 | 4.2 |
| | Slightly Crowded (4) | 0 | 0.0 | 2 | 2.2 | 2 | 1.5 | 7 | 5.8 | 0 | 0.0 | 7 | 3.9 | 7 | 4.4 | 2 | 1.3 | 9 | 2.9 |
| | Moderately Crowded (5) | 2 | 5.3 | 1 | 1.1 | 3 | 2.3 | 0 | 0.0 | 1 | 1.7 | 1 | 0.6 | 2 | 1.3 | 2 | 1.3 | 4 | 1.3 |
| | Moderately Crowded (6) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 2.5 | 0 | 0.0 | 3 | 1.7 | 3 | 1.9 | 0 | 0.0 | 3 | 1.0 |
| | Moderately Crowded (7) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 3.3 | 1 | 1.7 | 5 | 2.8 | 4 | 2.5 | 1 | 0.7 | 5 | 1.6 |
| | Extremely Crowded (8) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.7 | 1 | 0.6 | 0 | 0.0 | 1 | 0.7 | 1 | 0.3 |
| | Extremely Crowded (9) | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| | No Opinion/Did Not Use | 12 | 31.6 | 46 | 50.0 | 58 | 44.6 | 23 | 19.0 | 12 | 20.7 | 35 | 19.6 | 35 | 22.0 | 58 | 38.7 | 93 | 30.1 |
| | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| SSRA | Not at all Crowded (1) | 6 | 60.0 | closed | closed | 6 | 60.0 | 20 | 66.7 | closed | closed | 20 | 66.7 | 26 | 65.0 | closed | closed | 26 | 65.0 |
| | Not at all Crowded (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Slightly Crowded (3) | 1 | 10.0 | closed | closed | 1 | 10.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | Slightly Crowded (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | Moderately Crowded (5) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (6) | 1 | 10.0 | closed | closed | 1 | 10.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (7) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Extremely Crowded (8) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Extremely Crowded (9) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | No Opinion/Did Not Use | 2 | 20.0 | closed | closed | 2 | 20.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| Total | Not at all Crowded (1) | 25 | 52.1 | 32 | 34.8 | 57 | 40.7 | 77 | 51.0 | 27 | 46.6 | 104 | 49.8 | 102 | 51.3 | 59 | 39.3 | 161 | 46.1 |
| | Not at all Crowded (2) | 3 | 6.3 | 9 | 9.8 | 12 | 8.6 | 20 | 13.2 | 14 | 24.1 | 34 | 16.3 | 23 | 11.6 | 23 | 15.3 | 46 | 13.2 |
| | Slightly Crowded (3) | 3 | 6.3 | 2 | 2.2 | 5 | 3.6 | 9 | 6.0 | 2 | 3.4 | 11 | 5.3 | 12 | 6.0 | 4 | 2.7 | 16 | 4.6 |
| | Slightly Crowded (4) | 0 | 0.0 | 2 | 2.2 | 2 | 1.4 | 9 | 6.0 | 0 | 0.0 | 9 | 4.3 | 9 | 4.5 | 2 | 1.3 | 11 | 3.2 |
| | Moderately Crowded (5) | 2 | 4.2 | 1 | 1.1 | 3 | 2.1 | 1 | 0.7 | 1 | 1.7 | 2 | 1.0 | 3 | 1.5 | 2 | 1.3 | 5 | 1.4 |
| | Moderately Crowded (6) | 1 | 2.1 | 0 | 0.0 | 1 | 0.7 | 3 | 2.0 | 0 | 0.0 | 3 | 1.4 | 4 | 2.0 | 0 | 0.0 | 4 | 1.1 |
| | Moderately Crowded (7) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 3.3 | 1 | 1.7 | 6 | 2.9 | 5 | 2.5 | 1 | 0.7 | 6 | 1.7 |
| | Extremely Crowded (8) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.7 | 1 | 0.5 | 0 | 0.0 | 1 | 0.7 | 1 | 0.3 |
| | Extremely Crowded (9) | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| | No Opinion/Did Not Use | 14 | 29.2 | 46 | 50.0 | 60 | 42.9 | 27 | 17.9 | 12 | 20.7 | 39 | 18.7 | 41 | 20.6 | 58 | 38.7 | 99 | 28.4 |
| | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 21a6: Did/do you feel crowded at the WATER SURFACE during your visit to this recreation area today?

| Recreation Area | Perceived Crowding Response (9-point Likert Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Not at all Crowded (1) | 23 | 60.5 | 57 | 62.0 | 80 | 61.5 | 59 | 48.8 | 28 | 48.3 | 87 | 48.6 | 82 | 51.6 | 85 | 56.7 | 167 | 54.0 |
| | Not at all Crowded (2) | 5 | 13.2 | 15 | 16.3 | 20 | 15.4 | 20 | 16.5 | 11 | 19.0 | 31 | 17.3 | 25 | 15.7 | 26 | 17.3 | 51 | 16.5 |
| | Slightly Crowded (3) | 0 | 0.0 | 3 | 3.3 | 3 | 2.3 | 13 | 10.7 | 3 | 5.2 | 16 | 8.9 | 13 | 8.2 | 6 | 4.0 | 19 | 6.1 |
| | Slightly Crowded (4) | 2 | 5.3 | 3 | 3.3 | 5 | 3.8 | 7 | 5.8 | 3 | 5.2 | 10 | 5.6 | 9 | 5.7 | 6 | 4.0 | 15 | 4.9 |
| | Moderately Crowded (5) | 2 | 5.3 | 2 | 2.2 | 4 | 3.1 | 4 | 3.3 | 0 | 0.0 | 4 | 2.2 | 6 | 3.8 | 2 | 1.3 | 8 | 2.6 |
| | Moderately Crowded (6) | 5 | 13.2 | 4 | 4.3 | 9 | 6.9 | 2 | 1.7 | 0 | 0.0 | 2 | 1.1 | 7 | 4.4 | 4 | 2.7 | 11 | 3.6 |
| | Moderately Crowded (7) | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 0 | 0.0 | 1 | 1.7 | 1 | 0.6 | 0 | 0.0 | 2 | 1.3 | 2 | 0.6 |
| | Extremely Crowded (8) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 1.7 | 0 | 0.0 | 2 | 1.1 | 2 | 1.3 | 0 | 0.0 | 2 | 0.6 |
| | Extremely Crowded (9) | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 1 | 0.8 | 2 | 0.0345 | 3 | 1.7 | 1 | 0.6 | 2 | 0.0133 | 3 | 1.0 |
| | No Opinion/Did Not Use | 1 | 2.6 | 7 | 7.6 | 8 | 6.2 | 13 | 10.7 | 10 | 17.2 | 23 | 12.8 | 14 | 8.8 | 17 | 11.3 | 31 | 10.0 |
| | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| SSRA | Not at all Crowded (1) | 7 | 70.0 | closed | closed | 7 | 70.0 | 20 | 66.7 | closed | closed | 20 | 66.7 | 27 | 67.5 | closed | closed | 27 | 67.5 |
| | Not at all Crowded (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Slightly Crowded (3) | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | Slightly Crowded (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (5) | 1 | 10.0 | closed | closed | 1 | 10.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | Moderately Crowded (6) | 1 | 10.0 | closed | closed | 1 | 10.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | Moderately Crowded (7) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Extremely Crowded (8) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Extremely Crowded (9) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | No Opinion/Did Not Use | 1 | 10.0 | closed | closed | 1 | 10.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| Total | Not at all Crowded (1) | 30 | 62.5 | 57 | 62.0 | 87 | 62.1 | 79 | 52.3 | 28 | 48.3 | 107 | 51.2 | 109 | 54.8 | 85 | 56.7 | 194 | 55.6 |
| | Not at all Crowded (2) | 5 | 10.4 | 15 | 16.3 | 20 | 14.3 | 21 | 13.9 | 11 | 19.0 | 32 | 15.3 | 26 | 13.1 | 26 | 17.3 | 52 | 14.9 |
| | Slightly Crowded (3) | 0 | 0.0 | 3 | 3.3 | 3 | 2.1 | 16 | 10.6 | 3 | 5.2 | 19 | 9.1 | 16 | 8.0 | 6 | 4.0 | 22 | 6.3 |
| | Slightly Crowded (4) | 2 | 4.2 | 3 | 3.3 | 5 | 3.6 | 8 | 5.3 | 3 | 5.2 | 11 | 5.3 | 10 | 5.0 | 6 | 4.0 | 16 | 4.6 |
| | Moderately Crowded (5) | 3 | 6.3 | 2 | 2.2 | 5 | 3.6 | 5 | 3.3 | 0 | 0.0 | 5 | 2.4 | 8 | 4.0 | 2 | 1.3 | 10 | 2.9 |
| | Moderately Crowded (6) | 6 | 12.5 | 4 | 4.3 | 10 | 7.1 | 2 | 1.3 | 0 | 0.0 | 2 | 1.0 | 8 | 4.0 | 4 | 2.7 | 12 | 3.4 |
| | Moderately Crowded (7) | 0 | 0.0 | 1 | 1.1 | 1 | 0.7 | 0 | 0.0 | 1 | 1.7 | 1 | 0.5 | 0 | 0.0 | 2 | 1.3 | 2 | 0.6 |
| | Extremely Crowded (8) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 1.3 | 0 | 0.0 | 2 | 1.0 | 2 | 1.0 | 0 | 0.0 | 2 | 0.6 |
| | Extremely Crowded (9) | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 2 | 1.3 | 2 | 0.0345 | 4 | 1.9 | 2 | 1.0 | 2 | 0.0133 | 4 | 1.1 |
| | No Opinion/Did Not Use | 2 | 4.2 | 7 | 7.6 | 9 | 6.4 | 16 | 10.6 | 10 | 17.2 | 26 | 12.4 | 18 | 9.0 | 17 | 11.3 | 35 | 10.0 |
| | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 21b: If you indicated some level of crowding, did you modify your recreation plans because of the crowding?

| Recreation Area | Perceived Crowding Response (9-point Likert Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Yes | 2 | 5.3 | 4 | 4.3 | 6 | 4.6 | 9 | 7.4 | 5 | 8.6 | 14 | 7.8 | 11 | 6.9 | 9 | 6.0 | 20 | 6.5 |
| | No | 15 | 39.5 | 15 | 16.3 | 30 | 23.1 | 26 | 21.5 | 20 | 34.5 | 46 | 25.7 | 41 | 25.8 | 35 | 23.3 | 76 | 24.6 |
| | Did not feel crowded | 21 | 55.3 | 68 | 73.9 | 89 | 68.5 | 85 | 70.2 | 33 | 56.9 | 118 | 65.9 | 106 | 66.7 | 101 | 67.3 | 207 | 67.0 |
| | No response | 0 | 0.0 | 5 | 5.4 | 5 | 3.8 | 1 | 0.8 | 0 | 0.0 | 1 | 0.6 | 1 | 0.6 | 5 | 3.3 | 6 | 1.9 |
| | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| SSRA | Yes | 1 | 10.0 | closed | closed | 1 | 10.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | No | 3 | 30.0 | closed | closed | 3 | 30.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | Did not feel crowded | 6 | 60.0 | closed | closed | 6 | 60.0 | 27 | 90.0 | closed | closed | 27 | 90.0 | 33 | 82.5 | closed | closed | 33 | 82.5 |
| | No response | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| Overall | Yes | 3 | 6.3 | 4 | 4.3 | 7 | 5.0 | 11 | 7.3 | 5 | 8.6 | 16 | 7.7 | 14 | 7.0 | 9 | 6.0 | 23 | 6.6 |
| | No | 18 | 37.5 | 15 | 16.3 | 33 | 23.6 | 27 | 17.9 | 20 | 34.5 | 47 | 22.5 | 45 | 22.6 | 35 | 23.3 | 80 | 22.9 |
| | Did not feel crowded | 27 | 56.3 | 68 | 73.9 | 95 | 67.9 | 112 | 74.2 | 33 | 56.9 | 145 | 69.4 | 139 | 69.8 | 101 | 67.3 | 240 | 68.8 |
| | No response | 0 | 0.0 | 5 | 5.4 | 5 | 3.6 | 1 | 0.7 | 0 | 0.0 | 1 | 0.5 | 1 | 0.5 | 5 | 3.3 | 6 | 1.7 |
| | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 21c: If you felt crowded, how did you modify your plans?

| Recreation Area | Perceived Crowding Response (9-point Likert Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| NSRA | Moved to a new location | 1 | 4.3 | 2 | 2.6 | 3 | 3.0 | 3 | 3.2 | 3 | 7.9 | 6 | 4.5 | 4 | 3.4 | 5 | 4.3 | 9 | 3.8 |
| | Changed the time of day | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 1 | 1.1 | 0 | 0 | 1 | 0.8 | 1 | 0.8 | 0 | 0 | 1 | 0.4 |
| | Changed your activity | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 2.1 | 1 | 2.6 | 3 | 2.3 | 2 | 1.7 | 1 | 0.9 | 3 | 1.3 |
| | Chose not to recreate | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 1 | 1.1 | 0 | 0 | 1 | 0.8 | 1 | 0.8 | 0 | 0 | 1 | 0.4 |
| | Did nothing | 0 | 0.0 | 2 | 2.6 | 2 | 2.0 | 1 | 1.1 | 1 | 2.6 | 2 | 1.5 | 1 | 0.8 | 3 | 2.6 | 4 | 1.7 |
| | Other | 1 | 4.3 | 1 | 1.3 | 2 | 2.0 | 1 | 1.1 | 0 | 0.0 | 1 | 0.8 | 2 | 1.7 | 1 | 0.9 | 3 | 1.3 |
| | Did Not Feel Crowded | 21 | 91.3 | 68 | 87.2 | 89 | 88.1 | 85 | 89.5 | 33 | 86.8 | 118 | 88.7 | 106 | 89.8 | 101 | 87.1 | 207 | 88.5 |
| | No response | 0 | 0.0 | 5 | 6.4 | 5 | 5.0 | 1 | 1.1 | 0 | 0.0 | 1 | 0.8 | 1 | 0.8 | 5 | 4.3 | 6 | 2.6 |
| | Total | 23 | 100.0 | 78 | 100.0 | 101 | 100.0 | 95 | 100.0 | 38 | 100.0 | 133 | 100.0 | 118 | 100.0 | 116 | 100.0 | 234 | 100.0 |
| SSRA | Moved to a new location | 1 | 14.3 | closed | closed | 1 | 14.3 | 0 | 0.0 | closed | closed | 2 | 6.9 | 3 | 8.3 | closed | closed | 3 | 8.3 |
| | Changed the time of day | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Changed your activity | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Chose not to recreate | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Did nothing | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Other | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Did Not Feel Crowded | 6 | 85.7 | closed | closed | 6 | 85.7 | 27 | 93.1 | closed | closed | 27 | 93.1 | 33 | 91.7 | closed | closed | 33 | 91.7 |
| | No response | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | Total | 7 | 100.0 | closed | closed | 7 | 100.0 | 29 | 100.0 | closed | closed | 29 | 100.0 | 36 | 100.0 | closed | closed | 36 | 100.0 |
| Total | Moved to a new location | 2 | 6.7 | 2 | 2.6 | 4 | 3.7 | 5 | 4.0 | 3 | 7.9 | 8 | 4.9 | 7 | 4.5 | 5 | 4.3 | 12 | 4.4 |
| | Changed the time of day | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 1 | 0.8 | 0 | 0 | 1 | 0.6 | 1 | 0.6 | 0 | 0 | 1 | 0.4 |
| | Changed your activity | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 1.6 | 1 | 2.6 | 3 | 1.9 | 2 | 1.3 | 1 | 0.9 | 3 | 1.1 |
| | Chose not to recreate | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 1 | 0.8 | 0 | 0 | 1 | 0.6 | 1 | 0.6 | 0 | 0 | 1 | 0.4 |
| | Did nothing | 0 | 0.0 | 2 | 2.6 | 2 | 1.9 | 1 | 0.8 | 1 | 2.6 | 2 | 1.2 | 1 | 0.6 | 3 | 2.6 | 4 | 1.5 |
| | Other | 1 | 3.3 | 1 | 1.3 | 2 | 1.9 | 1 | 0.8 | 0 | 0.0 | 1 | 0.6 | 2 | 1.3 | 1 | 0.9 | 3 | 1.1 |
| | Did Not Feel Crowded | 27 | 90.0 | 68 | 87.2 | 95 | 88.0 | 112 | 90.3 | 33 | 86.8 | 145 | 89.5 | 139 | 90.3 | 101 | 87.1 | 240 | 88.9 |
| | No response | 0 | 0.0 | 5 | 6.4 | 5 | 4.6 | 1 | 0.8 | 0 | 0.0 | 1 | 0.6 | 1 | 0.6 | 5 | 4.3 | 6 | 2.2 |
| | Total | 30 | 100.0 | 78 | 100.0 | 108 | 100.0 | 124 | 100.0 | 38 | 100.0 | 162 | 100.0 | 154 | 100.0 | 116 | 100.0 | 270 | 100.0 |

Question 22a: Are there any barriers that prevent you or a member of your group from participating in any recreation activities at this recreation area?

| Response | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|-------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|--------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Yes | NSRA | Number | 0 | 4 | 4 | 2 | 3 | 5 | 2 | 7 | 9 |
| | | Percent | 0.0 | 4.3 | 3.1 | 1.7 | 5.2 | 2.8 | 1.3 | 4.7 | 2.9 |
| | SSRA | Number | 1 | closed | 1 | 0 | closed | 0 | 1 | closed | 1 |
| | | Percent | 10.0 | closed | 10.0 | 0.0 | closed | 0.0 | 2.5 | closed | 2.5 |
| | Total | Number | 1 | 4 | 5 | 2 | 3 | 5 | 3 | 7 | 10 |
| | | Percent | 2.1 | 4.3 | 3.6 | 1.3 | 5.2 | 2.4 | 1.5 | 4.7 | 2.9 |
| No | NSRA | Number | 37 | 88 | 125 | 117 | 55 | 172 | 154 | 143 | 297 |
| | | Percent | 97.4 | 95.7 | 96.2 | 96.7 | 94.8 | 96.1 | 96.9 | 95.3 | 96.1 |
| | SSRA | Number | 9 | closed | 9 | 30 | closed | 30 | 39 | closed | 39 |
| | | Percent | 90.0 | closed | 90.0 | 100.0 | closed | 100.0 | 97.5 | closed | 97.5 |
| | Total | Number | 46 | 88 | 134 | 147 | 55 | 202 | 193 | 143 | 336 |
| | | Percent | 95.8 | 95.7 | 95.7 | 97.4 | 94.8 | 96.7 | 97.0 | 95.3 | 96.3 |
| No Response | NSRA | Number | 1 | 0 | 1 | 2 | 0 | 2 | 3 | 0 | 3 |
| | | Percent | 2.6 | 0.0 | 0.8 | 1.7 | 0.0 | 1.1 | 1.9 | 0.0 | 1.0 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Total | Number | 1 | 0 | 1 | 2 | 0 | 2 | 3 | 0 | 3 |
| | | Percent | 2.1 | 0.0 | 0.7 | 1.3 | 0.0 | 1.0 | 1.5 | 0.0 | 0.9 |
| Total | NSRA | Number | 38 | 92 | 130 | 121 | 58 | 179 | 159 | 150 | 309 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 10 | closed | 10 | 30 | closed | 30 | 40 | closed | 40 |
| | | Percent | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Total | Number | 48 | 92 | 140 | 151 | 58 | 209 | 199 | 150 | 349 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Question 22b: If yes, please identify the area(s) and the type of barrier(s).

| Recreation Area | Response | Statistic | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|-----------------|---|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|--------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| NSRA | Boat launch can be accomplished, but for one person it's a pain | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 25.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 8.3 |
| | Difficult for some to access shore (too steep) | Number | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 33.3 | 14.3 | 0.0 | 14.3 | 8.3 |
| | Feces | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 25.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 8.3 |
| | Hillside too steep for young kids | Number | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 33.3 | 14.3 | 0.0 | 14.3 | 8.3 |
| | If the ramp is out of the water it is difficult to launch by yourself | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 25.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 8.3 |
| | People get too close to shore | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 25.0 | 0.0 | 14.3 | 20.0 | 0.0 | 8.3 |
| | No response | Number | 1 | 1 | 2 | 3 | 1 | 4 | 4 | 2 | 6 |
| | | Percent | 100.0 | 25.0 | 40.0 | 75.0 | 33.3 | 57.1 | 80.0 | 28.6 | 50.0 |
| SSRA | Total | Number | 1 | 4 | 5 | 4 | 3 | 7 | 5 | 7 | 12 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | No response | Number | 1 | closed | 1 | 0 | closed | 0 | 1 | closed | 1 |
| | | Percent | 100.0 | closed | 100.0 | 0.0 | closed | 0.0 | 100.0 | closed | 100.0 |
| Total | Total | Number | 1 | closed | 1 | 0 | closed | 0 | 1 | closed | 1 |
| | | Percent | 100.0 | closed | 100.0 | 0.0 | closed | 0.0 | 100.0 | closed | 100.0 |

Question 23a: Are there any any recreation activities that you would like to participate in but are not able to at this recreation area?

| Response | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|-------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|--------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Yes | NSRA | Number | 3 | 6 | 9 | 18 | 6 | 24 | 21 | 12 | 33 |
| | | Percent | 7.9 | 6.5 | 6.9 | 14.9 | 10.3 | 13.4 | 13.2 | 8.0 | 10.7 |
| | SSRA | Number | 1 | closed | 1 | 2 | closed | 2 | 3 | closed | 3 |
| | | Percent | 10.0 | closed | 10.0 | 6.7 | closed | 6.7 | 7.5 | closed | 7.5 |
| | Total | Number | 4 | 6 | 10 | 20 | 6 | 26 | 24 | 12 | 36 |
| | | Percent | 8.3 | 6.5 | 7.1 | 13.2 | 10.3 | 12.4 | 12.1 | 8.0 | 10.3 |
| No | NSRA | Number | 34 | 83 | 117 | 98 | 51 | 149 | 132 | 134 | 266 |
| | | Percent | 89.5 | 90.2 | 90.0 | 81.0 | 87.9 | 83.2 | 83.0 | 89.3 | 86.1 |
| | SSRA | Number | 9 | closed | 9 | 28 | closed | 28 | 37 | closed | 37 |
| | | Percent | 90.0 | closed | 90.0 | 93.3 | closed | 93.3 | 92.5 | closed | 92.5 |
| | Total | Number | 43 | 83 | 126 | 126 | 51 | 177 | 169 | 134 | 303 |
| | | Percent | 89.6 | 90.2 | 90.0 | 83.4 | 87.9 | 84.7 | 84.9 | 89.3 | 86.8 |
| No Response | NSRA | Number | 1 | 3 | 4 | 5 | 1 | 6 | 6 | 4 | 10 |
| | | Percent | 2.6 | 3.3 | 3.1 | 4.1 | 1.7 | 3.4 | 3.8 | 2.7 | 3.2 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Total | Number | 1 | 3 | 4 | 5 | 1 | 6 | 6 | 4 | 10 |
| | | Percent | 2.1 | 3.3 | 2.9 | 3.3 | 1.7 | 2.9 | 3.0 | 2.7 | 2.9 |
| Total | NSRA | Number | 38 | 92 | 130 | 121 | 58 | 179 | 159 | 150 | 309 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 10 | closed | 10 | 30 | closed | 30 | 40 | closed | 40 |
| | | Percent | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Total | Number | 48 | 92 | 140 | 151 | 58 | 209 | 199 | 150 | 349 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Question 23b: If yes, please identify the activity or opportunity?

| Recreation Area | Activity (Categorized) | Statistic | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|-----------------|---|-----------|------------------|-----------------|-----------|--------------------|-----------------|-----------|--------------|-----------------|-----------|
| | | | Peak Season | Off Peak Season | Overall 1 | Peak Season | Off Peak Season | Overall 1 | Peak Season | Off Peak Season | Overall 1 |
| NSRA | Allow ATV/Quad use | Number | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 2 |
| | | Percent | 0.0 | 0.0 | 0.0 | 5.6 | 16.7 | 8.3 | 4.8 | 8.3 | 6.1 |
| | Allow fires | Number | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 4.2 | 0.0 | 8.3 | 3.0 |
| | Allow fireworks | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 | 4.2 | 4.8 | 0.0 | 3.0 |
| | Boat or other rental | Number | 2 | 2 | 4 | 9 | 0 | 9 | 11 | 2 | 13 |
| | | Percent | 66.7 | 33.3 | 44.4 | 50.0 | 0.0 | 37.5 | 52.4 | 16.7 | 39.4 |
| | Fishing in quiet setting | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 16.7 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 3.0 |
| | Horseback Riding | Number | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Percent | 0.0 | 16.7 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 3.0 |
| | Horseshoes | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 | 4.2 | 4.8 | 0.0 | 3.0 |
| | Kids Activities or Play Area | Number | 1 | 2 | 3 | 3 | 0 | 3 | 4 | 2 | 6 |
| | | Percent | 33.3 | 33.3 | 33.3 | 16.7 | 0.0 | 12.5 | 19.0 | 16.7 | 18.2 |
| | Live Music | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 | 4.2 | 4.8 | 0.0 | 3.0 |
| | More store services | Number | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 2 |
| | | Percent | 0.0 | 0.0 | 0.0 | 5.6 | 16.7 | 8.3 | 4.8 | 8.3 | 6.1 |
| | Shooting Range | Number | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 4.2 | 0.0 | 8.3 | 3.0 |
| | Swimming | Number | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2 | 2 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 33.3 | 8.3 | 0.0 | 16.7 | 6.1 |
| | Swimming & fishing due to boat activity | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 | 4.2 | 4.8 | 0.0 | 3.0 |
| | Total | Number | 3 | 6 | 9 | 18 | 6 | 24 | 21 | 12 | 33 |
| | | Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| SSRA | Boat or other rental | Number | 1 | closed | 1 | 2 | closed | 2 | 3 | closed | 3 |
| | | Percent | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |
| | Total | Number | 1 | closed | 1 | 2 | closed | 2 | 3 | closed | 3 |
| | | Percent | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 | 100.0 | closed | 100.0 |

Question 24a1: Rate the relative uniqueness of the recreation opportunities at this area relative to similar opportunities within Northern California.

| Recreation Area | Uniqueness Rating (5-point scale ¹) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---|------------------|-------|-----------------|-------|---------|-------|--------------------|-------|-----------------|-------|---------|-------|--------------|-------|-----------------|-------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| NSRA | Extremely common | 10 | 26.3 | 7 | 7.6 | 17 | 13.1 | 18 | 14.9 | 3 | 5.2 | 21 | 11.7 | 28 | 17.6 | 10 | 6.7 | 38 | 12.3 |
| | Somewhat common | 4 | 10.5 | 16 | 17.4 | 20 | 15.4 | 31 | 25.6 | 8 | 13.8 | 39 | 21.8 | 35 | 22.0 | 24 | 16.0 | 59 | 19.1 |
| | Neutral | 13 | 34.2 | 32 | 34.8 | 45 | 34.6 | 36 | 29.8 | 23 | 39.7 | 59 | 33.0 | 49 | 30.8 | 55 | 36.7 | 104 | 33.7 |
| | Somewhat unique | 8 | 21.1 | 28 | 30.4 | 36 | 27.7 | 24 | 19.8 | 12 | 20.7 | 36 | 20.1 | 32 | 20.1 | 40 | 26.7 | 72 | 23.3 |
| | Extremely unique | 3 | 7.9 | 7 | 7.6 | 10 | 7.7 | 9 | 7.4 | 11 | 19.0 | 20 | 11.2 | 12 | 7.5 | 18 | 12.0 | 30 | 9.7 |
| | No response | 0 | 0.0 | 2 | 2.2 | 2 | 1.5 | 3 | 2.5 | 1 | 1.7 | 4 | 2.2 | 3 | 1.9 | 3 | 2.0 | 6 | 1.9 |
| | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| SSRA | Extremely common | 3 | 30.0 | | | 3 | 30.0 | 8 | 26.7 | | | 8 | 26.7 | 11 | 27.5 | | | 11 | 27.5 |
| | Somewhat common | 1 | 10.0 | | | 1 | 10.0 | 4 | 13.3 | | | 4 | 13.3 | 5 | 12.5 | | | 5 | 12.5 |
| | Neutral | 3 | 30.0 | | | 3 | 30.0 | 11 | 36.7 | | | 11 | 36.7 | 14 | 35.0 | | | 14 | 35.0 |
| | Somewhat unique | 1 | 10.0 | | | 1 | 10.0 | 4 | 13.3 | | | 4 | 13.3 | 5 | 12.5 | | | 5 | 12.5 |
| | Extremely unique | 2 | 20.0 | | | 2 | 20.0 | 3 | 10.0 | | | 3 | 10.0 | 5 | 12.5 | | | 5 | 12.5 |
| | No response | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 |
| | Total | 10 | 100.0 | | | 10 | 100.0 | 30 | 100.0 | | | 30 | 100.0 | 40 | 100.0 | | | 40 | 100.0 |
| Overall | Extremely common | 13 | 27.1 | 7 | 7.6 | 20 | 14.3 | 26 | 17.2 | 3 | 5.2 | 29 | 13.9 | 39 | 19.6 | 10 | 6.7 | 49 | 14.0 |
| | Somewhat common | 5 | 10.4 | 16 | 17.4 | 21 | 15.0 | 35 | 23.2 | 8 | 13.8 | 43 | 20.6 | 40 | 20.1 | 24 | 16.0 | 64 | 18.3 |
| | Neutral | 16 | 33.3 | 32 | 34.8 | 48 | 34.3 | 47 | 31.1 | 23 | 39.7 | 70 | 33.5 | 63 | 31.7 | 55 | 36.7 | 118 | 33.8 |
| | Somewhat unique | 9 | 18.8 | 28 | 30.4 | 37 | 26.4 | 28 | 18.5 | 12 | 20.7 | 40 | 19.1 | 37 | 18.6 | 40 | 26.7 | 77 | 22.1 |
| | Extremely unique | 5 | 10.4 | 7 | 7.6 | 12 | 8.6 | 12 | 7.9 | 11 | 19.0 | 23 | 11.0 | 17 | 8.5 | 18 | 12.0 | 35 | 10.0 |
| | No response | 0 | 0.0 | 2 | 2.2 | 2 | 1.4 | 3 | 2.0 | 1 | 1.7 | 4 | 1.9 | 3 | 1.5 | 3 | 2.0 | 6 | 1.7 |
| | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 24a2: AVERAGE relative uniqueness rating of visitors surveyed.

| Recreation Area | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|-----------------|------------------|-----------------|---------|--------------------|-----------------|---------|--------------|-----------------|---------|
| | Peak Season | Off-peak Season | Overall | Peak Season | Off-peak Season | Overall | Peak Season | Off-peak Season | Overall |
| NSRA | 2.7 | 3.1 | 3.0 | 2.8 | 3.4 | 3.0 | 2.8 | 3.2 | 3.0 |
| SSRA | 2.8 | closed | 2.8 | 2.7 | closed | 2.7 | 2.7 | closed | 2.7 |
| Total | 2.8 | 3.1 | 3.0 | 2.8 | 3.4 | 2.9 | 2.8 | 3.2 | 3.0 |

¹ Rating scale: 1.0 = extremely common; 1.1 to 2.0 = common; 2.1 to 3.0 = somewhat common; 3.1 to 4.0 = somewhat unique; 4.1 to 4.9 = unique; and 5.0 = extremely unique.

Question 24b: Please explain, what, if anything is special or unique about this recreation area relative to other recreation areas in Northern California.

| Recreation Area | Uniqueness Reason (categorized) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-----------------|---|------------------|-------|-----------------|-------|---------|-------|--------------------|-------|-----------------|-------|---------|-------|--------------|-------|-----------------|-------|---------|-------|
| | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | # | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| NSRA | Close proximity/ease of access | 10 | 66.7 | 9 | 34.6 | 19 | 46.3 | 8 | 21.6 | 7 | 30.4 | 15 | 25.0 | 18 | 34.6 | 16 | 32.7 | 34 | 33.7 |
| | Peaceful, uncrowded setting | 1 | 6.7 | 4 | 15.4 | 5 | 12.2 | 4 | 10.8 | 6 | 26.1 | 10 | 16.7 | 5 | 9.6 | 10 | 20.4 | 15 | 14.9 |
| | Fewer regulations | 1 | 6.7 | 2 | 7.7 | 3 | 7.3 | 7 | 18.9 | 2 | 8.7 | 9 | 15.0 | 8 | 15.4 | 4 | 8.2 | 12 | 11.9 |
| | Open/dispersed camping and vehicle access | 0 | 0.0 | 4 | 15.4 | 4 | 9.8 | 6 | 16.2 | 1 | 4.3 | 7 | 11.7 | 6 | 11.5 | 5 | 10.2 | 11 | 10.9 |
| | Quality jet skiing opportunity | 0 | 0.0 | 1 | 3.8 | 1 | 2.4 | 4 | 10.8 | 1 | 4.3 | 5 | 8.3 | 4 | 7.7 | 2 | 4.1 | 6 | 5.9 |
| | Easy shoreline access | 0 | 0.0 | 1 | 3.8 | 1 | 2.4 | 2 | 5.4 | 0 | 0.0 | 2 | 3.3 | 2 | 3.8 | 1 | 2.0 | 3 | 3.0 |
| | Good camping, fishing and boating | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 5.4 | 1 | 4.3 | 3 | 5.0 | 2 | 3.8 | 1 | 2.0 | 3 | 3.0 |
| | Jet boating/speed boating opportunities | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 5.4 | 1 | 4.3 | 3 | 5.0 | 2 | 3.8 | 1 | 2.0 | 3 | 3.0 |
| | Quality and accessible fishing lake | 0 | 0.0 | 2 | 0.0 | 2 | 4.9 | 1 | 2.7 | 0 | 0.0 | 1 | 1.7 | 1 | 1.9 | 2 | 4.1 | 3 | 3.0 |
| | Family friendly environment | 2 | 13.3 | 0 | 0.0 | 2 | 4.9 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 3.8 | 0 | 0.0 | 2 | 2.0 |
| | Warmer reservoir temperatures | 0 | 0.0 | 1 | 3.8 | 1 | 2.4 | 1 | 2.7 | 0 | 0.0 | 1 | 1.7 | 1 | 1.9 | 1 | 2.0 | 2 | 2.0 |
| | Minimal submerged obstacles | 1 | 6.7 | 0 | 0.0 | 1 | 2.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.9 | 0 | 0.0 | 1 | 1.0 |
| | Other | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 4.3 | 1 | 1.7 | 0 | 0.0 | 1 | 2.0 | 1 | 1.0 |
| | People | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 4.3 | 1 | 1.7 | 0 | 0.0 | 1 | 2.0 | 1 | 1.0 |
| | Reservoir navigability | 0 | 0.0 | 1 | 3.8 | 1 | 2.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 2.0 | 1 | 1.0 |
| | Scenic | 0 | 0.0 | 1 | 3.8 | 1 | 2.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 2.0 | 1 | 1.0 |
| | Sentimental reasons | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 4.3 | 1 | 1.7 | 0 | 0.0 | 1 | 2.0 | 1 | 1.0 |
| | Winter horseback riding opportunities | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 4.3 | 1 | 1.7 | 0 | 0.0 | 1 | 2.0 | 1 | 1.0 |
| | Total | 15 | 100.0 | 26 | 100.0 | 41 | 100.0 | 37 | 100.0 | 23 | 100.0 | 60 | 100.0 | 52 | 100.0 | 49 | 100.0 | 101 | 100.0 |
| SSRA | Close proximity/ease of access | 1 | 33.3 | closed | | 1 | 33.3 | 3 | 33.3 | closed | | 3 | 33.3 | 4 | 33.3 | closed | | 4 | 33.3 |
| | Other | 0 | 0.0 | closed | | 0 | 0.0 | 2 | 22.2 | closed | | 2 | 22.2 | 2 | 16.7 | closed | | 2 | 16.7 |
| | Clean water | 1 | 33.3 | closed | | 1 | 33.3 | 0 | 0.0 | closed | | 0 | 0.0 | 1 | 8.3 | closed | | 1 | 8.3 |
| | Combination of water sports and camping | 0 | 0.0 | closed | | 0 | 0.0 | 1 | 11.1 | closed | | 1 | 11.1 | 1 | 8.3 | closed | | 1 | 8.3 |
| | Fewer regulations | 1 | 33.3 | closed | | 1 | 33.3 | 0 | 0.0 | closed | | 0 | 0.0 | 1 | 8.3 | closed | | 1 | 8.3 |
| | Large campsites | 0 | 0.0 | closed | | 0 | 0.0 | 1 | 11.1 | closed | | 1 | 11.1 | 1 | 8.3 | closed | | 1 | 8.3 |
| | Open/dispersed camping and vehicle access | 0 | 0.0 | closed | | 0 | 0.0 | 1 | 11.1 | closed | | 1 | 11.1 | 1 | 8.3 | closed | | 1 | 8.3 |
| | Peaceful, uncrowded setting | 0 | 0.0 | closed | | 0 | 0.0 | 1 | 11.1 | closed | | 1 | 11.1 | 1 | 8.3 | closed | | 1 | 8.3 |
| | Total | 3 | 100.0 | closed | | 3 | 100.0 | 9 | 100.0 | closed | | 9 | 100.0 | 12 | 100.0 | closed | | 12 | 100.0 |

Question 25a: Please rate your preference for EXTENDING THE BOAT RAMP.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Extending the Boat Ramp | NSRA | Not Preferred at All (1) | 12 | 31.6 | 12 | 13.0 | 24 | 18.5 | 22 | 18.2 | 7 | 12.1 | 29 | 16.2 | 34 | 21.4 | 19 | 12.7 | 53 | 17.2 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 4 | 4.3 | 4 | 3.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 2.7 | 4 | 1.3 |
| | | Neither (3) | 6 | 15.8 | 8 | 8.7 | 14 | 10.8 | 24 | 19.8 | 15 | 25.9 | 39 | 21.8 | 30 | 18.9 | 23 | 15.3 | 53 | 17.2 |
| | | Slightly Preferred (4) | 2 | 5.3 | 23 | 25.0 | 25 | 19.2 | 16 | 13.2 | 5 | 8.6 | 21 | 11.7 | 18 | 11.3 | 28 | 18.7 | 46 | 14.9 |
| | | Highly Preferred (5) | 5 | 13.2 | 26 | 28.3 | 31 | 23.8 | 11 | 9.1 | 12 | 20.7 | 23 | 12.8 | 16 | 10.1 | 38 | 25.3 | 54 | 17.5 |
| | | No opinion/response | 13 | 34.2 | 19 | 20.7 | 32 | 24.6 | 48 | 39.7 | 19 | 32.8 | 67 | 37.4 | 61 | 38.4 | 38 | 25.3 | 99 | 32.0 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 2 | 20.0 | closed | closed | 2 | 20.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Neither (3) | 6 | 60.0 | closed | closed | 6 | 60.0 | 13 | 43.3 | closed | closed | 13 | 43.3 | 19 | 47.5 | closed | closed | 19 | 47.5 |
| | | Slightly Preferred (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Highly Preferred (5) | 1 | 10.0 | closed | closed | 1 | 10.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | No opinion/response | 1 | 10.0 | closed | closed | 1 | 10.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 7 | 17.5 | closed | closed | 7 | 17.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 14 | 29.2 | 12 | 13.0 | 26 | 18.6 | 26 | 17.2 | 7 | 12.1 | 33 | 15.8 | 40 | 20.1 | 19 | 12.7 | 59 | 16.9 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 4 | 4.3 | 4 | 2.9 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 2.7 | 4 | 1.1 |
| | | Neither (3) | 12 | 25.0 | 8 | 8.7 | 20 | 14.3 | 37 | 24.5 | 15 | 25.9 | 52 | 24.9 | 49 | 24.6 | 23 | 15.3 | 72 | 20.6 |
| | | Slightly Preferred (4) | 2 | 4.2 | 23 | 25.0 | 25 | 17.9 | 21 | 13.9 | 5 | 8.6 | 26 | 12.4 | 23 | 11.6 | 28 | 18.7 | 51 | 14.6 |
| | | Highly Preferred (5) | 6 | 12.5 | 26 | 28.3 | 32 | 22.9 | 13 | 8.6 | 12 | 20.7 | 25 | 12.0 | 19 | 9.5 | 38 | 25.3 | 57 | 16.3 |
| | | No opinion/response | 14 | 29.2 | 19 | 20.7 | 33 | 23.6 | 54 | 35.8 | 19 | 32.8 | 73 | 34.9 | 68 | 34.2 | 38 | 25.3 | 106 | 30.4 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25b: Please rate your preference for ADDITIONAL BOAT RAMP LAUNCHING LANES.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Adding Boat Ramp Lanes | NSRA | Not Preferred at All (1) | 8 | 21.1 | 25 | 27.2 | 33 | 25.4 | 19 | 15.7 | 7 | 12.1 | 26 | 14.5 | 27 | 17.0 | 32 | 21.3 | 59 | 19.1 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 4 | 4.3 | 4 | 3.1 | 1 | 0.8 | 1 | 1.7 | 2 | 1.1 | 1 | 0.6 | 5 | 3.3 | 6 | 1.9 |
| | | Neither (3) | 6 | 15.8 | 7 | 7.6 | 13 | 10.0 | 22 | 18.2 | 11 | 19.0 | 33 | 18.4 | 28 | 17.6 | 18 | 12.0 | 46 | 14.9 |
| | | Slightly Preferred (4) | 6 | 15.8 | 21 | 22.8 | 27 | 20.8 | 26 | 21.5 | 8 | 13.8 | 34 | 19.0 | 32 | 20.1 | 29 | 19.3 | 61 | 19.7 |
| | | Highly Preferred (5) | 5 | 13.2 | 19 | 20.7 | 24 | 18.5 | 7 | 5.8 | 12 | 20.7 | 19 | 10.6 | 12 | 7.5 | 31 | 20.7 | 43 | 13.9 |
| | | No opinion/response | 13 | 34.2 | 16 | 17.4 | 29 | 22.3 | 46 | 38.0 | 19 | 32.8 | 65 | 36.3 | 59 | 37.1 | 35 | 23.3 | 94 | 30.4 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Slightly Not Preferred (2) | 1 | 10.0 | closed | closed | 1 | 10.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Neither (3) | 6 | 60.0 | closed | closed | 6 | 60.0 | 14 | 46.7 | closed | closed | 14 | 46.7 | 20 | 50.0 | closed | closed | 20 | 50.0 |
| | | Slightly Preferred (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Highly Preferred (5) | 1 | 10.0 | closed | closed | 1 | 10.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | No opinion/response | 1 | 10.0 | closed | closed | 1 | 10.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 7 | 17.5 | closed | closed | 7 | 17.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 9 | 18.8 | 25 | 27.2 | 34 | 24.3 | 23 | 15.2 | 7 | 12.1 | 30 | 14.4 | 32 | 16.1 | 32 | 21.3 | 64 | 18.3 |
| | | Slightly Not Preferred (2) | 1 | 2.1 | 4 | 4.3 | 5 | 3.6 | 2 | 1.3 | 1 | 1.7 | 3 | 1.4 | 3 | 1.5 | 5 | 3.3 | 8 | 2.3 |
| | | Neither (3) | 12 | 25.0 | 7 | 7.6 | 19 | 13.6 | 36 | 23.8 | 11 | 19.0 | 47 | 22.5 | 48 | 24.1 | 18 | 12.0 | 66 | 18.9 |
| | | Slightly Preferred (4) | 6 | 12.5 | 21 | 22.8 | 27 | 19.3 | 29 | 19.2 | 8 | 13.8 | 37 | 17.7 | 35 | 17.6 | 29 | 19.3 | 64 | 18.3 |
| | | Highly Preferred (5) | 6 | 12.5 | 19 | 20.7 | 25 | 17.9 | 9 | 6.0 | 12 | 20.7 | 21 | 10.0 | 15 | 7.5 | 31 | 20.7 | 46 | 13.2 |
| | | No opinion/response | 14 | 29.2 | 16 | 17.4 | 30 | 21.4 | 52 | 34.4 | 19 | 32.8 | 71 | 34.0 | 66 | 33.2 | 35 | 23.3 | 101 | 28.9 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25c: Please rate your preference for a new or improved BOAT RAMP COURTESY DOCK.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-------------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Courtesy Dock | NSRA | Not Preferred at All (1) | 7 | 18.4 | 8 | 8.7 | 15 | 11.5 | 15 | 12.4 | 5 | 8.6 | 20 | 11.2 | 22 | 13.8 | 13 | 8.7 | 35 | 11.3 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 2 | 2.2 | 2 | 1.5 | 6 | 5.0 | 0 | 0.0 | 6 | 3.4 | 6 | 3.8 | 2 | 1.3 | 8 | 2.6 |
| | | Neither (3) | 7 | 18.4 | 18 | 19.6 | 25 | 19.2 | 20 | 16.5 | 14 | 24.1 | 34 | 19.0 | 27 | 17.0 | 32 | 21.3 | 59 | 19.1 |
| | | Slightly Preferred (4) | 5 | 13.2 | 18 | 19.6 | 23 | 17.7 | 23 | 19.0 | 7 | 12.1 | 30 | 16.8 | 28 | 17.6 | 25 | 16.7 | 53 | 17.2 |
| | | Highly Preferred (5) | 5 | 13.2 | 33 | 35.9 | 38 | 29.2 | 9 | 7.4 | 11 | 19.0 | 20 | 11.2 | 14 | 8.8 | 44 | 29.3 | 58 | 18.8 |
| | | No opinion/response | 14 | 36.8 | 13 | 14.1 | 27 | 20.8 | 48 | 39.7 | 21 | 36.2 | 69 | 38.5 | 62 | 39.0 | 34 | 22.7 | 96 | 31.1 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Slightly Not Preferred (2) | 2 | 20.0 | closed | closed | 2 | 20.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Neither (3) | 3 | 30.0 | closed | closed | 3 | 30.0 | 14 | 46.7 | closed | closed | 14 | 46.7 | 17 | 42.5 | closed | closed | 17 | 42.5 |
| | | Slightly Preferred (4) | 2 | 20.0 | closed | closed | 2 | 20.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Highly Preferred (5) | 1 | 10.0 | closed | closed | 1 | 10.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | No opinion/response | 1 | 10.0 | closed | closed | 1 | 10.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 7 | 17.5 | closed | closed | 7 | 17.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 8 | 16.7 | 8 | 8.7 | 16 | 11.4 | 17 | 11.3 | 5 | 8.6 | 22 | 10.5 | 25 | 12.6 | 13 | 8.7 | 38 | 10.9 |
| | | Slightly Not Preferred (2) | 2 | 4.2 | 2 | 2.2 | 4 | 2.9 | 8 | 5.3 | 0 | 0.0 | 8 | 3.8 | 10 | 5.0 | 2 | 1.3 | 12 | 3.4 |
| | | Neither (3) | 10 | 20.8 | 18 | 19.6 | 28 | 20.0 | 34 | 22.5 | 14 | 24.1 | 48 | 23.0 | 44 | 22.1 | 32 | 21.3 | 76 | 21.8 |
| | | Slightly Preferred (4) | 7 | 14.6 | 18 | 19.6 | 25 | 17.9 | 25 | 16.6 | 7 | 12.1 | 32 | 15.3 | 32 | 16.1 | 25 | 16.7 | 57 | 16.3 |
| | | Highly Preferred (5) | 6 | 12.5 | 33 | 35.9 | 39 | 27.9 | 13 | 8.6 | 11 | 19.0 | 24 | 11.5 | 19 | 9.5 | 44 | 29.3 | 63 | 18.1 |
| | | No opinion/response | 15 | 31.3 | 13 | 14.1 | 28 | 20.0 | 54 | 35.8 | 21 | 36.2 | 75 | 35.9 | 69 | 34.7 | 34 | 22.7 | 103 | 29.5 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25d: Please rate your preference for a new or improved CAMPSITES.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|---------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Campsites | NSRA | Not Preferred at All (1) | 7 | 18.4 | 6 | 6.5 | 13 | 10.0 | 29 | 24.0 | 6 | 10.3 | 35 | 19.6 | 36 | 22.6 | 12 | 8.0 | 48 | 15.5 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 4 | 3.3 | 2 | 3.4 | 6 | 3.4 | 4 | 2.5 | 3 | 2.0 | 7 | 2.3 |
| | | Neither (3) | 9 | 23.7 | 20 | 21.7 | 29 | 22.3 | 17 | 14.0 | 16 | 27.6 | 33 | 18.4 | 26 | 16.4 | 36 | 24.0 | 62 | 20.1 |
| | | Slightly Preferred (4) | 3 | 7.9 | 7 | 7.6 | 10 | 7.7 | 36 | 29.8 | 14 | 24.1 | 50 | 27.9 | 39 | 24.5 | 21 | 14.0 | 60 | 19.4 |
| | | Highly Preferred (5) | 9 | 23.7 | 9 | 9.8 | 18 | 13.8 | 24 | 19.8 | 17 | 29.3 | 41 | 22.9 | 33 | 20.8 | 26 | 17.3 | 59 | 19.1 |
| | | No opinion/response | 10 | 26.3 | 49 | 53.3 | 59 | 45.4 | 11 | 9.1 | 3 | 5.2 | 14 | 7.8 | 21 | 13.2 | 52 | 34.7 | 73 | 23.6 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Neither (3) | 3 | 30.0 | closed | closed | 3 | 30.0 | 14 | 46.7 | closed | closed | 14 | 46.7 | 17 | 42.5 | closed | closed | 17 | 42.5 |
| | | Slightly Preferred (4) | 1 | 10.0 | closed | closed | 1 | 10.0 | 7 | 23.3 | closed | closed | 7 | 23.3 | 8 | 20.0 | closed | closed | 8 | 20.0 |
| | | Highly Preferred (5) | 2 | 20.0 | closed | closed | 2 | 20.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 7 | 17.5 | closed | closed | 7 | 17.5 |
| | | No opinion/response | 3 | 30.0 | closed | closed | 3 | 30.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 8 | 16.7 | 6 | 6.5 | 14 | 10.0 | 32 | 21.2 | 6 | 10.3 | 38 | 18.2 | 40 | 20.1 | 12 | 8.0 | 52 | 14.9 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 1 | 1.1 | 1 | 0.7 | 5 | 3.3 | 2 | 3.4 | 7 | 3.3 | 5 | 2.5 | 3 | 2.0 | 8 | 2.3 |
| | | Neither (3) | 12 | 25.0 | 20 | 21.7 | 32 | 22.9 | 31 | 20.5 | 16 | 27.6 | 47 | 22.5 | 43 | 21.6 | 36 | 24.0 | 79 | 22.6 |
| | | Slightly Preferred (4) | 4 | 8.3 | 7 | 7.6 | 11 | 7.9 | 43 | 28.5 | 14 | 24.1 | 57 | 27.3 | 47 | 23.6 | 21 | 14.0 | 68 | 19.5 |
| | | Highly Preferred (5) | 11 | 22.9 | 9 | 9.8 | 20 | 14.3 | 29 | 19.2 | 17 | 29.3 | 46 | 22.0 | 40 | 20.1 | 26 | 17.3 | 66 | 18.9 |
| | | No opinion/response | 13 | 27.1 | 49 | 53.3 | 62 | 44.3 | 11 | 7.3 | 3 | 5.2 | 14 | 6.7 | 24 | 12.1 | 52 | 34.7 | 76 | 21.8 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25e: Please rate your preference for a new or improved GROUP CAMPSITES.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|---------------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Group Campsites | NSRA | Not Preferred at All (1) | 7 | 18.4 | 7 | 7.6 | 14 | 10.8 | 27 | 22.3 | 5 | 8.6 | 32 | 17.9 | 34 | 21.4 | 12 | 8.0 | 46 | 14.9 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 5 | 5.4 | 5 | 3.8 | 3 | 2.5 | 2 | 3.4 | 5 | 2.8 | 3 | 1.9 | 7 | 4.7 | 10 | 3.2 |
| | | Neither (3) | 9 | 23.7 | 18 | 19.6 | 27 | 20.8 | 23 | 19.0 | 11 | 19.0 | 34 | 19.0 | 32 | 20.1 | 29 | 19.3 | 61 | 19.7 |
| | | Slightly Preferred (4) | 3 | 7.9 | 6 | 6.5 | 9 | 6.9 | 19 | 15.7 | 19 | 32.8 | 38 | 21.2 | 22 | 13.8 | 25 | 16.7 | 47 | 15.2 |
| | | Highly Preferred (5) | 8 | 21.1 | 6 | 6.5 | 14 | 10.8 | 24 | 19.8 | 18 | 31.0 | 42 | 23.5 | 32 | 20.1 | 24 | 16.0 | 56 | 18.1 |
| | | No opinion/response | 11 | 28.9 | 50 | 54.3 | 61 | 46.9 | 25 | 20.7 | 3 | 5.2 | 28 | 15.6 | 36 | 22.6 | 53 | 35.3 | 89 | 28.8 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Neither (3) | 3 | 30.0 | closed | closed | 3 | 30.0 | 14 | 46.7 | closed | closed | 14 | 46.7 | 17 | 42.5 | closed | closed | 17 | 42.5 |
| | | Slightly Preferred (4) | 1 | 10.0 | closed | closed | 1 | 10.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 7 | 17.5 | closed | closed | 7 | 17.5 |
| | | Highly Preferred (5) | 2 | 20.0 | closed | closed | 2 | 20.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | No opinion/response | 3 | 30.0 | closed | closed | 3 | 30.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 7 | 17.5 | closed | closed | 7 | 17.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 8 | 16.7 | 7 | 7.6 | 15 | 10.7 | 30 | 19.9 | 5 | 8.6 | 35 | 16.7 | 38 | 19.1 | 12 | 8.0 | 50 | 14.3 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 5 | 5.4 | 5 | 3.6 | 3 | 2.0 | 2 | 3.4 | 5 | 2.4 | 3 | 1.5 | 7 | 4.7 | 10 | 2.9 |
| | | Neither (3) | 12 | 25.0 | 18 | 19.6 | 30 | 21.4 | 37 | 24.5 | 11 | 19.0 | 48 | 23.0 | 49 | 24.6 | 29 | 19.3 | 78 | 22.3 |
| | | Slightly Preferred (4) | 4 | 8.3 | 6 | 6.5 | 10 | 7.1 | 25 | 16.6 | 19 | 32.8 | 44 | 21.1 | 29 | 14.6 | 25 | 16.7 | 54 | 15.5 |
| | | Highly Preferred (5) | 10 | 20.8 | 6 | 6.5 | 16 | 11.4 | 27 | 17.9 | 18 | 31.0 | 45 | 21.5 | 37 | 18.6 | 24 | 16.0 | 61 | 17.5 |
| | | No opinion/response | 14 | 29.2 | 50 | 54.3 | 64 | 45.7 | 29 | 19.2 | 3 | 5.2 | 32 | 15.3 | 43 | 21.6 | 53 | 35.3 | 96 | 27.5 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25f: Please rate your preference for a new or improved PICNIC SITES.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|------------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Picnic Sites | NSRA | Not Preferred at All (1) | 7 | 18.4 | 7 | 7.6 | 14 | 10.8 | 29 | 24.0 | 4 | 6.9 | 33 | 18.4 | 36 | 22.6 | 11 | 7.3 | 47 | 15.2 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 2 | 1.6 | 1 | 1.7 | 3 | 1.7 | 2 | 1.3 | 2 | 1.3 | 4 | 1.3 |
| | | Neither (3) | 7 | 18.4 | 15 | 16.3 | 22 | 16.9 | 30 | 24.8 | 25 | 43.1 | 55 | 30.7 | 37 | 23.3 | 40 | 26.7 | 77 | 24.9 |
| | | Slightly Preferred (4) | 4 | 10.5 | 16 | 17.4 | 20 | 15.4 | 20 | 16.5 | 9 | 15.5 | 29 | 16.2 | 24 | 15.1 | 25 | 16.7 | 49 | 15.9 |
| | | Highly Preferred (5) | 8 | 21.1 | 5 | 5.4 | 13 | 10.0 | 16 | 13.2 | 11 | 19.0 | 27 | 15.1 | 24 | 15.1 | 16 | 10.7 | 40 | 12.9 |
| | | No opinion/response | 12 | 31.6 | 48 | 52.2 | 60 | 46.2 | 24 | 19.8 | 8 | 13.8 | 32 | 17.9 | 36 | 22.6 | 56 | 37.3 | 92 | 29.8 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Neither (3) | 3 | 30.0 | closed | closed | 3 | 30.0 | 15 | 50.0 | closed | closed | 15 | 50.0 | 18 | 45.0 | closed | closed | 18 | 45.0 |
| | | Slightly Preferred (4) | 1 | 10.0 | closed | closed | 1 | 10.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | | Highly Preferred (5) | 2 | 20.0 | closed | closed | 2 | 20.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | | No opinion/response | 3 | 30.0 | closed | closed | 3 | 30.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 8 | 16.7 | 7 | 7.6 | 15 | 10.7 | 32 | 21.2 | 4 | 6.9 | 36 | 17.2 | 40 | 20.1 | 11 | 7.3 | 51 | 14.6 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 1 | 1.1 | 1 | 0.7 | 2 | 1.3 | 1 | 1.7 | 3 | 1.4 | 2 | 1.0 | 2 | 1.3 | 4 | 1.1 |
| | | Neither (3) | 10 | 20.8 | 15 | 16.3 | 25 | 17.9 | 45 | 29.8 | 25 | 43.1 | 70 | 33.5 | 55 | 27.6 | 40 | 26.7 | 95 | 27.2 |
| | | Slightly Preferred (4) | 5 | 10.4 | 16 | 17.4 | 21 | 15.0 | 25 | 16.6 | 9 | 15.5 | 34 | 16.3 | 30 | 15.1 | 25 | 16.7 | 55 | 15.8 |
| | | Highly Preferred (5) | 10 | 20.8 | 5 | 5.4 | 15 | 10.7 | 20 | 13.2 | 11 | 19.0 | 31 | 14.8 | 30 | 15.1 | 16 | 10.7 | 46 | 13.2 |
| | | No opinion/response | 15 | 31.3 | 48 | 52.2 | 63 | 45.0 | 27 | 17.9 | 8 | 13.8 | 35 | 16.7 | 42 | 21.1 | 56 | 37.3 | 98 | 28.1 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25g: Please rate your preference for a new or improved SWIM BEACH AREAS.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|----------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Swim Beach | NSRA | Not Preferred at All (1) | 8 | 21.1 | 8 | 8.7 | 16 | 12.3 | 29 | 24.0 | 5 | 8.6 | 34 | 19.0 | 37 | 23.3 | 13 | 8.7 | 50 | 16.2 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 4 | 3.3 | 5 | 8.6 | 9 | 5.0 | 4 | 2.5 | 6 | 4.0 | 10 | 3.2 |
| | | Neither (3) | 7 | 18.4 | 16 | 17.4 | 23 | 17.7 | 20 | 16.5 | 17 | 29.3 | 37 | 20.7 | 27 | 17.0 | 33 | 22.0 | 60 | 19.4 |
| | | Slightly Preferred (4) | 13 | 34.2 | 15 | 16.3 | 28 | 21.5 | 22 | 18.2 | 12 | 20.7 | 34 | 19.0 | 35 | 22.0 | 27 | 18.0 | 62 | 20.1 |
| | | Highly Preferred (5) | 5 | 13.2 | 9 | 9.8 | 14 | 10.8 | 31 | 25.6 | 11 | 19.0 | 42 | 23.5 | 36 | 22.6 | 20 | 13.3 | 56 | 18.1 |
| | | No opinion/response | 5 | 13.2 | 43 | 46.7 | 48 | 36.9 | 15 | 12.4 | 8 | 13.8 | 23 | 12.8 | 20 | 12.6 | 51 | 34.0 | 71 | 23.0 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Neither (3) | 3 | 30.0 | closed | closed | 3 | 30.0 | 18 | 60.0 | closed | closed | 18 | 60.0 | 21 | 52.5 | closed | closed | 21 | 52.5 |
| | | Slightly Preferred (4) | 1 | 10.0 | closed | closed | 1 | 10.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Highly Preferred (5) | 3 | 30.0 | closed | closed | 3 | 30.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 8 | 20.0 | closed | closed | 8 | 20.0 |
| | | No opinion/response | 2 | 20.0 | closed | closed | 2 | 20.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 9 | 18.8 | 8 | 8.7 | 17 | 12.1 | 33 | 21.9 | 5 | 8.6 | 38 | 18.2 | 42 | 21.1 | 13 | 8.7 | 55 | 15.8 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 1 | 1.1 | 1 | 0.7 | 4 | 2.7 | 5 | 8.6 | 9 | 4.3 | 4 | 2.0 | 6 | 4.0 | 10 | 2.9 |
| | | Neither (3) | 10 | 20.8 | 16 | 17.4 | 26 | 18.6 | 38 | 25.2 | 17 | 29.3 | 55 | 26.3 | 48 | 24.1 | 33 | 22.0 | 81 | 23.2 |
| | | Slightly Preferred (4) | 14 | 29.2 | 15 | 16.3 | 29 | 20.7 | 23 | 15.2 | 12 | 20.7 | 35 | 16.7 | 37 | 18.6 | 27 | 18.0 | 64 | 18.3 |
| | | Highly Preferred (5) | 8 | 16.7 | 9 | 9.8 | 17 | 12.1 | 36 | 23.8 | 11 | 19.0 | 47 | 22.5 | 44 | 22.1 | 20 | 13.3 | 64 | 18.3 |
| | | No opinion/response | 7 | 14.6 | 43 | 46.7 | 50 | 35.7 | 17 | 11.3 | 8 | 13.8 | 25 | 12.0 | 24 | 12.1 | 51 | 34.0 | 75 | 21.5 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25h: Please rate your preference for a new or improved RESTROOMS.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|---------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Restrooms | NSRA | Not Preferred at All (1) | 8 | 21.1 | 8 | 8.7 | 16 | 12.3 | 14 | 11.6 | 6 | 10.3 | 20 | 11.2 | 22 | 13.8 | 14 | 9.3 | 36 | 11.7 |
| | | Slightly Not Preferred (2) | 1 | 2.6 | 2 | 2.2 | 3 | 2.3 | 3 | 2.5 | 2 | 3.4 | 5 | 2.8 | 4 | 2.5 | 4 | 2.7 | 8 | 2.6 |
| | | Neither (3) | 6 | 15.8 | 24 | 26.1 | 30 | 23.1 | 11 | 9.1 | 10 | 17.2 | 21 | 11.7 | 17 | 10.7 | 34 | 22.7 | 51 | 16.5 |
| | | Slightly Preferred (4) | 6 | 15.8 | 19 | 20.7 | 25 | 19.2 | 31 | 25.6 | 12 | 20.7 | 43 | 24.0 | 37 | 23.3 | 31 | 20.7 | 68 | 22.0 |
| | | Highly Preferred (5) | 13 | 34.2 | 29 | 31.5 | 42 | 32.3 | 50 | 41.3 | 21 | 36.2 | 71 | 39.7 | 63 | 39.6 | 50 | 33.3 | 113 | 36.6 |
| | | No opinion/response | 4 | 10.5 | 10 | 10.9 | 14 | 10.8 | 12 | 9.9 | 7 | 12.1 | 19 | 10.6 | 16 | 10.1 | 17 | 11.3 | 33 | 10.7 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Neither (3) | 1 | 10.0 | closed | closed | 1 | 10.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Slightly Preferred (4) | 2 | 20.0 | closed | closed | 2 | 20.0 | 11 | 36.7 | closed | closed | 11 | 36.7 | 13 | 32.5 | closed | closed | 13 | 32.5 |
| | | Highly Preferred (5) | 6 | 60.0 | closed | closed | 6 | 60.0 | 14 | 46.7 | closed | closed | 14 | 46.7 | 20 | 50.0 | closed | closed | 20 | 50.0 |
| | | No opinion/response | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 9 | 18.8 | 8 | 8.7 | 17 | 12.1 | 15 | 9.9 | 6 | 10.3 | 21 | 10.0 | 24 | 12.1 | 14 | 9.3 | 38 | 10.9 |
| | | Slightly Not Preferred (2) | 1 | 2.1 | 2 | 2.2 | 3 | 2.1 | 3 | 2.0 | 2 | 3.4 | 5 | 2.4 | 4 | 2.0 | 4 | 2.7 | 8 | 2.3 |
| | | Neither (3) | 7 | 14.6 | 24 | 26.1 | 31 | 22.1 | 15 | 9.9 | 10 | 17.2 | 25 | 12.0 | 22 | 11.1 | 34 | 22.7 | 56 | 16.0 |
| | | Slightly Preferred (4) | 8 | 16.7 | 19 | 20.7 | 27 | 19.3 | 42 | 27.8 | 12 | 20.7 | 54 | 25.8 | 50 | 25.1 | 31 | 20.7 | 81 | 23.2 |
| | | Highly Preferred (5) | 19 | 39.6 | 29 | 31.5 | 48 | 34.3 | 64 | 42.4 | 21 | 36.2 | 85 | 40.7 | 83 | 41.7 | 50 | 33.3 | 133 | 38.1 |
| | | No opinion/response | 4 | 8.3 | 10 | 10.9 | 14 | 10.0 | 12 | 7.9 | 7 | 12.1 | 19 | 9.1 | 16 | 8.0 | 17 | 11.3 | 33 | 9.5 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25i: Please rate your preference for a new or improved POTABLE WATER.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-------------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Potable Water | NSRA | Not Preferred at All (1) | 6 | 15.8 | 5 | 5.4 | 11 | 8.5 | 11 | 9.1 | 6 | 10.3 | 17 | 9.5 | 17 | 10.7 | 11 | 7.3 | 28 | 9.1 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 2 | 2.2 | 2 | 1.5 | 2 | 1.7 | 0 | 0.0 | 2 | 1.1 | 2 | 1.3 | 2 | 1.3 | 4 | 1.3 |
| | | Neither (3) | 7 | 18.4 | 16 | 17.4 | 23 | 17.7 | 19 | 15.7 | 12 | 20.7 | 31 | 17.3 | 26 | 16.4 | 28 | 18.7 | 54 | 17.5 |
| | | Slightly Preferred (4) | 4 | 10.5 | 13 | 14.1 | 17 | 13.1 | 25 | 20.7 | 10 | 17.2 | 35 | 19.6 | 29 | 18.2 | 23 | 15.3 | 52 | 16.8 |
| | | Highly Preferred (5) | 6 | 15.8 | 19 | 20.7 | 25 | 19.2 | 45 | 37.2 | 19 | 32.8 | 64 | 35.8 | 51 | 32.1 | 38 | 25.3 | 89 | 28.8 |
| | | No opinion/response | 15 | 39.5 | 37 | 40.2 | 52 | 40.0 | 19 | 15.7 | 11 | 19.0 | 30 | 16.8 | 34 | 21.4 | 48 | 32.0 | 82 | 26.5 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Neither (3) | 1 | 10.0 | closed | closed | 1 | 10.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | | Slightly Preferred (4) | 4 | 40.0 | closed | closed | 4 | 40.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 10 | 25.0 | closed | closed | 10 | 25.0 |
| | | Highly Preferred (5) | 4 | 40.0 | closed | closed | 4 | 40.0 | 17 | 56.7 | closed | closed | 17 | 56.7 | 21 | 52.5 | closed | closed | 21 | 52.5 |
| | | No opinion/response | 0 | 0.0 | closed | closed | 0 | 0.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 1 | 2.5 | closed | closed | 1 | 2.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 7 | 14.6 | 5 | 5.4 | 12 | 8.6 | 12 | 7.9 | 6 | 10.3 | 18 | 8.6 | 19 | 9.5 | 11 | 7.3 | 30 | 8.6 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 2 | 2.2 | 2 | 1.4 | 2 | 1.3 | 0 | 0.0 | 2 | 1.0 | 2 | 1.0 | 2 | 1.3 | 4 | 1.1 |
| | | Neither (3) | 8 | 16.7 | 16 | 17.4 | 24 | 17.1 | 24 | 15.9 | 12 | 20.7 | 36 | 17.2 | 32 | 16.1 | 28 | 18.7 | 60 | 17.2 |
| | | Slightly Preferred (4) | 8 | 16.7 | 13 | 14.1 | 21 | 15.0 | 31 | 20.5 | 10 | 17.2 | 41 | 19.6 | 39 | 19.6 | 23 | 15.3 | 62 | 17.8 |
| | | Highly Preferred (5) | 10 | 20.8 | 19 | 20.7 | 29 | 20.7 | 62 | 41.1 | 19 | 32.8 | 81 | 38.8 | 72 | 36.2 | 38 | 25.3 | 110 | 31.5 |
| | | No opinion/response | 15 | 31.3 | 37 | 40.2 | 52 | 37.1 | 20 | 13.2 | 11 | 19.0 | 31 | 14.8 | 35 | 17.6 | 48 | 32.0 | 83 | 23.8 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25j: Please rate your preference for a new or improved VEHICLE PARKING.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|---------------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Vehicle Parking | NSRA | Not Preferred at All (1) | 14 | 36.8 | 21 | 22.8 | 35 | 26.9 | 35 | 28.9 | 10 | 17.2 | 45 | 25.1 | 49 | 30.8 | 31 | 20.7 | 80 | 25.9 |
| | | Slightly Not Preferred (2) | 1 | 2.6 | 12 | 13.0 | 13 | 10.0 | 7 | 5.8 | 3 | 5.2 | 10 | 5.6 | 8 | 5.0 | 15 | 10.0 | 23 | 7.4 |
| | | Neither (3) | 8 | 21.1 | 24 | 26.1 | 32 | 24.6 | 31 | 25.6 | 23 | 39.7 | 54 | 30.2 | 39 | 24.5 | 47 | 31.3 | 86 | 27.8 |
| | | Slightly Preferred (4) | 9 | 23.7 | 15 | 16.3 | 24 | 18.5 | 19 | 15.7 | 10 | 17.2 | 29 | 16.2 | 28 | 17.6 | 25 | 16.7 | 53 | 17.2 |
| | | Highly Preferred (5) | 2 | 5.3 | 8 | 8.7 | 10 | 7.7 | 19 | 15.7 | 10 | 17.2 | 29 | 16.2 | 21 | 13.2 | 18 | 12.0 | 39 | 12.6 |
| | | No opinion/response | 4 | 10.5 | 12 | 13.0 | 16 | 12.3 | 10 | 8.3 | 2 | 3.4 | 12 | 6.7 | 14 | 8.8 | 14 | 9.3 | 28 | 9.1 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 2 | 20.0 | closed | closed | 2 | 20.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 8 | 20.0 | closed | closed | 8 | 20.0 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Neither (3) | 4 | 40.0 | closed | closed | 4 | 40.0 | 19 | 63.3 | closed | closed | 19 | 63.3 | 23 | 57.5 | closed | closed | 23 | 57.5 |
| | | Slightly Preferred (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Highly Preferred (5) | 4 | 40.0 | closed | closed | 4 | 40.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | No opinion/response | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 | 0 | 0.0 | closed | closed | 0 | 0.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 16 | 33.3 | 21 | 22.8 | 37 | 26.4 | 41 | 27.2 | 10 | 17.2 | 51 | 24.4 | 57 | 28.6 | 31 | 20.7 | 88 | 25.2 |
| | | Slightly Not Preferred (2) | 1 | 2.1 | 12 | 13.0 | 13 | 9.3 | 9 | 6.0 | 3 | 5.2 | 12 | 5.7 | 10 | 5.0 | 15 | 10.0 | 25 | 7.2 |
| | | Neither (3) | 12 | 25.0 | 24 | 26.1 | 36 | 25.7 | 50 | 33.1 | 23 | 39.7 | 73 | 34.9 | 62 | 31.2 | 47 | 31.3 | 109 | 31.2 |
| | | Slightly Preferred (4) | 9 | 18.8 | 15 | 16.3 | 24 | 17.1 | 22 | 14.6 | 10 | 17.2 | 32 | 15.3 | 31 | 15.6 | 25 | 16.7 | 56 | 16.0 |
| | | Highly Preferred (5) | 6 | 12.5 | 8 | 8.7 | 14 | 10.0 | 19 | 12.6 | 10 | 17.2 | 29 | 13.9 | 25 | 12.6 | 18 | 12.0 | 43 | 12.3 |
| | | No opinion/response | 4 | 8.3 | 12 | 13.0 | 16 | 11.4 | 10 | 6.6 | 2 | 3.4 | 12 | 5.7 | 14 | 7.0 | 14 | 9.3 | 28 | 8.0 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25k: Please rate your preference for a new or improved BOAT TRAILER PARKING.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|--------------------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Boat Trailer Parking | NSRA | Not Preferred at All (1) | 11 | 28.9 | 28 | 30.4 | 39 | 30.0 | 26 | 21.5 | 7 | 12.1 | 33 | 18.4 | 37 | 23.3 | 35 | 23.3 | 72 | 23.3 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 1 | 1.1 | 1 | 0.8 | 9 | 7.4 | 1 | 1.7 | 10 | 5.6 | 9 | 5.7 | 2 | 1.3 | 11 | 3.6 |
| | | Neither (3) | 8 | 21.1 | 23 | 25.0 | 31 | 23.8 | 24 | 19.8 | 19 | 32.8 | 43 | 24.0 | 32 | 20.1 | 42 | 28.0 | 74 | 23.9 |
| | | Slightly Preferred (4) | 3 | 7.9 | 13 | 14.1 | 16 | 12.3 | 18 | 14.9 | 12 | 20.7 | 30 | 16.8 | 21 | 13.2 | 25 | 16.7 | 46 | 14.9 |
| | | Highly Preferred (5) | 3 | 7.9 | 6 | 6.5 | 9 | 6.9 | 16 | 13.2 | 9 | 15.5 | 25 | 14.0 | 19 | 11.9 | 15 | 10.0 | 34 | 11.0 |
| | | No opinion/response | 13 | 34.2 | 21 | 22.8 | 34 | 26.2 | 28 | 23.1 | 10 | 17.2 | 38 | 21.2 | 41 | 25.8 | 31 | 20.7 | 72 | 23.3 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Neither (3) | 3 | 30.0 | closed | closed | 3 | 30.0 | 15 | 50.0 | closed | closed | 15 | 50.0 | 18 | 45.0 | closed | closed | 18 | 45.0 |
| | | Slightly Preferred (4) | 2 | 20.0 | closed | closed | 2 | 20.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Highly Preferred (5) | 2 | 20.0 | closed | closed | 2 | 20.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | No opinion/response | 2 | 20.0 | closed | closed | 2 | 20.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 8 | 20.0 | closed | closed | 8 | 20.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 12 | 25.0 | 28 | 30.4 | 40 | 28.6 | 29 | 19.2 | 7 | 12.1 | 36 | 17.2 | 41 | 20.6 | 35 | 23.3 | 76 | 21.8 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | 1 | 1.1 | 1 | 0.7 | 11 | 7.3 | 1 | 1.7 | 12 | 5.7 | 11 | 5.5 | 2 | 1.3 | 13 | 3.7 |
| | | Neither (3) | 11 | 22.9 | 23 | 25.0 | 34 | 24.3 | 39 | 25.8 | 19 | 32.8 | 58 | 27.8 | 50 | 25.1 | 42 | 28.0 | 92 | 26.4 |
| | | Slightly Preferred (4) | 5 | 10.4 | 13 | 14.1 | 18 | 12.9 | 21 | 13.9 | 12 | 20.7 | 33 | 15.8 | 26 | 13.1 | 25 | 16.7 | 51 | 14.6 |
| | | Highly Preferred (5) | 5 | 10.4 | 6 | 6.5 | 11 | 7.9 | 17 | 11.3 | 9 | 15.5 | 26 | 12.4 | 22 | 11.1 | 15 | 10.0 | 37 | 10.6 |
| | | No opinion/response | 15 | 31.3 | 21 | 22.8 | 36 | 25.7 | 34 | 22.5 | 10 | 17.2 | 44 | 21.1 | 49 | 24.6 | 31 | 20.7 | 80 | 22.9 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25l: Please rate your preference for a new or improved FOOT TRAILS TO THE SHORELINE.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|-------------------------------------|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Trails to Shoreline | NSRA | Not Preferred at All (1) | 7 | 18.4 | 8 | 8.7 | 15 | 11.5 | 29 | 24.0 | 8 | 13.8 | 37 | 20.7 | 36 | 22.6 | 16 | 10.7 | 52 | 16.8 |
| | | Slightly Not Preferred (2) | 3 | 7.9 | 4 | 4.3 | 7 | 5.4 | 6 | 5.0 | 1 | 1.7 | 7 | 3.9 | 9 | 5.7 | 5 | 3.3 | 14 | 4.5 |
| | | Neither (3) | 6 | 15.8 | 18 | 19.6 | 24 | 18.5 | 31 | 25.6 | 16 | 27.6 | 47 | 26.3 | 37 | 23.3 | 34 | 22.7 | 71 | 23.0 |
| | | Slightly Preferred (4) | 4 | 10.5 | 14 | 15.2 | 18 | 13.8 | 19 | 15.7 | 14 | 24.1 | 33 | 18.4 | 23 | 14.5 | 28 | 18.7 | 51 | 16.5 |
| | | Highly Preferred (5) | 2 | 5.3 | 4 | 4.3 | 6 | 4.6 | 14 | 11.6 | 10 | 17.2 | 24 | 13.4 | 16 | 10.1 | 14 | 9.3 | 30 | 9.7 |
| | | No opinion/response | 16 | 42.1 | 44 | 47.8 | 60 | 46.2 | 22 | 18.2 | 9 | 15.5 | 31 | 17.3 | 38 | 23.9 | 53 | 35.3 | 91 | 29.4 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 4 | 10.0 | closed | closed | 4 | 10.0 |
| | | Neither (3) | 3 | 30.0 | closed | closed | 3 | 30.0 | 14 | 46.7 | closed | closed | 14 | 46.7 | 17 | 42.5 | closed | closed | 17 | 42.5 |
| | | Slightly Preferred (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Highly Preferred (5) | 4 | 40.0 | closed | closed | 4 | 40.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | No opinion/response | 2 | 20.0 | closed | closed | 2 | 20.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 8 | 16.7 | 8 | 8.7 | 16 | 11.4 | 32 | 21.2 | 8 | 13.8 | 40 | 19.1 | 40 | 20.1 | 16 | 10.7 | 56 | 16.0 |
| | | Slightly Not Preferred (2) | 3 | 6.3 | 4 | 4.3 | 7 | 5.0 | 10 | 6.6 | 1 | 1.7 | 11 | 5.3 | 13 | 6.5 | 5 | 3.3 | 18 | 5.2 |
| | | Neither (3) | 9 | 18.8 | 18 | 19.6 | 27 | 19.3 | 45 | 29.8 | 16 | 27.6 | 61 | 29.2 | 54 | 27.1 | 34 | 22.7 | 88 | 25.2 |
| | | Slightly Preferred (4) | 4 | 8.3 | 14 | 15.2 | 18 | 12.9 | 24 | 15.9 | 14 | 24.1 | 38 | 18.2 | 28 | 14.1 | 28 | 18.7 | 56 | 16.0 |
| | | Highly Preferred (5) | 6 | 12.5 | 4 | 4.3 | 10 | 7.1 | 15 | 9.9 | 10 | 17.2 | 25 | 12.0 | 21 | 10.6 | 14 | 9.3 | 35 | 10.0 |
| | | No opinion/response | 18 | 37.5 | 44 | 47.8 | 62 | 44.3 | 25 | 16.6 | 9 | 15.5 | 34 | 16.3 | 43 | 21.6 | 53 | 35.3 | 96 | 27.5 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25m: Please rate your preference for a new or improved FOOT TRAILS AROUND THE SHORELINE.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|--|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Foot Trails Around the Shoreline | NSRA | Not Preferred at All (1) | 8 | 21.1 | 7 | 7.6 | 15 | 11.5 | 32 | 26.4 | 9 | 15.5 | 41 | 22.9 | 40 | 25.2 | 16 | 10.7 | 56 | 18.1 |
| | | Slightly Not Preferred (2) | 3 | 7.9 | 4 | 4.3 | 7 | 5.4 | 6 | 5.0 | 2 | 3.4 | 8 | 4.5 | 9 | 5.7 | 6 | 4.0 | 15 | 4.9 |
| | | Neither (3) | 6 | 15.8 | 19 | 20.7 | 25 | 19.2 | 29 | 24.0 | 15 | 25.9 | 44 | 24.6 | 35 | 22.0 | 34 | 22.7 | 69 | 22.3 |
| | | Slightly Preferred (4) | 2 | 5.3 | 12 | 13.0 | 14 | 10.8 | 22 | 18.2 | 12 | 20.7 | 34 | 19.0 | 24 | 15.1 | 24 | 16.0 | 48 | 15.5 |
| | | Highly Preferred (5) | 2 | 5.3 | 6 | 6.5 | 8 | 6.2 | 13 | 10.7 | 11 | 19.0 | 24 | 13.4 | 15 | 9.4 | 17 | 11.3 | 32 | 10.4 |
| | | No opinion/response | 17 | 44.7 | 44 | 47.8 | 61 | 46.9 | 19 | 15.7 | 9 | 15.5 | 28 | 15.6 | 36 | 22.6 | 53 | 35.3 | 89 | 28.8 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 4 | 13.3 | closed | closed | 4 | 13.3 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Neither (3) | 3 | 30.0 | closed | closed | 3 | 30.0 | 13 | 43.3 | closed | closed | 13 | 43.3 | 16 | 40.0 | closed | closed | 16 | 40.0 |
| | | Slightly Preferred (4) | 0 | 0.0 | closed | closed | 0 | 0.0 | 5 | 16.7 | closed | closed | 5 | 16.7 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Highly Preferred (5) | 4 | 40.0 | closed | closed | 4 | 40.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 6 | 15.0 | closed | closed | 6 | 15.0 |
| | | No opinion/response | 2 | 20.0 | closed | closed | 2 | 20.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 9 | 18.8 | 7 | 7.6 | 16 | 11.4 | 36 | 23.8 | 9 | 15.5 | 45 | 21.5 | 45 | 22.6 | 16 | 10.7 | 61 | 17.5 |
| | | Slightly Not Preferred (2) | 3 | 6.3 | 4 | 4.3 | 7 | 5.0 | 9 | 6.0 | 2 | 3.4 | 11 | 5.3 | 12 | 6.0 | 6 | 4.0 | 18 | 5.2 |
| | | Neither (3) | 9 | 18.8 | 19 | 20.7 | 28 | 20.0 | 42 | 27.8 | 15 | 25.9 | 57 | 27.3 | 51 | 25.6 | 34 | 22.7 | 85 | 24.4 |
| | | Slightly Preferred (4) | 2 | 4.2 | 12 | 13.0 | 14 | 10.0 | 27 | 17.9 | 12 | 20.7 | 39 | 18.7 | 29 | 14.6 | 24 | 16.0 | 53 | 15.2 |
| | | Highly Preferred (5) | 6 | 12.5 | 6 | 6.5 | 12 | 8.6 | 15 | 9.9 | 11 | 19.0 | 26 | 12.4 | 21 | 10.6 | 17 | 11.3 | 38 | 10.9 |
| | | No opinion/response | 19 | 39.6 | 44 | 47.8 | 63 | 45.0 | 22 | 14.6 | 9 | 15.5 | 31 | 14.8 | 41 | 20.6 | 53 | 35.3 | 94 | 26.9 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 25n: Please rate your preference for a new or improved SIGNAGE WITHIN THE RECREATION AREA.

| Facility Improvement | Recreation Area | Preference Response (5-Point Scale) | Day-use Visitors | | | | | | Overnight Visitors | | | | | | All Visitors | | | | | |
|--|-----------------|-------------------------------------|------------------|-------|-----------------|--------|---------|-------|--------------------|-------|-----------------|--------|---------|-------|--------------|-------|-----------------|--------|---------|-------|
| | | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | | Peak Season | | Off Peak Season | | Overall | |
| | | | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| New or Improved Signage in the Recreation Area | NSRA | Not Preferred at All (1) | 9 | 23.7 | 12 | 13.0 | 21 | 16.2 | 25 | 20.7 | 7 | 12.1 | 32 | 17.9 | 34 | 21.4 | 19 | 12.7 | 53 | 17.2 |
| | | Slightly Not Preferred (2) | 3 | 7.9 | 10 | 10.9 | 13 | 10.0 | 10 | 8.3 | 3 | 5.2 | 13 | 7.3 | 13 | 8.2 | 13 | 8.7 | 26 | 8.4 |
| | | Neither (3) | 6 | 15.8 | 29 | 31.5 | 35 | 26.9 | 27 | 22.3 | 16 | 27.6 | 43 | 24.0 | 33 | 20.8 | 45 | 30.0 | 78 | 25.2 |
| | | Slightly Preferred (4) | 7 | 18.4 | 14 | 15.2 | 21 | 16.2 | 24 | 19.8 | 17 | 29.3 | 41 | 22.9 | 31 | 19.5 | 31 | 20.7 | 62 | 20.1 |
| | | Highly Preferred (5) | 1 | 2.6 | 9 | 9.8 | 10 | 7.7 | 19 | 15.7 | 11 | 19.0 | 30 | 16.8 | 20 | 12.6 | 20 | 13.3 | 40 | 12.9 |
| | | No opinion/response | 12 | 31.6 | 18 | 19.6 | 30 | 23.1 | 16 | 13.2 | 4 | 6.9 | 20 | 11.2 | 28 | 17.6 | 22 | 14.7 | 50 | 16.2 |
| | | Total | 38 | 100.0 | 92 | 100.0 | 130 | 100.0 | 121 | 100.0 | 58 | 100.0 | 179 | 100.0 | 159 | 100.0 | 150 | 100.0 | 309 | 100.0 |
| | SSRA | Not Preferred at All (1) | 1 | 10.0 | closed | closed | 1 | 10.0 | 2 | 6.7 | closed | closed | 2 | 6.7 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Slightly Not Preferred (2) | 0 | 0.0 | closed | closed | 0 | 0.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 3 | 7.5 | closed | closed | 3 | 7.5 |
| | | Neither (3) | 4 | 40.0 | closed | closed | 4 | 40.0 | 15 | 50.0 | closed | closed | 15 | 50.0 | 19 | 47.5 | closed | closed | 19 | 47.5 |
| | | Slightly Preferred (4) | 2 | 20.0 | closed | closed | 2 | 20.0 | 6 | 20.0 | closed | closed | 6 | 20.0 | 8 | 20.0 | closed | closed | 8 | 20.0 |
| | | Highly Preferred (5) | 2 | 20.0 | closed | closed | 2 | 20.0 | 3 | 10.0 | closed | closed | 3 | 10.0 | 5 | 12.5 | closed | closed | 5 | 12.5 |
| | | No opinion/response | 1 | 10.0 | closed | closed | 1 | 10.0 | 1 | 3.3 | closed | closed | 1 | 3.3 | 2 | 5.0 | closed | closed | 2 | 5.0 |
| | | Total | 10 | 100.0 | closed | closed | 10 | 100.0 | 30 | 100.0 | closed | closed | 30 | 100.0 | 40 | 100.0 | closed | closed | 40 | 100.0 |
| | Total | Not Preferred at All (1) | 10 | 20.8 | 12 | 13.0 | 22 | 15.7 | 27 | 17.9 | 7 | 12.1 | 34 | 16.3 | 37 | 18.6 | 19 | 12.7 | 56 | 16.0 |
| | | Slightly Not Preferred (2) | 3 | 6.3 | 10 | 10.9 | 13 | 9.3 | 13 | 8.6 | 3 | 5.2 | 16 | 7.7 | 16 | 8.0 | 13 | 8.7 | 29 | 8.3 |
| | | Neither (3) | 10 | 20.8 | 29 | 31.5 | 39 | 27.9 | 42 | 27.8 | 16 | 27.6 | 58 | 27.8 | 52 | 26.1 | 45 | 30.0 | 97 | 27.8 |
| | | Slightly Preferred (4) | 9 | 18.8 | 14 | 15.2 | 23 | 16.4 | 30 | 19.9 | 17 | 29.3 | 47 | 22.5 | 39 | 19.6 | 31 | 20.7 | 70 | 20.1 |
| | | Highly Preferred (5) | 3 | 6.3 | 9 | 9.8 | 12 | 8.6 | 22 | 14.6 | 11 | 19.0 | 33 | 15.8 | 25 | 12.6 | 20 | 13.3 | 45 | 12.9 |
| | | No opinion/response | 13 | 27.1 | 18 | 19.6 | 31 | 22.1 | 17 | 11.3 | 4 | 6.9 | 21 | 10.0 | 30 | 15.1 | 22 | 14.7 | 52 | 14.9 |
| | | Total | 48 | 100.0 | 92 | 100.0 | 140 | 100.0 | 151 | 100.0 | 58 | 100.0 | 209 | 100.0 | 199 | 100.0 | 150 | 100.0 | 349 | 100.0 |

Question 26: How did you learn about this recreation area?

| Response | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|---------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|--------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| Word of mouth | NSRA | Number | 32 | 68 | 100 | 104 | 49 | 153 | 136 | 117 | 253 |
| | | Percent | 20.1 | 45.3 | 32.4 | 65.4 | 32.7 | 49.5 | 85.5 | 78.0 | 81.9 |
| | SSRA | Number | 7 | closed | 7 | 28 | closed | 28 | 35 | closed | 35 |
| | | Percent | 17.5 | closed | 17.5 | 70.0 | closed | 70.0 | 87.5 | closed | 87.5 |
| | Total | Number | 39 | 68 | 107 | 132 | 49 | 181 | 171 | 117 | 288 |
| | | Percent | 19.6 | 45.3 | 30.7 | 66.3 | 32.7 | 51.9 | 85.9 | 78.0 | 82.5 |
| Internet | NSRA | Number | 0 | 4 | 4 | 3 | 2 | 5 | 3 | 6 | 9 |
| | | Percent | 0.0 | 2.7 | 1.3 | 1.9 | 1.3 | 1.6 | 1.9 | 4.0 | 2.9 |
| | SSRA | Number | 1 | closed | 1 | 2 | closed | 2 | 3 | closed | 3 |
| | | Percent | 2.5 | closed | 2.5 | 5.0 | closed | 5.0 | 7.5 | closed | 7.5 |
| | Total | Number | 1 | 4 | 5 | 5 | 2 | 7 | 6 | 6 | 12 |
| | | Percent | 0.5 | 2.7 | 1.4 | 2.5 | 1.3 | 2.0 | 3.0 | 4.0 | 3.4 |
| Newspaper | NSRA | Number | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| | | Percent | 0.6 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.3 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Total | Number | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| | | Percent | 0.5 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 |
| Other | NSRA | Number | 4 | 15 | 19 | 13 | 6 | 19 | 17 | 21 | 38 |
| | | Percent | 2.5 | 10.0 | 6.1 | 8.2 | 4.0 | 6.1 | 10.7 | 14.0 | 12.3 |
| | SSRA | Number | 2 | closed | 2 | 0 | closed | 0 | 2 | closed | 2 |
| | | Percent | 5.0 | closed | 5.0 | 0.0 | closed | 0.0 | 5.0 | closed | 5.0 |
| | Total | Number | 6 | 15 | 21 | 13 | 6 | 19 | 19 | 21 | 40 |
| | | Percent | 3.0 | 10.0 | 6.0 | 6.5 | 4.0 | 5.4 | 9.5 | 14.0 | 11.5 |
| No response | NSRA | Number | 1 | 5 | 6 | 1 | 1 | 2 | 2 | 6 | 8 |
| | | Percent | 0.6 | 3.3 | 1.9 | 0.6 | 0.7 | 0.6 | 1.3 | 4.0 | 2.6 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Total | Number | 1 | 5 | 6 | 1 | 1 | 2 | 2 | 6 | 8 |
| | | Percent | 0.5 | 3.3 | 1.7 | 0.5 | 0.7 | 0.6 | 1.0 | 4.0 | 2.3 |
| Total | NSRA | Number | 38 | 92 | 130 | 121 | 58 | 179 | 159 | 150 | 309 |
| | | Percent | 23.9 | 61.3 | 42.1 | 76.1 | 38.7 | 57.9 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 10 | closed | 10 | 30 | closed | 30 | 40 | closed | 40 |
| | | Percent | 25.0 | closed | 25.0 | 75.0 | closed | 75.0 | 100.0 | closed | 100.0 |
| | Total | Number | 48 | 92 | 140 | 151 | 58 | 209 | 199 | 150 | 349 |
| | | Percent | 24.1 | 61.3 | 40.1 | 75.9 | 38.7 | 59.9 | 100.0 | 100.0 | 100.0 |

Question 27a: What is your age?

| Recreation Area | AVERAGE AGE OF VISITORS SURVEYED | | | | | | | | |
|-----------------|----------------------------------|----------|-------|--------------------|----------|-------|--------------|----------|-------|
| | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
| | Peak | Off Peak | Total | Peak | Off Peak | Total | Peak | Off Peak | Total |
| NSRA | 43.1 | 47.6 | 46.2 | 38.9 | 38.7 | 38.8 | 39.9 | 44.1 | 41.9 |
| SSRA | 45.0 | closed | 45.0 | 38.9 | closed | 38.9 | 40.5 | closed | 40.5 |
| Total | 43.5 | 47.6 | 46.2 | 38.9 | 38.7 | 38.8 | 40.0 | 44.1 | 41.8 |

Question 27b: What is your gender?

| Response | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|-------------|-----------------|-----------|------------------|----------|-------|--------------------|----------|-------|--------------|----------|-------|
| | | | Peak | Off Peak | Total | Peak | Off Peak | Total | Peak | Off Peak | Total |
| Male | NSRA | Number | 23 | 73 | 96 | 71 | 42 | 113 | 94 | 115 | 209 |
| | | Percent | 14.5 | 48.7 | 31.1 | 44.7 | 28.0 | 36.6 | 59.1 | 76.7 | 67.6 |
| | SSRA | Number | 6 | closed | 6 | 19 | closed | 19 | 25 | closed | 25 |
| | | Percent | 15.0 | closed | 15.0 | 47.5 | closed | 47.5 | 62.5 | closed | 62.5 |
| | Total | Number | 29 | 73 | 102 | 90 | 42 | 132 | 119 | 115 | 234 |
| | | Percent | 14.6 | 48.7 | 29.2 | 45.2 | 28.0 | 37.8 | 59.8 | 76.7 | 67.0 |
| Female | NSRA | Number | 14 | 19 | 33 | 48 | 16 | 64 | 62 | 35 | 97 |
| | | Percent | 8.8 | 12.7 | 10.7 | 30.2 | 10.7 | 20.7 | 39.0 | 23.3 | 31.4 |
| | SSRA | Number | 4 | closed | 4 | 11 | closed | 11 | 15 | closed | 15 |
| | | Percent | 10.0 | closed | 10.0 | 27.5 | closed | 27.5 | 37.5 | closed | 37.5 |
| | Total | Number | 18 | 19 | 37 | 59 | 16 | 75 | 77 | 35 | 112 |
| | | Percent | 9.0 | 12.7 | 10.6 | 29.6 | 10.7 | 21.5 | 38.7 | 23.3 | 32.1 |
| No response | NSRA | Number | 1 | 0 | 1 | 2 | 0 | 2 | 3 | 0 | 3 |
| | | Percent | 0.6 | 0.0 | 0.3 | 1.3 | 0.0 | 0.6 | 1.9 | 0.0 | 1.0 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Total | Number | 1 | 0 | 1 | 2 | 0 | 2 | 3 | 0 | 3 |
| | | Percent | 0.5 | 0.0 | 0.3 | 1.0 | 0.0 | 0.6 | 1.5 | 0.0 | 0.9 |
| Total | NSRA | Number | 38 | 92 | 130 | 121 | 58 | 179 | 159 | 150 | 309 |
| | | Percent | 23.9 | 61.3 | 42.1 | 76.1 | 38.7 | 57.9 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 10 | closed | 10 | 30 | closed | 30 | 40 | closed | 40 |
| | | Percent | 25.0 | closed | 25.0 | 75.0 | closed | 75.0 | 100.0 | closed | 100.0 |
| | Total | Number | 48 | 92 | 140 | 151 | 58 | 209 | 199 | 150 | 349 |
| | | Percent | 24.1 | 61.3 | 40.1 | 75.9 | 38.7 | 59.9 | 100.0 | 100.0 | 100.0 |

Question 27c: What is your ethnicity?

| Response | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|---|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|--------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| American Indian/ Alaskan Native | NSRA | Number | 2 | 6 | 8 | 2 | 2 | 4 | 4 | 8 | 12 |
| | | Percent | 1.3% | 4.0% | 2.6% | 1.3% | 1.3% | 1.3% | 2.5% | 5.3% | 3.9% |
| | SSRA | Number | 0 | closed | 0 | 1 | closed | 1 | 1 | closed | 1 |
| | | Percent | 0.0% | closed | 0.0% | 2.5% | closed | 2.5% | 2.5% | closed | 2.5% |
| | Total | Number | 2 | 6 | 8 | 3 | 2 | 5 | 5 | 8 | 13 |
| | | Percent | 1.0% | 4.0% | 2.3% | 1.5% | 1.3% | 1.4% | 2.5% | 5.3% | 3.7% |
| Hispanic/ Latino | NSRA | Number | 5 | 7 | 12 | 15 | 5 | 20 | 20 | 12 | 32 |
| | | Percent | 3.1% | 4.7% | 3.9% | 9.4% | 3.3% | 6.5% | 12.6% | 8.0% | 10.4% |
| | SSRA | Number | 3 | closed | 3 | 5 | closed | 5 | 8 | closed | 8 |
| | | Percent | 7.5% | closed | 7.5% | 12.5% | closed | 12.5% | 20.0% | closed | 20.0% |
| | Total | Number | 8 | 7 | 15 | 20 | 5 | 25 | 28 | 12 | 40 |
| | | Percent | 4.0% | 4.7% | 4.3% | 10.1% | 3.3% | 7.2% | 14.1% | 8.0% | 11.5% |
| Spanish Hispanic or Latino | NSRA | Number | 1 | 0 | 1 | 7 | 0 | 7 | 8 | 0 | 8 |
| | | Percent | 0.6% | 0.0% | 0.3% | 4.4% | 0.0% | 2.3% | 5.0% | 0.0% | 2.6% |
| | SSRA | Number | 0 | closed | 0 | 3 | closed | 3 | 3 | closed | 3 |
| | | Percent | 0.0% | closed | 0.0% | 7.5% | closed | 7.5% | 7.5% | closed | 7.5% |
| | Total | Number | 1 | 0 | 1 | 10 | 0 | 10 | 11 | 0 | 11 |
| | | Percent | 0.5% | 0.0% | 0.3% | 5.0% | 0.0% | 2.9% | 5.5% | 0.0% | 3.2% |
| Asian | NSRA | Number | 2 | 2 | 4 | 3 | 0 | 3 | 5 | 2 | 7 |
| | | Percent | 1.3% | 1.3% | 1.3% | 1.9% | 0.0% | 1.0% | 3.1% | 1.3% | 2.3% |
| | SSRA | Number | 1 | closed | 1 | 0 | closed | 0 | 1 | closed | 1 |
| | | Percent | 2.5% | closed | 2.5% | 0.0% | closed | 0.0% | 2.5% | closed | 2.5% |
| | Total | Number | 3 | 2 | 5 | 3 | 0 | 3 | 6 | 2 | 8 |
| | | Percent | 1.5% | 1.3% | 1.4% | 1.5% | 0.0% | 0.9% | 3.0% | 1.3% | 2.3% |
| Black/ African-American | NSRA | Number | 2 | 0 | 2 | 1 | 0 | 1 | 3 | 0 | 3 |
| | | Percent | 1.3% | 0.0% | 0.6% | 0.6% | 0.0% | 0.3% | 1.9% | 0.0% | 1.0% |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0% | closed | 0.0% | 0.0% | closed | 0.0% | 0.0% | closed | 0.0% |
| | Total | Number | 2 | 0 | 2 | 1 | 0 | 1 | 3 | 0 | 3 |
| | | Percent | 1.0% | 0.0% | 0.6% | 0.5% | 0.0% | 0.3% | 1.5% | 0.0% | 0.9% |
| White | NSRA | Number | 24 | 73 | 97 | 87 | 47 | 134 | 111 | 120 | 231 |
| | | Percent | 15.1% | 48.7% | 31.4% | 54.7% | 31.3% | 43.4% | 69.8% | 80.0% | 74.8% |
| | SSRA | Number | 6 | closed | 6 | 20 | closed | 20 | 26 | closed | 26 |
| | | Percent | 15.0% | closed | 15.0% | 50.0% | closed | 50.0% | 65.0% | closed | 65.0% |
| | Total | Number | 30 | 73 | 103 | 107 | 47 | 154 | 137 | 120 | 257 |
| | | Percent | 15.1% | 48.7% | 29.5% | 53.8% | 31.3% | 44.1% | 68.8% | 80.0% | 73.6% |
| Native Hawaiian/ Other Pacific Islander | NSRA | Number | 0 | 0 | 0 | 2 | 1 | 3 | 2 | 1 | 3 |
| | | Percent | 0.0% | 0.0% | 0.0% | 1.3% | 0.7% | 1.0% | 1.3% | 0.7% | 1.0% |
| | SSRA | Number | 0 | closed | 0 | 1 | closed | 1 | 1 | closed | 1 |
| | | Percent | 0.0% | closed | 0.0% | 2.5% | closed | 2.5% | 2.5% | closed | 2.5% |
| | Total | Number | 0 | 0 | 0 | 3 | 1 | 4 | 3 | 1 | 4 |
| | | Percent | 0.0% | 0.0% | 0.0% | 1.5% | 0.7% | 1.1% | 1.5% | 0.7% | 1.1% |
| Other | NSRA | Number | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 4 | 4 |
| | | Percent | 0.0% | 1.3% | 0.6% | 0.0% | 1.3% | 0.6% | 0.0% | 2.7% | 1.3% |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0% | closed | 0.0% | 0.0% | closed | 0.0% | 0.0% | closed | 0.0% |
| | Total | Number | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 4 | 4 |
| | | Percent | 0.0% | 1.3% | 0.6% | 0.0% | 1.3% | 0.6% | 0.0% | 2.7% | 1.1% |
| No response | NSRA | Number | 2 | 2 | 4 | 4 | 1 | 5 | 6 | 3 | 9 |
| | | Percent | 1.3% | 1.3% | 1.3% | 2.5% | 0.7% | 1.6% | 3.8% | 2.0% | 2.9% |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0% | closed | 0.0% | 0.0% | closed | 0.0% | 0.0% | closed | 0.0% |
| | Total | Number | 2 | 2 | 4 | 4 | 1 | 5 | 6 | 3 | 9 |
| | | Percent | 1.0% | 1.3% | 1.1% | 2.0% | 0.7% | 1.4% | 3.0% | 2.0% | 2.6% |
| Total | NSRA | Number | 38 | 92 | 130 | 121 | 58 | 179 | 159 | 150 | 309 |
| | | Percent | 23.9% | 61.3% | 42.1% | 76.1% | 38.7% | 57.9% | 100.0% | 100.0% | 100.0% |
| | SSRA | Number | 10 | closed | 10 | 30 | closed | 30 | 40 | closed | 40 |
| | | Percent | 25.0% | closed | 25.0% | 75.0% | closed | 75.0% | 100.0% | closed | 100.0% |
| | Total | Number | 48 | 92 | 140 | 151 | 58 | 209 | 199 | 150 | 349 |
| | | Percent | 24.1% | 61.3% | 40.1% | 75.9% | 38.7% | 59.9% | 100.0% | 100.0% | 100.0% |

Question 27d: What is your primary spoken language?

| Response | Recreation Area | Statistic | Day-use Visitors | | | Overnight Visitors | | | All Visitors | | |
|-------------|-----------------|-----------|------------------|-----------------|---------|--------------------|-----------------|---------|--------------|-----------------|---------|
| | | | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall | Peak Season | Off Peak Season | Overall |
| English | NSRA | Number | 35 | 87 | 122 | 107 | 53 | 160 | 142 | 140 | 282 |
| | | Percent | 22.0 | 58.0 | 39.5 | 67.3 | 35.3 | 51.8 | 89.3 | 93.3 | 91.3 |
| | SSRA | Number | 8 | closed | 8 | 26 | closed | 26 | 34 | closed | 34 |
| | | Percent | 20.0 | closed | 20.0 | 65.0 | closed | 65.0 | 85.0 | closed | 85.0 |
| | Total | Number | 43 | 87 | 130 | 133 | 53 | 186 | 176 | 140 | 316 |
| | | Percent | 21.6 | 58.0 | 37.2 | 66.8 | 35.3 | 53.3 | 88.4 | 93.3 | 90.5 |
| Spanish | NSRA | Number | 1 | 2 | 3 | 11 | 2 | 13 | 12 | 4 | 16 |
| | | Percent | 0.6 | 1.3 | 1.0 | 6.9 | 1.3 | 4.2 | 7.5 | 2.7 | 5.2 |
| | SSRA | Number | 1 | closed | 1 | 4 | closed | 4 | 5 | closed | 5 |
| | | Percent | 2.5 | closed | 2.5 | 10.0 | closed | 10.0 | 12.5 | closed | 12.5 |
| | Total | Number | 2 | 2 | 4 | 15 | 2 | 17 | 17 | 4 | 21 |
| | | Percent | 1.0 | 1.3 | 1.1 | 7.5 | 1.3 | 4.9 | 8.5 | 2.7 | 6.0 |
| Russian | NSRA | Number | 1 | 1 | 2 | 0 | 1 | 1 | 1 | 2 | 3 |
| | | Percent | 0.6 | 0.7 | 0.6 | 0.0 | 0.7 | 0.3 | 0.6 | 1.3 | 1.0 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Total | Number | 1 | 1 | 2 | 0 | 1 | 1 | 1 | 2 | 3 |
| | | Percent | 0.5 | 0.7 | 0.6 | 0.0 | 0.7 | 0.3 | 0.5 | 1.3 | 0.9 |
| Ukrainian | NSRA | Number | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.3 | 0.0 | 0.7 | 0.3 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Total | Number | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.3 | 0.0 | 0.7 | 0.3 |
| Japanese | NSRA | Number | 0 | 2 | 2 | 1 | 0 | 1 | 1 | 2 | 3 |
| | | Percent | 0.0 | 1.3 | 0.6 | 0.6 | 0.0 | 0.3 | 0.6 | 1.3 | 1.0 |
| | SSRA | Number | 1 | closed | 1 | 0 | closed | 0 | 1 | closed | 1 |
| | | Percent | 2.5 | closed | 2.5 | 0.0 | closed | 0.0 | 2.5 | closed | 2.5 |
| | Total | Number | 1 | 2 | 3 | 1 | 0 | 1 | 2 | 2 | 4 |
| | | Percent | 0.5 | 1.3 | 0.9 | 0.5 | 0.0 | 0.3 | 1.0 | 1.3 | 1.1 |
| Laoatian | NSRA | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.3 | 0.6 | 0.0 | 0.3 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Total | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 | 0.5 | 0.0 | 0.3 |
| Romanian | NSRA | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.3 | 0.6 | 0.0 | 0.3 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Total | Number | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | | Percent | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 | 0.5 | 0.0 | 0.3 |
| No response | NSRA | Number | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 2 |
| | | Percent | 0.6 | 0.0 | 0.3 | 0.0 | 0.7 | 0.3 | 0.6 | 0.7 | 0.6 |
| | SSRA | Number | 0 | closed | 0 | 0 | closed | 0 | 0 | closed | 0 |
| | | Percent | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 | 0.0 | closed | 0.0 |
| | Total | Number | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 2 |
| | | Percent | 0.5 | 0.0 | 0.3 | 0.0 | 0.7 | 0.3 | 0.5 | 0.7 | 0.6 |
| Total | NSRA | Number | 38 | 92 | 130 | 121 | 58 | 179 | 159 | 150 | 309 |
| | | Percent | 23.9 | 61.3 | 42.1 | 76.1 | 38.7 | 57.9 | 100.0 | 100.0 | 100.0 |
| | SSRA | Number | 10 | closed | 10 | 30 | closed | 30 | 40 | closed | 40 |
| | | Percent | 25.0 | closed | 25.0 | 75.0 | closed | 75.0 | 100.0 | closed | 100.0 |
| | Total | Number | 48 | 92 | 140 | 151 | 58 | 209 | 199 | 150 | 349 |
| | | Percent | 24.1 | 61.3 | 40.1 | 75.9 | 38.7 | 59.9 | 100.0 | 100.0 | 100.0 |

Question 27e: What is the zip code of your primary residence?

| Recreation Area | County | Day-use Visitors | | Overnight Visitors | | All Visitors | |
|-----------------|---------------------------|------------------|---------|--------------------|---------|--------------|---------|
| | | Number | Percent | Number | Percent | Number | Percent |
| NSRA | Alameda | 0 | 0.0% | 3 | 1.0% | 3 | 1.0% |
| | Butte | 1 | 0.3% | 2 | 0.6% | 3 | 1.0% |
| | Contra Costa | 1 | 0.3% | 5 | 1.6% | 6 | 1.9% |
| | Davis | 0 | 0.0% | 2 | 0.6% | 2 | 0.6% |
| | Dickson | 0 | 0.0% | 1 | 0.3% | 1 | 0.3% |
| | El Dorado | 1 | 0.3% | 3 | 1.0% | 4 | 1.3% |
| | International | 0 | 0.0% | 1 | 0.3% | 1 | 0.3% |
| | Nevada | 1 | 0.3% | 1 | 0.3% | 2 | 0.6% |
| | Pierce | 0 | 0.0% | 1 | 0.3% | 1 | 0.3% |
| | Placer | 50 | 16.2% | 29 | 9.4% | 79 | 25.6% |
| | Plumas | 1 | 0.3% | 0 | 0.0% | 1 | 0.3% |
| | Sacramento | 29 | 9.4% | 71 | 23.0% | 100 | 32.4% |
| | San Francisco | 0 | 0.0% | 2 | 0.6% | 2 | 0.6% |
| | San Joaquin | 0 | 0.0% | 6 | 1.9% | 6 | 1.9% |
| | Santa Clara | 0 | 0.0% | 2 | 0.6% | 2 | 0.6% |
| | Solano | 0 | 0.0% | 1 | 0.3% | 1 | 0.3% |
| | Sutter | 9 | 2.9% | 13 | 4.2% | 22 | 7.1% |
| | Tulare | 0 | 0.0% | 1 | 0.3% | 1 | 0.3% |
| | Tuolumne | 1 | 0.3% | 0 | 0.0% | 1 | 0.3% |
| | Washoe | 0 | 0.0% | 4 | 1.3% | 4 | 1.3% |
| | Yolo | 2 | 0.6% | 5 | 1.6% | 7 | 2.3% |
| | Yuba | 22 | 7.1% | 19 | 6.1% | 41 | 13.3% |
| | Invalid zip code provided | 0 | 0.0% | 1 | 0.3% | 1 | 0.3% |
| | No response | 12 | 3.9% | 6 | 1.9% | 18 | 5.8% |
| | Total | 130 | 42.1% | 179 | 57.9% | 309 | 100.0% |
| SSRA | Alameda | 0 | 0.0% | 1 | 2.5% | 1 | 2.5% |
| | Contra Costa | 0 | 0.0% | 1 | 2.5% | 1 | 2.5% |
| | Glenn | 1 | 2.5% | 0 | 0.0% | 1 | 2.5% |
| | Nevada | 0 | 0.0% | 1 | 2.5% | 1 | 2.5% |
| | Placer | 7 | 17.5% | 7 | 17.5% | 14 | 35.0% |
| | Sacramento | 0 | 0.0% | 11 | 27.5% | 11 | 27.5% |
| | San Mateo | 0 | 0.0% | 1 | 2.5% | 1 | 2.5% |
| | Stanislaus | 0 | 0.0% | 1 | 2.5% | 1 | 2.5% |
| | Sutter | 1 | 2.5% | 2 | 5.0% | 3 | 7.5% |
| | Yuba | 1 | 2.5% | 3 | 7.5% | 4 | 10.0% |
| | Invalid zip code provided | 0 | 0.0% | 2 | 5.0% | 2 | 5.0% |
| | No response | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| | Total | 10 | 25.0% | 30 | 75.0% | 40 | 100.0% |

Question 28a: General Comments by Day-use Visitors at NSRA during Off Peak Season.

| Comment | Number of Responses |
|---|----------------------------|
| \$20 fee seems too high for just launching a boat for a few hours | 1 |
| Bathrooms need tending; kids play area would be nice | 1 |
| Better bathrooms; better potable water; fishing piers or docks would be nice | 1 |
| Better bathrooms; block off for boats and jet skis near shore | 1 |
| Boat rentals are a plus | 1 |
| Coming from a state where recreational activities are actually valued, I am astounded at the lack of lake management, not only at this lake, but at the majority of the lakes in this area. But, as we all know, it's not about recreation whe it comes to water in Cal. Please, if you are going to drain the lake, year after year, after year, extend the friggin boat ramp so we don't have to launch in teh mud from October to December, putting on waders and spreading towels in our boat to minimize the mess. | 1 |
| Day use fee is high; entry is slow when popular days | 1 |
| Earliest gate entrance as possible | 1 |
| Enforce alcohol ban on lake - very important; would prefer no alcohol sales for safest boating | 1 |
| Enforce Coast Guard rules for safe boating operation | 1 |
| Enforce noise ordinance on jet/power boats; employ a moveable floating dock as the lake levels drop below the existing boat ramps; late summer through spring we launch off the old dam service road-mud/no dock. | 1 |
| Equestrian center; zipline | 1 |
| Expand gate closing hours - later better. | 1 |
| Experiences have always been good; signage could be better; roads need upgrading | 1 |
| Gas station | 1 |
| Gates open 24 hours | 1 |
| Good the way it is! | 1 |
| Great as is | 1 |
| I feel very comfortable with the whole experience | 1 |
| I've reported an attacking dog in campground, but staff doesn't seem to care enough about enforcement within campground | 1 |
| Improve boat launch area | 1 |
| Improve roads all over rec area | 1 |
| Improve store and bathrooms. Stop smoking by concessionaires inside store | 1 |
| Improved roads coming into the recreation area; no problem within | 1 |
| Keep fees as low as possible; would love to be able to buy gasoline at NSRA | 1 |
| Leave it as is | 1 |
| Less crowded boat launch during summer | 1 |
| Lower boat launch fees | 1 |
| Lower day use fees | 1 |
| More bass tournaments | 1 |
| Open the gates earlier | 1 |
| Open the gates earlier than today; actually opened at 6:00 am | 1 |
| Plant some Florida strain largemouth Bass. Also plant Coho Salmon during the winter. | 1 |
| Post or verbally indicate use sites and offer maps/pamphlets; restrooms and roads in facility could be better | 1 |

Question 28a (continued): General Comments by Day-use Visitors at NSRA during Off Peak Season.

| Comment | Number of Responses |
|---|---------------------|
| Prices are high and charge for dogs and kayaks. No showers | 1 |
| Restrooms could be cleaner | 1 |
| Sheriffs patrol | 1 |
| Signage in water for hazards/rocks and to control speed near launch for tournaments | 1 |
| South Shore Rec Area open more often; convenience shops to have more options/supply | 1 |
| Teen drinking patrols - out of control adolescent partying during peak season | 1 |
| This is a small lake utilized primarily for irrigation. There appears to be no lake management. 90% of the fish caught from this lake are Spotted Bass in the 10-13 inch length, which should probably be removed. This might allow what few Largemouth that are in the lake to grow and improve the recreational experience. | 1 |
| We enjoy fishing here. It would be nice to have an area to drop boat and separate to pick up. In the spring/summer lots of recreational boaters who are slow on the ramps. | 1 |
| It would be nice to see some fish management on this lake. There appears to be none at this time. Make the removal of any spotted bass caught under 12 inches mandatory. There are very few large fish caught from this lake, and even fewer Largemouth Bass. The lake is completely dominated by the Spotted Bass species. | 2 |
| Total | 44 |

Question 28b: Comments by Day-use Visitors at NSRA during Peak Season.

| Comment | Number of Responses |
|--|---------------------|
| Add sand along shoreline swim areas; add water line near restrooms (drinking); add lifeguards | 1 |
| All we want is for rock islands and trees to be marked so we don't ruin our boat by driving over them | 1 |
| Better here than most other lakes - laid back attitude and fewer obstacles; nice lake overall | 1 |
| Better marking of hidden obstacles under water. | 1 |
| Better service for campsites and restrooms | 1 |
| Better trails to restrooms; potable water would be nice | 1 |
| Boat launch needs more water | 1 |
| Cheaper for disabled vets | 1 |
| I liked it the way it is; was not too crowded | 1 |
| Improve beach area/smooth out; provide more day use beach area | 1 |
| Leave the water levels up for recreational uses as long as possible | 1 |
| Like it as it is | 1 |
| Lower the prices; teach other boaters proper etiquette - a guy tied up and left jet ski in a way that others couldn't launch their boats | 1 |
| More water and overhangs | 1 |
| Opening the gate 1 hour before safe light | 1 |
| Possibly free admission to locals or discounted rate for locals | 1 |
| Shore access very rocky, slippery | 1 |
| Signage outside rec area guiding to north/south areas; rentals would be nice (i.e., tents, boats) | 1 |
| Stock more mechanical items nearby so someone doesn't have to drive far for repairs | 1 |
| Stocking of fish | 1 |
| Very pleased | 1 |
| Total | 21 |

Question 28c: Comments by Day-use Visitors at SSRA during Peak Season.

| Comment | Number of Responses |
|--|---------------------|
| Flushing toilets | 1 |
| More shady months and hours on the South Shore | 1 |
| We love CFW | 1 |
| Total | 3 |

Question 28d: Comments by Overnight Visitors at NSRA during Off Peak Season.

| Comment | Number of Responses |
|---|---------------------|
| A higher water level would make swimming more comfortable | 1 |
| Adding site numbers to each campground site | 1 |
| Bathrooms | 1 |
| Bathrooms needed for campers in Jet Ski Cove area | 1 |
| Better restrooms and water | 1 |
| Buoys/signs for jet skiers to avoid speeding and getting too close to children, etc; rules for boaters/jet skiers posted | 1 |
| Cheaper camping prices | 1 |
| Clean the restrooms/porta-potties and provide more of them | 1 |
| Cleaner bathrooms; level sites at full hookups | 1 |
| Everything is OK for the most part except the restrooms. They need new ones with showers. | 1 |
| Fix roads coming in | 1 |
| Good just the way it is | 1 |
| Great place, but only comment is the use of restrooms, at least put portable potties. | 1 |
| Just keep it the way it is. | 1 |
| Longer gate hours | 1 |
| More convenient entrance/ticket machine | 1 |
| More restrooms and showers; improve marking (i.e., arrows on roads); designate swim area free of rocks and debris | 1 |
| More sheriff and security (gunshots heard last night) | 1 |
| Open SSRA all weekdays too | 1 |
| Overall good. Just fix the bathrooms. | 1 |
| Please add camp tables, BBQ grills, WiFi and stock Coors regular | 1 |
| Potable water and flat, level RV sites. | 1 |
| Restroom in Horse Camp area (Boss Point currently closed) | 1 |
| Rudeness of campsite/store personnel | 1 |
| Showers | 1 |
| Showers and closer restrooms with clean tap water | 1 |
| Signage upgrade; enforce rules (dogs off leash/attacking); potable water sites near the water sites | 1 |
| Stock fish | 1 |
| Stock more fish | 1 |
| The store could be better stocked; were running low on a lot of stuff; entry fees were high and the gate closed too early | 1 |
| The water out of the spicket is dirty | 1 |
| To catch more fish | 1 |
| Total | 32 |

Question 28e: Comments by Overnight Visitors at NSRA during Peak Season.

| Comment | Number of Responses |
|---|---------------------|
| Add fire pits and picnic tables at Jet Ski Cove | 1 |
| Add picnic tables and shade shelters; prices seem high and go up frequently | 1 |
| Bathrooms need upgrading. Horseshoe pits (more play areas) | 1 |
| BBQ pits in every campsite | 1 |
| Best improvement would be safer swim and fishing areas close to restrooms for families with little children. Signs for boat/jet ski users to not access areas designated for swimming/fishing. | 1 |
| Better bathroom facilities | 1 |
| Buoys marking safe swimming area would be nice. | 1 |
| Clean restrooms; lower fees | 1 |
| Clean water and bathrooms | 1 |
| Cleaner bathrooms | 1 |
| Cleaner restrooms | 1 |
| Cleaner restrooms; bigger tables; more space per campground | 1 |
| Enforce the rules in campsite (noise and how many cars per campsite); bathrooms need regular maintenance; showers would be helpful | 1 |
| Everything is great | 1 |
| Extra vehicle pay is almost the cost of a site. Wish extra vehicle fee were around \$5-10 like other campgrounds I have stayed at. | 1 |
| Flatten a few spots for camping would be helpful; provide fire extinguishers on trees (saw small grass fire because fire ring inadequate at nearby campsite); improved fire pits would be nice too | 1 |
| For fires, keep dry grass mowed down; add speed bumps within camping area | 1 |
| Fresh water for drinking; more bathrooms | 1 |
| Gates not locked without being able to get out; fees are high and too much for some people with fees going up | 1 |
| Gates shut too early preventing needed errands | 1 |
| Get drinking water back | 1 |
| Great | 1 |
| Higher water levels in summer would be nice | 1 |
| Hot coin-op showers; low water markers-there are areas that are just under water surface in the middle of the lake on South Shore side | 1 |
| I prefer showers and potable water | 1 |
| I would like to have the water left in the lake throughout the summer and let out maybe in October. Leave the water for Northern California people to have fun. | 1 |
| If there was water at each campground; cleaner bathrooms | 1 |
| Install shower facilities; enclosed dog park for exercise | 1 |
| It would be great if less water was released so we can extend our camping during the summer months. It would also be nice to have an ice cream station. | 1 |
| Jet skis too close to swimmers (~25 ft from children; doing circles around kids) | 1 |
| Just need drinking water working please | 1 |
| Keep boats and jet skis away from shores | 1 |
| Keep it the way it is | 1 |

Question 28e (continued): Comments by Overnight Visitors at NSRA during Peak Season.

| Comment | Number of Responses |
|---|----------------------------|
| Level RV spaces; potable water | 1 |
| Leveling the RV sites | 1 |
| Lower areas to camp and BBQ during low water levels | 1 |
| Lower fees; clean porta-a-johns | 1 |
| Make restrooms cleaner, roomier; shoreline smoothed out, less rocky | 1 |
| Map provided didn't match up well with reality; more restrooms; person hung up on caller requiring 3 call backs | 1 |
| Mark off swim safe area for kids so boaters don't get too close; showers would be helpful | 1 |
| More water | 1 |
| Noticed some potholes on roads in area | 1 |
| Online reservations; improve restrooms | 1 |
| Other places we have seen maintenance cleaning garbage cans and bathrooms, but not here. Identify campsites better - hard to identify sites | 1 |
| Perfect as is here at Jet Ski Cove | 1 |
| Please slow the outflow of water and stabilize lake level | 1 |
| Porta-potties need toilet paper replenished; some additional shade would be nice | 1 |
| Prices are fair; lots of room; don't need to change anything | 1 |
| Prices seem high - hold the costs | 1 |
| Provide recycling bins; repave and restripe the parking lots | 1 |
| Repave the roads; jet skiers getting too close to swimmers | 1 |
| Restrooms and porta-potties added all over; reservations were accepted, then confirmed and rejected (unacceptable). | 1 |
| Restrooms need a lot of upgrading, improvement and cleaning. Potable water needs to be more available | 1 |
| Season pass holders should get some not all free camping | 1 |
| Shade trees and greenery would help; water hookups/potable water; fix the dump site (right side not useable-had to exit and come back to access other side) | 1 |
| Showers | 1 |
| Showers, better trails, cleaner bathrooms; no more shallow water rocks; kids get hurt we get hurt | 1 |
| Signage needs upgrading and better maps; roads need to be leveled/smoothed out; prices are a little high here | 1 |
| Swimming beaches seem very rocky; improved ventilation and cleaning of bathrooms; showers would be nice | 1 |
| Too much noise and parties. There should be a 10 pm quiet time. Another dock. Cost too much to camp and not sleep. | 1 |
| Water level could be higher | 1 |
| Water spigots desired; more porta-potties and sanitation stations | 1 |
| Wet t-shirt contests | 1 |
| Wish we had more tables | 1 |
| Would like to see a permanent restroom installed in the Boss Point area | 1 |
| Would like to see Gary and Brandi more | 1 |
| Showers would be nice | 2 |
| Total | 68 |

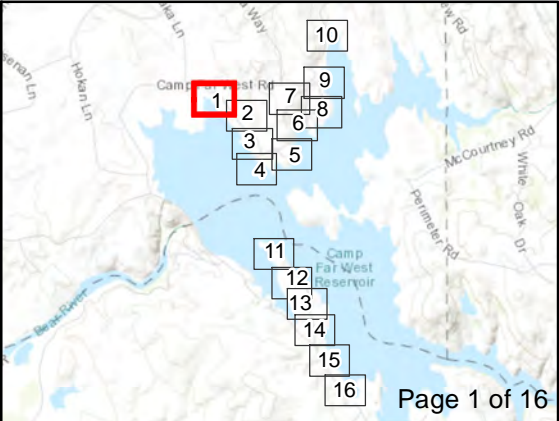
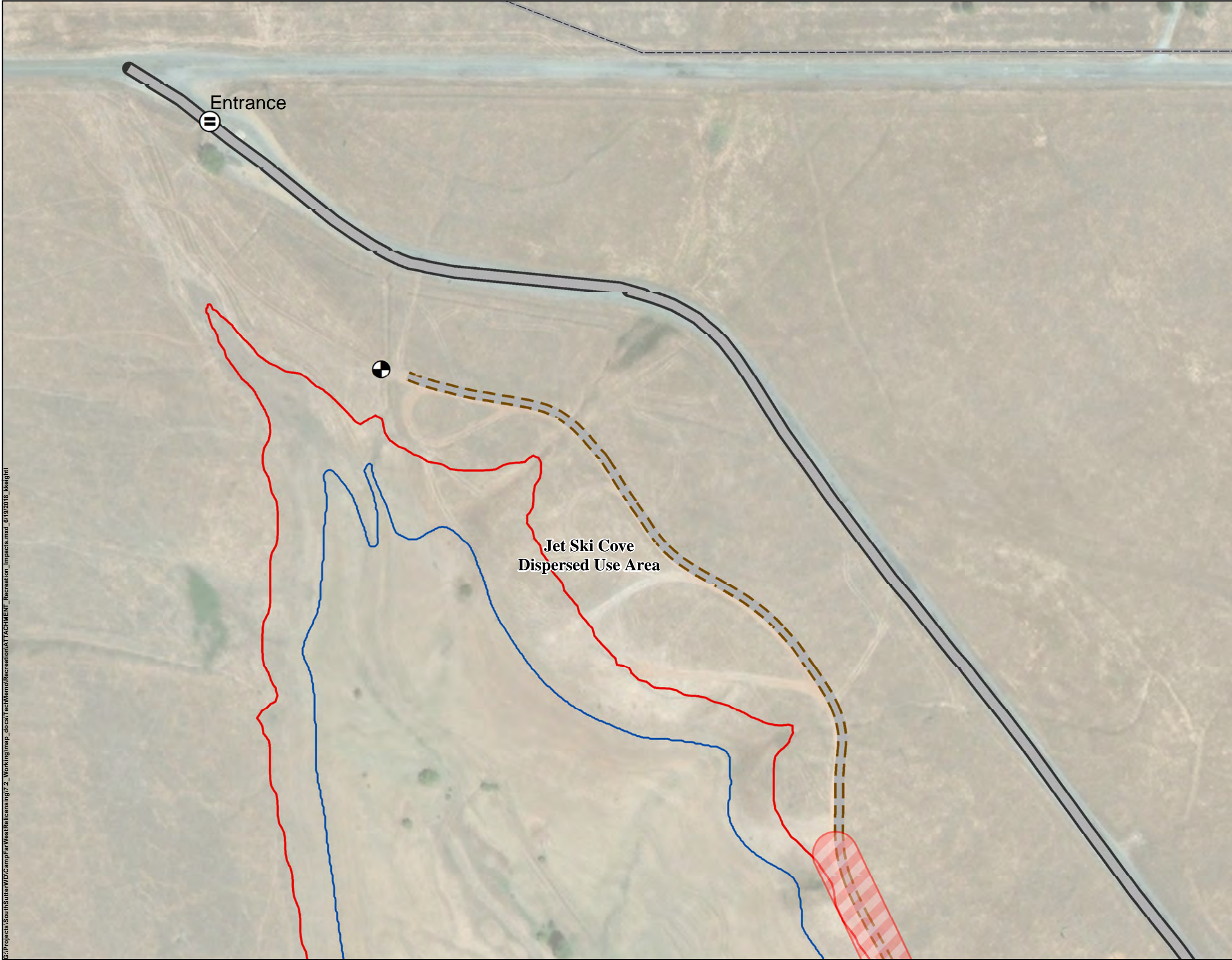
Question 28f: Comments by Overnight Visitors at SSRA during Peak Season.

| Comment | Number of Responses |
|--|----------------------------|
| Add more BBQ grills | 1 |
| Beach access, swimming areas, more warnings on underwater hazards | 1 |
| Beach areas | 1 |
| Better bathrooms; wireless desirable; emergency exit/contact info on each campsite | 1 |
| Better signage indicating location; Porta-potties need to be maintained better | 1 |
| Cheaper fees; better roads | 1 |
| Cleaner restrooms | 1 |
| Improve restrooms; stock more fish | 1 |
| Less noise at night; more flushing restrooms; potable water | 1 |
| Love it here. Just needs a few improvements (i.e., potable water, swim platform and some new restrooms). Overall, a fun lake with friends and family | 1 |
| Need drinking water at lake | 1 |
| Need marina with gas. Let water out of lake later in season. Water level really low. Lower fees for camping. Showers. | 1 |
| New toilets and fix the potable water problem | 1 |
| No complaints other than lack of drinking water. Boat ramp on south side needs upgrades as its getting old | 1 |
| Opening times would be good on the South Shore, better than just weekends; more real bathrooms | 1 |
| Prices could be lower | 1 |
| Restrooms upkeep better | 1 |
| Showers | 1 |
| Unleashed dogs | 1 |
| Upgrading restrooms; more showers available | 1 |
| Total | 20 |

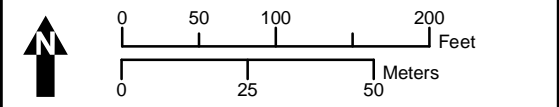
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Attachment E3.3.6B

Pool Raise Recreation Impact Figures



- Legend**
- Gate
 - Entrance
 - Paved Road
 - Unpaved Road (dirt)
 - FERC Boundary 2997
 - Normal Maximum Water Surface Elevation (300 ft)
 - Pool Raise Elevation 305 ft
 - Impacted area due to pool raise

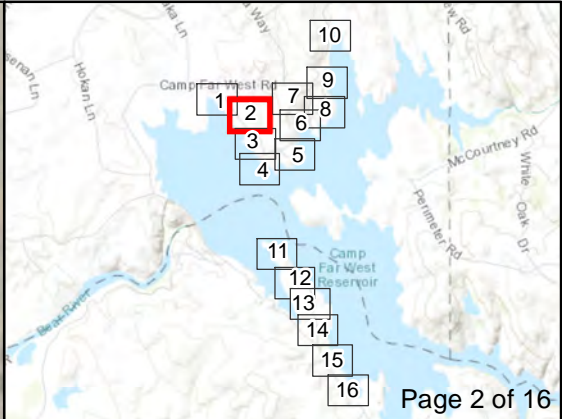


**Recreation Area Impacts
Due to 305' Pool Raise**
SSWD Camp Far West Hydroelectric
Project No. 2997

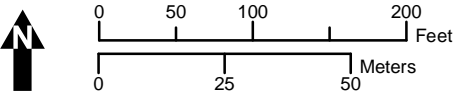
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Projection: CASPz2 NAD83



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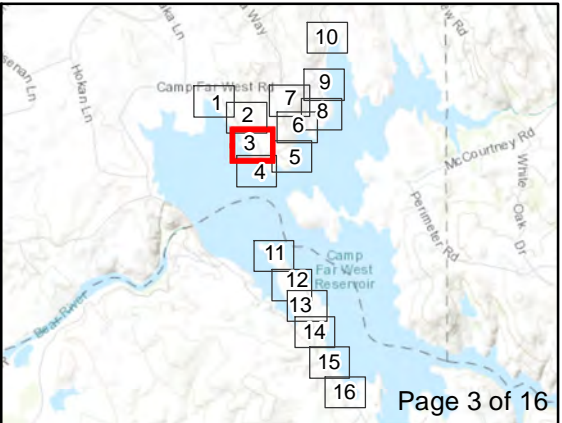
- Legend**
- Paved Road
 - Unpaved Road (dirt)
 - Water-Sewage Pond
 - FERC Boundary 2997
 - Normal Maximum Water Surface Elevation (300 ft)
 - Pool Raise Elevation 305 ft
 - Impacted area due to pool raise



**Recreation Area Impacts
Due to 305' Pool Raise**
SSWD Camp Far West Hydroelectric
Project No. 2997

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Legend

Boat Ramp

Campsite-Group

Campsite-RV

Campsite-Standard

Fire Ring

Grill

Manhole

Picnic Site

Restroom

Sewage Pump

Shack; Store

Table

Water-Hydrant

Paved Road

Unpaved Road (dirt)

Parking Area (paved)

Ranger

Restroom

Concession Stand; Store

FERC Boundary 2997

Normal Maximum Water Surface Elevation (300 ft)

Pool Raise Elevation 305 ft

Impacted area due to pool raise

0 50 100 200 Feet
0 25 50 Meters

**Recreation Area Impacts
Due to 305' Pool Raise**
SSWD Camp Far West Hydroelectric
Project No. 2997

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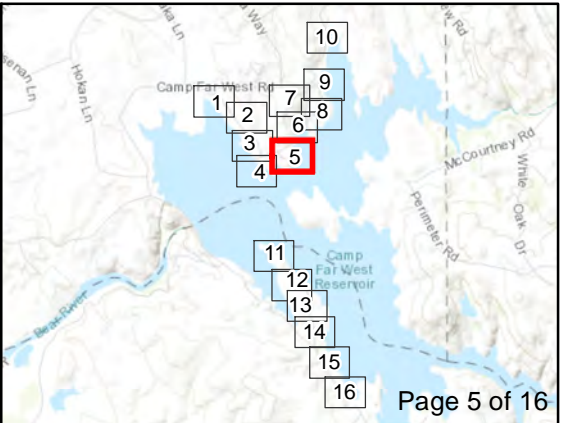
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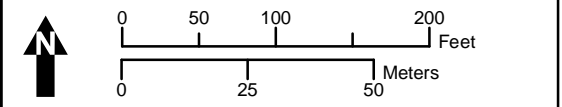




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- Legend**
- Campsite-Standard
 - ⊕ Gate
 - 🚻 RV Dump Station
 - 🚽 Restroom
 - Water-Hydrant
 - ▬ Paved Road
 - ▬ Unpaved Road (dirt)
 - ▨ Parking Area
 - ▭ FERC Boundary 2997
 - ▭ Normal Maximum Water Surface Elevation (300 ft)
 - ▭ Pool Raise Elevation 305 ft
 - ▨ Impacted area due to pool raise



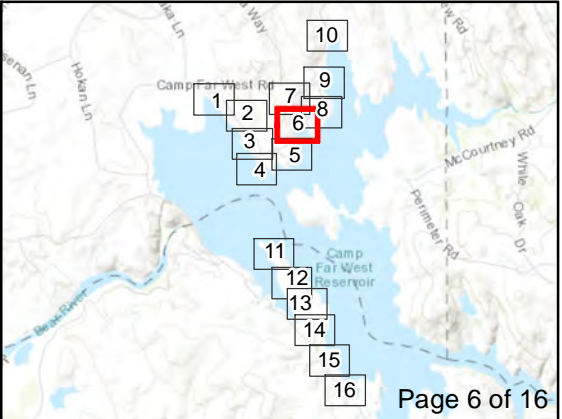
**Recreation Area Impacts
Due to 305' Pool Raise**
SSWD Camp Far West Hydroelectric
Project No. 2997

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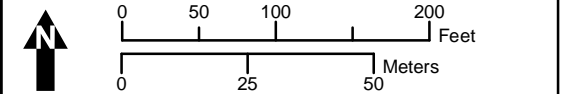
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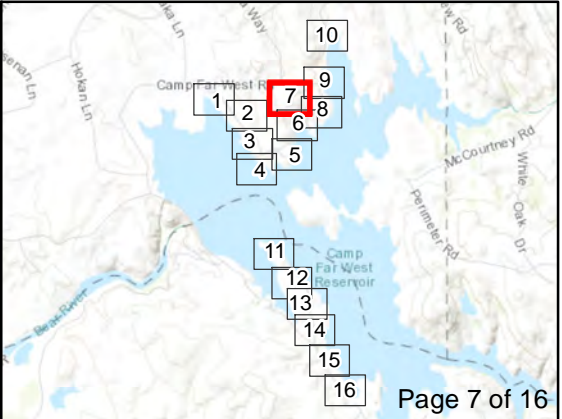


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




- Legend**
- ✚ Hitching Post
 - Unpaved Road (dirt)
 - FERC Boundary 2997
 - Normal Maximum Water Surface Elevation (300 ft)
 - Pool Raise Elevation 305 ft
 - Impacted area due to pool raise



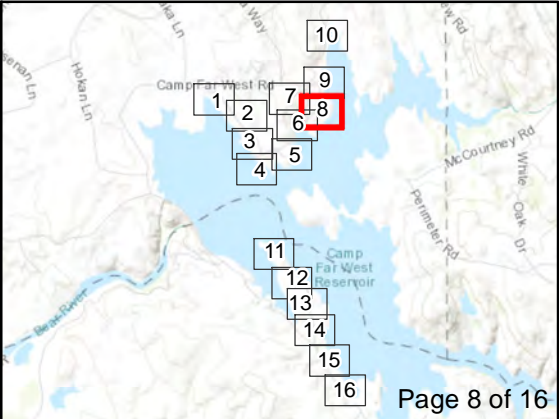










Legend

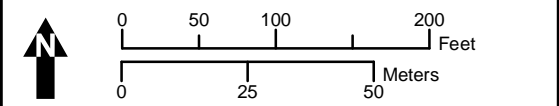
-  Water-Tank
-  Unpaved Road (dirt)
-  Water-Treatment Plant
-  FERC Boundary 2997



0 50 100 200 Feet
0 25 50 Meters



- Legend**
-  Fire Ring
 -  Hitching Post
 -  Water-Hydrant
 -  Unpaved Road (dirt)
 -  Parking Area (dirt)
 -  FERC Boundary 2997
 -  Normal Maximum Water Surface Elevation (300 ft)
 -  Pool Raise Elevation 305 ft



**Recreation Area Impacts
Due to 305' Pool Raise**
SSWD Camp Far West Hydroelectric
Project No. 2997

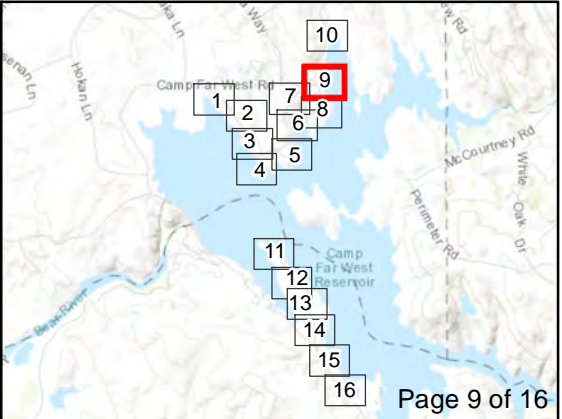
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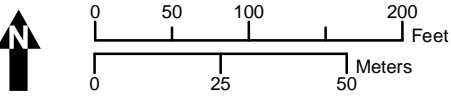


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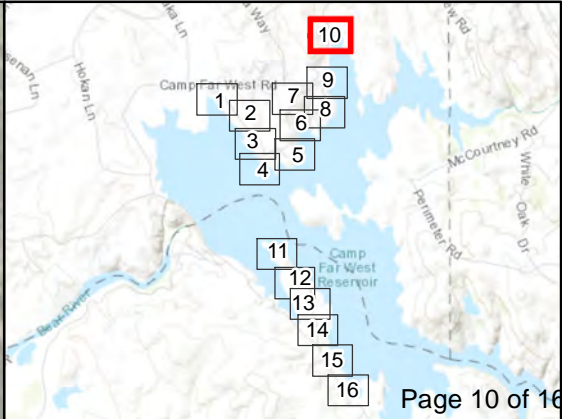
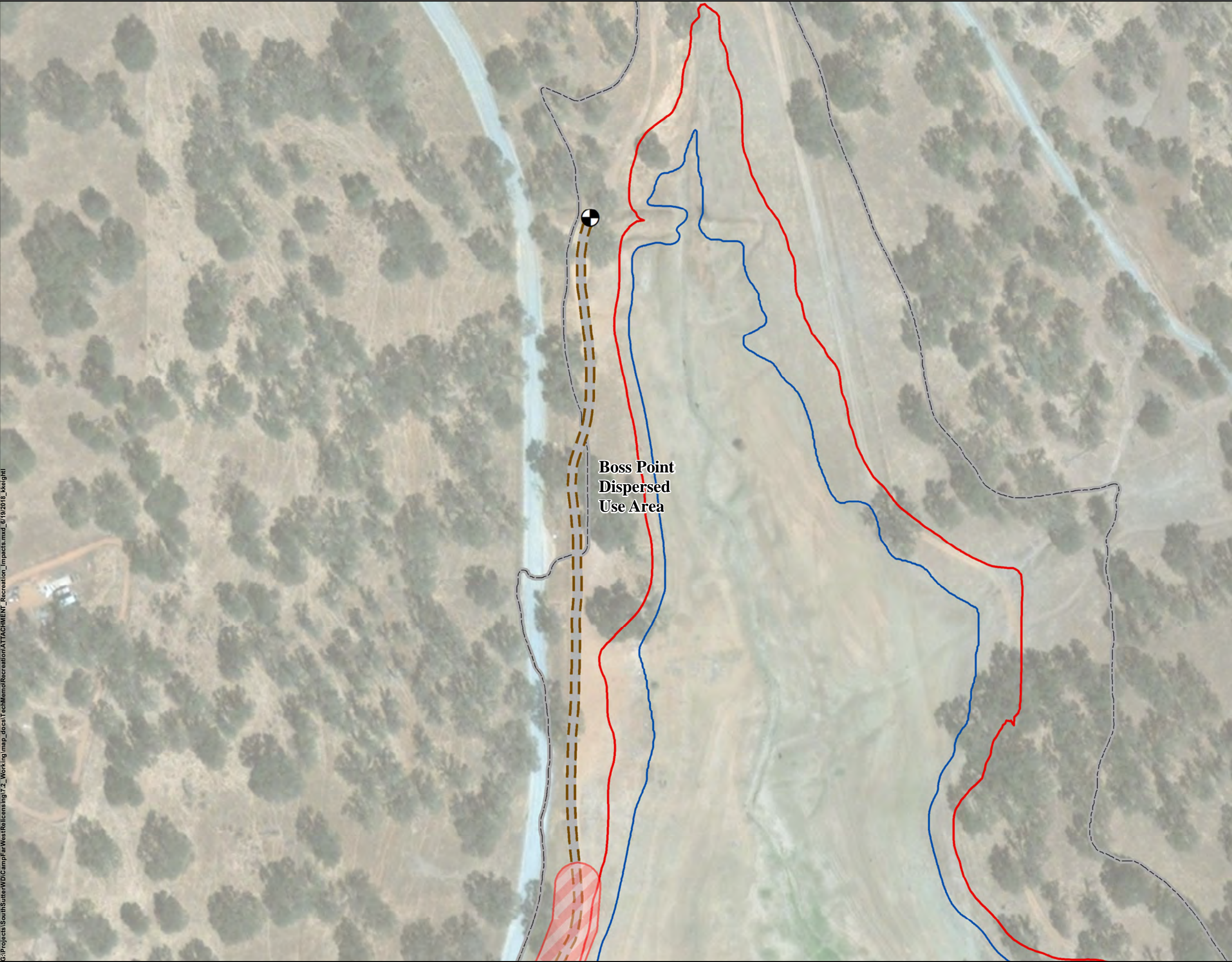
**Boss Point
Dispersed
Use Area**



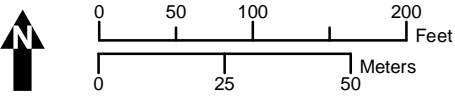
- Legend**
- Unpaved Road (dirt)
 - FERC Boundary 2997
 - Normal Maximum Water Surface Elevation (300 ft)
 - Pool Raise Elevation 305 ft
 - Impacted area due to pool raise



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- Legend**
- Gate
 - Unpaved Road (dirt)
 - FERC Boundary 2997
 - Normal Maximum Water Surface Elevation (300 ft)
 - Pool Raise Elevation 305 ft
 - Impacted area due to pool raise

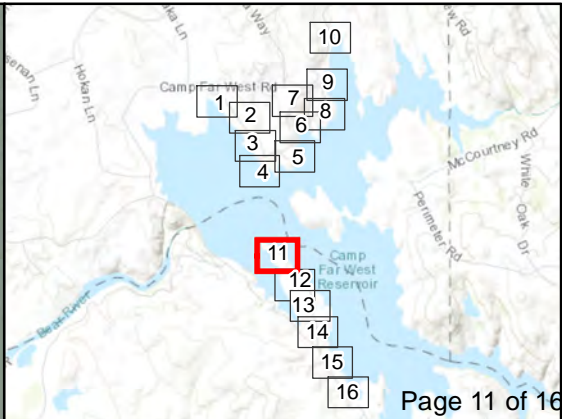


**Recreation Area Impacts
Due to 305' Pool Raise**
SSWD Camp Far West Hydroelectric
Project No. 2997

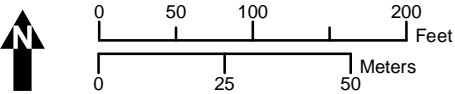
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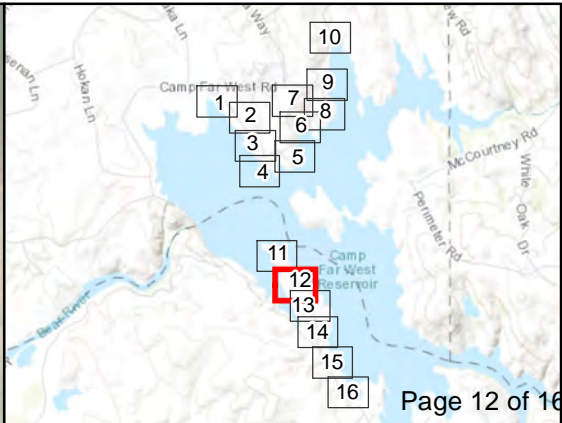
- Legend**
- Campsite-Standard
 - 🚻 Restroom
 - Ⓢ Stage
 - Water-Hydrant
 - ▬ Paved Road
 - ▬ Unpaved Road (dirt)
 - ▨ Parking Area (paved)
 - Restroom
 - Swim Beach
 - ▬ FERC Boundary 2997
 - Normal Maximum Water Surface Elevation (300 ft)
 - Pool Raise Elevation 305 ft
 - Impacted area due to pool raise



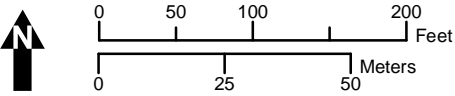
**Recreation Area Impacts
Due to 305' Pool Raise**
SSWD Camp Far West Hydroelectric
Project No. 2997

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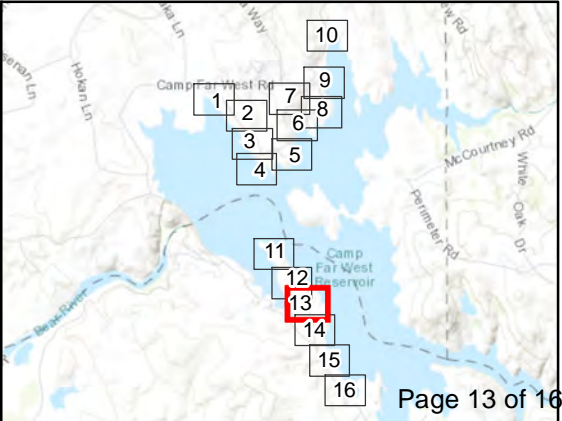
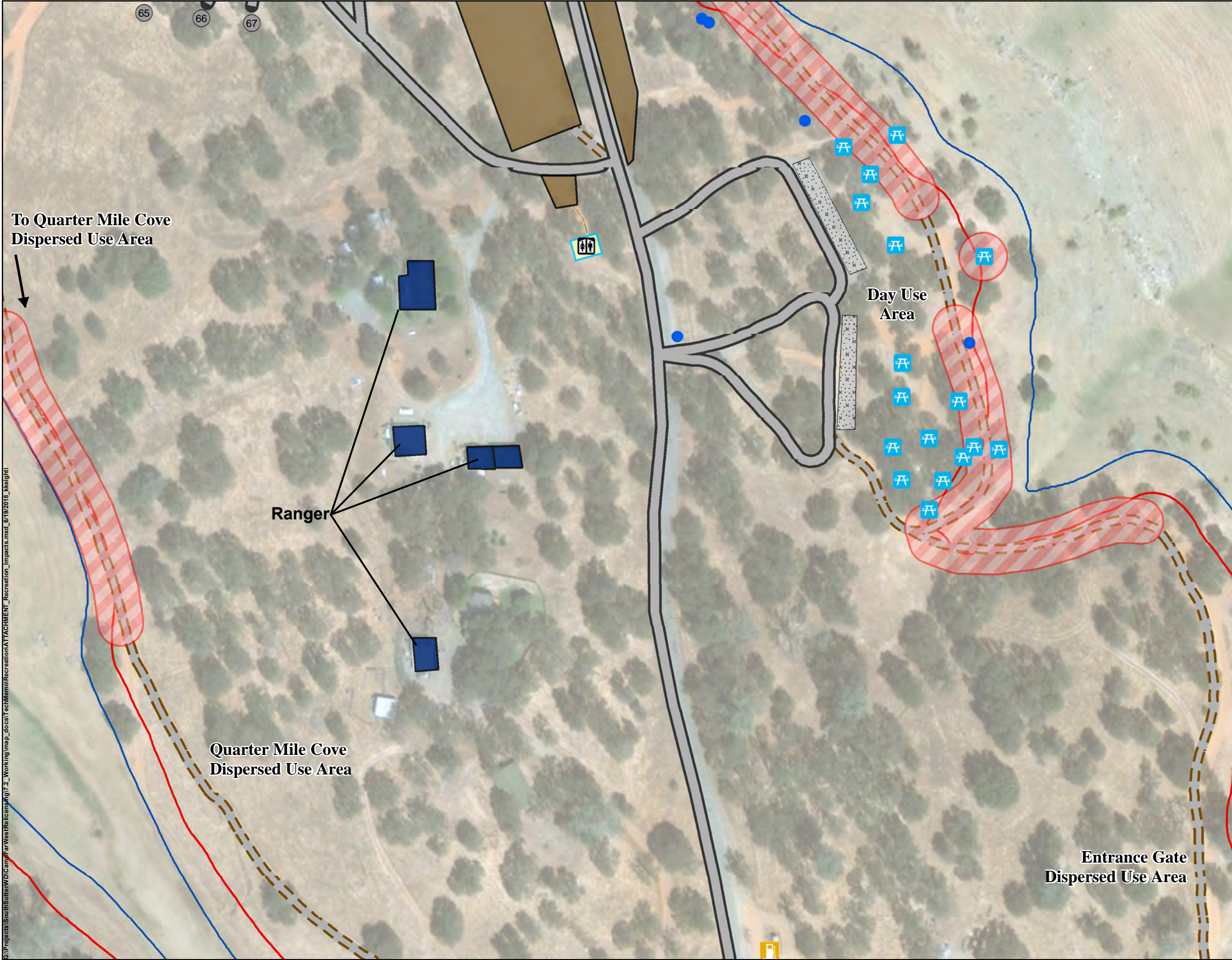
- Legend**
- Boat Ramp
 - Campsite-Group
 - Campsite-Standard
 - Picnic Site
 - Restroom
 - Water-Hydrant
 - Paved Road
 - Unpaved Road (dirt)
 - Boat Ramp
 - Parking Area (dirt)
 - Parking Area (paved)
 - Ranger
 - Restroom
 - FERC Boundary 2997
 - Normal Maximum Water Surface Elevation (300 ft)
 - Pool Raise Elevation 305 ft
 - Impacted area due to pool raise



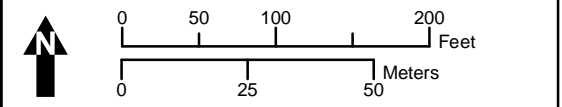
**Recreation Area Impacts
Due to 305' Pool Raise**
SSWD Camp Far West Hydroelectric
Project No. 2997

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Projection: CASPz2 NAD83

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- Legend**
- Campsite-Standard
 - 🛢 Fuel Station
 - 🏠 Picnic Site
 - 🚻 Restroom
 - Water-Hydrant
 - Paved Road
 - Unpaved Road (dirt)
 - Parking Area (dirt)
 - ▨ Parking Area (paved)
 - Ranger
 - 🚻 Restroom
 - ▭ FERC Boundary 2997
 - Normal Maximum Water Surface Elevation (300 ft)
 - Pool Raise Elevation 305 ft
 - ▨ Impacted area due to pool raise

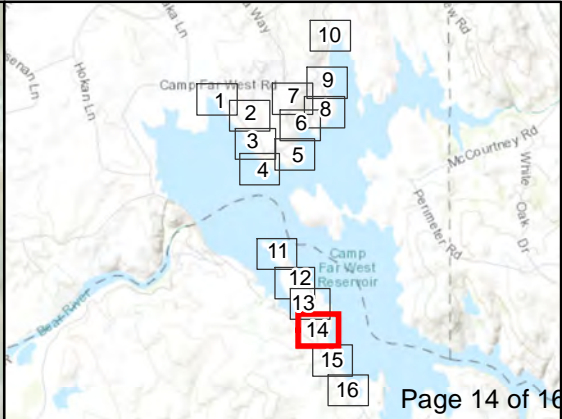


**Recreation Area Impacts
Due to 305' Pool Raise**
SSWD Camp Far West Hydroelectric
Project No. 2997

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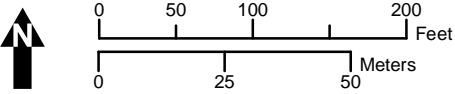
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Legend

- Fuel Station
- Gate
- RV Dump Station
- Paved Road
- Unpaved Road (dirt)
- Parking Area (paved)
- Concession Stand; Store
- Water-Sewage Pond
- FERC Boundary 2997
- Normal Maximum Water Surface Elevation (300 ft)
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- Impacted area due to pool raise

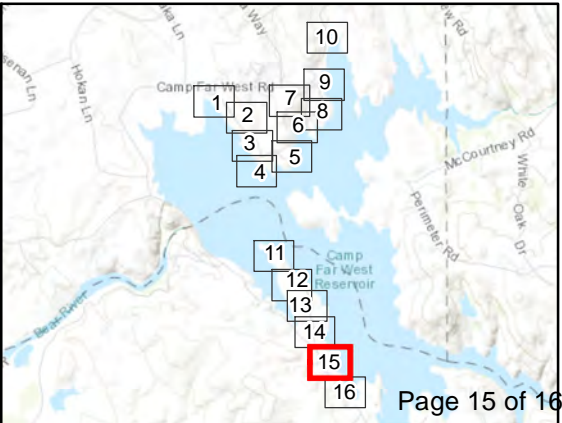


**Recreation Area Impacts
Due to 305' Pool Raise**
SSWD Camp Far West Hydroelectric
Project No. 2997

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Legend

- Unpaved Road (dirt)
- FERC Boundary 2997
- Normal Maximum Water Surface Elevation (300 ft)
- Pool Raise Elevation 305 ft
- Impacted area due to pool raise

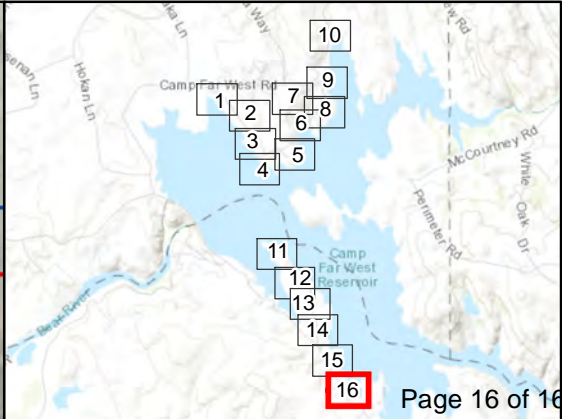
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Feet

02550

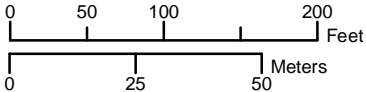
Meters

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Legend

- Unpaved Road (dirt)
- FERC Boundary 2997
- Normal Maximum Water Surface Elevation (300 ft)
- Pool Raise Elevation 305 ft
- Impacted area due to pool raise



**Recreation Area Impacts
Due to 305' Pool Raise**

SSWD Camp Far West Hydroelectric
Project No. 2997

Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.
Projection: CASPz2 NAD83

Map Prepared by: HDR | © 2018 South Sutter Water District

3.3.7 Land Use

The discussion of land use is divided into four sections. The affected environment is discussed in Section 3.3.7.1, environmental effects of the Project are discussed in Section 3.3.7.2, unavoidable adverse effects are addressed in Section 3.3.7.3, and measures or studies recommended by agencies but not adopted by SSWD are discussed in Section 3.3.7.4.

Existing, relevant, and reasonably available information was sufficient to determine the potential effects of the Project on land use, and SSWD did not perform any studies related to land use.

3.3.7.1 Affected Environment

This section describes existing land use conditions and is divided into the following eight areas: 1) land ownership within the FERC Project Boundary; 2) land use; 3) land management; 4) Project-related land use permits and easements; 5) SSWD's vehicular access routes to Project facilities; 6) known Project-related wildfires and SSWD's policies regarding fire prevention and suppression; 7) law enforcement in the Project Area; and 8) restricted public access to Project waters and lands.

3.3.7.1.1 Land Ownership within the FERC Project Boundary

The existing FERC Project Boundary encompasses 2,863.7 ac of land. SSWD owns 95 percent (2,710.5 ac) of the land within the boundary, and the remaining 5 percent (153.2 ac) of the land is owned by private parties – no federal or state land occurs within or adjacent to the FERC Project Boundary or on the Bear River downstream of the Project.

3.3.7.1.2 Land Use

The Project is located in Yuba, Placer and Nevada counties, California. The land within the FERC Project Boundary in Yuba, Placer and Nevada counties is shown in Table 3.3.7-1, with the majority of Project land in Yuba County.

Table 3.3.7-1. Summary of county land within the existing FERC Project Boundary.

| Yuba County (ac) | Placer County (ac) | Nevada County (ac) | Total | |
|---------------------|-----------------------|-----------------------|---------|--------|
| | | | (ac) | (%) |
| 1,719.7 (60%) | 972.7 (34%) | 171.3 (6%) | 2,863.7 | 100.0% |

Public and private land ownership and land use within these three counties is summarized below.

Yuba County

Of the 475,723 ac of land comprising Yuba County, 75 percent is in private ownership and the remaining 25 percent is administered by public agencies (Table 3.3.7-2). The amount of Yuba

County land within the existing FERC Project Boundary represents 0.36 percent of the total land within the county.

Table 3.3.7-2. Distribution of public and private lands in Yuba County.

| Public Agency or Private Ownership | Number of Parcels | Total Acreage per Agency/Owner | Ownership as a Percentage of County |
|---------------------------------------|-------------------|--------------------------------|-------------------------------------|
| Bureau of Land Management | 82 | 19,136 | 4.02% |
| United States Army Corps of Engineers | 3 | 64 | 0.01% |
| Department of Defense | 298 | 24,610 | 5.17% |
| Forest Service | 531 | 53,461 | 11.24% |
| State of California | 82 | 18,642 | 3.92% |
| South Sutter Water District | 12 | 1,961 | 0.41% |
| Private (or other) | 32,424 | 357,849 | 75.23% |
| Total | 33,432 | 475,723 | 100.00% |

Source: BLM 2015, Yuba County 2015

The predominant land uses in Yuba County are agriculture (80,943 ac), forested lands (56,000 ac), and open space/grazing lands (198,000 ac) (Yuba County 1994).

Placer County

Of the 906,912 ac of land comprising Placer County, 57 percent is in private ownership and the remaining 43 percent is administered by public agencies (Table 3.3.7-3). The amount of Placer County land within the existing FERC Project Boundary represents 0.11 percent of the total land within the county.

Table 3.3.7-3. Distribution of public and private lands in Placer County.

| Public Agency or Private Ownership | Number of Parcels | Total Acreage per Agency/Owner | Ownership as a Percentage of County |
|------------------------------------|-------------------|--------------------------------|-------------------------------------|
| Bureau of Land Management | 313 | 23,810 | 2.63% |
| Department of Defense | 35 | 374 | 0.04% |
| Forest Service | 2,233 | 356,691 | 39.33% |
| State of California | 386 | 4,376 | 0.48% |
| South Sutter Water District | 18 | 949 | 0.10% |
| Private (or other) | 164,367 | 520,712 | 57.42% |
| Total | 167,352 | 906,912 | 100.00% |

Source: BLM 2015, Placer County 2015

The predominant land uses in Placer County are timberland (700,785), agriculture (15,925), city (90,069), and rural residential (103,642) (Placer County, 2015a).

Nevada County

Of the 629,097 ac of land comprising Nevada County, 66 percent is in private ownership and the remaining 34 percent is administered by public agencies (Table 3.3.7-4). The amount of Nevada County land within the existing FERC Project Boundary represents 0.04 percent of the total land within the county.

Table 3.3.7-4. Distribution of public and private lands in Nevada County.

| Public Agency or Private Ownership | Number of Parcels | Total Acreage per Agency/Owner | Ownership as a Percentage of County |
|------------------------------------|-------------------|--------------------------------|-------------------------------------|
| Bureau of Land Management | 324 | 16,873 | 2.68% |
| Department of Defense | 20 | 858 | 0.14% |
| Forest Service | 954 | 187,210 | 29.76% |
| State of California | 170 | 10,128 | 1.61% |
| South Sutter Water District | 2 | 275 | 0.04% |
| Private (or other) | 64,891 | 413,753 | 65.78% |
| Total | 66,069 | 629,097 | 100.00% |

Source: BLM 2015, Nevada County 2015

The predominant land uses in Nevada County are forest (349,968 ac); rural (184,436 ac); open space (26,906 ac); estate (17,580 ac); planned development (10,649 ac); and residential (10,081 ac) (Nevada County 2014a).

Zoning Ordinances

Private land use is managed in accordance with the Yuba County 2030 General Plan, Placer County General Plan, Nevada County General Plan and the county zoning ordinances. Table 3.3.7-5 shows the Zoning Ordinances for all of the land within the Project Vicinity.

Table 3.3.7-5. Zoning Ordinance land use categories in the Project Vicinity.

| Land Use Categories | County | Description |
|------------------------------------|--------|--|
| EA– Exclusive Agricultural Zone 10 | Yuba | Growing and harvesting of forest products, grazing of livestock, single-family residence, and accessory buildings. |
| GA – General Agricultural 40 | Nevada | Provide low intensity recreational opportunity that also maintains natural environment. |
| F-B – Farm Building Zone | Placer | Implement the Forest Taxation Reform Act (1976) and the California Timberland Productivity Act (1982). |
| RES – Resort | | Apply to mountainous areas, water-oriented, or other areas with significant natural amenities and commercial recreational potential, with good access to major highways. |

Source: Yuba County 2010b, Nevada County 2012, Placer County 2014a

Public Land

Federal and state-owned public lands are generally not subject to county jurisdiction, however, no public land occurs within the existing FERC Project Boundary.

Wild and Scenic Rivers, Wilderness Areas, and National Scenic Trails

There are no federal Wild and Scenic Rivers or Wilderness Areas in the Project Vicinity.

An area designated as the California National Historic Trail and administered by the National Park Service runs through the FERC Project Boundary and crosses Camp Far West Reservoir in two locations of the upstream, northern portion of the reservoir, where the building of the initial reservoir ‘drowned’ sections of the historic emigrant trail (Figure 3.3.7-1). The entire emigrant trail covers over 5,600 mi across 10 states (i.e., California, Colorado, Idaho, Kansas, Missouri, Nebraska, Nevada, Oregon, Utah and Wyoming) and follows the paths of the 250,000 emigrants who came to California in the 1840s and 1850s. The trail was authorized in 1992 and is

administered by the National Park Service. There is no trail, *per se*, but only isolated features of the pioneer trail, graves, monuments, landmarks, historic structures and other traces along the route that have been identified to commemorate existing remnants of the trail (NPS 2015). The nearest such trail feature to the Project is California Historic Landmark No. 799-3, Overland Emigrant Trail, commemorating the Pioneer trail on Spenceville Road, which is 3.5 miles west and outside the proposed FERC Project Boundary, and located approximately 3.5 mi east of Wheatland, CA (OHP 2015), as shown in Figure 3.3.7-1. The segment of the trail within the FERC Project Boundary contains no public lands or features and is not a ‘developed’ trail with any features, but rather is a line on the map where the trail once existed, as depicted in Figure 3.3.7-1. The trail is sometimes referred to as the Overland Emigrant Trail, and as discussed in Section 3.3.10 Cultural Resources, the segment of the trail within the FERC Project Boundary is considered a non-contributing element to the larger site, which is eligible for inclusion in the National Register of Historic Places. As such, no management of the resource is required for the Project with regards to Section 106 compliance.

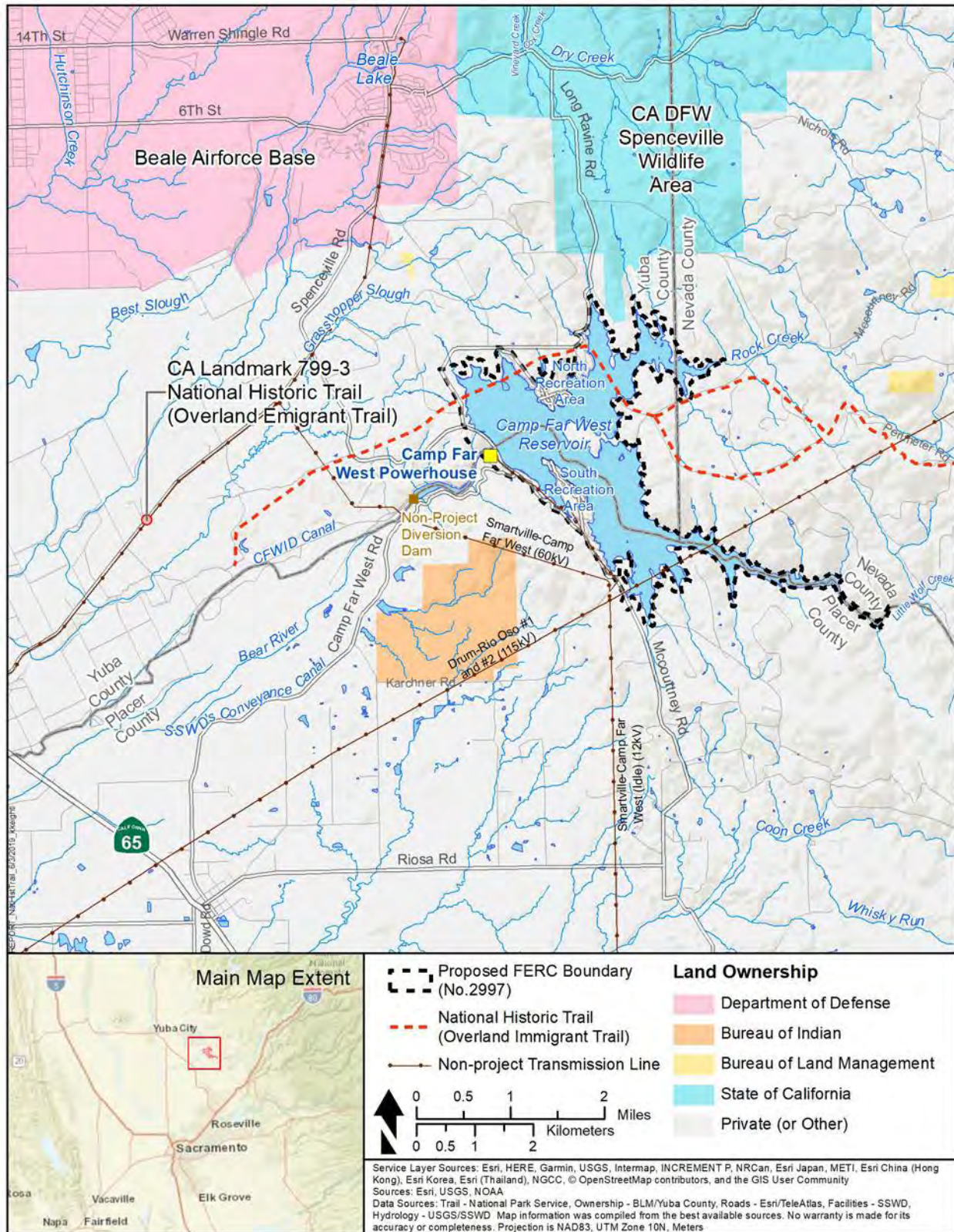


Figure 3.3.7-1. California National Historic Trail in relation to the proposed FERC Project Boundary.

Nationwide Rivers Inventory

The NRI is a listing of more than 3,400 free-flowing river segments in the U.S. that are believed to possess one or more "outstandingly remarkable" natural or cultural values judged to be of more than local or regional significance (NPS 2011). The NRI is a source of information for statewide river assessments and federal agencies involved with stream-related projects. None of the NRI-listed river segments occur in the Project Area or downstream of the Project.

United States Army Corps of Engineers Jurisdictional Wetlands

Wetlands that meet the criteria of "waters of the United States" are managed under the jurisdiction of the USACE and the United States Environmental Protection Agency (EPA) pursuant to Section 404 of the Clean Water Act (CWA). The definition developed by the USACE considers those areas which *"...are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions"* as wetlands. Under the USACE definition, all three of the following conditions must be present (CWIS 1998):

- a dominance of wetland plants
- hydric soils, those soils that are sufficiently wet in the upper part to develop anaerobic conditions during the growing season
- wetland hydrology

Wetlands that meet these criteria may exist within the Project Vicinity and are within the jurisdiction of the USACE. Wetland types and acreages are discussed in Section 3.3.4.3.

FEMA Floodplains

FEMA floodplains within the Project Vicinity are shown in Figure 3.3.7-2. A review of the FEMA flood maps within the existing FERC Project Boundary indicated that 2,079.6 ac or 73 percent of the total area within the boundary are within the FEMA 100-year floodplain (Data.gov 2009).

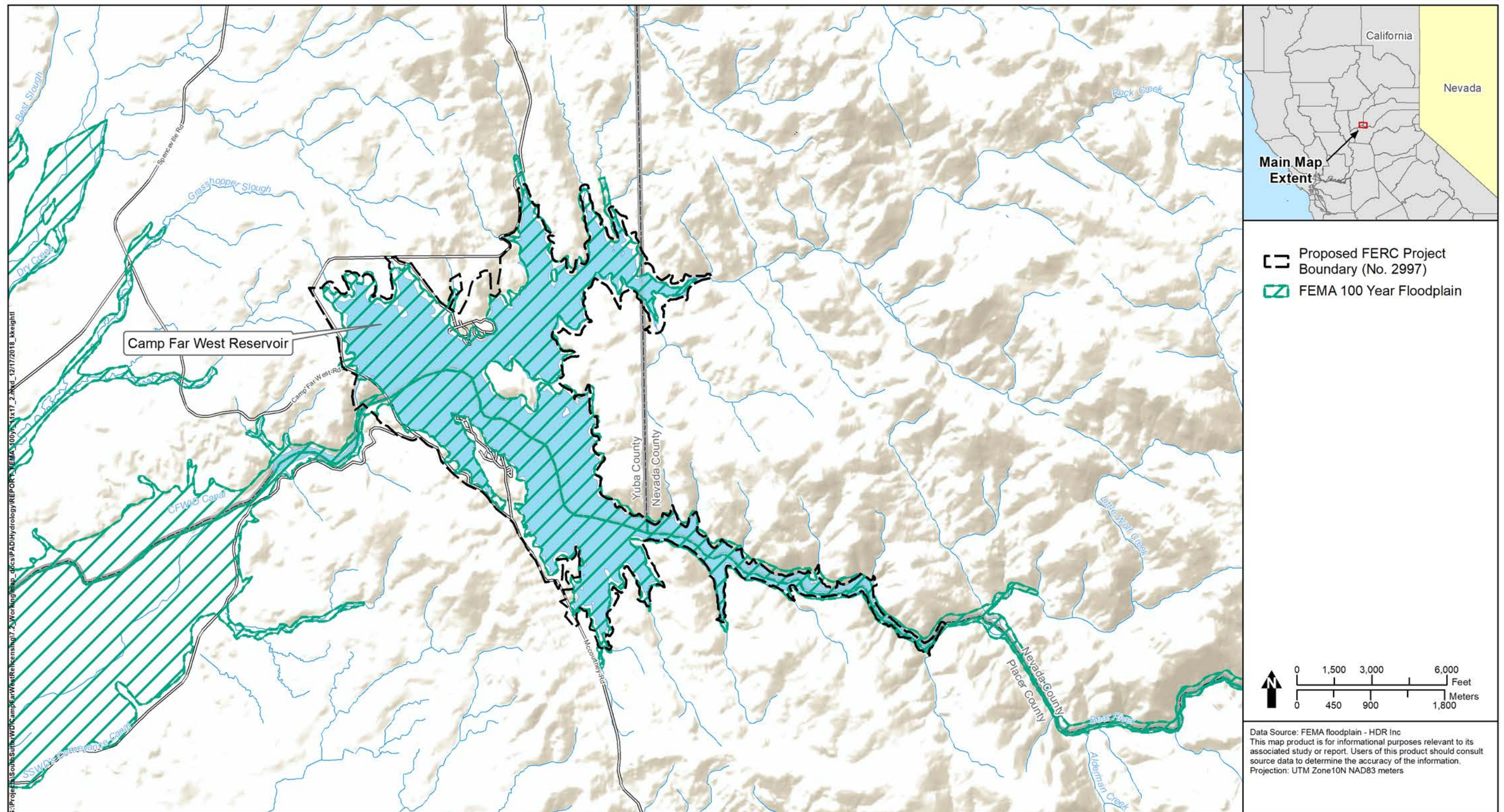


Figure 3.3.7-2. FEMA floodplains within a 1-mile wide buffer of the proposed FERC Project Boundary.

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Other Public Lands

There are additional public lands within the Project Vicinity, managed for land conservation, which are discussed below.

Cal Fish and Wildlife's Spenceville Wildlife Area

The Spenceville Wildlife Area is managed by the State of California and comprised of approximately 11,900 ac of blue oak – gray pine woodland, which are characteristic of the Sierra Foothills. The elevation of the area varies from 200 to 1,200 ft. The wildlife area is bordered on the west by Beale Air Force Base and on the north, south, and east by privately-owned ranches. There are numerous ponds, creeks, trails and riparian zones in the area (CDFW 2015).

Placer County's Kirk Ranch Conservation Easement

In June 2000, Placer County adopted the Placer Legacy Program. The Placer Legacy Program is a program designed to protect and conserve open space and agricultural lands. The program was developed to implement the goals, policies and programs of the 1994 Placer County General Plan. As of September 2012, Kirk Ranch is 1 of 12 Placer Legacy County Acquisitions. The Kirk Ranch Property was acquired in summer 2007 for a total of 281 ac as use for a conservation easement and development rights (Placer County 2012).

The Kirk Ranch property is located in western Placer County near Camp Far West Reservoir. It is considered protected through the purchase of a conservation easement, thus preserving the property's long-standing history of agricultural activities and a large tract of rangeland. Property assets include dense stands of blue oak woodland, grassland/dry pasture, perennial and seasonal creeks, and scenic views. This particular easement allows for no public access (Placer County 2012).

Figure 3.3.7-3 shows the location of Cal Fish and Wildlife's Spenceville Wildlife Area and Placer County's Kirk Ranch Conservation Easement area in relation to Camp Far West Reservoir.

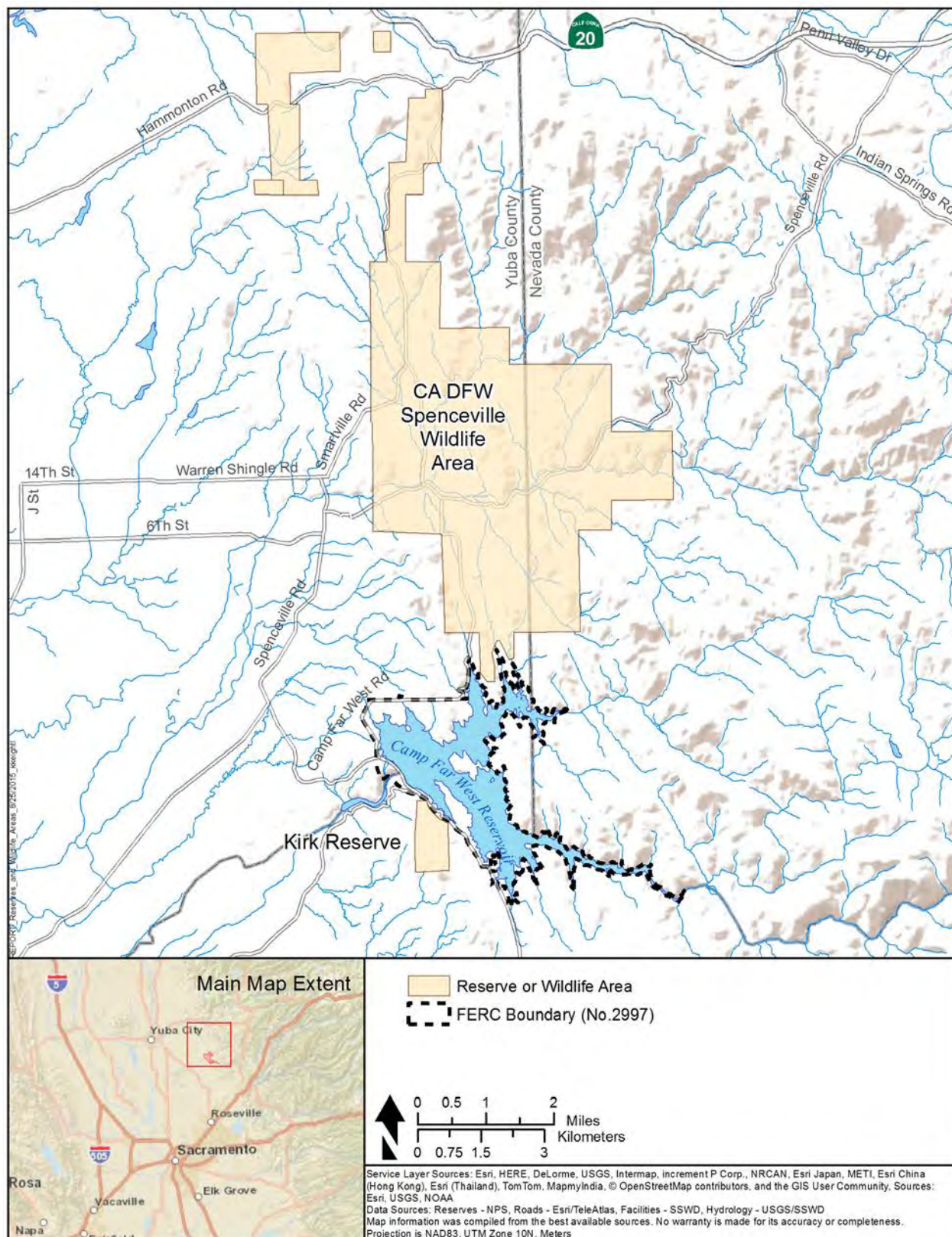


Figure 3.3.7-3. Location of Cal Fish and Wildlife’s Spenceville Wildlife Area and Placer County’s Kirk Ranch Conservation Easement area.

3.3.7.1.3 Land Management

Land use management for each county in which the Project occurs is summarized below. No federal or state land occurs within or adjacent to the FERC Project boundary or on the Bear River downstream of the Project. With respect to county land designations, the county designates land within its boundaries to be used in ways that are consistent with the resources found in that area.

Table 3.3.7-6 provides a summary of the Yuba County, Placer County and Nevada County land use designations within and adjacent to the Project.

Table 3.3.7-6. Land Use Designations in counties for Camp Far West facilities.

| Camp Far West Facilities | Land Use Designation |
|--|--------------------------------|
| YUBA COUNTY | |
| Camp Far West Dam | Exclusive Agricultural Zone 10 |
| Camp Far West Reservoir | Exclusive Agricultural Zone 10 |
| North Recreation Area | Exclusive Agricultural Zone 10 |
| PLACER COUNTY | |
| Camp Far West Dam | Farm Building Zone |
| Camp Far West Reservoir | Farm Building Zone |
| Camp Far West Powerhouse | Farm Building Zone |
| Camp Far West Transmission Line/Switchyard | Farm Building Zone |
| South Recreation Area | Resort |
| NEVADA COUNTY | |
| Camp Far West Reservoir | General Agricultural 40 |

Source: Yuba County 2005, Placer County 2014b, Nevada County 2014b

3.3.7.1.4 Project-Related Land Use Permits and Easements

SSWD does not require or hold any land use permits or easements for the Project, other than from the few private landowners within the Project Boundary.

3.3.7.1.5 SSWD's Vehicular Access to Project Facilities for Operation and Maintenance

SSWD obtains vehicular access to Project facilities from its office in Trowbridge over State of California roads, county roads, and private roads. From Trowbridge, SSWD employees take Spenceville Road (public) to Camp Far West Road (public) to the reservoir. SSWD employees also use Camp Far West Road, McCourtney Road (public), and a short private access road (gated and locked) to access the powerhouse and dam.

The NSRA is accessible by vehicle from the west and north via Camp Far West Road and Spenceville Road. A gated, paved, two-way access road, owned and maintained by SSWD, leads to the recreation area off of Camp Far West Road.

The SSRA is accessible by vehicle from the north and south via McCourtney Road. A gated, paved, two-way access road, owned and maintained by SSWD, leads to the recreation area. When the recreation areas are closed, the gates are closed and locked. Otherwise the gates are open to allow the public access to the recreation areas.

3.3.7.1.6 Known Project-Related Wildfires and SSWD's Policy Regarding Fire Prevention and Suppression

SSWD does not have a formal policy regarding wildfire prevention and suppression. SSWD's staff is not trained in wildfire suppression and is not required to fight fires, but instead notifies appropriate response agencies in the event of such an emergency.

SSWD adheres to local, State, and federal rules and regulations and best management practices during work. If work includes burning debris, SSWD obtains necessary permits and approvals from the appropriate agency, which may require SSWD to have specialized equipment on-site and restrict burning to specific times of the year.

Technical Approach to Wildfire Analysis

The period from 1967 to 2016 was analyzed using available fire occurrence data collected from CAL FIRE. Fire occurrences were analyzed within a 1-mi wide buffer zone of the existing FERC Project Boundary, which represents an analysis area that identifies not only those fires that may have occurred in the Project, but also those fires that present a realistic threat to the Project's infrastructure. Fire occurrence data was analyzed for the following:

- Individual ignition by size, cause, and date
- Total ignitions within fire occurrence analysis area
- Total percent ignition by cause within fire occurrence analysis area
- Total ac burned by cause within fire occurrence analysis area, where available
- Total percent ac burned by cause within fire occurrence analysis area, where available

The CAL FIRE database was used to identify, analyze, and evaluate current and historic sources of fire ignition.

Fire Occurrence Analysis Results

From 1967 through 2016, four fire ignitions were reported to occur within the Project Vicinity (Table 3.3.7-7). The most recent wildfire, the 2014 Perimeter Fire, damaged roughly 10 ac, all outside of the existing FERC Project Boundary, and was contained on May 9, 2014.

Table 3.3.7-7. Fires within the Camp Far West Project Vicinity from 1967 through 2016.

| Fire Name | Fire Year | Cause | Total Acres Burned | Acres Within a 1-Mile Buffer Zone |
|---------------|-----------|----------------------------|--------------------|-----------------------------------|
| Capehart | 1967 | Unknown / Unidentified | 1,063.4 | 588.5 |
| Camp Far West | 1970 | Unknown / Unidentified | 588.7 | 674.9 |
| PG&E #5 | 1981 | Non-Project Equipment Use | 812.5 | 476.3 |
| Perimeter | 2014 | Non-Project Debris Burning | 9.6 | 9.6 |
| Total | -- | -- | 2,474.2 | 1,749.3 |

GIS Source: CAL FIRE 2017

Three of the four reported fires burned acreage within the existing FERC Project Boundary (Table 3.3.7-8). The Capehart Fire, ignited on October 14, 1967, damaged 89.7 ac within the existing FERC Project Boundary. The cause of the fire was unidentified. The Camp Far West Fire, ignited on June 27, 1970, damaged 15.1 ac within the existing FERC Project Boundary. This fire was also started by an unknown cause. The PG&E #5 Fire, ignited on June 14, 1981, damaged 2.1 ac within the FERC Project Boundary. The fire was sparked by PG&E equipment use. Approximately 107 ac of the fire-damaged lands from these three fires were within the existing FERC Project Boundary.

Table 3.3.7-8. Fires within the Camp Far West existing FERC Project Boundary from 1967 through 2016.

| Fire Name | Fire Year | Cause | Reported Acres Within FERC Boundary |
|---------------|-----------|----------------------------|-------------------------------------|
| Capehart | 1967 | Unknown / Unidentified | 89.7 |
| Camp Far West | 1970 | Unknown / Unidentified | 15.1 |
| PG&E #5 | 1981 | Equipment Use | 2.1 |
| Perimeter | 2014 | Non-Project Debris Burning | 0.0 |
| Total | -- | -- | 106.9 |

GIS Source: CAL FIRE 2017

Fire ignitions, shown in Figure 3.3.7-4, include all four of the reported fire ignitions that have occurred within the Project Vicinity. All four reported incidences (i.e., Capehart, Camp Far West, PG&E #5, and Perimeter) occurred within the 1-mi buffer zone. There was no record of any fire ignitions resulting from Project O&M activities or Project-related recreation.

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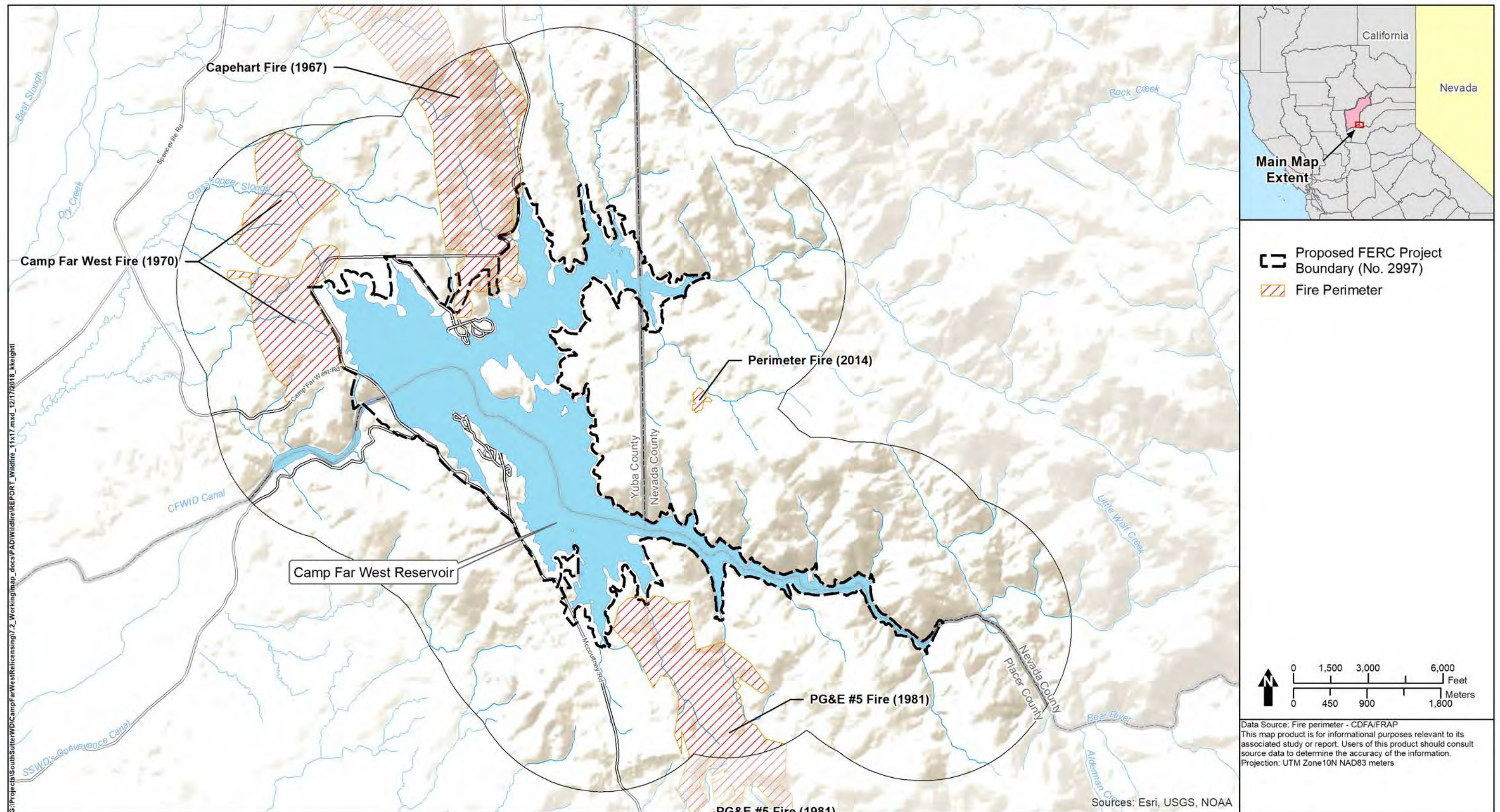


Figure 3.3.7-4. Fire ignitions within the proposed Project Vicinity.

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Fire Occurrence Trend Analysis

The Project-specific fire occurrence analysis also included a statistical trend analysis of the fire ignition/fire cause history. This analysis served to ascertain causes for historical fires and occurrence patterns that define the historic presence and impacts of fires, including project-induced fires, within the proposed Project Area. There was no record of any fire ignitions resulting from Project O&M activities or Project-related recreation. Table 3.3.7-9 below represents a statistical summary of all fire ignitions identified in the fire occurrence analysis.

Table 3.3.7-9. Fire occurrence analysis statistics by cause from 1967 through 2014.

| Cause | Total Ignitions | Percent of Cause |
|-----------------------------------|-----------------|------------------|
| Non-Project Debris Burning | 1 | 25% |
| Unknown/Unidentified/Undetermined | 2 | 50% |
| Non-Project Equipment Use | 1 | 25% |
| Total | 4 | 100% |

The Project Area remains at risk from high-intensity wildfires that typically start outside of the existing FERC Project Boundary, but can rapidly escalate to threaten Project infrastructure. These high-threat fires typically burn in heavy fuel and steep topography, and resist aggressive fire suppression efforts over prolonged periods of time, particularly at the Camp Far West Powerhouse.

3.3.7.1.7 Law Enforcement

Local law enforcement provides for all needs at the Project. SSWD is unaware of any unique law enforcement issues that would be unusual for recreation areas similar to those at Camp Far West Reservoir, or unusual for the other areas of the Project.

3.3.7.1.8 Restricted Public Access to Project Waters and Land

The Project reservoir and lands are accessible to the public with minor exceptions, such as restricted access to dams, powerhouses, and switchyards for public safety reasons. SSWD is unaware of any complaints regarding access to Project waters and lands.

3.3.7.2 Environmental Effects

This section discusses the potential environmental effects of SSWD's proposed Project, as described in Section 2.2 of this Exhibit E. As part of the Project relicensing, SSWD proposes a Pool Raise of 5 feet, addition of an existing road as a Primary Project Road for access to the Camp Far West Powerhouse, modifications of existing recreation facilities, and modification of the existing Project boundary. SSWD proposes to include in the new license one measure related to land use. Measure RR1 would require SSWD to implement the Recreation Facilities Plan.

To mitigate effects to land use resources during construction of the Pool Raise, SSWD will obtain and implement all permits required for construction. The effects to land use during construction will be temporary as staging areas and other construction-related areas will be returned to pre-construction form.

SSWD's proposed Project includes the addition of an existing road as a Primary Project Road for access to the Camp Far West Powerhouse. The existing powerhouse access road is a paved road, approximately 0.25 mi long, located entirely on SSWD-owned land, is within both the existing and proposed Project Boundary, and begins from the locked gate at Camp Far West Road and terminating at the Camp Far West Powerhouse and Switchyard. The road is closed to the public due to safety concerns, has been maintained solely by SSWD for Project purposes since the existing Project was constructed, and SSWD does not propose any changes to these maintenance activities. The road area was included in the study area for SSWD's relicensing cultural and botanical studies. There is some potential for erosion related to surface runoff from the roadway during storm events, however, such effects are minimal given the well vegetated, gently sloping terrain surrounding this well-maintained SSWD road. In addition, periodic inspection by SSWD during trips to and from the powerhouse, especially during and after major storm events, will identify the need for any maintenance to drainage controls or pavement. SSWD's proposal to include the road as a Primary Project Road (i.e., Project facility) in the new license simply corrects an oversight in the existing license. The addition of this existing paved road as a Primary Project Road for use by SSWD staff for O&M access to the powerhouse will have a less-than-significant effect on land use resources.

As described in Exhibit G, SSWD proposes to modify the existing FERC Project Boundary. This modification would entail reducing the boundary in certain locations and expanding it in other locations. While most of the boundary changes would affect SSWD-owned lands, some private property owners would be affected. SSWD has notified, by certified mail, property owners on the additional lands to be encompassed by the Project. No governmental agencies, tribal lands, or subdivisions would be interested in or affected by the boundary expansion. The private property owners that would be affected are listed in Table 3.3.7-10. All are in Yuba County, CA.

Table 3.3.7-10. List of property owners who would have 0.5 acres or more of land impacted by SSWD's proposed expansion of the FERC Project boundary.

| Assessor's Parcel Number | Acres Added to Project Boundary | Owner's Name |
|--------------------------|---------------------------------|------------------------|
| 5403009000 | 0.7 | SPLINTER MICHAEL TRSTE |
| 5403010000 | 1.1 | SPLINTER MICHAEL TRSTE |
| 5403015000 | 2.6 | SPLINTER MICHAEL TRSTE |
| 5403013000 | 0.9 | JENSON PETE & STACY |
| 018020015000 | 0.7 | LASSAGA ALBERT J ET AL |
| 026010003000 | 1.4 | PINEBROOK VILLAGE L P |

SSWD's proposed Project does not include any significant changes in operations other than management of the additional 5 ft of reservoir pool following completion of the Pool Raise. Maintenance of proposed Project facilities on private lands, 95 percent of which are owned by SSWD, would have a less-than-significant effect. SSWD does not propose significant changes to existing Project facilities or how they are maintained and operated.

SSWD's Proposed Condition RR1 will implement the Recreation Facilities Plan that includes relocation, re-routing or re-alignment of recreation features that will be inundated by the Pool Raise, and maintenance and management of Project recreation facilities. The majority of

construction at recreation facilities would occur outside the peak recreation season (i.e., after the Labor Day holiday weekend and before the Memorial Day holiday weekend).

Over the past 15 years, SSWD's existing Project has not had a significant effect on fire occurrence. SSWD does not propose significant changes to the facilities or how they are maintained and operated, so the proposed Project would not increase the risk of Project-related fires.

3.3.7.3 Unavoidable Adverse Effects

The proposed Project would have both short- and long-term minor impacts on land use resources that are unavoidable. Project facilities will continue to be a long-term, committed land use. Their initial construction represented a major, short-term impact to land use resources, but as most of the facilities have been in place for many years, their impact is now relatively minor, and part of the baseline condition. The proposed Pool Raise will have a minor, short-term effect in respect to construction, and will result in seasonal inundation of an additional 160.1 ac of land.

Project O&M activities and associated road use will continue to have a long-term, minor effect on fire risk. In the past 15 years, no Project O&M or road-use activities have caused a fire. Use of roads for Project purposes will continue to have a minor, short-term effect on the road facilities themselves (e.g., road surfaces and culverts), and associated resource areas.

3.3.7.4 Measures or Studies Recommended by Agencies and Not Adopted by SSWD

As described in Appendix E4 in this Exhibit E, USFWS, NMFS, CDFW, SWRCB and FWN each submitted written comments on SSWD's December 29, 2018, DLA. None of the written comments recommended land use-specific PM&E measures or studies. Recommendations regarding SSWD's Proposed Condition RR1 are addressed in Section 3.3.6.4 in Exhibit E of this FLA.

3.3.7.5 List of Attachments

None.

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3.3.8 Aesthetic Resources

The discussion of aesthetic resources is divided into four sections. The affected environment is discussed in Section 3.3.8.1, environmental effects of the Project are discussed in Section 3.3.8.2, unavoidable adverse effects are addressed in Section 3.3.8.3, and aesthetic resources-related measures or studies recommended by agencies but not adopted by SSWD are discussed in Section 3.3.8.4.

Existing, relevant, and reasonably available information is sufficient to determine the potential effects of the Project on aesthetic resources, and SSWD did not perform any studies related to aesthetic resources.

3.3.8.1 Affected Environment

This section is divided into two subsections: 1) regulatory context; and 2) existing aesthetic character.

3.3.8.1.1 Regulatory Context

SSWD owns 95 percent of the land within the boundary and the remaining 5 percent of the land is owned by private parties. No federal or state land occurs within or adjacent to the FERC Project Boundary or on the Bear River downstream of the Project. Thus, the only guiding documents for aesthetic resources are the County general plans, including the Nevada County, Placer County and Yuba County general plans. These general plans provide broad goals and direction for aesthetic resources with a general emphasis on protecting and maintaining natural scenic resources related to open space, natural vegetation, and bodies of water. However, these three counties do not have specific visual quality objectives and there are no federal lands associated with this Project that require visual quality objectives. It is clear from the various county general plan's goals and policies that natural scenic values should be protected wherever possible. It is important to note that the Project pre-dates the plans and therefore the general plans were developed with the Project in place.

Yuba County General Plan

A major portion of the Project Area lies within Yuba County. The Yuba County General Plan was updated in 2011 (Yuba County 2011). As part of the plan, goals for aesthetic resources that may be applicable to the Project are described as follows:

Policy NR9.1 – New developments near the Yuba, Bear, and Feather Rivers should be designed and located in a way that retains or enhances scenic views of these important visual resources.

Policy NR9.3 – Development in rural communities should be designed to preserve important scenic resources, landmarks, and icons that positively contribute to the rural character.

Policy NR9.4 – New buildings in areas of natural and scenic beauty should be placed in and designed in a way to preserve scenic vistas available from public right-of-way, parks, and other public viewing areas.

Placer County General Plan

The southwestern shoreline of Camp Far West Reservoir, the powerhouse, and the southern portion of the dam lies within Placer County. In the Placer County General Plan (Placer County 2013) under Part 2, *Goals, Policies, and Implementation Programs*, Section 6, *Natural Resources*, there are goals and policies indirectly associated with aesthetic values for county lands. These are:

Goal 6.A - to protect and enhance the natural qualities of Placer County's rivers, streams, creeks and ground water.

Policy 6.A.14 - the County shall help ensure that open space located in reservoir is preserved and protected to ensure adequate performance of these reservoirs. Camp Far West Reservoir is listed as an immediate key watershed.

Goal 6.E - to preserve and enhance open space lands to maintain the natural resources of the County.

Policy 6.E.1 - the County shall support the preservation and enhancement of natural land forms, natural vegetation and natural resources as open space to the maximum extent feasible.

Nevada County General Plan

The northeastern portion of Camp Far West Reservoir lies within Nevada County. In the Nevada County General Plan (Nevada County 2014), the following aesthetic goals were described for county lands:

To promote and provide for aesthetic design in new development that reflects existing character.

To protect and preserve important scenic resources.

3.3.8.1.2 Aesthetic Character in the Project Area

The following section provides a description of the existing visual resources found in the Project Area.

Regional Context

The Project is located primarily in southwestern Yuba County and northwestern Placer County with a small portion in southwestern Nevada County, California. This Project is located along the Bear River. SSWD is the major private landowner in the Project Area. Camp Far West Reservoir, the only Project impoundment, is located 17 mi southeast of Marysville, California, in

Yuba County and 7 mi northeast of Wheatland, California, in Yuba County. McCourtney Road provides paved access from the south to Camp Far West Reservoir. Camp Far West Road provides paved access from the west to the reservoir, including crossing the dam, and provides views of the reservoir and access to the main recreation facilities associated with the reservoir. The reservoir can also be accessed from the north by Camp Far West and Spenceville roads and from the east by Long Ravine and McCourtney roads in Nevada County. Portions of these roads are gravel.

Scattered grazing, agriculture, residential sites and wildlife management are the primary land uses in the Project Vicinity. Beale Air Force Base is approximately 3 mi to the northwest of the reservoir and Spenceville Wildlife Management and Recreation Area is 2 mi due north. In addition, recreation uses such as boating, fishing, camping, and picnicking are focused at Camp Far West Reservoir (Section 3.2.6). Hydroelectric generating facilities are located below the dam, but are a modest part of the landscape setting.

The visual character of the landscape setting encompasses rolling hills covered with oak woodlands, scattered oaks, and grasslands within the Project Area. This terrain is typical for lower elevations in the Sierra foothills and is characterized by rolling hills, scattered rock outcroppings, and incised river canyons. Oak woodlands and grasslands interspersed with chaparral, dominate the vegetative pattern, with alder and willow occurring along the riparian corridors (Yuba County 1994). The oaks maintain their dark olive green color year round while the grasslands are a bright yellow green in the springtime and then turn to a light yellow tan in the summer and fall. Elevations within the Project Vicinity range from 300 ft at the reservoir surface to around 600 ft at the top of the surrounding hills beyond the existing FERC Project Boundary. Three mi east of the reservoir is Rock Mountain at an elevation of 1,409 ft. Camp Far West Reservoir is a visual attraction due to the wide expanse of water and interesting shoreline that provides many coves and inlets. Camp Far West Reservoir is also associated with camping and boating recreation opportunities.

The visibility of Project facilities to the public varies widely. Camp Far West Dam and Reservoir are highly visible due to road access and the use of the reservoir for boating, fishing, and water skiing. The dam is visible from the main access road, the main campgrounds, boat launches, swimming beaches, and from the water surface. The powerhouse and associated facilities are generally not visible with the exception of passengers in cars heading south over the dam, and only if they look downstream below the dam.

Camp Far West Reservoir

Camp Far West Reservoir is located on the Bear River 18.2 mi upriver from the confluence with the Feather River. It is a medium-sized reservoir, which at NMWSE covers 1,886 ac and creates a shoreline of 29 mi. The NMWSE is 300 ft and the reservoir extends upstream on the Bear River for 5.5 mi from the dam. The water surface is fairly open near the boat ramps and dam, and then slowly narrows into a canyon as it meets the Bear River. The reservoir is visually attractive to the public even with the low water level because the shoreline has an undulating shape and provides several coves and inlets to explore. The surrounding environment of the reservoir is almost completely natural with the exception of the Camp Far West Dam and

Spillway and some of the recreation facilities. Users of the reservoir drive through a mix of agriculture, small ranches, and scattered homes before they arrive at the reservoir.

Oak woodland and grasslands are the dominant vegetation types. Nearly all lands (~95%) around the reservoir and within the existing FERC Project Boundary are owned by SSWD; the rest are owned by private landowners. No federal lands are associated with the Project. The NSRA is open year-round, while the SSRA is open intermittently during the high use season. Additional details on the recreation facilities are provided in Section 3.3.6.

The major access roads to Camp Far West Reservoir are McCourtney Road from the south and Camp Far West Road from the southwest in Placer County. Camp Far West Road continues north across the dam and provides access to the NSRA. This road was listed in the Yuba County General Plan as a scenic road with direction to be managed as a scenic corridor. There are local gravel roads that provide access to areas north and east of the reservoir. These roads provide some public views of the reservoir, but not near Project facilities. The primary views of the reservoir are from McCourtney Road as it parallels the west side of the reservoir and Camp Far West Road as it crosses the dam and continues to the NSRA. Other key views of the reservoir are from the NSRA including the boat launch and swimming beach as well as the SSRA. The main viewing opportunity of the reservoir is by boaters using the water surface for fishing, water skiing, and boating.

Camp Far West Dam and Spillway

The Camp Far West Dam and Spillway are located on the Bear River at the far west end of the reservoir. The dam is 2,070 ft long and transitions to a south wing dam that is 1,060 ft long, a north wing dam that is 1,440 ft long and a northern dike which is 1,145 ft long. All the dams are covered with dark boulders with a maximum diameter of 3 ft. The spillway is 300 ft wide at an elevation of 300 ft and constructed with concrete. The spillway does not have gates and is spanned by a 302.5-ft single span, steel-truss bridge that allows for traffic to continue on Camp Far West Road. Even at low water levels, the visual contrast is low to moderate due to the boulders matching rock outcroppings along the reservoir shoreline. The bridge across the spillway has some visual contrast due to the geometric patterns of an engineered steel bridge. However, at a middle ground distance the bridge contrast is minimal due to the size of members and non-reflective nature of the bridge surfaces.

Camp Far West Powerhouse

The powerhouse is located below the dam and has a gated paved road for access. The building is aboveground, built with reinforced concrete, and white in color. The powerhouse is only seen by passengers traveling in vehicles heading south across the dam. It takes an effort to see the powerhouse below the dam, particularly if the vehicle is traveling at a normal speed (e.g., 25 to 45 m.p.h.). The visual contrast is high for the few people who make the effort to look at the powerhouse in the foreground. However, from any other viewpoint there is no visual contrast because the powerhouse is not seen.

The aesthetic character of Project features within the Project is summarized in Table 3.3.8-1.

Table 3.3.8-1. Aesthetic character of Project features within the Camp Far West Project Area.

| Existing Project Feature | Elevation (ft) | Form of Access | Relationship to Land Form | Predominant Vegetation | Visibility from Surrounding Areas | Relative Number of Viewers | County Plan Direction |
|---|-------------------------------------|--|---------------------------|-----------------------------|--|----------------------------|--|
| Camp Far West Dam and Spillway | Dam crest 320 ft Spillway 300 ft | Camp Far West Road from Hwy. 65 | Inundated stream valley | Oak woodland and grasslands | Seen from roads, recreation area, and reservoir surface | High | Placer and Yuba counties: Protect and enhance natural scenic values |
| Camp Far West Powerhouse and facilities | Approx. 150 ft | Gated paved road | Stream valley | Oak woodland and grasslands | Seen from south bound lane of Dam road. Not seen from anywhere else | Low/ Medium | Placer County: Protect and enhance natural scenic values |
| Camp Far West Reservoir | 300 ft at NMWSE | McCourtney road and Camp Far West Road | Inundated stream valley | Oak woodland and grasslands | Seen from McCourtney Road, Camp Far West Road, the recreation areas, and reservoir surface | High | Placer, Yuba, and Nevada counties: Protect and enhance natural scenic values |

3.3.8.2 Environmental Effects

This section discusses the potential environmental effects of SSWD's proposed Project, as described in Section 2.2 of this Exhibit E. As part of the Project relicensing, SSWD proposes a Pool Raise of 5 ft, modifications of existing recreation facilities, and modification of the existing Project boundary. SSWD is not proposing any measures that would impact aesthetic resources.

3.3.8.2.1 Effects of Construction-Related Activities

Construction during the Pool Raise would have a less-than-significant effect on aesthetic resources. The work near the dam and at the laydown areas would be noticeable, but of short duration and in areas near the dam where the public is accustomed to viewing dam features. Outside of the short-term visibility of the construction equipment and staff near the dam, the work on SSWD lands, would remain consistent with Yuba County and Placer County's general aesthetic goals, which generally emphasizes protecting and maintaining natural scenic resources. Once completed, the work would not impact the existing scenic views of Camp Far West Reservoir and the downstream river canyon from Camp Far West Road. SSWD would obtain all necessary permits and approvals for the work, and would adhere to all permit terms and conditions, which is expected to mitigate any aesthetic impacts.

Construction of the various recreation facility rehabilitations and enhancements would have a minor effect on aesthetic resources. Specific locations undergoing major rehabilitation and construction would be closed during construction. Most recreational users would be in other areas and likely at separate recreation area, which are typically visually screened by vegetation and/or terrain from construction activities. In addition, facility rehabilitations and enhancements projects would be scheduled outside of the peak season, whenever possible, when the public visitation is significantly lower, further reducing impacts to aesthetic resources related to public visitation.

3.3.8.2.2 Effects of Proposed Project Operations and Maintenance

SSWD's proposed Project does not include any significant changes in operations other than management of the Pool Raise. Most of the existing Project facilities have been in place for almost 50 years, and the limited aesthetic guiding documents (county general plans) were developed with the Project in place and under current Project operations and maintenance. None of the counties' general plans provide specific management direction for aesthetic resources. Thus, the existing Project facilities are in compliance with the general goals and policies of the counties' general plans. Continued Project operations and maintenance would have a less than significant effect on aesthetic resources. SSWD does not propose significant changes to existing Project facilities or how they are maintained and operated.

3.3.8.3 Unavoidable Adverse Effects

Constructed related effects on aesthetic resources, which are unavoidable, are expected to be less-than-significant. They will be short-term and very local, and, in most cases, they will be consistent with the character of the area and viewable in a narrow viewshed. The Pool Raise will have a permanent impact on the viewshed at Camp Far West Reservoir but will be less-than-significant since the overall appearance of the reservoir will remain unchanged. Continued Project operation and maintenance would not have adverse impacts on aesthetic resources.

3.3.8.4 Measures or Studies Recommended by Agencies and Not Adopted by SSWD

As described in Appendix E4 in this Exhibit E, USFWS, NMFS, CDFW, SWRCB and FWN each submitted written comments on SSWD's December 29, 2018, DLA. None of the written comments recommended aesthetic resources-specific PM&E measures or studies.

3.3.8.5 List of Attachments

None.

3.3.9 Socioeconomic Resources

The discussion of socioeconomic resources is divided into four sections. The affected environment is discussed in Section 3.3.9.1, environmental effects of the Project are discussed in Section 3.3.9.2, unavoidable adverse effects are addressed in Section 3.3.9.3, and proposed measures recommended by Agencies or other relicensing participants in written comments on the DLA that were not adopted by SSWD are discussed in Section 3.3.9.4.

Existing, relevant, and reasonably available information is sufficient to determine the potential effects of the Project on socioeconomic resources, and SSWD did not perform any studies related to socioeconomics.

3.3.9.1 Affected Environment

This section is divided into four parts. The first three parts describe existing socioeconomic conditions in Yuba, Placer and Nevada counties, California, the counties in which the Project is located. The fourth part describes socioeconomic considerations for the Project.

3.3.9.1.1 Socioeconomic Conditions in Yuba County

The Project Area is located approximately 7 mi east of the town of Wheaton in southern Yuba County. Project Facilities are easily accessed from Wheaton by Spenceville Road to Camp Far West Road. Population patterns of Yuba County are summarized below.

Population Size

The population of Yuba County in 2010 was 72,155. Yuba County's annual percent change in population since 2010 has averaged 0.86 percent, almost identical to the annual average of 0.87 percent population increase experienced in the State of California since 2010 (U.S. Census Bureau 2018). The California Department of Finance has forecasted that by the year 2020,¹ Yuba County's population will reach 79,087 residents (CDOF 2017).

Towns and Cities

The city of Marysville is the county seat of Yuba County. Marysville is the largest community in the county with a population of 12,072 in 2010. The nearest major population center outside the area is Sacramento, located about 40 mi to the south.

Population Density and Housing Distribution

In 2010, with 72,155 residents, 27,750 housing units, and a land area of 631.84 sq mi, Yuba County had 114.2 residents and 43.9 housing units per sq mi. From 1990 to 2000 and from 2000 to 2010, the population of Yuba County increased by 3.4, and 19.8 percent, respectively. During these two periods, the number of housing units also increased at 6.5 percent and 22.6 percent,

¹ Based on available projected information when the Application for New License is filed.

respectively. From 1970 to 2010, Yuba County experienced a housing unit increase of approximately 96.3 percent (CDOF 2012; U.S. Census Bureau 2010, 1990). Table 3.3.9-1 shows a summary of population and housing units from 1970-2010 in Yuba County.

Table 3.3.9-1. Summary of Yuba County population and housing units, 1970-2010.

| Yuba County | 2010 | 2000 | 1990 | 1980 | 1970 |
|---------------|--------|--------|--------|--------|--------|
| Population | 72,155 | 60,219 | 58,228 | 49,733 | 44,736 |
| Housing Units | 27,750 | 22,636 | 21,245 | 19,128 | 14,135 |

Source: CDOF 2012; U.S. Census Bureau 2010, 1990

As shown in Table 3.3.9-2, most of the Yuba County population (43,988, or 60.8%) in 2010 was between the ages of 18 and 65. Age groups within the county have similar distributions to the State of California.

Table 3.3.9-2. Summary of Yuba County by age group in Yuba County and the State of California, 2010.

| Population: Age | Yuba County | California |
|--|-------------|------------|
| Persons under 5 years old | 6,197 | 2,531,133 |
| Persons under 5 years old, percent | 8.6% | 6.5% |
| Persons 5 to <18 years old | 14,813 | 7,920,709 |
| Persons 5 to <18 years old, percent | 20.5% | 23.9% |
| Persons 18 to <65 years old | 43,988 | 22,235,030 |
| Persons 18 to <65 years old, percent | 60.8% | 57.1% |
| Persons 65 years old and over | 7,317 | 3,479,543 |
| Persons 65 years old and over, percent | 10.1% | 12.5% |

Source: U.S. Census Bureau 2010

Households/Family Distribution and Income

For the period 2012 – 2016, Table 3.3.9-3 summarizes household units (i.e., number of units, net change for a given period, and % change for a given period), homeownership rate, median home value, income, and poverty for Yuba County. County data are also compared to the same data available for the state of California.

Table 3.3.9-3. Summary of household units and income in Yuba County and the State of California.

| Household Information | Yuba County | California |
|---|-------------|------------|
| Housing units, 2016 | 28,357 | 14,060,525 |
| Homeownership rate, 2012-2016 | 52.7% | 54.1% |
| Median value of owner-occupied housing units, 2012-2016 | \$210,200 | \$409,300 |
| Households, 2012-2016 | 22,112 | 12,807,387 |
| Persons per household, 2012-2016 | 2.96 | 2.95 |
| Median household income, 2012-2016 | \$50,788 | \$63,783 |
| Per capita income, 2012-2016 | \$23,200 | \$31,458 |
| Persons below poverty, percent, 2012-2016 | 18.3% | 14.3% |

Source: U.S. Census Bureau 2018

Ethnicity

Yuba County is generally less ethnically diverse than the state of California. The county is predominantly White, with persons of Hispanic or Latino origin being the second largest group.

Table 3.3.9-4 provides a summary of population by race for Yuba County and the State of California for the year 2010.

Table 3.3.9-4. Summary of population by gender and race in Yuba County and the State of California, 2010.

| Population: Gender/Race | Yuba County | California |
|--|-------------|------------|
| Female persons | 35,803 | 18,932,713 |
| Female persons, percent | 49.6% | 50.3% |
| White persons ¹ | 49,332 | 21,453,934 |
| White persons, ¹ percent | 68.4% | 57.6% |
| Black or African American persons ¹ | 2,361 | 2,299,072 |
| Black or African American persons, ¹ percent | 3.3% | 6.2% |
| American Indian and Alaska Native persons ¹ | 1,675 | 362,801 |
| American Indian and Alaska Native persons, ¹ percent | 2.3% | 1.0% |
| Asian persons ¹ | 4,862 | 4,861,007 |
| Asian persons, ¹ percent | 6.7% | 13.0% |
| Native Hawaiian and Other Pacific Islander persons ¹ | 293 | 144,386 |
| Native Hawaiian and Other Pacific Islander persons, ¹ percent | 0.4% | 0.4% |
| Persons reporting some other race ¹ | 8,545 | 6,317,382 |
| Persons reporting some other race, ¹ percent | 11.8% | 17.0% |
| Persons reporting two or more races | 5,087 | 1,815,384 |
| Persons reporting two or more races, percent | 7.1% | 4.9% |
| Persons of Hispanic or Latino origin ² | 18,051 | 14,013,719 |
| Persons of Hispanic or Latino origin, ² percent | 25.0% | 37.6% |

Source: U.S. Census Bureau 2010

¹ Includes persons reporting only one race.

² Hispanics may be of any race; therefore, Hispanics are also included in applicable race categories.

Education

For the period 2012 – 2016, a total of 82.2 percent of Yuba County’s population is educated through high school, with 15.5 percent of the population having obtained a Bachelor’s degree or higher. When compared to the State of California (82.1% and 32.0%, respectively), Yuba County has a similar percentage of high school graduates but lower percentage of individuals with a Bachelor’s degree or higher (U.S. Census Bureau 2018).

Labor Force

Initially, all of Yuba County’s settlements and economy were based on the discovery of gold in the middle 1800s. Today, Yuba County has a diverse economic base and labor force that includes agriculture, mining, manufacturing, transportation, utilities, trade, finance, insurance, real estate services, and government. According to the EDD, the annual average unemployment rate for Yuba County in 2017 was about 8.6 percent, which is higher than the State of California’s average of 4.6 percent (EDD 2018a).

Industry

Yuba County is located at the northern end of California’s famed Mother Lode, which shaped the region’s economy in the mid-to-late 1800s. Since the end of the California gold rush, the economic base has grown to include timber and tourism, with mining playing a greatly reduced role in the county’s economic viability. In 2016, the largest employment sectors in Yuba County

were: 1) Government (35.9%; 2) Education and Health Services (19.2%); and 3) Trade, Transportation and Public Utilities (14.4%) (EDD 2018b). The Government sector had the greatest earnings for the county (Table 3.3.9-5).

Table 3.3.9-5. Summary of industry statistics for Yuba County, 2016.

| Industry | Yuba County | |
|--|---------------------|---------|
| | Number of Employees | Percent |
| Mining, Logging and Construction | 800 | 4.8% |
| Manufacturing | 700 | 4.2% |
| Trade, Transportation and Public Utilities | 2,400 | 14.4% |
| Information Services | 100 | 0.6% |
| Financial Activities | 200 | 1.2% |
| Professional and Business Services | 1,100 | 6.6% |
| Education and Health Services | 3,200 | 19.2% |
| Leisure and Hospitality | 1,500 | 9.0% |
| Other Services | 400 | 2.4% |
| Government (Federal, State and Local) | 6,000 | 35.9% |

Source: EDD 2018b

3.3.9.1.2 Socioeconomic Conditions in Placer County

The Project Area is located approximately 17 mi northwest of the city of Auburn in western Placer County. Population patterns of Placer County are summarized below.

Population Size

The 2010 census indicates the population of Placer County was 348,494. Placer County has a population density of 247.6 persons per square mi. Placer County's annual percent change in population since 2010 has averaged 1.29 percent, which is higher than the annual average of 0.87 percent population increase experienced in the state of California since 2010 (U.S Census Bureau 2018). The California Department of Finance has forecast that by the year 2020,² Placer County's population will reach 397,368 residents (CDOF 2018).

Towns and Cities

Incorporated in 1851, the City of Auburn is the county seat of Placer County and is located at an elevation of 1,300 ft on Interstate 80. Placer County is relatively rural, with the majority of the county population residing in the greater Roseville and Auburn areas. Besides Roseville and Auburn, Placer County contains five other incorporated cities: 1) Colfax; 2) Lincoln; 3) Roseville; 4) Rocklin; and 5) Loomis. The nearest major population center outside the county is Sacramento, located about 32 mi to the south and west. The closest major population center in the county, Auburn, is approximately 17 mi from the Project.

Population Density and Housing Distribution

The Placer County population in 2010 was 348,494 residents, with a total of 155,873 housing units, and a land area of 1,407.01 sq mi, Placer County has 248.8 residents per sq mi and 110.8

² Based on available projected information when draft license application is filed.

housing units per sq mi. From 1990 to 2000 and 2000 to 2010, the population of Placer County increased by 43.8 and 40.1 percent, respectively. During those two same periods, the number of housing units also increased at 37.8 and 45.3 percent, respectively. From 1970 to 2010, Placer County has experienced a population and housing unit increase of greater than 400 percent (U.S. Census Bureau 2010, 1990; CDOF 2012). Table 3.3.9-6 shows a summary of population and housing units from 1970-2010 in Placer County.

Table 3.3.9-6. Summary of Placer County population and housing units, 1970 - 2010.

| Placer County | 2010 | 2000 | 1990 | 1980 | 1970 |
|---------------|---------|---------|---------|---------|--------|
| Population | 348,432 | 248,399 | 172,796 | 177,247 | 77,306 |
| Housing Units | 155,873 | 107,302 | 77,879 | 54,014 | 30,441 |

Source: CDOF 2012; U.S. Census Bureau 2010, 1990

As shown in Table 3.3.9-7, most of the Placer County population (211,284, or 60.4%) in 2010 was between the ages of 18 and 65. The age groups within the county have a similar distribution as the State of California.

Table 3.3.9-7. Summary of population by age in Placer County and the State of California, 2010.

| Population: Age | Placer County | California |
|--|---------------|------------|
| Population under 5 years old | 20,727 | 2,531,133 |
| Persons under 5 years old, percent | 5.9% | 6.5% |
| Persons 5 to <18 years old | 63,610 | 7,920,709 |
| Persons 5 to <18 years old, percent | 18.2% | 23.9% |
| Persons 18 to <65 years old | 211,284 | 22,235,030 |
| Persons 18 to <65 years old, percent | 60.4 | 57.1 |
| Persons 65 years old and over | 54,419 | 3,479,543 |
| Persons 65 years old and over, percent | 15.5% | 12.5% |

Source: U.S. Census Bureau 2010

Households/Family Distribution and Income

Table 3.3.9-8 summarizes household units (i.e., number of units and net change for a given period of time), homeownership rate, median home value, income and poverty for Placer County. County data are also compared to the same data available for the State of California.

Table 3.3.9-8. Summary of household units and income in Placer County and the State of California.

| Household Information | Placer County | California |
|---|---------------|------------|
| Housing units, 2016 | 161,415 | 14,060,525 |
| Homeownership rate, percent, 2012-2016 | 70.1% | 54.1% |
| Median value of owner-occupied housing units, 2012-2016 | \$380,900 | \$409,300 |
| Households, 2012-2016 | 136,730 | 12,807,387 |
| Persons per household, 2012-2016 | 2.68 | 2.95 |
| Median household income, 2012-2016 | \$76,926 | \$63,783 |
| Per capita income, 2012-2016 | \$37,912 | \$31,458 |
| Persons below poverty, percent, 2012-2016 | 7.2% | 14.3% |

Source: U.S. Census Bureau 2018

Ethnicity

When compared to the State of California, Placer County is relatively homogeneous with respect to ethnic diversity. The county is predominantly White, with persons of Hispanic or Latino origin the second largest group. Table 3.3.9-9 provides a summary of population by race for Placer County and the State of California.

Table 3.3.9-9. Summary of population by gender and race in Placer County and the State of California, 2010.

| Population: Gender/Race | Placer County | California |
|--|---------------|------------|
| Female persons | 178,281 | 18,932,713 |
| Female persons, percent | 51.2% | 50.3% |
| White persons ¹ | 290,977 | 21,453,934 |
| White persons, percent ¹ | 83.5% | 57.6% |
| Black or African American persons ¹ | 4,751 | 2,299,072 |
| Black or African American persons, percent ¹ | 1.4% | 6.2% |
| American Indian and Alaska Native persons ¹ | 3,011 | 362,801 |
| American Indian and Alaska Native persons, percent ¹ | 0.9% | 1.0% |
| Asian persons ¹ | 20,435 | 4,861,007 |
| Asian persons, percent ¹ | 5.9% | 13.0% |
| Native Hawaiian and Other Pacific Islander persons ¹ | 788 | 144,386 |
| Native Hawaiian and Other Pacific Islander, percent ¹ | 0.2% | 0.4% |
| Persons reporting some other race ¹ | 13,375 | 6,317,382 |
| Persons reporting some other race, percent ¹ | 3.8% | 17.0% |
| Persons reporting two or more races | 15,105 | 1,815,384 |
| Persons reporting two or more races, percent | 3.8% | 4.9% |
| Persons of Hispanic or Latino origin ² | 44,710 | 14,013,719 |
| Persons of Hispanic or Latino origin, percent ² | 12.8% | 37.6% |

Source: U.S. Census Bureau 2010

¹ Includes persons reporting only one race.

² Hispanics may be of any race, so also are included in applicable race categories.

Education

For the period 2012 – 2016, a total of 94.2 percent of Placer County’s population is educated through high school, with 36.9 percent of the population having obtained a Bachelor’s degree or higher. When compared to the State of California (82.1% and 32.0%, respectively), Placer County has a higher percentage of both high school graduates and individuals who have received a Bachelor’s degree or higher (U.S. Census Bureau 2018).

Labor Force

Placer County’s settlements and their economies were based initially on the discovery of gold in the middle 1800s. Today, Placer County has a diverse economic base and labor force that includes construction, mining, manufacturing, transportation, utilities, trade, finance, insurance, real estate services, and government. According to the California Employment Development Department (EDD), the annual average unemployment rate was 4.9 percent in Placer County during 2015, which is less than the State of California’s average of 6.4 percent (EDD 2015).

Based on average monthly labor statistics from the EDD, Placer County’s unemployment dropped to 5.2 percent during December 2014, reaching the lowest point since 2007. This rate was the twelfth lowest among California, which was 6.7 percent (Placer County 2015).

Industry

In 2016, the following sectors were the largest employers in Placer County as shown in Table 3.3.9-10: 1) Trade, Transportation and Public Utilities (20.9%); 2) Education and Healthcare Services (15.5%); and 3) Government (14.2%). These industries combined make up almost half of Placer County's economy (Placer County 2014).

Table 3.3.9-10. Summary of industry statistics for Placer County, 2016.

| Industry | Placer County | |
|--|---------------------|-------------|
| | Number of Employees | Percent |
| Agriculture | 300 | 0.2% |
| Mining and Logging | 100 | <0.1% |
| Construction | 13,600 | 8.4% |
| Manufacturing | 6,500 | 4.0% |
| Trade, Transportation & Public Utilities | 31,700 | 19.5% |
| Information | 2,500 | 1.5% |
| Financial Activities | 12,400 | 7.6% |
| Professional & Business Services | 20,500 | 12.6% |
| Leisure & Hospitality | 22,300 | 13.7% |
| Education and Healthcare Services | 27,100 | 16.7% |
| Other Services | 5,600 | 3.4% |
| Government | 19,800 | 12.2% |
| Total | 162,400 | 100% |

Source: EDD 2018b

3.3.9.1.3 Socioeconomic Conditions in Nevada County

The Project Area is located approximately 18 mi southwest of the city of Grass Valley in western Nevada County. Population patterns of Nevada County are summarized below.

Population Size

The population of Nevada County in 2010 was 98,764 (U.S. Census Bureau 2015). Nevada County's annual percent change in population since 2010 has averaged -0.01 percent, which was lower than the 0.87 percent population increase experienced in the State of California for the same period (CDOF 2018). The California Department of Finance has forecast that by the year 2020,³ Nevada County's population will reach 99,548 residents (CDOF 2018).

Towns and Cities

Nevada County is a rural county. There are three towns in Nevada County with populations over 3,000: Truckee, Grass Valley and Nevada City. Truckee had a population of 16,180 in 2010 and 16,165 in 2013 (U.S. Census Bureau 2015), a decrease of 0.9 percent. Grass Valley had a population of 12,860 in 2010 and 12,793 in 2013 (U.S. Census Bureau 2015), a decrease of 0.5 percent. Nevada City had a population of 3,068 in 2010 and 3,136 in 2017 (U.S. Census Bureau 2017), essentially no change. Major population centers around Nevada County are Sacramento, which is 56 mi southwest of Grass Valley; and Reno, Nevada, which is 32 mi northeast of

³ Based on available projected information when draft license application is filed.

Truckee. The nearest population center in the county, Grass Valley, is approximately 18 mi from the Project.

Population Density and Housing Distribution

With a population of 98,764 residents, 52,590 housing units, and a land area of 957,77 sq mi, Nevada County had 103.1 residents and 54.9 housing units per sq mi in 2010 (U.S. Census Bureau 2015). From 1990 to 2000 and from 2000 to 2010, the population of Nevada County increased by 26 percent, and decreased 0.16 percent respectively. During those same periods, the number of housing units increased at a rate of 18.6 percent and 18.8 percent, respectively (CDOF 2012, U.S. Census Bureau 2010, 1990). Table 3.3.9-11 shows a summary of population and housing units from 1970-2010 in Nevada County.

Table 3.3.9-11. Summary of Nevada County population and housing units, 1970-2010.

| Nevada County | 2010 | 2000 | 1990 | 1980 | 1970 |
|---------------|--------|--------|--------|--------|--------|
| Population | 98,764 | 98,938 | 78,510 | 51,645 | 26,346 |
| Housing Units | 52,590 | 44,282 | 37,352 | 24,759 | 11,960 |

Source: CDOF 2012; U.S. Census Bureau 2010, 1990

Table 3.3.9-12 shows that most of the Nevada County population (60,292, or 61.2%) falls between the ages of 18 and 65. The age demographics of Nevada County's population is a bit older than that of the State of California.

Table 3.3.9-12. Summary of population by age group in Nevada County and the State of California, 2010.

| Population: Age | Nevada County | California |
|--|---------------|------------|
| Population under 5 years old | 4,346 | 2,531,133 |
| Persons under 5 years old, percent | 4.4% | 6.5% |
| Persons 5 to <18 years old | 14,570 | 7,920,709 |
| Persons 5 to <18 years old, percent | 14.8% | 23.9% |
| Persons 18 to <65 years old | 60,292 | 22,235,030 |
| Persons 18 to <65 years old, percent | 61.2 | 57.1 |
| Persons 65 years old and over | 19,318 | 3,479,543 |
| Persons 65 years old and over, percent | 19.6% | 12.5% |

Source: U.S. Census Bureau 2010

Households/Family Distribution and Income

Table 3.3.9-13 summarizes household units (i.e., number of units, net change for a given period, and % change for a given period), homeownership rate, median home value, income, and poverty for Nevada County. County data are comparable to that for the State of California.

Table 3.3.9-13. Summary of household units, homeownership, home value, and income in Nevada County and the State of California.

| Household Information | Nevada County | California |
|---|---------------|------------|
| Housing units, 2016 | 53,535 | 14,060,525 |
| Homeownership rate, percent, 2012-2016 | 72.1% | 54.1% |
| Median value of owner-occupied housing units, 2012-2016 | \$355,900 | \$409,300 |
| Households, 2012-2016 | 40,587 | 12,807,387 |
| Persons per household, 2012-2016 | 2.40 | 2.95 |
| Median household income, 2012-2016 | \$57,429 | \$63,783 |
| Per capita income, 2012-2016 | \$33,385 | \$31,458 |
| Persons below poverty, percent, 2012-2016 | 10.9% | 14.3% |

Source: U.S. Census Bureau 2018

Ethnicity

When compared to the State of California, Nevada County is relatively homogeneous with respect to ethnic diversity. The County is predominantly White, with persons of Hispanic or Latino origin being the second largest group. Table 3.3.9-14 provides a summary of population by race for Nevada County and the State of California for the year 2010.

Table 3.3.9-14. Summary of population by gender and race in Nevada County and the State of California, 2010.

| Population: Gender/Race | Nevada County | California |
|--|---------------|------------|
| Female persons | 49,929 | 18,932,713 |
| Female persons, percent | 50.6% | 50.3% |
| White persons ¹ | 90,233 | 21,453,934 |
| White persons, ¹ percent | 91.4% | 57.6% |
| Black or African American persons ¹ | 389 | 2,299,072 |
| Black or African American persons, ¹ percent | 0.4% | 6.2% |
| American Indian and Alaska Native persons ¹ | 1,044 | 362,801 |
| American Indian and Alaska Native persons, ¹ percent | 1.1% | 1.0% |
| Asian persons ¹ | 1,187 | 4,861,007 |
| Asian persons, ¹ percent | 1.2% | 13.0% |
| Native Hawaiian and Other Pacific Islander persons ¹ | 110 | 144,386 |
| Native Hawaiian and Other Pacific Islander persons, ¹ percent | 0.1% | 0.4% |
| Persons reporting some other race ¹ | 2,678 | 6,317,382 |
| Persons reporting some other race, ¹ percent | 2.7% | 17.0% |
| Persons reporting two or more races | 3,123 | 1,815,384 |
| Persons reporting two or more races, percent | 3.2% | 4.9% |
| Persons of Hispanic or Latino origin ² | 8,439 | 14,013,719 |
| Persons of Hispanic or Latino origin, ² percent | 8.5% | 37.6% |

Source: U.S. Census Bureau 2010

¹ Includes persons reporting only one race.

² Hispanics may be of any race; therefore, Hispanics are also included in applicable race categories.

Education

For the period 2012 – 2016, a total of 93.3 percent of Nevada County’s population is educated through high school with 34.4 percent of the population having obtained a Bachelor’s degree or higher. When compared to the State of California (82.1% and 32.0%, respectively), Nevada County has a higher percentage of both high school graduates and individuals with a Bachelor’s degree or higher. (U.S. Census Bureau 2018.)

Labor Force

Initially, all of Nevada County's settlements and economy were based on the discovery of gold in the mid-1800s. Today, the county has a small, yet diverse, economic base and labor force that includes construction, mining, manufacturing, transportation, utilities, trade, finance, insurance, real estate services and government. According to the EDD, the annual average unemployment rate was 9.7 percent for Nevada County during 2012 (EDD 2018c). Comparatively, the average unemployment rates for 2005 and 2009 were, respectively, about 4.8 percent and 10.3 percent (EDD 2018c). These rates are comparable to those for the State of California, which had an approximately 5.4 percent unemployment rate for the year 2005, 11.2 percent for the year 2009, and 10.4 percent for 2012 (EDD 2018c).

Industry

Table 3.3.9-15 shows that in 2016, the largest employment sectors in Nevada County were: 1) Government (20.2%); 2) Education and Health Services (17.5%); and 3) Leisure and Hospitality (16.0 %) (EDD 2018b).

Table 3.3.9-15. Summary of industry statistics for Nevada County, 2016.

| Industry | Nevada County | |
|------------------------------------|---------------------|---------|
| | Number of Employees | Percent |
| Mining, Logging, and Construction | 2,990 | 8.6% |
| Manufacturing | 1,410 | 4.4% |
| Trade, Transportation & Utilities | 4,990 | 15.6% |
| Information | 280 | 0.9% |
| Financial Activities | 1,360 | 4.2% |
| Professional and Business Services | 2,140 | 6.7% |
| Education and Health Services | 5,600 | 17.5% |
| Leisure and Hospitality | 5,130 | 16.0% |
| Other Services | 1,890 | 5.9% |
| Government | 6,470 | 20.2% |

Source: EDD 2018b

3.3.9.1.4 Project-Specific Information

Established in 1954, SSWD, is a State of California public agency formed under California Water District Law, California Water Code Section 34000 et seq. to develop, store, and distribute surface water supplies for irrigation uses in SSWD's service area. In addition, Section 34000 et seq. authorizes SSWD to develop hydroelectric power in connection with SSWD's projects. SSWD is governed by a Board of Directors, whose seven members are elected by landowners within SSWD's service area. The Camp Far West Dam was completed in 1964 and the powerhouse was completed in 1981.

SSWD is headquartered in Trowbridge, California, and has nine full-time employees, two of which work directly on the Project on a day-to-day basis, and are dispatched from Trowbridge.

SSWD pays almost \$100,000 each year to federal, State, and local governments for Project-related support services and property taxes. Table 3.3.10-16 provides a list of these annual fees.

Table 3.3.9-16. Federal, State, and local agencies Licensee pays annually for Project-related services.

| Agency | Description | Approximate Annual Payment |
|--|----------------|----------------------------|
| Federal Energy Regulatory Commission | Administration | \$8,555 |
| United States Geological Survey | Stream Gaging | \$3,800 |
| California Division of Safety of Dams | Dam Safety | \$31,196 |
| California Department of Water Resources | Water Rights | \$27,730 |
| California State Water Resources Control Board | Annual Fees | \$1,996 |
| Regional Water Quality Control Board | Reservoir | \$22,393 |
| Penn Valley Fire Department | Fire | \$35 |
| Nevada County | Property Tax | \$1,792 |
| Placer County | Property Tax | \$1,730 |
| Total | | \$99,227 |

In addition, SSWD pays sales tax for all equipment and supplies.

3.3.9.2 Environmental Effects

This section discusses the potential environmental effects of SSWD's Proposed Project, as described in Section 2.2 of this Exhibit E. As part of the Project relicensing, SSWD proposes a Pool Raise, modifications of existing recreation facilities, and modification of the existing Project Boundary. SSWD's proposed measures do not related specifically to socio-economic resources, however, many of them require actions that may be performed by businesses located within approximately 1 hour of the Project.

Minimal adverse impacts to socioeconomic resources are expected during construction of the Pool Raise. While the recreation areas at Camp Far West will remain open during construction, the bridge over the spillway will need to be closed to through-traffic which may impact visitor use at the recreation areas. In general, construction for the Pool Raise and modification of associated facilities would provide a brief, small economic benefit to the region in the form of additional construction-related jobs during the period of construction.

No impacts to socioeconomic resources are expected due to continued Project O&M. Rather, SSWD's Proposed Project upgrades and enhancements to the recreation facilities would provide an economic benefit to the region due to increased recreational use of the upgraded and expanded recreation facilities. SSWD's proposed measures will provide minimal socioeconomic benefit by creating environmental and/or engineering related jobs needed to implement various measures.

Importantly, the Proposed Project would enhance and preserve water supply, which are critical for the socioeconomic health of the region. Under existing conditions in dryer years, SSWD does not meet its full water delivery, which affects socioeconomic conditions in Sutter and Placer counties. At this time, SSWD proposes to continue to operate the Project as it has for the past 5 years, along with some modifications of operations for management of the additional water storage of 9,836 ac ft that will be developed after completion of the proposed Pool Raise. The changes in operations to manage the additional water storage would improve the reliability of water deliveries as compared to the No Action Alternative, so socioeconomic resources would be improved under the Proposed Project.

3.3.9.3 Unavoidable Adverse Effects

Continued O&M of the Project, including Project-related recreation, would require some commitment of local law enforcement resources. In addition, while there have been few, if any Project-related wildfires, should a fire occur, local fire response services would be needed. These impacts are considered short-term because they are only needed in cases of emergencies. Also, when compared to the overall economic benefit of the Project, in terms of employment and tourism and fees SSWD pays to federal, state and local agencies, these impacts are minor.

3.3.9.4 PM&E Measures Not Adopted by SSWD

As described in Appendix E4, five comment letters or emails (provided in Appendix E3) were submitted regarding SSWD's DLA. SSWD reviewed each letter or email and, with regards to Socioeconomic Resources, no proposals or comments to modify a SSWD proposed measure or add a new measure were identified.

3.3.9.5 List of Attachments

None.

3.3.10 Cultural Resources

The discussion of cultural interests is divided into four sections. The affected environment is discussed in Section 3.3.10.1, environmental effects of the Project are discussed in Section 3.3.10.2, unavoidable adverse effects are addressed in Section 3.3.10.3 and proposed measures recommended by agencies, Indian tribes and other interested parties in written comments on that DLA that were not adopted by SSWD are discussed in Section 3.3.10.4.

Existing, relevant, and reasonably available information was not sufficient to determine the potential effects of the Project on cultural resources so SSWD conducted one study, Study 10-1, *Cultural Resources Study*.

3.3.10.1 Affected Environment

Relicensing the Project with FERC is considered to be a federal undertaking, subject to compliance with Section 106 of the NHPA of 1966 (Section 106), as amended, and its implementing regulations at 36 C.F.R. Part 800. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties (i.e., cultural resources listed on or eligible for listing on the NRHP). On May 13, 2016, FERC designated SSWD as its non-federal representative for purposes of consultation under Section 106 in accordance with 36 C.F.R. 800.2(c)(4). SSWD contracted HDR to conduct the *Cultural Resources Study* to assist FERC in identifying and assessing Project-related effects to historic properties, pursuant to meeting its Section 106 compliance requirements.

The *Cultural Resources Study* was conducted to identify, describe, and evaluate archaeological and built environment resources as potential historic properties in the Project relicensing APE. The California State Historic Preservation Officer (SHPO) agreed with the delineation of the Project relicensing APE in a letter dated September 2, 2016 (SHPO Reference Number: FERC_2016_0701_001). A separate study (Study 11-1, *Tribal Interests Study*) was conducted to investigate areas of tribal interest, including Traditional Cultural Properties, Indian Trust Assets, and tribal agreements as potential historic properties and is discussed in Section 3.3.11.

The *Cultural Resources Study* Report, a final version of which was filed with FERC on June 7, 2019,¹ documents the study efforts and findings that are presented in this section. The report includes a Public version that summarizes the methods and results of the study, and a Privileged version that presents the complete methods and results of the study. SSWD submitted a draft of the report to potentially affected Native American tribes on February 22, 2019, for review and comment. No comments were received from the tribes. The draft report was then submitted to the SHPO for review and concurrence on April 2, 2019. The SHPO provided comments in a letter dated May 2, 2019, requesting additional information regarding consultation efforts and SSWD provided additional information and clarifications in a letter package on May 14, 2019. The SHPO provided response letters dated May 24, 2019, and June 4, 2019, concurring with each of the resource evaluations recommended in the draft report. In the letter dated May 24, 2019, the SHPO provided comments on historic property identification efforts, assessments of

¹ See FERC's ELibrary Accession No. 201906075078 and Accession No. 201906075079.

adverse effects, and regarding some built environment resource information that required clarification.

The remainder of this section summarizes the preliminary results of the *Cultural Resources Study*. This section is organized into two parts: 1) resources identified and 2) on-going Project-related effects. The first part is organized by resource type (i.e., archaeological and built environment) and summarizes the cultural resources identified during the *Cultural Resources Study*. The second part summarizes the existing or on-going Project-related effects to those resources identified during the *Cultural Resources Study* as potential historic properties.

3.3.10.1.1 Archaeological and Built Environment Resources Identified

Archaeological Resources

The *Cultural Resources Study* resulted in the identification of 90 archaeological sites within the APE. Of these 90 sites, 56 were newly recorded and 34 were previously recorded. These 90 sites include 39 historical sites, 33 prehistoric sites, and 18 multi-component sites that are comprised of both historical and prehistoric components. In addition to these archaeological sites, one archaeological district was identified. As defined at 36 C.F.R. 60.3, “A district is a geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united by past events or aesthetically by plan or physical development. A district may also comprise individual elements separated geographically but linked by association or history.” A brief summary of these archaeological resources is provided below, followed by Table 3.3.10-1, which lists all 90 archaeological sites. The SHPO has concurred with all of the eligibility determinations described below, either previously or during SHPO’s review of the *Cultural Resources Study Report*.

Prehistoric Sites

Of the 90 archaeological sites identified within the APE, 33 are prehistoric. These 33 prehistoric sites include short-term habitation sites ($N^2 = 11$), milling station features ($N = 10$), lithic scatters ($N = 9$), long-term habitation sites ($N=2$), and one site comprised of possible rock art ($N=1$). Sixteen of these 33 prehistoric sites identified within the APE remain unevaluated with regards to their eligibility for listing on the NRHP, 15 have been evaluated as ineligible for inclusion on the NRHP, and two have been evaluated as eligible for the NRHP as part of the *Cultural Resources Study*.

Historical Sites

Of the 90 archaeological sites identified within the APE, 39 are historical. These 39 historical sites include transportation sites ($N = 16$), mining sites ($N = 12$), habitation sites with associated features ($N = 4$), trash scatters sites ($N = 4$), one water control site ($N = 1$), and two other sites that do not fit into a specific site type ($N = 2$). Seven of these 39 historical sites identified within the APE remain unevaluated with regards to their eligibility for listing on the NRHP, and 31 have been evaluated as ineligible for inclusion on the NRHP as part of the *Cultural Resources Study* (three of the ineligible sites were previously determined ineligible and SHPO concurred with these determinations). One

² “N” means “number” and refers to the number of elements in a sample.

site has already been determined eligible for the NRHP (SHPO has previously concurred with this evaluation), but the portion within the APE is evaluated as a non-contributing component to this eligible site as part of the *Cultural Resources Study*.

Multicomponent Sites

A total of 18 multicomponent sites were identified within the APE. The prehistoric components of these 18 sites include short-term habitation locations (N = 9), lithic scatters (N = 6), milling station features (N = 2), and long-term habitation locations (N = 1). The historical components include refuse scatters (N = 11), mining sites (N = 3), habitation sites (N = 3), and one other site that does not fit into a specific site type (N = 1). Two of the multicomponent sites have been evaluated as eligible for inclusion on the NRHP, nine have been evaluated as ineligible for inclusion on the NRHP, and the other seven remain unevaluated for inclusion on the NRHP.

Archaeological District

One prehistoric archaeological district, the Middle Bear River (Kumin Seyo) Prehistoric Archaeological District, was identified within the APE during the *Cultural Resources Study*. This discontinuous archaeological district consists of all prehistoric archaeological sites and components located along the foothill reach of the Bear River and its tributaries within the APE (this includes both prehistoric sites and the prehistoric components of the multi-component sites; N=51). This district has been evaluated as eligible for inclusion on the NRHP as part of the *Cultural Resources Study*. Of the 51 district elements, 23 remain unevaluated with regards to whether or not they contribute the district's NRHP eligibility, 22 have been evaluated as non-contributing elements, and six have been evaluated as contributing elements.

Table 3.3.10-1. Summary table of all archaeological sites identified within the APE.

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Description | Individual NRHP Eligibility | Middle Bear River (Kumin Seyo) Prehistoric Archaeological District ¹ |
|-------|---|-----|---------------------------------------|--|-----------------------------------|---|
| 1 | P-58-3142 CA-YUB-1948 HDR-CFWH-01 | P | Short-Term Habitation | Lithic scatter comprised of one CCS flake, one biface fragment, and one handstone. Age unknown. | Ineligible | NC |
| 2 | P-58-3142 CA-YUB-1949H HDR-CFWH-02 | H | Other | Historic pipeline and concrete foundation box with metal pulley and a metal pipe. This site is likely associated with the North Shore Recreation Area, putting the age of the site circa 1960s. | Ineligible | N/A |
| 3 | P-58-3144 CA-YUB-1950 HDR-CFWH-04 | P | Milling Feature | Bedrock milling station with three milling surfaces (Features 1-3) and two artifacts, a milling slab fragment and a handstone fragment. Age unknown. | Unevaluated | Unevaluated |
| 4 | P-58-3145 CA-YUB-1951H HDR-CFWH-05 | H | Transportation | Historic road segment that appears to correspond to a historic road segment that appears on the 1951 Camp Far West, California 7.5' U.S.G.S topographic quadrangle, and branches off of another historical road (P-58-2570). Contains one feature, a metal culvert pipe which is 8 inches in diameter, and traverses beneath the historical road segment near its center and is about 36 ft long. | Ineligible | N/A |
| 5 | P-31-6297 CA-PLA-2705H HDR-CFWH-06 | H | Other | Historic waterline pipe with 2 repurposed railroad car couplings. This site is likely associated with the South Shore Recreation Area, putting the age of the site circa 1960s. | Ineligible | N/A |
| 6 | P-58-3146 CA-YUB-1952 HDR-CFWH-07 | P | Milling Feature | Bedrock milling station with two mortar cups. Age unknown. Silt appears to be protecting site from impacts. | Unevaluated | Unevaluated |
| 7 | P-31-6301 CA-PLA-2708H HDR-CFWH-08 | H | Trash Scatter | Historic trash scatter. Artifacts present include: cast iron ornamental curtain rod end, two shards of thick brown bottle glass from a square bottle, four concrete fragments with large aggregate, four terracotta water pipe fragments, and one clear glass bottle base fragment with an Owens Illinois maker's mark. Age post-1956. | Ineligible | N/A |
| 8 | P-31-6303 CA-PLA-2709/H HDR-CFWH-10 | M | P: Lithic Scatter H: Trash Scatter | This multicomponent site consists of three basalt projectile points and four historic glass fragments (two amethyst and two aqua). The historic component dates to pre-1919 and the prehistoric component dates to between 3,000 B.C. and contact. | Ineligible | P: NC H: N/A |
| 9 | P-58-3147 CA-YUB-1953H HDR-CFWH-11 | H | Transportation | Historical road segments. Segment A is currently being used as a paved boat ramp; segment B is a paved road segment. Age c. 1920s – 1940s. | Ineligible | N/A |
| 10 | P-31-6304 CA-PLA-2710 HDR-CFWH-12 | P | Short-Term Habitation | This site is a prehistoric short-term habitation site comprised of five features, sixteen artifacts, and a prehistoric lithic scatter. The features include three milling stations (Features 1-3), and two panels of possible petroglyph rock art (Features 4-5). The artifacts include 11 handstones, two projectile points, one milling slab fragment, one complete stone bowl mortar, and one fragment of a stone bowl mortar. The lithic scatter includes seven flakes. Dates between 3,000 and 500 B.C. | Eligible | C |
| 11 | P-58-3148 CA-YUB-1954H HDR-CFWH-14 | H | Habitation | Homestead site with structural remnants and an artifact scatter. An historic gravesite just outside the APE was noted. The site consists of 2 features (one structural depression and one rock alignment), one artifact concentration, and a sparse scatter of general site artifacts. Dates to c. 1860s -1880s. | Unevaluated | N/A |

Table 3.3.10-1. (continued)

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Description | Individual NRHP Eligibility | Middle Bear River (Kumin Seyo) Prehistoric Archaeological District ¹ |
|-------|---|-----|--------------------------|--|-----------------------------------|---|
| 12 | P-58-3149 CA-YUB-1955H HDR-CFWH-15 | H | Transportation | Historic road. This site appears to be the original route of Camp Far West Road before the reservoir existed and the road was rerouted around the reservoir. No features or artifacts observed. Dates to c. 1940s. | Ineligible | N/A |
| 13 | P-58-3150 CA-YUB-1956 HDR-CFWH-16 | P | Milling Feature | Two milling station features. Feature 1 has two conical mortars, Feature 2 has one conical mortar. Age unknown. | Unevaluated | Unevaluated |
| 14 | P-58-3151 CA-YUB-1957H HDR-CFWH-17 | H | Transportation | Historical road comprised of three dirt road segments (A-C) and two features, remnants of a concrete bridge and culvert underneath road. Dates to c. 1880-1960s. | Ineligible | N/A |
| 15 | P-58-3152 CA-YUB-1958H HDR-CFWH-19 | H | Trash Scatter | Historical roadside trash scatter with one possibly unassociated feature. This site includes a discrete scatter of six tin cans, one fuel can, two bundles of barbed wire, one bundle of hog wire, one bundle of chicken wire, one 25 gallon metal drum, a stove pipe, paint can, bed frame, sheet metal, and two pieces of milled lumber with a rectangular depression (Feature 1) located nearby. Age unknown, post c.1904. | Ineligible | N/A |
| 16 | P-58-3153 CA-YUB-1959 HDR-CFWH-20 | P | Short-Term Habitation | Prehistoric lithic scatter with 8 artifacts (flaked, ground, and battered stone) and 30+ debitage flakes. Age unknown. | Unevaluated | Unevaluated |
| 17 | P-58-3154 CA-YUB-1960 HDR-CFWH-23 | H | Transportation | Historic road with one feature, a cut that bisects the road. Dates to pre-1964. | Ineligible | N/A |
| 18 | P-29-4784/P-58- 3155 CA-NEV- 2292H/CA-YUB- 1961H HDR-CFWH-24 | H | Transportation | Historic road segments (A, B, and C). Dates to pre-1949. | Ineligible | N/A |
| 19 | P-58-3156 CA-YUB-1962H HDR-CFWH-25 | H | Habitation | Historic habitation site with three features: structural foundation, metal rod, and circular depression. Artifact 1 is a body fragment of an olive green bottle. Dates to c. 1860s-1880s. | Unevaluated | N/A |
| 20 | P-31-6305/P-58- 3157 CA-PLA- 2711H/CA-YUB- 1936H HDR-CFWH-26 | H | Transportation | Historic site composed of two segments of a historic road (Segment A and B) and a culvert. Much of the recorded road segments traverse below the high waterline of Camp Far West Reservoir, except for the north portion of Segment A. This road first appears on the official Yuba County map from 1861, as McCourtney Road and was in use until the construction of the new Camp Far West Dam in 1963 when much of the road was inundated. | Ineligible | N/A |
| 21 | P-58-3158 CA-YUB-1964H HDR-CFWH-27 | H | Transportation | Historic site composed of two segments of a historic road (Segment A and B). A third segment was identified between Segment A and Segment B, but was not recorded due to rising water levels of Camp Far West Reservoir. No features or artifacts were observed alongside either segment. Dates to pre-1960s. | Ineligible | N/A |
| 22 | P-58-3159 CA-YUB-1965 HDR-CFWH-28 | P | Short-term Habitation | Sparse and dispersed prehistoric lithic scatter composed of one milling slab fragment, one unifacial cobble, two projectile points, and one possible portable petroglyph rock art stone. Lithic debitage observed in the site consists of six flakes. Age is Unknown. | Eligible | C |

Table 3.3.10-1. (continued)

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Description | Individual NRHP Eligibility | Middle Bear River (Kumin Seyo) Prehistoric Archaeological District ¹ |
|-------|---|-----|---|---|-----------------------------------|---|
| 23 | P-58-3160 CA-YUB-1966 HDR-CFWH-29 | P | Short-term Habitation | Prehistoric lithic scatter with nine tools including one hammerstone, three granite handstones, two lithic cores, two bifaces, and one modified flake. Other cultural constituents include 50+ fire cracked rock, and up to 50 fragments of lithic debitage. Age is unknown. | Unevaluated | Unevaluated |
| 24 | P-58-3161 CA-YUB-1967 HDR-CFWH-30 | P | Short-term Habitation | This prehistoric site is comprised of 30+ basalt and cryptocrystalline silicate (CCS) flakes, 18 possible incised stones that are in two concentrations (Concentration 1 and Concentration 2), three handstones, two projectile points, one biface, one drill, and one milling stone. Additionally, two features were identified: a milling station (Feature 1) and a possible petroglyph rock art panel (Feature 2). Dates between 3,000 and 500 B.C. | Unevaluated | Unevaluated |
| 25 | P-58-3162 CA-YUB-1968H HDR-CFWH-31 | H | Habitation | Historic structural foundation and one olive green bottle base fragment. This structure does not appear on any historic aerials or topographic maps. Age is unknown. | Unevaluated | N/A |
| 26 | P-58-3163 CA-YUB-1969/H HDR-CFWH-32 | M | P: Short-term Habitation H: Habitation | Historic structural foundation with domestic debris consisting of approximately 100 red bricks, white ware fragments, terra cotta pipe fragments, historic glass fragments (amethyst, black, cobalt, aqua), square and wire nails, solder seam tin cans, porcelain, earthenware, a bicycle pedal, metal spikes, bolts, and notched hinges. Two prehistoric artifacts: one milling slab and one modified cobble. Historic component dates to c. 1860s-1910s. Prehistoric age is unknown. | Unevaluated | P: Unevaluated H: N/A |
| 27 | P-58-3164 CA-YUB-1970/H HDR-CFWH-34 | M | P: Short-Term Habitation H: Trash Scatter | Multicomponent site. Prehistoric component consists of a milling station with 5 conical mortars, possible hunting blind, possible petroglyph rock art panel, handstone fragment, a tested cobble, and no more than 20 basalt flakes. Historic component consists of glass fragments. Age is unknown. | P: Unevaluated H: Ineligible | P: Unevaluated H: N/A |
| 28 | P-58-3165 CA-YUB-1971H HDR-CFWH-35 | H | Transportation | Historic road segments (A and B). No features or artifacts were observed in association with these segments. The road does not appear on historic aerial or topographic maps. Age in unknown. | Ineligible | N/A |
| 29 | P-31-6306 CA-PLA-2712/H HDR-CFWH-36 | M | P: Lithic Scatter H: Trash Scatter | Prehistoric component consists of seven possible petroglyph rock art panels and one biface. Historic component consists of two parts of the same lock. The historic lock dates to 1836-1869. Prehistoric age is unknown. | P: Unevaluated H: Ineligible | P: Unevaluated H: N/A |
| 30 | P-29-4785 CA-NEV-2293H HDR-CFWH-37 | H | Mining | Historic mining complex with two drainages with placer tailings, two ditch features, two prospect pits, and a stacked/piled rock feature. One artifact was observed; a piece of sheet metal. Age is unknown. | Ineligible | N/A |
| 31 | P-31-6307 CA-PLA-2713H HDR-CFWH-38 | H | Transportation | Historic road segment. No features or artifacts were observed in association with this site. This road does not appear on any historic aerials or topographic maps. Age is unknown. | Ineligible | N/A |
| 32 | P-31-6308 CA-PLA-2714 HDR-CFWH-40 | P | Milling Feature | Prehistoric bedrock mortar with one mortar cup. No other features or artifacts were observed in association with the site. Age is unknown. | Unevaluated | Unevaluated |
| 33 | P-31-6309 CA-PLA-2715/H HDR-CFWH-42 | M | P: Short-Term Habitation H: Trash Scatter | Multicomponent site with 10 prehistoric features and a unifacial granite handstone. Prehistoric features consist of possible petroglyph rock art panels. Historic component includes two horseshoes, glass and stoneware fragments. Age unknown. | Unevaluated | P: Unevaluated H: N/A |

Table 3.3.10-1. (continued)

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Description | Individual NRHP Eligibility | Middle Bear River (Kumin Seyo) Prehistoric Archaeological District ¹ |
|-------|---|-----|---------------------------------------|---|-----------------------------------|---|
| 34 | P-31-6310 CA-PLA-2716 HDR-CFWH-43 | P | Milling Feature | Prehistoric milling station with five saucer mortars. No artifacts or other features were observed. Age Unknown. | Unevaluated | Unevaluated |
| 35 | P-58-3166 CA-YUB-1972 HDR-CFWH-44 | P | Rock Art | Possible prehistoric petroglyph rock art. No associated artifacts were observed. Age unknown. | Unevaluated | Unevaluated |
| 36 | P-31-6311 CA-PLA-2717 HDR-CFWH-46 | P | Lithic Scatter | Prehistoric lithic scatter including a tested cobble with a battered end, a biface midsection, a bifacially reduced basalt cobble, and 2 basalt flakes. Age unknown. | Ineligible | NC |
| 37 | P-31-6312 CA-PLA-2718 HDR-CFWH-48 | P | Milling Feature | Prehistoric milling site with three milling stations. No associated artifacts were observed. Age unknown. | Unevaluated | Unevaluated |
| 38 | P-31-6313 CA-PLA-2719H HDR-CFWH-51 | H | Transportation | Historic dirt road segment. This road does not appear on any historic maps. Age unknown. | Ineligible | N/A |
| 39 | P-31-6314 CA-PLA-2720H HDR-CFWH-53 | H | Transportation | Historic road segments (A and B). Segment A is unimproved, not maintained, and located below the high waterline of Camp Far West Reservoir. Segment B is unimproved, maintained, and located above the high water line of Camp Far West Reservoir. The road appears on a 1951 historic map. | Ineligible | N/A |
| 40 | P-31-6315 CA-PLA-2721 HDR-CFWH-55 | P | Lithic Scatter | Prehistoric site containing 6 stones with possible petroglyph rock art, 1 hammerstone fragment, 1 tested basalt cobble, and 1 basalt flake. Age unknown. | Unevaluated | Unevaluated |
| 41 | P-58-3167 CA-YUB-1973/H HDR-CFWH-56 | M | H: Trash Scatter P: Lithic Scatter | Historic trash scatter with seven large stoneware fragments, glass bottle fragments, and one prehistoric secondary cryptocrystalline flake. Age unknown. | Ineligible | P: N/C H: N/A |
| 42 | P-58-3168 CA-YUB-1974 HDR-CFWH-57 | P | Milling Feature | Prehistoric site with one milling station feature containing two conical mortars. No associated artifacts were observed. Age unknown. | Ineligible | NC |
| 43 | P-31-6316 CA-PLA-2722 HDR-CFWH-59 | P | Milling Feature | Prehistoric milling station with 2 mortar cups. A granite pestle was found in association with this milling feature. No other features or artifact observed in association with this site. | Ineligible | NC |

Table 3.3.10-1. (continued)

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Description | Individual NRHP Eligibility | Middle Bear River (Kumin Seyo) Prehistoric Archaeological District ¹ |
|-------|---|-----|---|---|-----------------------------------|---|
| 44 | P-31-6317 CA-PLA-2723 HDR-CFWH-60 | P | Short-term Habitation | One large granite pestle, one CCS contracted stem projectile point, and one CCS flake. Dates to between 5,000 and 500 B.C. | Unevaluated | Unevaluated |
| 45 | P-58-3169 CA-PLA-1975/H HDR-CFWH-64 | M | P: Short-term Habitation H: Trash Scatter | Multicomponent site. Prehistoric component consists of a lithic scatter with 20+ flakes and 2 handstones. Historic component consists of a refuse scatter with 2 artifact concentrations (possible looters pile, glass fragments). Age unknown. | Ineligible | P: NC H: N/A |
| 46 | P-31-6318 CA-PLA-2724H HDR-CFWH-65 | H | Water Control | Historic ditch broken up into two segments (Segment A and Segment B). Age unknown. | Ineligible | N/A |
| 47 | P-58-3170 CA-YUB-1976H HDR-CFWH-67 | H | Habitation | Historic site consisting of six features and a general scatter of historic refuse across the site. The six features are comprised of two rock foundations, two depressions, and two rock or dirt piles. Site may be related to "Grahams Hotel" or "Store" which is on the 1861 Historic Yuba County map approximately at the site location. Dates between 1860s and 1880s. | Unevaluated | N/A |
| 48 | P-29-4786 CA-NEV-2294H HDR-CFWH-68 | H | Mining | Historic mining site consisting of one prospect trench and two waste rock piles, and six tin cans. Dates between c. 1850 and 1940. | Ineligible | N/A |
| 49 | P-31-6319 CA-PLA-2725/H HDR-CFWH-69 | M | P: Milling Feature H: Mining | Multicomponent site. Prehistoric component consists of a single bedrock milling station with one mortar cup. Historic component consists of mining related pile of rocks. Age Unknown. | Ineligible | P: NC H: N/A |
| 50 | P-31-6320 CA-PLA-2726/H HDR-CFWH-70 | M | P: Milling Feature H: Habitation | Multicomponent site. Prehistoric component consists of a single bedrock milling station with three mortar cups. Historic component consists of historic residence complex. There are eight features: one prehistoric milling station, one depression with stacked rock, one water catchment feature, one metal pipe sticking out of the ground, one rock foundation, three concrete foundations, and one rock pile. Six historic artifacts observed. Prehistoric age: Unknown. Historic age: c. 1900-1940s. | Unevaluated | P: Unevaluated H: N/A |
| 51 | P-31-6321 CA-PLA-2727H HDR-CFWH-71 | H | Transportation | Historic road segment. Road appears on 1868 GLO plat as "Road to Lincoln". Dates to 1860s. | Ineligible | N/A |
| 52 | P-58-3171 CA-YUB-1977H HDR-CFWH-72 | H | Mining | Historic site consisting of 11 prospect pits/ circular depressions and one mound. No artifacts or other features observed. Age Unknown. | Ineligible | N/A |
| 53 | P-31-6322 CA-PLA-2728H HDR-CFWH-73 | H | Mining | Historic site consisting of five prospect pits/ circular depressions. No artifacts or other features observed. Age Unknown. | Ineligible | N/A |
| 54 | P-58-3172 CA-YUB-1978H HDR-CFWH-74 | H | Mining | Historic site consisting of four prospect pits/ circular depressions. No artifacts or other features observed. Age Unknown. | Ineligible | N/A |

Table 3.3.10-1. (continued)

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Description | Individual NRHP Eligibility | Middle Bear River (Kumin Seyo) Prehistoric Archaeological District ¹ |
|-------|---|-----|--------------------------|---|-----------------------------------|---|
| 55 | P-31-6323 CA-PLA-2729H HDR-CFWH-76 | H | Mining | Two prospect pits. Age unknown. | Ineligible | N/A |
| 56 | P-31-6324 CA-PLA-2730 HDR-CFWH-199 | P | Milling Feature | Prehistoric bedrock milling station with two mortar cups. Age Unknown. | Unevaluated | Unevaluated |
| 57 | P-29-0543/ CA-NEV-485H | H | Mining | Originally recorded in 1979 and updated in 1985. Site is a placer mining site with an intermittent ground sluice/ditch and three rock dams/retaining walls along a seasonal drainage. This site was not revisited during 2016-2017 field survey because it is located on private land and permission to access this land was not granted. Age unknown. | Unevaluated | N/A |
| 58 | P-29-2915 CA-NEV-2291H | H | Mining | Previously recorded in 1979 as a mining site with fourteen mining pits and test pits. Site was revisited and found to be fairly consistent with previous record, though some additional pits were observed and some of the previously recorded pits could be inundated by the reservoir or eroded away. In total, twenty-two prospect pits and trenches and one artifact, a modified coffee pot, were observed and recorded. Dates between c. 1870s and 1945. | Ineligible | N/A |
| 59 | P-29-2917 CA-NEV-2290H | H | Mining | Previously recorded in 1979 as a placer mining site with cut channel, four test pits, and stacked waste rock retainer walls. Only the south end of the site is within Project APE and was revisited 01/16/2017. One feature, a line of piled cobbles and boulders along a dug out drainage, was recorded. No artifacts were observed. Age unknown | Ineligible | N/A |
| 60 | P-29-4459/ CA-NEV-2190/ SRI-CFW-2 | P | Long-Term Habitation | Previously recorded as seven bedrock mortar cups with an estimated 30+ more submerged inundated by Bear River. Site revisited but was inundated by Bear River at time of survey. Age unknown. | Unevaluated | Unevaluated |
| 61 | P-29-4460/ CA-NEV-2191/ SRI-CFW-24 | P | Short-Term Habitation | Lithic scatter of 25 flaked, battered, and groundstone artifacts including nine cobble unifaces, two hammerstones, two cobble bifaces, two pieces of tested material, two cores, one anvil, five flakes, a cobble half, and one handstone. Age is unknown. | Ineligible | NC |
| 62 | P-29-4461/ CA-NEV-2192/ SRI-CFW-25 | P | Lithic Scatter | Lithic scatter of 14 flaked and battered stone artifacts to include five tested cobbles, two cobble bifaces, one edge-modified flake, one hammerstone, and three flakes. Age is unknown. | Ineligible | NC |

Table 3.3.10-1. (continued)

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Description | Individual NRHP Eligibility | Middle Bear River (Kumin Seyo) Prehistoric Archaeological District ¹ |
|-------|---|-----|---|---|-----------------------------------|---|
| 63 | P-31-5744/ CA-PLA-1179/H/ SRI-CFW-3 | M | P: Short-term Habitation H: Mining | Previously recorded in 2013 as a multicomponent site. Prehistoric component consisted of two bedrock mortars and a lithic scatter; historic component consisted of the historic hard rock Dairy Farm Mine, which included 12 mining features (prospect pits, tailings, mine shaft, rock retaining wall, concrete foundations, concrete pads, and concrete pedestals) and five historic artifact concentrations. Site was revisited November 2016 and was updated to include five historic features (prospect pit, two waste rock tailing, retention dam, and possible smelting building) and a prehistoric stage IV biface. Historic component dates from the 1900s to the 1940s. The prehistoric component dates to pre- and post-contact given the presence of glass trade beads. | Eligible | P: C H: N/A |
| 64 | P-31-5745/ CA-PLA-1180/H/ SRI-CFW-4 | M | P: Lithic Scatter H: Mining | Prehistoric lithic scatter with 10 flaked and battered stone artifacts (two cores, a tested cobble, cobble biface fragment, two hammerstones, and four flakes); Historic waste rock pile, likely from a mine shaft that has been filled in, and two depressions. Age of each component is unknown. | Ineligible | P: NC H: N/A |
| 65 | P-31-5746/ CA-PLA-1876/H/ SRI-CFW-5 | M | P: Short-Term Habitation H: Trash Scatter | Prehistoric lithic scatter with eight flaked stone artifacts (four cobble unifaces, a cobble biface, two pieces of tested material, and a tabular stone with a bifacially flaked edge) and one groundstone artifact (pointed cobble with a highly polished tip); Historic component consists of one fragment of amethyst glass dating to between the 1880s and 1920. Age of the prehistoric component is unknown. | Ineligible | P: NC H: N/A |
| 66 | P-31-5747/ CA-PLA-1886/H/ SRI-CFW-6 | M | P: Lithic Scatter H: Trash Scatter | Previously recorded in 2013 as a multicomponent site with a prehistoric lithic scatter with 9 flaked stone artifacts, historic concrete foundation, 36 historic glass and ceramic fragments. Revisited in 2016. One prehistoric primary flake, one terra cotta pipe fragment, and concrete fragments were added to the record. Age unknown. | Ineligible | P: NC H: N/A |
| 67 | P-31-5748/ CA-PLA-1887/ SRI-CFW-7 | P | Milling Feature | Previously recorded in 2013 as one bedrock mortar with one mortar cup. Site was revisited and was updated to include a second mortar cup and previously recorded mortar cup dimensions were corrected. | Ineligible | NC |
| 68 | P-31-5749/ CA-PLA-1888/ SRI-CFW-8 | M | P: Short-Term Habitation H: Habitation | Previously recorded as a prehistoric lithic scatter with 37 flaked and ground stone artifacts. Revisited in 2016 and updated to reflect multicomponent site. Historic component consists of historic trash scatter, walls and foundation of historic well, and two artifact concentrations. Prehistoric component updated to include a milling station with mortar cup, one milling slab, one biface fragment, and a pestle. Historic component may date to ca. 1915, based on historic maps. Prehistoric age unknown. | Unevaluated | P: Unevaluated H: N/A |
| 69 | P-58-1024/ CA-YUB-1006H | H | Trash Scatter | Previously recorded in 1979 as a possible homestead site dating to c. 1890-1910 with a dump with glass, ceramic, and metal artifacts, and a short canal segment. This site was not relocated during survey in 2016. | Unevaluated | N/A |
| 70 | P-58-1032/ CA-YUB-1014H | H | Mining | Previously recorded in 1979 as a placer mining operation with numerous quartz waste rock piles and associated bedrock depressions and holes along both sides of a small drainage. This site was not relocated during survey in 2016. Age unknown. | Unevaluated | N/A |

Table 3.3.10-1. (continued)

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Description | Individual NRHP Eligibility | Middle Bear River (Kumin Seyo) Prehistoric Archaeological District ¹ |
|-------|--|-----|---|---|--|---|
| 71 | P-58-1235/ CA-YUB-1216 | P | Long-Term Habitation | Previously recorded in 1960 as a prehistoric habitation site with midden, cremated human remains, pestle, shell and trade beads, Martis and desert-side notched projectile points, and obsidian flakes. This site was not revisited during 2016 survey due to inundation by the reservoir. Age unknown. | Unevaluated | Unevaluated |
| 72 | P-58-2570/ CA-YUB-1930H/ HDR-CFWH-03/ HDR-CFWH-22 | H | Transportation | Overland Emigrant Trail – portions are now McCourtney Road. Newly recorded 5 segments (A-E) of the site. Dates from 1841 to the present. | Eligible (Criterion A; portion within APE is a non- contributing element) | N/A |
| 73 | P-58-2868/ CA-YUB-1812/H/ SRI-CFW-1 | M | P: Lithic Scatter H: Trash Scatter | Historic artifact scatter dating to c. 1867 – 1920, including ceramic, glass, and metal domestic refuse, and one prehistoric isolated chert flake. Age of prehistoric component is unknown. | Ineligible | P: NC H: N/A |
| 74 | P-58-2872/ CA-YUB-1813/ SRI-CFW-9 | P | Short-Term Habitation | Previously recorded in 2013 as a lithic scatter with 73 flaked and ground stone artifacts. Site revisited in 2016, no significant changes to the site were observed. Age unknown. | Ineligible | C |
| 75 | P-58-2873/ CA-YUB-1814/ SRI-CFW-10 | M | P: Short-Term Habitation H: Other | Previously recorded in 2013 as a large lithic scatter with 99 flaked, battered, and ground stone artifacts. Site was revisited in 2016 and was updated to include a historical structural depression and a wooden pole. | Ineligible | P: C H: N/A |
| 76 | P-58-2874/ CA-YUB-1815/ SRI-CFW-11 | P | Lithic Scatter | Lithic scatter with 21 flaked and battered stone artifacts to include seven cobble unifaces, three cobble bifaces, two core fragments, four tested cobbles, one hammerstone, one edge-modified piece, and three pieces of debitage. Age is unknown. | Ineligible | NC |
| 77 | P-58-2875/ CA-YUB-1816/ SRI-CFW-12 | M | P: Short-Term Habitation H: Trash Scatter | Previously recorded in 2013 as a lithic scatter with 25 flaked and battered stone artifacts in two concentrations. Site was revisited in 2016 and was updated to include the addition of six possible portable petroglyph rock art stones, four bifaces, one side notched and stemmed projectile point, one milling stone, and a basalt handstone. There are three fragments of historic refuse observed in the site: one clear bottle glass with bubbles, and two white ware ceramic fragments. Historic age is unknown. Prehistoric component dates between the Late Archaic and contact periods. | Unevaluated | P: Unevaluated H: N/A |
| 78 | P-58-2876/ CA-YUB-1817/ SRI-CFW-13 | P | Lithic Scatter | Lithic scatter with seven lithic artifacts, to include one flake, one cobble biface, two cobble unifaces, two cores, one piece of assayed material. Age is unknown. | Ineligible | NC |
| 79 | P-58-2877/ CA-YUB-1818/ SRI-CFW-14 | P | Lithic Scatter | Lithic scatter with 16 flaked and battered stone artifacts: six cobble unifaces, three cobble bifaces, two pieces of tested material, one core/hammerstone, three cores, and one flake. Age is unknown. | Ineligible | NC |
| 80 | P-58-2878/ CA-YUB-1819/ SRI-CFW-15 | P | Short-Term Habitation | Previously recorded in 2013 as a prehistoric lithic scatter with nine flaked stone artifacts. Site was revisited in 2016 and was updated to include a unifacial milling slab. | Ineligible | NC |

Table 3.3.10-1. (continued)

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Description | Individual NRHP Eligibility | Middle Bear River (Kumin Seyo) Prehistoric Archaeological District ¹ |
|-------|---|-----|--|--|-----------------------------------|---|
| 81 | P-58-2879/ CA-YUB-1820H/ SRI-CFW-16 | H | Mining | Mining site with three prospect pits and three fragments of dark green glass. Age is unknown. | Ineligible | N/A |
| 82 | P-58-2880/ CA-YUB-1821H/ SRI-CFW-17 | H | Mining | Mining site with one prospect pit with an associated waste rock pile. Age is unknown. | Ineligible | N/A |
| 83 | P-58-2881/ CA-YUB-1822/ SRI-CFW-18 | P | Lithic Scatter | Lithic scatter with 17 flaked and battered stone artifacts include five cobble unifaces, four pieces of tested material, four cores, one cobble uniface/hammerstone, one hammerstone, one anvil, and one flake. Age is unknown. | Ineligible | NC |
| 84 | P-58-2882/ CA-YUB-1823/ SRI-CFW-19 | P | Lithic Scatter | Previously recorded in 2013 as a prehistoric lithic scatter with 30 flaked and battered stone artifacts. None of the previously recorded artifacts were relocated during 2016 survey. Age unknown. | Ineligible | NC |
| 85 | P-58- 2883/2884/2886/28 87/2888/ 2889 CA-YUB- 1824/1825/1827/18 28/1829/ 1830 HDR-CFWH-33 | M | P: Long-Term Habitation H: Trash Scatter | Multicomponent site with eight loci. Prehistoric component: consists of numerous milling stations (one milling station is cupule rock art), flakes stone tools, flakes, possible house pits, and several projectile points. Appears to represent a large prehistoric village site. Historic component consists of glass fragments, depressions. Historic age unknown. Prehistoric age 3,000 B.C. to contact. | P: Eligible H: Ineligible | P: C H: N/A |
| 86 | P-58-2885/ CA-YUB-1826/ SRI-CFW-22 | P | Short-Term Habitation | Previously recorded in 2013 as a prehistoric lithic scatter with seven flaked stone artifacts. Site was revisited in 2016 and updated to include a milling station with 6 mortar cups. Age unknown. | Unevaluated | Unevaluated |
| 87 | P-58-2890/ CA-YUB-1831/ SRI-CFW-29 | P | Lithic Scatter | Lithic scatter with 11 flaked and battered stone artifacts including six cobble unifaces, two hammerstones, one core, one biface, and one cobble biface. Age is unknown. | Ineligible | NC |
| 88 | P-58-3069/ CA-YUB-1927H/ HDR-CFWH-58 | H | Trash Scatter | Historic refuse pile, including metal can fragments and a handle to a barber's whisk brush. Dates between 1900s and 1940. | Ineligible | N/A |
| 89 | P-58-3070/ CA-YUB-1926H/ HDR-CFWH-13 | H | Transportation | Historical road segments. The road is currently paved and is used by the public. Site includes parts of McCourtney Road, Blackford Road, and Camp Far West Road. Dates between c. 1964 and 1973. | Ineligible | N/A |
| 90 | P-58-3071/ CA-YUB-1925H/ HDR-CFWH-09 | H | Transportation | Historic road segment serves as an access road to the North Shore Recreation Area. Features 1-3 are culverts. Dates to c. 1960s. | Ineligible | N/A |

¹C = Contributing; NC = Non-Contributing; N/A = Not-Applicable; Unevaluated = unevaluated as a contributing/non-contributing element.

Built Environment Resources

The built environment investigation completed as part of the *Cultural Resources Study* resulted in the identification of 11 built environment resources within the APE. These 11 resources include dam and irrigation system resources, recreation resources, and a California Department of Water Resources monitoring station. Of these 11 built environment resources, all 11 are evaluated as ineligible for inclusion in the NRHP, or have already been determined ineligible during previous work. The SHPO has concurred with all of these eligibility determinations, either previously or during their review of the *Cultural Resources Study* report. Additionally, as a grouping of resources, the dam and irrigation resources lack a significant linkage to any specific events, people, or engineering feats, and as a whole do not represent a cohesive district and do not gain significance when grouped together. Accordingly, it was found that these resources do not represent a historic district that would require evaluation for listing in the NRHP.

Table 3.3.10-2 below provides a summary of the built environment resources located and documented within the APE, as well as their eligibility evaluations.

Table 3.3.10-2. Summary table of all built environment resources identified within the APE.

| Building/Structure (Field Designation) | NRHP Eligibility |
|--|------------------------------------|
| CAMP FAR WEST PROJECT DAM AND IRRIGATION SYSTEM RESOURCES | |
| Camp Far West Dam | Not Eligible |
| Camp Far West North Wing Dam | Not Eligible |
| Camp Far West South Wing Dam | Not Eligible |
| Camp Far West North Dike | Not Eligible |
| Camp Far West Reservoir | Not Eligible |
| Bridge 16C0081 (OHP Primary No. P-58-002624) | Not Eligible |
| Camp Far West Irrigation Intake Structure | Not Eligible |
| Camp Far West Spillway | Not Eligible |
| CAMP FAR WEST RESERVOIR RECREATION RESOURCES | |
| Camp Far West Lake North Shore Recreation Facility | Not Eligible |
| Camp Far West Lake South Shore Recreation Facility | Not Eligible |
| GOVERNMENT PROPERTY IN PROJECT APE | |
| DWR Monitoring Station | Not Eligible |
| Total | 0 Eligible, 11 Not Eligible |

3.3.10.1.2 On-going Project-Related Effects Identified During Relicensing Studies

Of the 90 archaeological sites identified within the APE, 55 have been previously determined or were determined ineligible for inclusion on the NRHP as part of SSWD's *Cultural Resources Study*. Thus, these 55 sites require no further consideration because they are not historic properties. One other site has been determined eligible for the NRHP, with SHPO concurrence. However, the portion of this site within the APE has been determined to be non-contributing in the *Cultural Resources Study*. The SHPO has concurred with this assessment, this site also requires no further consideration.

Of the remaining 34 sites that are either eligible for the NRHP or are unevaluated, and thus are historic properties or potential historic properties, 25 are being impacted by Project-related effects (primarily erosion caused by fluctuating water levels and wave action of the reservoir).

The effects for three sites are unknown and six sites are not being affected by Project-related effects. All 34 sites that are or could be historic properties will be managed under the Historic Properties Management Plan (HPMP) so that Project-related effects can be considered and/or resolved. Table 3.3.10-3 summarizes the 34 archaeological sites that are or could be historic properties and identifies those that are or will be impacted by Project-related effects.

Table 3.3.10-3. Summary table of eligible or unevaluated archaeological sites identified within the APE.

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Camp Far West Hydroelectric Project Related Effects (Y/N) | Type of Project Effects | Individual NRHP Eligibility |
|-------|---|-----|--|---|---|---------------------------------|
| 1 | P-29-0543/ CA-NEV-485H | H | Mining | Unknown | Unknown | Unevaluated |
| 2 | P-29-4459/ CA-NEV-2190/ SRI-CFW-2 | P | Long-Term Habitation | Unknown | Unknown | Unevaluated |
| 3 | P-31-5744/ CA-PLA-1179/H/ SRI-CFW-3 | M | P: Short-term Habitation H: Mining | Y | Fluctuating Water Levels | Eligible |
| 4 | P-31-5749/ CA-PLA-1888/ SRI-CFW-8 | M | P: Short-Term Habitation H: Habitation | Y | Fluctuating Water Levels | Unevaluated |
| 5 | P-31-6304 CA-PLA-3710 HDR-CFWH-12 | P | Short-Term Habitation | Y | Fluctuating Water Levels | Eligible |
| 6 | P-31-6306 CA-PLA-2712/H HDR-CFWH-36 | M | P: Lithic Scatter H: Trash Scatter | Y | Fluctuating Water Levels; Recreation | P: Unevaluated H: Ineligible |
| 7 | P-31-6308 CA-PLA-2714 HDR-CFWH-40 | P | Milling Feature | Y | Fluctuating Water Levels | Unevaluated |
| 8 | P-31-6309 CA-PLA-3715/H HDR-CFWH-42 | M | P: Short-Term Habitation H: Trash Scatter | Y | Fluctuating Water Levels | Unevaluated |
| 9 | P-31-6310 CA-PLA-2716 HDR-CFWH-43 | P | Milling Feature | Y | Fluctuating Water Levels | Unevaluated |
| 10 | P-31-6312 CA-PLA-2718 HDR-CFWH-48 | P | Milling Feature | N | N/A | Unevaluated |
| 11 | P-31-6315 CA-PLA-2721 HDR-CFWH-55 | P | Lithic Scatter | Y | Fluctuating Water Levels | Unevaluated |
| 12 | P-31-6317 CA-PLA-2723 HDR-CFWH-60 | P | Short-term Habitation | Y | Fluctuating Water Levels | Unevaluated |
| 13 | P-31-6320 CA-PLA-2726/H HDR-CFWH-70 | M | P: Milling Feature H: Habitation | N | N/A | Unevaluated |
| 14 | P-31-6324 CA-PLA-2730 HDR-CFWH-199 | P | Milling Feature | N | N/A | Unevaluated |
| 15 | P-58-1024/ CA-YUB-1006H | H | Trash Scatter | N | N/A | Unevaluated |

Table 3.3.10-3. (continued)

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Camp Far West Hydroelectric Project Related Effects (Y/N) | Type of Project Effects | Individual NRHP Eligibility |
|-------|---|-----|--|---|---|--------------------------------|
| 16 | P-58-1032/ CA-YUB-1014H | H | Mining | N | N/A | Unevaluated |
| 17 | P-58-1235/ CA-YUB-1216 | P | Long-Term Habitation | Unknown | Unknown | Unevaluated |
| 18 | P-58-2875/ CA-YUB-1816/ SRI-CFW-12 | M | P: Short-Term Habitation H: Trash Scatter | Y | Fluctuating Water Levels | Unevaluated |
| 19 | P-58- 2883/2884/2886/2887/2888/2889 CA-YUB- 1824/1825/1827/1828/1829/1830 HDR-CFWH-33 | M | P: Long-Term Habitation H: Trash Scatter | Y | Fluctuating Water Levels; Recreation | P: Eligible H: Ineligible |
| 20 | P-58-2885/ CA-YUB-1826/ SRI-CFW-22 | P | Short-Term Habitation | Y | Fluctuating Water Levels | Unevaluated |
| 21 | P-58-3144 CA-YUB-1950 HDR-CFWH-04 | P | Milling Feature | Y | Fluctuating Water Levels | Unevaluated |
| 22 | P-58-3146 CA-YUB-1952 HDR-CFWH-07 | P | Milling Feature | N | N/A | Unevaluated |
| 23 | P-58-3148 CA-YUB-1954H HDR-CFWH-14 | H | Habitation | Y | Fluctuating Water Levels | Unevaluated |
| 24 | P-58-3150 CA-YUB-1956 HDR-CFWH-16 | P | Milling Feature | Y | Fluctuating Water Levels | Unevaluated |
| 25 | P-58-3153 CA-YUB-1959 HDR-CFWH-20 | P | Short-Term Habitation | Y | Fluctuating Water Levels | Unevaluated |
| 26 | P-58-3156 CA-YUB-1962H HDR-CFWH-25 | H | Habitation | Y | Fluctuating Water Levels; Recreation | Unevaluated |
| 27 | P-58-3159 CA-YUB-1965 HDR-CFWH-28 | P | Short-term Habitation | Y | Fluctuating Water Levels | Eligible |
| 28 | P-58-3160 CA-YUB-1966 HDR-CFWH-29 | P | Short-term Habitation | Y | Fluctuating Water Levels | Unevaluated |
| 29 | P-58-3161 CA-YUB-1967 HDR-CFWH-30 | P | Short-term Habitation | Y | Fluctuating Water Levels | Unevaluated |

Table 3.3.10-3. Summary table of eligible or unevaluated archaeological sites identified within the APE.

| Count | Site No. (Primary/ Trinomial/ Temp. No.) | Age | Type | Camp Far West Hydroelectric Project Related Effects (Y/N) | Type of Project Effects | Individual NRHP Eligibility |
|-------|---|-----|--|---|---|---------------------------------|
| 30 | P-58-3162 CA-YUB-1968H HDR-CFWH-31 | H | Habitation | Y | Fluctuating Water Levels | Unevaluated |
| 31 | P-58-3163 CA-YUB-1969/H HDR-CFWH-32 | M | P: Short-term Habitation H: Habitation | Y | Fluctuating Water Levels; Recreation | Unevaluated |
| 32 | P-58-3164 CA-YUB-1970/H HDR-CFWH-34 | M | P: Short-Term Habitation H: Trash Scatter | Y | Fluctuating Water Levels | P: Unevaluated H: Ineligible |
| 33 | P-58-3166 CA-YUB-1972 HDR-CFWH-44 | P | Rock Art | Y | Fluctuating Water Levels | Unevaluated |
| 34 | P-58-3170 CA-YUB-1976H HDR-CFWH-67 | H | Habitation | Y | Recreation | Unevaluated |

In addition to the archaeological sites discussed above, the one archaeological district identified during SSWD's *Cultural Resources Study*, the Middle Bear River (Kumin Seyo) Prehistoric Archaeological District, is also being impacted by Project-related effects. This resource has been determined eligible for inclusion in the NRHP, thus, this resource will be considered a historic property, the management of which will follow the procedures outlined in the HPMP for considering and resolving adverse effects to historic properties.

All 11 of the built environment resources identified within the APE have been determined ineligible for the NRHP. Thus, these resources will require no further consideration because they will not be historic properties.

3.3.10.2 Environmental Effects

This section discusses the potential resource effects of SSWD's proposed Project, as described in Section 2.2 of this Exhibit E. As part of the Project relicensing, SSWD proposes a Pool Raise, modifications of existing recreation facilities, and modification of the existing Project boundary. SSWD proposes to include in the new license one measure related to cultural resources, implementation of the HPMP. The purpose of an HPMP is to outline actions and processes to manage historic properties within the APE under the new license. It is intended to serve as a guide for the SSWD when performing necessary O&M activities and identify resource treatments designed to address potential ongoing and future effects to historic properties. Resource-specific management measures included in the HPMP for treatment of historic properties include avoidance and monitoring, NRHP evaluation efforts, and mitigation measures for resolving adverse effects. An HPMP also describes a process of consultation with appropriate state and federal agencies, as well as with Native Americans who may have interests in historic properties within the APE. Following the *Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects* issued by FERC and ACHP in 2002 (ACHP and FERC 2002), the HPMP includes: management measures; training for all O&M staff; routine monitoring of known cultural resources, and periodic review and revision of the HPMP.

Continued O&M of the Project and/or changes to the Project as proposed under the relicensing efforts may affect cultural resources that are listed on or eligible for listing on the NRHP (i.e., historic properties). The effect may be direct (e.g., result of ground disturbing activities), indirect (e.g., public access to recreation areas), or cumulative (e.g., caused by a Project activity in combination with other non-Project activities).

Adverse effects are activities that may alter those characteristics of an historic property that contribute to its NRHP eligibility in a manner diminishing the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Examples of adverse effects would include road maintenance that affects a previously undisturbed archaeological deposit, or a facilities upgrade that removes the windows or doors of an historic powerhouse and does not replace them in kind, with new windows and doors of a similar style and material. There are a number of such Project activities that could potentially affect historic properties within the APE, including use and Project maintenance of Project facilities and roads, maintenance to historic buildings or other structures, vegetation management activities, recreational site use, issuance of

grazing leases, emergency actions, looting/vandalism, and erosion caused by wave action and fluctuating water levels of the reservoir. In addition, certain kinds of Project-related activities may not have a direct impact on historic properties, but may create the conditions by which damage occurs. For example, a Project road may not directly impact historic properties, but may enable public access to areas that contain historic properties.

By contrast, there are Project activities that may not have an adverse effect on historic properties and there may also be historic properties within the APE that are not subject to Project activities. For example, the continued use of a paved access road that is closed to the public and travels through an historic property that is an archaeological site, would likely not be considered an adverse effect. As well, a historic property comprised of a recreation facility would likely not be adversely affected by continued use and maintenance of the facility, if the facility is used as it has been in the past and any maintenance activities maintain the existing integrity of the facility. Furthermore, there may be historic properties located within the APE that are substantially above the NMWSE of the Camp Far West Reservoir and nowhere near any other Project facility or within the vicinity of Project activities. Subsequently, Project activities may not adversely affect these historic properties.

The following three sections describe in more detail how SSWD's proposed Project, as described in Section 2.2 of this Exhibit E, may affect historic properties. The section that follows provides the schedule for developing the final HPMP, which will be used to manage and consider effects to historic properties under SSWD's proposed Project.

3.3.10.2.1 Effects of FERC Project Boundary Changes

In addition to the construction-related activities and the O&M activities discussed below, SSWD is proposing several changes to the existing FERC Project Boundary, including both additions and deletions to the boundary (all privately owned lands). As described below, these FERC Project Boundary changes will have no adverse effect to cultural resources that are historic properties or potential historic properties.

Of the additions to the FERC Project Boundary, all but roughly 18 ac of land were already included in the APE and were considered during the *Cultural Resources Study*. The roughly 18 ac that were not included in the APE will be inventoried for cultural resources under the HPMP when the new license is issued. If any historic properties or potential historic properties are identified, they will be managed according to the protocols that will be outlined in the HPMP for treatment of historic properties.

For the lands being removed from the FERC Project Boundary, this will only affect three sites (P-58-1024, P-58-1032, and HDR-CFWH-67). Site P-58-1024 was previously recorded in 1979 as a possible homestead site dating to c. 1890-1910. It was previously described as containing a refuse scatter and possible canal segment. This site was not relocated during the *Cultural Resources Study* and is assumed to have been destroyed by either road improvements/maintenance for the adjacent Camp Far West Road, or was simply miss-mapped and is not located within the APE. As this site appears to either no longer exist and/or not be

within the APE, the removal of its previously mapped location from the FERC Project Boundary will have no effect on this archaeological site.

Site P-58-1032 was previously recorded in 1979 as a placer mining operation. It was previously described as containing numerous quartz waste rock piles and associated prospect pits along both sides of a small drainage. This site was not relocated during the inventory of the APE and is assumed to have been destroyed by either road improvements/maintenance for the adjacent Camp Far West Road or Camp Far West Reservoir and Dam, or was simply miss-mapped and is not located within the APE. As this site appears to either no longer exist and/or not be within the APE, the removal of its previously mapped location from the FERC Project Boundary will have no adverse effect on this archaeological site.

Site HDR-CFWH-67 was newly identified and recorded during the *Cultural Resources Study*. It is a historical site consisting of six features and a general scatter of historic refuse across the site. The six features are comprised of two rock foundations, two depressions, and two rock or dirt piles. The site may be related to "Grahams Hotel" or "Store" which appears on mid to late 1800s historical maps of the area. The boundary removal will only remove a small portion of this site from the FERC Project Boundary. As such, this site will still be within the FERC Project Boundary and will be managed under the HPMP.

3.3.10.2.2 Effects of Construction-Related Activities

SSWD's proposed Project, as described in Section 2.2 of this Exhibit E, includes two construction-related activities: 1) the Pool Raise and 2) proposed changes to the recreational facilities. Ground disturbing activities and impacts to the viewscape as a result of these construction-related activities has the potential to adversely affect historic properties in the area where these activities are taking place. As described in Section 3.3.10.1.2, there are only 34 archaeological sites and one prehistoric archaeological district that have been identified during the *Cultural Resources Study* as potential historic properties. Of these 35 resources, five of the archaeological sites (see Table 3.3.10-4) and the prehistoric archaeological district would be adversely affected by the construction-related activities (i.e., the Pool Raise only). The effect would be a direct effect caused by ground disturbing activities and/or erosion from fluctuating water levels once the reservoir pool level is raised. These effects will be considered and resolved, as appropriate, through the implementation of the HPMP.

Table 3.3.10-4. Summary table of eligible or unevaluated archaeological sites identified within the APE.

| Count | Site No. (Primary/Trinomial/Temp. No.) | Age | Type | Individual NRHP Eligibility |
|-------|---|-----|---|--------------------------------|
| 1 | P-31-5744/ CA-PLA-1179/H/ SRI-CFW-3 | M | P: Short-term Habitation H: Mining | Eligible |
| 2 | P-58-2883/2884/2886/2887/2888/2889 CA-YUB-1824/1825/1827/1828/1829/1830 HDR-CFWH-33 | M | P: Long-Term Habitation H: Trash Scatter | P: Eligible H: Ineligible |

Table 3.3.10-4. (continued)

| Count | Site No. (Primary/Trinomial/Temp. No.) | Age | Type | Individual NRHP Eligibility |
|-------|---|-----|--|--------------------------------|
| 3 | P-58-2875/ CA-YUB-1816/ SRI-CFW-12 | M | P: Short-Term Habitation H: Trash Scatter | Unevaluated |
| 4 | P-58-2885/ CA-YUB-1826/ SRI-CFW-22 | P | Short-Term Habitation | Unevaluated |
| 5 | P-31-6312/ CA-PLA-2718/ HDR-CFWH-48 | P | Milling Feature | Unevaluated |

¹ H = Historical; P = Prehistoric; M = Multi-component.

3.3.10.2.3 Effects of Proposed Project Operations and Maintenance

SSWD's proposed Project, as described in Section 2.2 of this Exhibit E, includes continued O&M of the Project. O&M activities that have the potential to adversely affect historic properties include routine operation and maintenance of buildings and structures, reservoir inundation and fluctuations, vegetation management, road maintenance, recreation, looting and vandalism, and activities related to emergency repairs. The effects could be direct, indirect, or cumulative. The on-going Project O&M effects to cultural resources that are historic properties or potential historic properties are identified in Section 3.3.10.1.2. These effects will be considered and resolved, as appropriate, through the implementation of the HPMP.

3.3.10.2.4 Schedule for HPMP Revisions

As described above, the *Cultural Resources Study* has identified potential historic properties within the APE that are being or will be adversely affected by Project-related activities. As well, additional such resources could be identified in the future and could be potentially affected by the Project. Accordingly, SSWD is developing an HPMP in consultation with Native American tribes and SHPO to manage potential effects on historic properties throughout the term of any new license. FERC typically completes Section 106 by entering into a Programmatic Agreement (PA) or Memorandum of Agreement (MOA) with the licensee, the Advisory Council on Historic Preservation (ACHP), if it chooses to participate, and the SHPO that requires the licensee to develop and implement an HPMP. Additionally, FERC requires the licensee to consult with various federal, state, tribal, and non-government parties in the development of any HPMP.

With regards to completion of the final HPMP, SSWD submitted the draft HPMP to Native American tribes on March 28, 2019, and SSWD submitted the draft HPMP to SHPO on June 7, 2019, for 30 review and concurrence. SSWD anticipates it will file with FERC a final HPMP by September 2019, after SHPO concurrence is received. A copy of the HPMP submitted to SHPO on June 7, 2019, is provided as Volume III of this Application for New License.

3.3.10.3 Unavoidable Adverse Effects

In compliance with Section 106, and as described above, the Project as proposed will unavoidably adversely affect cultural resources that are historic properties. However,

implementation of the HPMP, which, once finalized, will include treatment measures for managing historic properties under the new FERC license, will resolve these adverse effects.

3.3.10.4 Measures or Studies Recommended by Agencies and Not Adopted by SSWD

As described in Appendix E4 in this Exhibit E, USFWS, NMFS, CDFW, SWRCB and FWN each submitted written comments on SSWD's December 29, 2018, DLA. None of the written comments recommended cultural resources-specific PM&E measures or studies. SHPO and Indian tribes did not submit any written comments on the DLA.

3.3.10.5 List of Attachments

None.

3.3.11 Tribal Interests

The discussion of tribal interests is divided into four sections. The affected environment (environmental baseline) is discussed in Section 3.3.11.1, environmental effects of the Project are discussed in Section 3.3.11.2, unavoidable adverse effects are addressed in Section 3.3.11.3, and proposed measures recommended by agencies, Indian tribes and other interested parties in written comments on that DLA that were not adopted by SSWD are discussed in Section 3.3.10.4

Existing, relevant, and reasonably available information was not sufficient to determine the potential effects of the Project on tribal interests so SSWD conducted one study; Study 11-1, *Tribal Interests Study*.

3.3.11.1 Affected Environment

Relicensing the Project with FERC is considered to be a federal undertaking, subject to compliance with Section 106 of the NHPA of 1966 (Section 106), as amended, and its implementing regulations at 36 C.F.R. Part 800. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties. On May 13, 2016, FERC designated SSWD as its non-federal representative for purposes of consultation under Section 106 in accordance with 36 C.F.R. 800.2(c)(4). SSWD contracted HDR to oversee and manage the *Tribal Interests Study* to assist FERC in identifying and assessing Project-related effects to historic properties, pursuant to meeting its Section 106 compliance requirements and Albion Environmental, Inc. (Albion) to implement the *Tribal Interests Study*.

The *Tribal Interests Study* was conducted to investigate, describe, and evaluate areas of tribal interest, including Traditional Cultural Properties (TCPs),¹ Indian Trust Assets (ITAs),² and tribal agreements³ as potential historic properties in the Project relicensing APE. The California State Historic Preservation Officer (SHPO) agreed with the delineation of the Project relicensing APE in a letter dated September 2, 2016 (SHPO Reference Number: FERC_2016_0701_001). A separate study (Study 10-1, *Cultural Resources Study*) was conducted to investigate other cultural resource types (i.e., archaeological and built environment resources) as potential historic properties and is discussed in Section 3.3.10.

The *Tribal Interests Study* was initiated with a “kick-off” meeting held on June 29, 2016. SSWD invited Native American tribes, SHPO, and FERC to participate. Attendees included HDR and Albion, on behalf of SSWD, FERC, a SHPO representative, UAIC representatives, and representatives of the Nevada City Rancheria. The *Tribal Interests Study* Plan, prepared by

¹ A TCP is a property “that is eligible for inclusion in the National Register [NRHP] because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community” (Parker and King 1998:1).

² ITAs are legal interests in property held in trust by the United States (U.S.) for Indian tribes or individual Native Americans. The U.S. Secretary of the Interior, acting as the trustee, holds many assets in trust. ITAs can be real property, physical assets, or intangible property rights. Examples of ITAs are lands, including reservations and public domain allotments; mineral or water rights; hunting and fishing rights; other natural resources; and money or claims.

³ Agreements that are considered tribal interests consist of contracts between a tribe and private land owner or land-managing agency that provide tribes with access to a landowner or agency’s property for fishing, gathering of traditional plants, or other tribal practices.

SSWD and included in the PAD filed with FERC, was reviewed at the meeting.⁴ The plan outlines the steps for implementing and completing the *Tribal Interests Study*. The Albion research team was also introduced at that meeting.

Following the kick-off meeting, Albion sent follow-up emails and made phone calls in September and October 2016 to determine interest in *Tribal Interests Study* participation. Four tribal groups, UAIC, Nevada City Rancheria, Tsi-Akim Maidu, and the Colfax-Todds Valley Consolidated Tribe, chose to participate in the *Tribal Interests Study*. Albion conducted several one-on-one and group interviews with tribal respondents between 2017 and 2018. To supplement respondent interviews and provide background information on tribal interests in the Project APE, Albion ethnographers conducted extensive archival research, focusing on the notes and manuscripts of pioneering ethnographers, who worked with the Native American communities in the Project area early in the Twentieth Century, and on ethnohistoric accounts of Native Americans in the area during the time of contact.

The *Tribal Interests Study* Report, a final version of which was filed with FERC on June 7, 2019,⁵ documents the study efforts and findings and are presented in this section. The report includes a Public version that summarizes the methods and results, and a Privileged version that presents the complete methods and results of the study. A draft of the report was submitted to potentially-affected Native American tribes on August 11, 2018. United Auburn Indian Community (UAIC) contacted SSWD with concerns regarding the draft report findings on August 30, 2018. No other Indian tribes commented or responded to the report submittal. SSWD worked with UAIC to address their concerns and revised the draft report, and subsequently submitted the draft report to SHPO on March 22, 2019. SHPO provided comments in a letter dated May 2, 2019, requesting additional information regarding consultation efforts before it could continue consultation. SSWD provided additional information and clarifications in a letter package on May 14, 2019. The SHPO provided a response letter dated May 24, 2019.

The extensive archival research and interviews conducted for the *Tribal Interests Study* identified no tribal interests (i.e., TCPs, ITAs, or tribal agreements) within the Project APE. Although no tribal interests were identified, tribal interviews revealed overall concern about the treatment and preservation of archaeological sites and other cultural resources important to the tribal groups. All respondents wish to be included in the long-term preservation of these places. Moreover, many of the respondents wish to connect or reconnect to the spiritual power inherent in the APE and Project Area, values that they believe have not been diminished by historical events or the construction of the Project.

There is always the possibility that new evidence of properties that fit the criteria of a TCP or other tribal interest may come to light. This may come through new archival sources containing location-specific information about traditional places or through oral testimony from someone who has not come forward during the initial investigation. Regular communications with tribal members and open lines of dialogue is essential for the long-term management of cultural resources. The future management of the cultural resources within the Project APE should include continued involvement of the interested Native communities that value the area.

⁴ The *Tribal Interests Study* Plan was modified slightly after the kick-off meeting and re-filed with FERC in January 2017 (none of the steps outlined in the plan for implementing the study changed).

⁵ See FERC's ELIBRARY Accession No. 201906075078 and Accession No. 201906075079.

3.3.11.2 Environmental Effects

This section discusses the potential resource effects of SSWD's proposed Project, as described in Section 2.2 of this Exhibit E. As part of the Project relicensing, SSWD proposes a Pool Raise of 5 feet, modifications of existing recreation facilities, and modification of the existing Project boundary. SSWD proposes to include in the new license one measure related to tribal interests, implementation of the HPMP. The purpose of an HPMP is to outline actions and processes to manage historic properties within the APE under the new license. It is intended to serve as a guide for the licensee's operating personnel when performing necessary O&M activities and identify resource treatments designed to address potential ongoing and future effects to historic properties. Resource-specific management measures included in the HPMP for treatment of historic properties include avoidance and monitoring, NRHP evaluation efforts, and mitigation measures for resolving adverse effects. An HPMP should also describe a process of consultation with appropriate state and federal agencies, as well as with Native Americans who may have interests in historic properties within the APE. Following the *Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects* issued by FERC and ACHP in 2002 (ACHP and FERC 2002), an HPMP should include: management measures; training for all O&M staff; routine monitoring of known cultural resources, and periodic review and revision of the HPMP.

Continued operation and maintenance (O&M) of the Project and/or proposed changes to the Project may affect tribal interests that are listed on or eligible for listing on the NRHP (i.e., historic properties). The effect may be direct (e.g., result of ground disturbing activities), indirect (e.g., public access to recreation areas), or cumulative (e.g., caused by a Project activity in combination with other non-Project activities).

Adverse effects are activities that may alter those characteristics of an historic property that contribute to its NRHP eligibility in a manner diminishing the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Examples of adverse effects would include road maintenance that affects a previously undisturbed archaeological deposit, or a facilities upgrade that removes the windows or doors of an historic powerhouse and does not replace them in kind, with new windows and doors of a similar style and material. There are a number of such activities that could potentially affect historic properties within the APE, including use and maintenance of Project facilities and roads, maintenance to historic buildings or other structures, vegetation management activities, recreational site use, issuance of grazing leases, emergency actions, looting/vandalism, and erosion caused by wave action and fluctuating water levels of the reservoir. In addition, certain kinds of Project-related activities may not have a direct impact on historic properties, but may create the conditions by which damage occurs. For example, a Project road may not directly impact historic properties, but may enable public access to areas that contain historic properties.

By contrast, there are Project activities that may not have an adverse effect on historic properties and there may also be historic properties within the APE that are not subject to Project activities. For example, the continued use of a paved access road that is closed to the public and travels through an historic property that is an archaeological site, will likely not be considered an adverse effect. As well, a historic property comprised of a recreation facility will likely not be adversely affected by continued use and maintenance of the facility, if the facility is used as it

has been in the past and any maintenance activities maintain the existing integrity of the facility. Furthermore, there may be historic properties located within the APE that are substantially above the high waterline of the Camp Far West Reservoir and nowhere near any other Project facility or within the vicinity of Project activities. Subsequently, Project activities may not adversely affect these historic properties.

As there are currently no tribal interests identified within the APE that are historic properties or potential historic properties, SSWD's proposed Project, as described in Section 2.2 of this Exhibit E, will not effect any tribal interests that are historic properties or potential historic properties.

3.3.11.2.1 Schedule for HPMP Revisions

Though no tribal interests that are historic properties have been identified within the APE, such resources could be identified in the future (e.g., the tribes may offer new information, or new individuals that have pertinent information on tribal interests may come forward) and could be potentially affected by the Project. Accordingly, SSWD is developing a HPMP in consultation with Native American tribes and SHPO to manage potential effects on historic properties throughout the term of any new license. FERC typically completes Section 106 by entering into a Programmatic Agreement (PA) or Memorandum of Agreement (MOA) with the licensee, the Advisory Council on Historic Preservation (ACHP), if it chooses to participate, and the SHPO that requires the licensee to develop and implement an HPMP. Additionally, FERC requires the licensee to consult with various federal, state, tribal, and non-government parties in the development of any HPMP.

With regards to completion of the final HPMP, SSWD submitted the draft HPMP to Native American tribes on March 28, 2019, and SSWD submitted the draft HPMP to SHPO on June 7, 2019, for 30 review and concurrence. SSWD anticipates it will file with FERC a final HPMP by September 2019, after SHPO concurrence is received. A copy of the HPMP submitted to SHPO on June 7, 2019, is provided as Volume III of this Application for New License.

A copy of the HPMP submitted to SHPO on June 7, 2019 is provided as Volume III of this Application for New License.

3.3.11.3 Unavoidable Adverse Effects

There are no unavoidable adverse effects to tribal interests. No tribal interests, including TCPs, ITAs, or tribal agreements occur in the APE. Therefore, no tribal interests that are historic properties have been identified within the APE and there are no unavoidable adverse impacts to such properties.

3.3.11.4 Measures or Studies Recommended by Agencies and Not Adopted by SSWD

As described in Appendix E4 in this Exhibit E, USFWS, NMFS, CDFW, SWRCB and FWN each submitted written comments on SSWD's December 29, 2018, DLA. None of the written

comments recommended tribal interest resources-specific PM&E measures or studies. SHPO and Indian tribes did not submit any written comments on the DLA.

3.3.11.5 List of Attachments

None.

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SECTION 4.0

DEVELOPMENTAL ANALYSIS

This section analyzes the economic power benefits of the Projects, and estimates the annual cost of the Project, including costs for any construction, operation, maintenance, and environmental conditions. This section also discusses other development benefits.

Under the Commission's approach to evaluating the economics of hydropower projects as articulated in the Commission's Order Issuing a New License to the Mead Corporation (FERC 1995), the Commission employs a "current cost approach" in that all costs are presented in current dollars (e.g., no consideration for potential future power costs, inflation, escalation, or deflation beyond the license issuance date; and costs to be expended over the license term are summed and normalized as current dollars). The Commission's current cost economic analysis provides a general estimate of the potential developmental benefits and costs¹ and non-developmental benefits and costs of a project.² This section uses the Commission's current cost method.

While FERC's current cost approach requires an applicant to base costs in Exhibit D on a 30-year license term, SSWD requests, with good cause, from the Commission a new license with a term of 50 years. FERC's Policy Statement on Establishing License Terms for Hydroelectric Projects, 161 FERC ¶ 61,078 (2017) includes as a justification for granting a longer license term where significant measures are expected to be implemented under the new license for non-development purposes (i.e., environmental, recreation and water supply) or those that enhance power and developmental purposes. FERC's long-standing practice is to consider costs of improvements relative to the size of the project. Further, America's Water Infrastructure Act of 2018, Pub. L. No. 115-270, 132 Stat. 3765, requires FERC to give equal weight to investments by the licensee over the term of the existing license that resulted in redevelopment, new construction, new capacity, efficiency, modernization, rehabilitation or replacement of major equipment, safety improvements, or environmental, recreation, or other measures conducted over the term of the existing license. Based on these FERC and Congressional directives, SSWD's request for a 50-year license term is warranted. SSWD is in the process of constructing a new auxiliary spillway structure and related modifications which constitute a major investment in the Project. SSWD expects to spend approximately \$8,812,206 on the spillway modifications (i.e., Secondary Spillway) and related Project modifications. Further, SSWD is proposing a 5 foot pool raise that will enhance the water supply benefits of the Project. SSWD's estimated cost for the pool raise is \$3,942,264. SSWD also is proposing to relocate recreational facilities impacted by the pool raise, at an additional estimated cost of \$725,000. These Project investments would total approximately \$13,479,470, a very substantial amount for a 6.8 MW project, and are in addition to the costs of the PM&E measures proposed in the FLA.

¹ Developmental benefits of the Project include power generation, water supply, flood control, irrigation and river navigation.

² Non-developmental benefits of a waterway include fish and wildlife resources, recreational opportunities and other aspects of environmental quality.

4.1 Alternatives Considered in This Section

This section analyzes two alternatives.

- No Action Alternative. This is the current operation of the Project under its existing license and the current waterway environment, with the exception that it assumes the flow requirements in FERC's 2014 FEIS for upstream NID's Yuba-Bear Project (FERC Project No. 2266) and PG&E's Drum-Spaulding Project (FERC Project No. 2310), collectively, the Yuba-Bear Drum Spaulding (YB/DS) Projects are in place. SSWD considered this a reasonably foreseeable future action that should be included in the environmental baseline. Under the No Action Alternative, there are no changes to existing Project facilities, and no changes to existing Project operations.
 - Costs under the No Action Alternative are SSWD's best estimate of the costs to operate the Project in the future. While SSWD has relied somewhat on historic costs, it has not used those costs without adjustment for future considerations. Costs under the No Action Alternative are divided into two periods: 1) 2021, when the existing license expires, through 2031; and 2) 2032 through 2051. In the first period (i.e., 2021 through 2031), SSWD assumed the costs borne by the SMU and SSWD August 1981 Contract for the Sale and Purchase of Electricity (SMUD Contract), which has a term of 50 years and expires on July 1, 2031, unless terminated earlier. In the second period (i.e., 2032 through 2051), SSWD estimated costs based on the adjusted historic costs of operations.
 - Project generation under the No Action Alternative is based on modeled generation from WY 1976 through WY 2014 using SSWD's Ops Model. Historic generation is also provided for context only.
 - Power generation benefits under the No Action Alternative are divided into two periods: 1) 2021, when the existing license expires, through 2031; and 2) 2032 through 2051. In the first period (i.e., 2021 through 2031), SSWD assumed the power costs paid to SSWD by the SMUD under the SMUD Contract. In the second period (i.e., 2032 through 2051), SSWD estimated the unit value of power using published information in the current California electricity market for the unit value of the power.
- SSWD's Proposed Project. This is SSWD's Proposed Project and it assumes, like in the No Action Alternative, flow requirements in FERC's FEIS for the YB/DS Projects are in place. The Proposed Project is the same as the existing Project with two exceptions: SSWD's proposed Pool Raise;³ and SSWD's proposed PM&E measures in this Application for New License.
 - Costs under SSWD's Proposed Project assume SSWD's proposed costs for operations of the Project as proposed by SSWD in its Application for New License.

³ For the sake of simplicity in this section, all analysis assume the Pool Raise is in place in the first year of the new license term, which is assumed to be 2021.

- Project generation under the Proposed Project is based on modeled generation from WY 1976 through WY 2014 using SSWD's Ops Model.
- Power generation benefits under the Proposed Project used the same assumptions regarding value of power as used in the No Action Alternative.

4.2 Power and Developmental Benefits

Table 4.2-1 summarizes the assumptions and economic information used in this analysis that are common to both the No Action Alternative and SSWD's Proposed Project.

Table 4.2-1. Assumptions and cost items common to the No Action Alternative and SSWD's Proposed Project.

| Assumption / Cost Item | Value or Average Annual Cost |
|--|---|
| Period of Analysis ¹ | 30 Years |
| Term of Financing ¹ | 30 Years |
| Insurance Rate ² | 0% |
| Base Year for Costs and Benefits ¹ | Calendar Year 2018, unless otherwise specified |
| Interest Rate ¹ | 2.0% |
| Discount Rate ¹ | 5.0% |
| Depreciated Plant In-Service Costs ² | \$0 |
| Power Purchase Contract Costs ² | \$20,000 |
| Local, State and Federal Fees and Payments Unrelated to Environmental and Recreation Measures ² | \$87,500 |
| Capital Additions Costs Unrelated to Environmental and Recreation Measures ² | \$332,185 |
| Normal O&M Costs Unrelated to Environmental and Recreation Measures ² | \$665,667 |
| Recovery of FERC Licensing Application Costs ² | \$16,667 |
| Operating Reserve ² | \$87,424 |
| Transmission Costs ² | \$1,000 |
| Authorized Installed Nameplate Capacity ³ | 6,800 kW |
| Dependable Capacity ⁴ | 0 kW |

¹ As described in Table 2.1-1 in Exhibit D of this Application for New License.

² As described in Tables 5.1-1 and 6.2-1 in Exhibit D of this Application for New License.

³ As described in Section 5.2.1.1 and Section 6.3.1 in Exhibit D of this Application for New License.

⁴ As described in Section 5.2.1.3 and Section 6.3.1 in Exhibit D of this Application for New License.

Table 4.2-2 summarizes the assumptions and economic information used in this analysis that are unique to either the No Action Alternative or to SSWD's Proposed Project.

Table 4.2-2. Assumptions and cost items not common to the No Action Alternative and SSWD's Proposed Project.

| Assumption / Cost Item | Value or Average Annual Cost | |
|--|------------------------------|-------------------------|
| | No Action Alternative | SSWD's Proposed Project |
| Average Annual Energy ¹ | 20,752 MWh | 21,200 MWh |
| Average Annual Value of Energy ² | \$759,002 | \$743,908 |
| Average Annual Environmental/Recreational Operating Costs (\$2016/yr) ³ | \$312,933 | \$442,800 |

Table 4.2-2. (continued)

| Assumption / Cost Item | Value or Average Annual Cost | |
|--|------------------------------|-------------------------|
| | No Action Alternative | SSWD's Proposed Project |
| Average Annual Pool Raise Costs ⁴ | -- | \$155,755 |

¹ As described in Tables 5.2-4 and 6.3-1, respectively, in Exhibit D of this Application for New License.

² As described in Tables 5.2-7 and 6.3-2, respectively, in Exhibit D of this Application for New license.

³ As described in Section 5.1.9 and 6.2-2, respectively, in Exhibit D of this Application for New License.

⁴ As described in Section 6.1 in Exhibit D of this Application for New License.

SSWD's Proposed Project includes eight Project-specific environmental/recreational resource management measures, which are described in provided in Appendix E2 of Exhibit E. SSWD's estimated costs, including assumptions related to the costs for each of these measures is provided by condition in Table 4.2-3. SSWD's estimated annual cost to implement the conditions is \$442,600.

Table 4.2-3. SSWD's estimated costs in 2018 dollars related to implementation of SSWD's Proposed Measures as part of continued operation of the Project.

| SSWD's Proposed Measure | | Total Capital Cost Over 30 Years ¹ (2018 U.S. Dollars) | Total O&M Cost Over 30 Years (2018 U.S. Dollars) | Annualized Cost Over 30 Years ² Excluding Energy (2018 U.S. Dollars) | Assumptions Over 30 Years |
|---|---|---|--|--|--|
| Designation in This Application for New License | Description | | | | |
| WR1 | Implement Water Year Types | -- | \$15,000 | \$500 | Assumes SSWD determined water year types, as required by the measure. |
| AR1 | Implement Minimum Streamflows | -- | \$15,000 | \$500 | Same cost as under the existing conditions: continuation of flow requirements in existing license. |
| AR2 | Implement Fall and Spring Pulse Flows | -- | \$30,000 | \$1,000 | Assumes SSWD implements the pulse flows, as required by the measure. |
| AR3 | Implement Ramping Rates | -- | \$60,000 | \$2,000 | Assumes SSWD implements the pulse flows, as required by the measure. |
| TR1 | Implement a Bald Eagle Management Plan ² | \$12,000 | \$255,000 | \$8,900 | Assumes two bald eagle nests present each year, requiring a half-day spent by two SSWD employees to put up buoys and signs at each site during Limited Operating Period (LOP) and another half-day to remove them after LOP is complete. Assumes one permanent sign placed within 220 feet of the bald eagle nest up the riverine arm and replace 3 times during the course of the license. Assumes surveys for bald eagles conducted every the first year of license issuance and every ten years thereafter, for a total of three surveys during the 30-year license period. |
| TR2 | Implement Blue Heron Rookery Management | -- | \$75,000 | \$2,500 | Assumes one heron rookery present each year of the license, requiring a half-day spent by two SSWD employees to put up buoys and signs at the site during Limited Operating Period (LOP) and another half-day to remove them after LOP is complete. |
| RR1 | Implement Recreation Facilities Plan | -- | -- | -- | Rehabilitation or replacement of all existing facilities over the term of license; operation and maintenance of the North Shore and South Shore Recreation Areas. The costs to maintain and operate the Project recreation facilities would continue to be covered by the fees collected for use of the facilities. |
| | <i>North Shore Recreation Area</i> | \$5,563,000 | \$0 | \$185,433 | |
| | <i>South Shore Recreation Area</i> | \$3,893,000 | \$0 | \$129,767 | |

Table 4.2-3. (continued)

| SSWD's Proposed Measure | | Total Capital Cost Over 30 Years ¹ (2018 U.S. Dollars) | Total O&M Cost Over 30 Years (2018 U.S. Dollars) | Annualized Cost Over 30 Years ² Excluding Energy (2018 U.S. Dollars) | Assumptions Over 30 Years |
|---|--|---|--|--|---|
| Designation in This Application for New License | Description | | | | |
| CR1 | Implement Historic Properties Management Plan | \$100,000 | \$3,260,000 | \$112,000 | Capital cost is based on data recovery at one site for a cost of \$100,000. O&M cost is based on NRHP evaluation of 22 archeological sites at \$40,000/site (\$880,000); data recovery at 15 sites at \$100,000/site (\$1,500,000); data recovery at one archaeological district \$200,000. Assumes annual costs of \$5,000/yr for compliance report, \$10,000/yr for monitoring 3 sites, and \$5,000/yr for meetings with tribes and agencies (\$20,000 x 30 = \$600,000); and once every 10 years to review HPMP at a cost of \$10,000/review (\$10,000 x 3 = \$30,000). Also, assumes access will be granted during the license to document three sites and survey previously inaccessible lands (\$50,000). |
| Total | | \$9,568,000 | \$3,705,000 | -- | -- |
| Annualized Over 30 Years | | -- | -- | \$442,600 | -- |

¹ Capital cost include new facilities or equipment or replacement of existing facilities or equipment with facilities or equipment that extend the life expectancy of the existing facilities or equipment.

² Total annualized costs are calculated by summing Capital Cost and Total O&M Cost, and dividing the sum by 30.

This estimate does not include the cost of relocating recreation facilities that would be inundated or otherwise made unusable due to SSWD's proposed Pool Raise. The costs to relocate those facilities is included in the Pool Raise cost estimate. In addition, this estimate does not include costs related to implementation of potential measures that could be contained in "mandatory conditions" from NMFS's Section 18 fishway prescriptions, if any; NMFS's and USFWS's measures that may be included in an ESA BO, if any, for the Project; the SWRCB's CWA 401 WQC, and FERC's Standard Articles. These potential conditions have not been provided to SSWD as of yet. Implementation of these additional measures may result in significant increases to SSWD's estimate of costs to implement conditions under the new license.

4.3 Comparison of Alternatives

Table 4.3-1⁴ compares the benefits (i.e., capacity, energy and ancillary services), costs (i.e., non-environmental/recreation and environmental/recreation) and net benefits of the No Action Alternative and SSWD's Proposed Project.

Table 4.3-1. Comparison of annual power benefits, costs net benefits between No Action Alternative and SSWD's Proposed Project.

| Value | No Action Alternative ¹ | SSWD's Proposed Project ² | Change ³ |
|---|------------------------------------|--------------------------------------|---------------------|
| AVERAGE ANNUAL GROSS POWER BENEFITS | | | |
| Capacity | -- | -- | -- |
| Installed | 6,800 MW | 6,800 MW | No Change |
| Dependable | 0 MW | 0 MW | No Change |
| <i>Subtotal - Value in 2018 Dollars</i> | -- | -- | -- |
| Energy | 20,752 MWh | 21,200 MWh | +448 MWh |
| <i>Subtotal - Value in 2018 Dollars</i> | \$759,002 | \$743,908 | -\$15,904 |
| Total - Value in 2018 Dollars | \$759,002 | \$743,908 | -\$15,904 |
| AVERAGE ANNUAL COSTS | | | |
| Non-Environmental/Recreational | \$1,210,443 | \$1,210,443 | No Change |
| Addition of Pool Raise | -- | \$155,755 | -\$155,755 |
| Environmental/Recreational | \$312,933 | \$442,600 | -\$129,667 |
| Total - Costs in 2018 Dollars | \$1,522,443 | \$1,808,798 | -\$286,355 |
| AVERAGE ANNUAL NET BENEFIT | | | |
| Total - Net Benefit in 2018 U.S. Dollars | -\$763,441 | -\$1,064,890 | -\$302,259 |

¹ From Table 5.3-1 in Exhibit D of this Application for New License.

² From Table 6.4-1 in Exhibit D of this Application for New License.

³ Calculate by subtracting SSWD's Proposed Project value from the No Action Alternative value: a plus means an increase over the No Action Alternative and a minus means a decrease over the No Action Alternative.

Under SSWD's Proposed Project as compared to the No Action Alternative, no change in installed capacity would occur and dependable capacity remains 0 kW. Average annual energy generation would be increased by 2 percent (448 MWh) from 20,752 MWh to 21,200 MWh, with the greatest increase occurring in August. However, average annual energy benefits would be decreased by 21 percent (\$15,904) from \$759,002 to \$743,908 due to shifting of the generation from months with higher energy prices (i.e., summer) to months with lower energy prices (i.e., spring). (Table 4.3-1.)

⁴ Table 4.3-1 is essentially the same as Table 7.0-1 in Exhibit D of this Application for New License.

Under SSWD's Proposed Project as compared to the No Action Alternative, average annual Project costs would increase by \$286,355 or 18.8 percent, with 54.4 percent of the increased cost related to the new Pool Raise and 45.6 percent related to the new environmental and recreation conditions (Table 4.3-1).

The overall average annual Project net benefit would decrease by \$302,259, or by 40.0 percent (Table 4.3-1). SSWD anticipated offsetting these Project shortfalls through water sales.

SSWD's Proposed Project would maintain the current installed capacity value of the Project and enhance a source of high-quality irrigation water to the region. SSWD's Proposed Project would also provide numerous environmental benefits, some of which include: enhancing fish habitat, which already supports robust and healthy anadromous fish populations; and providing the optimum development of recreational opportunity in the Project area consistent with the purpose of the Project.

4.4 Other Developmental and Non-Developmental Benefits

This section describes other developmental and non-development benefits.

4.4.1 Irrigation

SSWD's primary purpose is to provide a reliable and affordable supply of irrigation water to its service area, which encompasses a total gross area of 63,972 ac, of which 6,960 ac are excluded, for a net area of 57,012 ac. In a normal year, over 35,500 ac within SSWD's service area are under irrigation, with approximately 29,110 ac (82%) in rice production, 3,905 ac (11%) in orchards, 2,130 ac (6%) in irrigated pastures, and 355 ac (1%) in miscellaneous row and field crops. SSWD has done this by developing a distribution system to augment and provide alternatives to a declining groundwater table that was being tapped by private agricultural wells within SSWD's service area.

Today, the available water supply in Camp Far West Reservoir is totally allocated each year. However, the water supply still represents only a portion of SSWD's users' demands. Up to approximately 475 cfs of the water released from Camp Far West Reservoir is re-diverted from the Bear River during the irrigation season (i.e., typically, from mid-April through mid-October) at a 38-ft high diversion dam located approximately 1.25 mi downstream from Camp Far West Dam into SSWD's Main Canal, which is located on the south bank and runs predominately north to south along the higher eastern border of SSWD's service area. Approximately 40 cfs of that water is re-diverted from the first 0.5-mi of the Main Canal to the CFWID's South Canal, with the remaining water going down the Main Canal to SSWD's customers. In addition, up to 35 cfs of Bear River water is diverted at the non-Project diversion dam into CFWID's North Canal. Typically, water deliveries begin low in mid-April, peak in July, and then gradually decrease through mid-October. Through turnouts and head gates, water is directed from SSWD's Main Canal into improved canals, one pipeline, and natural channels running from east to west, and distributed to water users. Depending upon the anticipated reservoir yield, the water user's allocations may range from 0 ac-ft per ac of irrigated land during a drought year to as much as

2.0 ac-ft per ac during a wet year. Perennial crops such as orchards and pasture receive a higher priority of allocation over seasonal crops, with rice growers receiving the lowest priority.

Besides serving its members within its service territory, SSWD provides up to 13,000 ac-ft of water to the other users. In accordance with a 1957 agreement and a 1973 settlement agreement, SSWD provides to CFWID 13,000 ac-ft of water from the Camp Far West Reservoir each year to satisfy CFWID's senior water rights on the Bear River.

Lastly, the value of Camp Far West Reservoir as augmenting California's Central Valley's water supply was clearly recognized in 1967 when the reservoir was enlarged as part of the California State Water Plan.

4.4.2 Bay-Delta Contributions

In February 2000, SSWD, DWR and the CFWID entered into the Bear Agreement (DWR, SSWD and CFWID 2000) to settle the responsibilities of SSWD, CFWID, and all other Bear River water rights, to implement the objectives in the Water Quality Control Plan for the San Francisco Bay/ Sacramento-San Joaquin Delta Estuary adopted May 22, 1995 (SWRCB 1995).

To incorporate this agreement into SSWD's water rights, in July 2000, the SWRCB issued Order 2000-10 that amended SSWD's Water Right Licenses 11120 and 11118 to provide that:

During releases of water in connection with the change of purpose of use and place of use of up to 4,400 acre-ft transferred to DWR during dry and critical years,[] Licensee shall increase flows in the lower Bear River by no more than 37 cfs from July through September. To avoid stranding impacts to anadromous fish in the Bear River below Camp Far West Reservoir, Licensee shall, by the end of a release period from the reservoir in connection with said change, ramp down flows from the reservoir at a rate not to exceed 25 cfs over a 24-hour period.

The required flow volume is in addition to the minimum flow requirement in the Project license, and is measured immediately downstream of the diversion dam as spill, over the diversion dam. SWRCB's Order 2000-10 states that this arrangement would terminate upon the termination of the Bear River Agreement on December 31, 2035, or sooner if the Bear River agreement was terminated sooner.

4.5 List of Attachments

None.

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SECTION 5.0

CONCLUSIONS

5.1 Comparison of Alternatives

This section compares the developmental and non-developmental effects of SSWD's Proposed Project and the No Action Alternative.

5.2 Comprehensive Development and Recommended Alternative

Sections 4(e) and 10(a) of the FPA (16 U.S.C. §§ 797(e) & 803(a)) require that the Commission give equal consideration to all uses of the waterway on which a project is located. When the Commission reviews a hydropower project, the Commission considers the water quality, fish and wildlife, recreational, and other non-developmental values of the involved waterway equally with its electric energy and other developmental values. Accordingly, any license issued will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses.

FERC will complete this section in its draft EA or draft EIS, if FERC decides to prepare an EIS instead of an EA.

5.3 Unavoidable Adverse Effects

FERC will include this section in its draft EA or draft EIS, if FERC decides to prepare an EIS instead of an EA.

5.4 Consistency with Comprehensive Plans

Section 10(a)(2)(A) of the FPA (16 U.S.C. § 803(a)(2)(A)) requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, or conserving waterways affected by the Project. On April 27, 1988, FERC issued Order No. 481-A, which revised Order No. 481, issued on October 26, 1987. This order provides that FERC will give FPA Section 10(a)(2)(A) comprehensive plan status to any federal or state plan that meet each of the following three criteria: 1) it is a comprehensive study of one or more of the beneficial uses of a waterway or waterways; 2) it specifies the standards, the data, and the methodology used to develop the plan; and 3) it is filed with FERC.

FERC's Revised List of Comprehensive Plans, dated March 2019, can be found at FERC's eLibrary (<http://www.ferc.gov/industries/hydropower/gen-info/licensing/complan.pdf>). A review of this list shows that the Commission has listed, under FPA Section 10(a), 94 comprehensive plans for the State of California. SSWD determined that 22 of the Qualifying Plans may be relevant to the Proposed Project.

This section provides an explanation of how and why SSWD's Proposed Project would, would not, or should not be consistent with each of the 22 Qualifying Plans, or in some cases, directs the reader to the appropriate section of the Application for New License for an in-depth discussion of the Proposed Project's consistency with the plan. To facilitate FERC's review, the plans are discussed below in the order presented by FERC its March 2019 Revised List of Comprehensive Plans, and the full reference for each plan is provided. As of the time of filing of the Application for New License with FERC, relevant resource agencies have not made determinations regarding the consistency of the Proposed Project with any Qualifying Plans.

5.4.1 California Department of Fish and Game. 2007. California Wildlife: Conservation Challenges, California's Wildlife Action Plan. Sacramento, California. 2007.

The California Wildlife Action Plan was developed in response to the State Wildlife Grants Program enacted by the U.S. Congress in 2000. Together, CDFW and the Wildlife Health Center, University of California, Davis, directed the development of the State's Wildlife Action Plan, *California Wildlife: Conservation Challenges*. Using practical management jurisdictions from state and federal wildlife and land-management agencies that are based roughly on distribution of biological resources, the report divides California into nine regions: Mojave Desert, Colorado Desert, South Coast, Central Coast, North Coast-Klamath, Modoc Plateau, Sierra Nevada and Cascades, Central Valley and Bay-Delta, and Marine. Within each region, species at risk, threats, and conservation actions are identified.

The Proposed Project is located in the Sierra Nevada region, and none of the actions pertain specifically to the lower Bear River or SSWD. Therefore, the plan is not relevant to the Proposed Project.

5.4.2 California Department of Fish and Game. U.S. Fish and Wildlife Service. National Marine Fisheries Service. Bureau of Reclamation. 1988. Cooperative agreement to implement actions to benefit winter-run Chinook salmon in the Sacramento River Basin. Sacramento, California. May 20, 1988.

This cooperative agreement was made by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), USFWS, NMFS and CDFW. The purpose of the agreement was to implement actions that would improve the status of winter-run Chinook salmon in the Sacramento River basins. The agreement identified eight measures that would be followed by the identified parties. The measures generally included: a revised gate operation schedule for Red Bluff Diversion Dam, implementing a thermal control at Shasta Reservoir, correcting pollution from Spring Creek, restoring habitat in the Redding, CA area, correcting salmon-related problems at the Anderson-Cottonwood Irrigation District Diversion Dam, restricting in-river harvest of winter-run salmon, developing a winter-run propagation program at Coleman Hatchery, modifying the Keswick fish trap to prevent mortality of winter-run Chinook, expanding studies on winter-run Chinook, and developing fish passage alternatives to raising the

Red Bluff Diversion Dam gates. The management plan also identified other ongoing measures that each participating party was undertaking to benefit winter-run salmon.

This agreement does not provide any guidance regarding management of fisheries populations on the Bear River, or any actions that pertain specifically to the Proposed Project or SSWD, and ESA-designated critical habitat for winter-run Chinook salmon does not occur in the Bear River. Therefore, this agreement is not relevant to the Proposed Project.

5.4.3 California Department of Fish and Game. 1990. Central Valley Salmon and Steelhead Restoration and Enhancement Plan. Sacramento, California. April 1990.

This plan was released by CDFG in April 1990. This plan is intended to outline CDFW's restoration and enhancement goals for salmon and steelhead resources of the Sacramento and San Joaquin river systems and to provide direction for various CDFW programs and activities. This plan is also intended to provide the understanding and persuasive arguments for the restoration and enhancement of the State's salmon and steelhead resources.

The Proposed Project would improve anadromous salmonid habitat in the lower Bear River. Therefore, the Proposed Project is consistent with this plan.

5.4.4 California Department of Fish and Game. 1993. Restoring Central Valley Streams: A Plan for Action. Sacramento, California. November 1993.

This plan was released by CDFG in November 1993. The goals of the plan, all targeted toward anadromous fish, are to restore and protect California's aquatic ecosystems that support fish and wildlife, to protect threatened and endangered species, and to incorporate the State legislature mandate and policy to double populations of anadromous fish in California. The plan encompasses only Central Valley waters accessible to anadromous fish, excluding the Sacramento-San Joaquin Delta.

With regards to the Bear River, the plan states:

The Bear River once supported substantial runs of salmon and steelhead, but due to inadequate flow releases at the South Sutter Irrigation District diversion dam, there are presently no self-sustaining runs of salmon or steelhead. Occasionally, when heavy fall rains and sufficient spillage occur at the South Sutter Irrigation District, hundreds of fall-run chinook salmon and steelhead may ascend and spawn in the Bear River.

The Bear River could support sustainable populations of Chinook salmon and steelhead if adequate flows were provided.¹

The plan includes specific actions and the agencies responsible for achieving restoration objectives. The actions include upgrading screens on diversions, restoring habitat, target flows for critical life stages, and Water Quality Objectives.

The Proposed Project would improve anadromous salmonid habitat in the lower Bear River. Therefore, the Proposed Project is consistent with this plan. Refer to Sections 3.3.3 and 3.3.5 in this Exhibit E for a discussion regarding the Proposed Project and anadromous fishes.

5.4.5 California Department of Fish and Game. 1996. Steelhead Restoration and Management Plan for California. February 1996.

This plan was released by CDFG in February 1996. This plan focuses on restoration of native and naturally produced (wild) stocks because these stocks have the greatest value for maintaining genetic and biological diversity. Goals for steelhead restoration and management are: 1) increase natural production, as mandated by *The Salmon, Steelhead Trout, and Anadromous Fisheries Program Act of 1988*, so that steelhead populations are self-sustaining and maintained in good condition; and 2) enhance angling opportunities and non-consumptive uses. While this plan described measures for the restoration of salmonids in California, no specific prescriptive comments were directed to the Bear River or to SSWD.

The Proposed Project would improve steelhead habitat in the lower Bear River. Therefore, the Proposed Project is consistent with this plan. Refer to Section 3.3.5 (ESA-Listed Species) in this Exhibit E for a discussion regarding the Proposed Project and steelhead.

5.4.6 California Department of Fish and Wildlife. 2003. Strategic Plan for Trout Management: A Plan for 2004 and Beyond. Sacramento, California. November 2003.

This plan was released by CDFW in 2004. The plan focuses on identifying key issues and concerns related to trout resources in California. The scope of the plan included all resident forms of salmonids. The plan calls for an ecosystem-wide approach to trout management that recognizes how trout interact with other aquatic organisms. The plan outlines two major themes: 1) habitat and native species protection and management; and 2) recreational angling. The plan provides broad, wide ranging, statewide direction for CDFW's trout programs, but is intended to be a tool to be used for the development of specific watershed implementation plans.

This plan focuses on CDFW actions, and includes no specific actions that pertain to the Proposed Project or SSWD. Therefore, the plan is not relevant to the Proposed Project

¹ CDFW provided in the document no specific recommendations for "adequate flows".

5.4.7 California Department of Fish and Wildlife. 2008. California Aquatic Invasive Species Management Plan. Sacramento, California. January 18, 2008.

This California Aquatic Invasive Species Management Plan was released by CDFW in January 2008. Recreational equipment and activities have been identified as vectors for distributing some AIS and this plan proposes management actions for addressing AIS threats to the State of California. It focuses on the non-native algae, crabs, clams, fish, plants and other species that continue to invade California's creeks, wetlands, rivers, bays and coastal waters. The main purpose of the plan is to coordinate State programs, create a statewide decision-making structure and provide a shared baseline of data and agreed-upon actions so that state agencies may work together more efficiently. In addition, the plan provides the State's first comprehensive, coordinated effort to prevent new invasions, minimize impacts from established AIS and establish priorities for action statewide. Finally, the plan supports the State's first rapid response process for high-risk invaders.

Refer to Section 3.3.3 in this Exhibit E for a discussion regarding the Proposed Project and AIS.

5.4.8 California Department of Parks and Recreation. 1998. Public Opinions and Attitudes on Outdoor Recreation in California. Sacramento, California. March 1998.

California Department of Parks and Recreation's (CDPR) Public Opinions and Attitudes in Outdoor Recreation survey (POAOR), the most recent version of which is from 2012, provides information used in the development of the CDPR's Statewide California Outdoor Recreation Plan (SCORP). The POAOR identifies: 1) California's attitudes, opinions, and values with respect to outdoor recreation; and 2) demand for, and participation in, 42 selected outdoor recreation activities.

This document applies to recreation facilities owned and operated by the state or local parks and recreation agencies. Therefore, the plan is not relevant to the Proposed Project.

5.4.9 California Department of Parks and Recreation. 1980. Recreation Outlook in Planning District 3. Sacramento, California. June 1980. 82 pp.

CDPR advised SSWD that the document is out-of-date and irrelevant due to the SCORP documents that are revised every 4 years. CDPR stated that the SCORP documents are the primary recreation planning documents. Therefore, this plan is not relevant to the Proposed Project.

5.4.10 California Department of Parks and Recreation. 1994. Statewide California Outdoor Recreation Plan (SCORP). Sacramento, California. April 1994.

The objectives of CDPR's SCORP, the most recent version of which is dated 2015, are to determine outdoor recreation issues (problems and opportunities) most critical in California, and to explore the most appropriate actions that State of California and local agencies, which manage State and local parks, could take to address those issues. The 2015 SCORP summarizes key findings, introduces new GIS tools to assess local park needs, and establishes priorities for statewide actions. The SCORP establishes the following actions to address California's park and recreation needs: 1) inform decision-makers and communities of the importance of parks; 2) improve the use, safety, and condition of existing parks; 3) use GIS mapping technology to identify park deficient communities and neighborhoods; 4) increase park access for Californians including residents in underserved communities; and 5) share and distribute success stories to advance park and recreation services.

The SCORP applies to State and local parks and recreation agencies, and does not apply to federal and private-sector recreational providers. Because none of the Project recreation facilities are State or local parks or recreation agency facilities, the SCORP is not relevant to the Proposed Project.

5.4.11 California State Water Resources Control Board. 2018. Bay-Delta Plan: Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. Sacramento, California. December 2018.

On December 12, 2018 the SWRCB adopted Resolution No. 2018-0059, which, among other things, amended the Water Quality Objectives for the protection of fish and wildlife Beneficial Uses in the Lower San Joaquin River (LSJR) and its three eastside tributaries—the Stanislaus, Tuolumne and Merced Rivers—and agricultural Beneficial Uses in the southern Delta. It also amended the program of implementation for those Water Quality Objectives and approved and adopted a Substitute Environmental Document (SED) for the LSJR. In addition, in ordering paragraph 7 of Resolution No. 2018-0059, the SWRCB directed staff to provide appropriate technical and regulatory assistance for the completion of a “Delta watershed-wide agreement, including potential flow and non-flow measures for the Tuolumne River, and associated analyses no later than March 1, 2019.” The latter deadline was met and various parties and state and federal agencies are currently engaged in intensive efforts to complete and implement the referenced Bay-Delta watershed-wide agreement.

While the SWRCB has adopted amendments to the Bay-Delta Plan for the LSJR, it has not, at this juncture, taken any formal action to propose or adopt specific elements of a Bay-Delta Plan for the Sacramento River watershed, which includes the Bear River. Intensive efforts are currently underway to develop and implement a comprehensive Bay-Delta watershed-wide agreement which, if approved by the SWRCB, would become part of the updated Bay-Delta

Plan. Any discussion of the specific elements of the comprehensive Bay-Delta watershed-wide agreement would, at this juncture, be premature and speculative.

5.4.12 California State Water Resources Control Board. 2018. Water Quality Control Plan for the Sacramento and San Joaquin River Basins and Appendices. Sacramento, California. May 2018.

The Water Quality Control Plan applicable to the Sacramento River watershed (Basin Plan), specifies designated existing and potential Beneficial Uses and Water Quality Objectives. The various Water Quality Objectives specified in the Basin Plan are in both narrative and numeric form; some objectives apply to the Sacramento River watershed as a whole while others apply only to specified water bodies.

The Proposed Project is consistent with the current Basin Plan. With regard to designated Beneficial Uses and as discussed in the various resource sections of this Exhibit E, the Proposed Project provides water to meet: 1) Municipal and Domestic Water Supply; 2) Industrial Service Supply (Power) by generating hydropower at Camp Far West Powerhouse; 3) Water Contact Recreation by providing recreation opportunities, including fishing, boating, and swimming at Camp Far West Reservoir; 4) Warm Freshwater Habitat in Camp Far West Reservoir and in the lower Bear River; 5) Cold Freshwater Habitat in the lower Bear River; 6) Migration of Aquatic Habitats by providing flows in the lower Bear River; 7) Spawning, by providing habitat in Camp Far West Reservoir and the lower Bear River; 8) Wildlife Habitat in Camp Far West Reservoir and the lower Bear River; and 9) Navigation by boating on Camp Far West Reservoir and water in the lower Bear River. SSWD is unaware of any demand for Industrial Service Supply or Non-Contact Water Recreation in the lower Bear River.

As described in Section 3.3.2 (Water Resources) of Exhibit E, surface water in and surrounding the Proposed Project, with very minor exceptions, is in compliance with Water Quality Objectives in the Sacramento and San Joaquin River Basins Plan.

5.4.13 The Resources Agency. 1989. Upper Sacramento River Fisheries and Riparian Habitat Management Plan. Sacramento, California. January 1989.

The California Resource Agency is a state cabinet-level agency in the government of California that was appropriated funds through a bill (SB 1086) to develop a management plan for fisheries and riparian habitat resources of the Sacramento River. The purpose of the plan is to identify specific actions that will help restore the Sacramento River fishery and protect or restore riparian habitat. These identified actions provide a framework for regulating agencies to plan for future activities. The product of the plan identified the following conclusions: 1) stated that the Sacramento River is important for anadromous fish; 2) noted that winter- and spring-run salmon populations are at dangerously low levels and less than 5 percent of riparian habitat remains on the Sacramento River; 3) suggested restoration measures in the plan will restore anadromous fisheries and benefit other resources; 4) asserted that implementing the plan will require a significant commitment amongst state and federal regulators along with local funding; and, 5)

stated that responsibility for the implementation is expected to be 75 percent federal and 25 percent state responsibility. The plan also provided four recommendations. These recommendations were: 1) state and federal legislation is needed soon to take action; 2) the State of California should seek funding through multiple propositions to share cost; 3) identified implementation measures should be conformed to by identified priorities; and 4) an Upper Sacramento River Advisory Council should be created with authority to implement the plan.

The plan applies to actions federal and State agencies should take, and did not identify any actions specific to the lower Bear River or SSWD. Therefore, the plan is not relevant to the Proposed Project.

5.4.14 National Marine Fisheries Service. 2014. Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-run Chinook salmon and Central Valley Spring-run Chinook salmon and the Distinct Population Segment of California Central Valley steelhead. Sacramento, California. July 2014.

The Recovery Plan for Central Valley (CV) winter-run Chinook salmon (*Oncorhynchus tshawytscha*) Evolutionary Significant Unit (ESU), CV spring-run Chinook salmon (*O. tshawytscha*) ESU and CV steelhead (*O. mykiss*) Distinct Population Segment (DPS) was published as a means to identify the actions that may be needed for the conservation and survival of these species. The Recovery Plan is a comprehensive document that serves as a road map for species recovery. The purpose of this Recovery Plan is to guide the implementation of species recovery by identifying and correcting threats to the species and ensuring viable CV Chinook salmon ESUs and the CV steelhead DPS.

The plan provides background history on the species, presents and justifies the recommended recovery strategy for each species including specific goals and objectives. Finally, the specific actions that should be taken to achieve recovery are presented.

The ultimate goal is the delisting of the CV Chinook salmon ESUs and the CV steelhead DPS.

A key element of the Recovery Plan is the focus of actions on watersheds that can support viable populations of ESA-listed salmonids and contribute to meeting Diversity Group² requirements for distribution and redundancy. To assess their potential to contribute to species recovery in the diversity group, the Recovery Plan places watersheds into three categories based on their potential to support populations with low risk of extinction. The three categories are Core 1, Core 2, and Core 3. If the watershed has no potential to support populations with low risk of extinction, it is not placed into one of the three categories. In addition, the Recovery Plan lists stressors to the populations by watershed.

² The Recovery Plan identifies four diversity groups, which are geographic areas that NMFS believes have supported historical populations of the ESA-listed anadromous salmonid. The Bear River is in the Recovery Plan's Northern Sierra Nevada Diversity Group, which is "composed of streams tributary to the Sacramento River from the east, from Antelope Creek to the Mokelumne River" (NMFS 2014, p. 68).

For the CV winter-run and spring-run Chinook salmon ESUs, the Recovery Plan does not classify the Bear River as a Core 1, 2, or 3, stream, and does not list any Bear River-specific stressors. Therefore, the plan considers the Bear River to have no potential to support populations of spring-run and winter-run Chinook salmon ESUs.

For the CV steelhead DPS, the Recovery Plan classifies the Bear River as a Core 3³ stream and lists the following Bear River-specific stressors:⁴

- Water temperature during specific times of the year (primarily during the CV steelhead adult immigration, embryo incubation, and juvenile outmigration periods – spring, summer, and fall)
- Flow conditions during all CV steelhead lifestages because the Bear River is a highly managed river. Flow-dependent habitat availability is a concern during spawning and juvenile rearing and emigration. Low flows during adult immigration are a concern with respect to attraction and migratory cues.
- Entrainment of CV steelhead at unscreened diversions.
- Physical habitat alteration, which can lead to CV steelhead spawning habitat reduction.
- Loss of natural river morphology as a result of the managed flow regime.
- Loss of riparian habitat and instream cover as a result of the managed flow regime and adjacent agricultural production.
- Poor water quality primarily for CV steelhead embryo incubation and juvenile rearing and outmigration. Of particular concern are mercury from historic gold mining, and diazinon from agricultural runoff.

Additional stressors to the CV steelhead DPS listed in the Recovery Plan that are not specific to the Bear River but apply to the overall Northern Sierra Nevada Diversity Group include loss of floodplain habitat in the San Francisco Bay Delta, flow and water temperature issues in the Feather and Sacramento rivers, hatchery effects on genetic diversity, and predation of juvenile outmigrants.⁵

³ The Recovery Plan describes a Core 3 stream as in “watersheds [that] have populations that are present on an intermittent basis and require straying from other nearby populations for their existence. These populations likely do not have the potential to meet the abundance criteria for moderate risk of extinction. Core 3 watersheds are important because, like Core 2 watersheds, they support populations that provide increased life history diversity to the ESU/DPS and are likely to buffer against local catastrophic occurrences that could affect other nearby populations. Dispersal connectivity between populations and genetic diversity may be enhanced by working to recover smaller Core 3 populations that serve as stepping stones for dispersal.”

⁴ The Bear River Watershed Profile in the Recovery Plan begins on Page 49 in Appendix A and the Threats Matrix, which begins on Page C-94, in Attachment C to Appendix B, are the two main locations in the Recovery Plan for Bear River-specific stressors.

⁵ The Northern Sierra Nevada Diversity Group stressor Matrix Results highlight the highest priority stressors for the Diversity Group that contains the Bear River starts on Page 4-135 in Appendix B of the Recovery Plan.

The Recovery Plan does not identify passage impediments in the Bear River as a stressor of high importance because, according to the Recovery Plan, Camp Far West Dam was constructed at the site of a natural, historic, physical barrier to upstream migration.⁶

Refer to Section 3.3.5 (ESA-Listed Species) in this Exhibit E for a discussion regarding ESA-listed anadromous fishes.

5.4.15 National Marine Fisheries Service. 2018. Final Recovery Plan for the Southern Distinct Population of North American Green Sturgeon. Sacramento, California. August 8, 2018.

The Recovery Plan for the Southern DPS of North American green sturgeon was published to identify goals and actions necessary for the conservation and survival of the species. The southern DPS of North American green sturgeon was listed as a threatened species under the Endangered Species Act in April of 2006. The determination was based on the fact that the Sacramento River basin contained the only known southern DPS green sturgeon spawning population and that there were threats to the habitat quality and quantity available in the Sacramento River and Delta System (NMFS 2018). The NMFS Recovery Plan focuses recovery efforts on conservation and expansion of freshwater and estuarine spawning and rearing habitats in addition to increasing abundance, distribution, productivity and diversity by alleviating significant threats (NMFS 2018). The ultimate goal of the recovery plan is to recover southern DPS green sturgeon and remove them from the Federal List of Endangered and Threatened Wildlife.

The plan provides background history on the southern DPS green sturgeon, presents and justifies the recommended recovery strategy for the green sturgeon, including specific goals and objectives. Finally, the specific actions that should be taken to achieve recovery are presented.

No critical habitat for southern DPS green sturgeon is designated in the Bear River, and the plan does not discuss the Bear River. Therefore, the plan is not relevant to the Proposed Project. Additionally, the Proposed Project would improve habitat in the lower Bear River for sturgeon. Refer to Section 3.3.5 (ESA-Listed Species) in this Exhibit E for a discussion regarding the Proposed Project and green sturgeon.

5.4.16 National Marine Fisheries Service. Pacific Fishery Management Council. 1978. Fishery Management Plan for Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon and California Commencing in 1978. March 1978.

The Pacific Fishery Management Council's (Council) 1978 fishery management plan (FMP) and environmental impact statement (EIS) guides the management of commercial and recreational salmon fisheries off the coasts of Washington, Oregon, and California. The FMP goal is to ensure the sustainable harvest and conservation of Pacific Ocean salmon as well as designating

⁶ As stated at page 4-135 in Appendix B, Section 4, of the Recovery Plan.

essential fish habitat (EFH) necessary to maintaining healthy salmon populations. The Pacific salmon FMP has been amended 19 times, the most recent effective as of March 10, 2016. Appendix A to the FMP was most recently amended in September 2014 and states that the Upper Bear River hydrologic unit (USGS Hydrologic unit code [HUC] 18020126) is one of these EFH designated hydrologic units (50 C.F.R., pt. 660, subpt. H, table 1.) Although in some cases, EFH can extend beyond impassable dams, within HUC 18029126 on the Bear River, the upstream extent of Pacific salmon EFH is the Camp Far West Dam (PFMC 2014).

The Proposed Project would improve anadromous salmonid habitat in the lower Bear River. Therefore, the Proposed Project is consistent with this plan. Refer to Sections 3.3.3 and 3.3.5 in this Exhibit E for a discussion regarding the Proposed Project and anadromous fishes.

5.4.17 National Park Service. The Nationwide Rivers Inventory. Department of the Interior, Washington, D.C. 1993.

The Nationwide Rivers Inventory (NRI) is a listing by the National Park Service of more than 2,400 free-flowing river segments in the U.S. that are believed to possess one or more “outstandingly remarkable” natural or cultural values (ORVs) judged to be of more than local or regional significance. In addition to these eligibility criteria, river segments are divided into three classifications: Wild, Scenic, and Recreational river areas. Under a 1979 Presidential Directive and related Council on Environmental Quality procedures, all federal agencies must seek to avoid or mitigate actions that would adversely affect one or more NRI segments. Such adverse impacts could alter the river segment’s eligibility for listing and/or alter their classification.

None of the NRI-listed river segments occur in the Project Area or downstream of the Proposed Project. Therefore, the NRI listed-rivers would not be affected by the Proposed Project.

5.4.18 Pacific Fishery Management Council. 1988. Eighth Amendment to the Fishery Management Plan for Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon and California Commencing in 1978. Portland, Oregon. January 1988.

The 1988 update of the Fishery Management Plan (FMP) is out-of-date. The eight amendment to the FMP addressed the need for information regarding habitat and the impacts of habitat changes on the salmon resource and the fishery. As discussed in Section 5.4.16, the most recent update of the FMP was in March 2016 and the most recent update of Appendix A, which addresses identification and descriptions of essential fish habitat was in September 2014. Refer to Section 5.4.16 for a discussion of the Proposed Project’s consistency with the most recent version of the FMP.

5.4.19 U.S. Fish and Wildlife Service. 1990. Central Valley Habitat Joint Venture Implementation Plan: A Component of the North American Waterfowl Management Plan. February 1990.

The California Central Valley Habitat Joint Venture (CVHJV) is one of 12 current joint ventures charged with implementation of the North American Waterfowl Management Plan. The CVHJV was formally established by a working agreement signed in July 1988 and is guided by an Implementation Board comprised of representatives from the California Waterfowl Association, Defenders of Wildlife, Ducks Unlimited, National Audubon Society, Waterfowl Habitat Owners Alliance, and The Nature Conservancy. Technical assistance is provided to the Implementation Board by the USFWS, CDFG, California Department of Food and Agriculture, and other organizations and agencies.

The Central Valley of California is the most important wintering area for waterfowl in the Pacific Flyway, supporting 60 percent of the total population. Historically, the Central Valley contained more than 4 million ac of wetlands; however, only 291,555 ac remained in 1990 when the CVHJV was first implemented. The primary cause of this wetland loss was conversion to agriculture, flood control, and navigation projects, and urban expansion.

When completed, the CVHJV will: 1) protect 80,000 ac of existing wetlands through the fee acquisition or conservation easement; 2) restore 120,000 ac of former wetlands; 3) enhance 291,555 ac of existing wetlands; 4) enhance waterfowl habitat on 443,000 ac of private agricultural land; and 5) secure 402,450 ac-ft of water for existing State Wildlife Areas, National Wildlife Refuges, and the Grasslands Resource Conservation District. These habitat conservation efforts are intended to result in a fall flight of 1 million ducks and 4.7 million wintering ducks. The wintering birds will include 2.8 million pintails, a species whose wintering population is vitally dependent on the Central Valley.

The CVHJV is a regional approach to conservation and management of waterfowl populations in the Central Valley, but has no specific application to operation and management of the Proposed Project.

5.4.20 U.S. Fish and Wildlife Service. 2001. Final Restoration Plan for the Anadromous Fish Restoration Program. Department of the Interior, Sacramento, California. January 9, 2001.

The Central Valley Project Improvement Act directed the Secretary of DOI to develop and implement a program that makes all reasonable efforts to double natural production (i.e., Doubling Goal) of anadromous fish in California Central Valley streams (Section 3406(b)(1)). The program is known as the Anadromous Fish Restoration Program (AFRP). The 2001 plan was released by USFWS as a revised draft on May 30, 1997, and adopted as final on January 9, 2001. The plan identifies restoration actions that may increase natural production of anadromous fish in Central Valley streams. The plan focuses on adult production at the individual watershed level within the California Central Valley, and restoration actions are identified for each watershed. It also lists the involved parties, tools, priority rating, and evaluation of each

restoration action. The plan encompasses only Central Valley streams accessible to anadromous fish.

USFWS's (1995) AFRP Working Paper, from which the Doubling Goal were identified and presented, states that "natural production" includes up to four components:

1. In-river spawner abundance (i.e., escapement)
2. In-river sport harvest
3. Ocean sport and commercial harvest
4. Hatchery returns

Further, it states the reference period upon which the Doubling Goal is based is 1967 through 1991.

USFWS's Working Paper estimated from 1967 through 1991 for the Bear River:

1. In-river average annual spawner abundance was 100 fish;
2. In-river sport harvest was 10 fish;
3. Ocean sport and commercial harvest was 110; and
4. Since a hatchery is not located on the Bear River, the Working Paper assumed this component had a value of zero;

An average annual total natural production over the period of 220 fish.

Based on these numbers, the Working Paper identified a Bear River natural production Doubling Goal of 450 fish. The Doubling Goal specifically excluded spring-run Chinook salmon in the Bear River because the USFWS did not recognize a viable Chinook salmon spring-run in the Bear River.

There are numerous issues with the science on which this Doubling Goal policy, for at least the Bear River, is based (see Newman and Hankin 2004, and Dahm et al. 2019 for discussions of general issues with the methods used in the Doubling Goal analysis). First, USFWS based its calculation of in-river average annual spawner abundance for a 25 year period on 6 years (i.e., according to USFWS, no spawners in 1978 and 1980, 100 spawners in 1982, 200 in 1983, 300 in 1984 and 1 in 1986). However, the only entry of adult Chinook salmon abundance in the GrandTab CDFW archive for that period is for 300 fish in 1984. Basing a 25-year average on six data points (only one data point can be verified) is statistically inappropriate.

Second, USFWS's estimates of in-river and ocean harvest are based on assumptions that have not been validated with empirical data. Specifically, the estimate of in-river harvest for Chinook salmon for the Bear River is set at 10 percent of the in-river annual spawner abundance estimate based on "professional judgment" and does not vary over time and no justification for the selection and use of the 10 percent number is provided. Estimates of ocean harvest are similarly

based on questionable assumptions: it is assumed that Chinook salmon originating from the Central Valley are only harvested out of the ports of San Francisco and the Monterey; and, it is assumed that an individual stream's contribution to ocean harvest is temporally constant and directly proportional to the stream's contribution to Central Valley Chinook salmon production – at best circular reasoning.

Third, USFWS assumes the proportion of hatchery spawners in the Bear River is zero based on the fact that there is no hatchery on the Bear River. This assumption does not reflect the general scientific understanding that hatchery fish stray into and spawn in non-natal streams (e.g., into the Bear River from the nearby Feather River Hatchery), an understanding that, within the Central Valley, is supported by recent data generated from coded wire tag (CWT) recoveries and the Constant Fractional Marking (CFM) Program employed at Central Valley hatcheries. For instance, in the Yuba River, which does not have a hatchery and is a tributary to the Feather River just upstream of the Bear River, the estimated percent of hatchery-produced fall-run Chinook salmon spawning naturally from 2001 through 2014 ranges from 27 to 71 percent. Similar hatchery contributions occur on other Central Valley Streams, as shown in Table 5.4-1.

Table 5.4-1. Estimated percent of naturally spawning fall-run Chinook salmon that are of hatchery origin, based coded wire tag (CWT) recoveries collected during carcass and angler surveys for a selection of Central Valley streams in 2010, 2011, 2012, 2013, and 2014. Values in bold type indicate streams where no hatchery production occurs.

| Stream | Percent of Hatchery-Produced Fall-Run Chinook Salmon Spawning Naturally | | | | |
|-------------------------|---|--|--|--|--|
| | 2010 | 2011 | 2012 | 2013 | 2014 |
| Battle Creek | -- ³ | 89% | 91% | 90% | 89% |
| Clear Creek | 4% | 8% | 40% | 37% | 57% |
| Mill Creek | -- | 7% | 3% | 31% | 45% |
| Butte Creek | 11% | 7% | 12% | 7% | 21% |
| Feather River | 78% | 90% | 90% | 84% | 83% |
| Yuba River | 71% | 65%¹ / 34%² | 45%¹ / 27%² | 34%¹ / 46%² | 49%¹ / 45%² |
| Bear River | -- | -- | -- | -- | -- |
| American River | 32% | 66% | 73% | 65% | 64% |
| Mokelumne River | 73% | 88% | 78% | 64% | 76% |
| Stanislaus River | 50% | 83% | 83% | 66% | 65% |
| Tuolumne River | 49% | 73% | 36% | 28% | 65% |

Sources: Kormos et al. 2012, Palmer-Zwahlen and Kormos 2013, Palmer-Zwahlen and Kormos 2015, Palmer-Zwahlen et al. 2018, Palmer-Zwahlen et al. 2019

¹ Yuba River upstream of Daguerre Point Dam (DPD)

² Yuba River downstream of DPD

³ No estimates available. For the Bear River, carcass surveys are not conducted on the Bear River by any resource management agency, and there is no Chinook salmon fishing season on the Bear River so CDFW does not conduct angler surveys there.

To illustrate the effect of not accounting for hatchery Chinook salmon on the natural spawning grounds can have on calculation of the Doubling Goal, the following example is provided. Starting with the same values for fall-run Chinook salmon in the Bear River as were used for the existing Doubling Goal (i.e. average “natural” escapement of 100 spawners, average in-river sport harvest of 10 adults, and average total ocean harvest of 110 adults for a total of 220 fish) but assuming a correction of 49 percent for the influence of hatchery-origin fish (i.e., using the 49 percent number in lower Yuba River in 2014 in Table 5.4-1), then the baseline total of 220 fish is reduced to 108 fish (i.e., 220 times 0.49), and the Doubling Goal for Chinook salmon in the Bear River is reduced from 450 fish to 216 fish (i.e., 108 fish times 2).

The questionable science underlying USFWS's Doubling Goal policy was highlighted by Dahm et al. (2019) who, as an Independent Scientific Advisory Panel, was tasked with identifying methods for developing biological goals for the Bay-Delta Plan. They state:

USFWS (2001) established a goal to double the natural production of Chinook salmon and steelhead (and other anadromous species) within 10 years and the goal was set in public law (www.usbr.gov/mp/cvpia/title_34/public_law_complete.html).

Nevertheless, the Panel believes this goal to be unrealistic (e.g., 990,000 natural Chinook salmon, including harvested fish). Values in the baseline period likely underestimated hatchery-origin Chinook salmon in total returns, which appear to be based on professional opinion rather than actual data for hatchery-origin fish (see Mills and Fisher 1994). Recent estimates of pHOS confirm that hatchery fish on the spawning grounds are higher than those assumed in the doubling goal analysis (e.g. Willmes et al. 2018, Palmer-Zwahlen et al. 2018; Figure 4.4). The Panel is uncertain whether estimated harvests of natural-origin Chinook salmon in the doubling goal analysis were reasonably accurate, but suspect that they were too high because they probably include some hatchery fish. As described in Section 4.6, positive trends in abundance and productivity metrics may provide the best goals, rather than a goal to double abundance of the natural population.

Despite the issues regarding the science that underlies the CVPIA doubling goal, the CVPIA is legislated policy that directs the restoration and management goals of the AFRP Final Restoration Plan. USFWS states the Bear River doubling goal is to be met by:

Supplement flows with water acquired from willing sellers consistent with applicable guidelines or negotiate agreements to improve conditions for all life history stages of Chinook salmon and steelhead;

Provide adequate water temperatures for all life-stages of Chinook salmon and steelhead, and screen all diversions to protect all life history stages of anadromous fish.

It is outside FERC's jurisdiction to require that a hydropower license holder purchase water from owners of upstream water projects or install fish screens on non-project water intakes downstream of the licensed hydro project (i.e., the Project does not include any diversions where anadromous fish occur). However, as discussed in Sections 3.3.3 and 3.3.5 in this Exhibit E, the Proposed Project would improve anadromous salmonid habitat in the lower Bear River and, therefore, the Proposed Project is consistent with this plan.

5.4.21 U.S. Fish and Wildlife Service. Canadian Wildlife Service. 1986. North American Waterfowl Management Plan. Department of the Interior. Environment Canada. May 1986.

The North American Waterfowl Management Plan (NAWMP) is an update of the Convention for the Protection of Migratory Birds, which was established between the United States and Canada in 1916. The plan is a guide for private and public entities in the conservation and management of waterfowl. The CVHJV Implementation Plan (USFWS et al. 1990) is an example of implementation of the guidelines established by the NAWMP. Goals and general recommendations are described for the protection of habitat, financing of research and managing harvest. The plan outlines a framework for separating the larger group of waterfowl into smaller guilds, dabbling ducks, diving ducks, sea ducks, and geese, which will benefit from similar management strategies.

The NAWMP leaves implementation to local conservation and management groups and has no specific application to operation and management of the Proposed Project.

5.4.22 U.S. Fish and Wildlife Service. n.d. Fisheries USA: The Recreational Fisheries Policy of the U.S. Fish and Wildlife Service. Washington, D.C.

This is a 12-page policy that was signed by John F. Turner, then Director of the USFWS, on December 5, 1989. Its purpose is to unite all of the USFWS' recreational fisheries capabilities under a single policy to enhance the nation's recreational fisheries. Regional and Assistant directors are responsible for implementing the policy by incorporating its goals and strategies into planning and day-to-day management efforts. The USFWS carries out this policy relative to FERC-licensed hydroelectric projects through such federal laws as the Fish and Wildlife Coordination Act, the Clean Water Act, the Endangered Species Act, NEPA and the FPA, among others.

The Proposed Project supports recreational fisheries in the Project's reservoir. In addition, the Proposed Project will comply with all federal and State laws.

5.5 List of Attachments

None.

SECTION 6.0

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APPENDIX E1

SSWD'S OPERATIONS MODEL, HYDROLOGY DATA, AND STUDY DATA

Appendix E1 includes SSWD's Water Balance/Operations Model, Hydrology Data, and associated data for 13 of SSWD's studies. Two studies, *Cultural Resources Study* and *Tribal Interest Study* have a public report and a Privileged report that was filed separately with FERC on June 7, 2019.¹ Table E1-1 lists the contents of this appendix, including file type and total file size.

Table E1-1. Contents of Appendix E1.

| Name | File Type(s) on Disc | Total File Size |
|--|--------------------------------|-----------------|
| OPERATIONS MODEL | | |
| 2019-06-14 Camp Far West Operations Model_V4 | 1 Microsoft Excel file | 49.3 MB on DVD |
| Ops-Model Documentation Validation_Report | 1 Adobe pdf file | 5.6 MB on DVD |
| HYDROLOGY DATA | | |
| DSS Data Files | 6 DSS files | 9.4 MB on DVD |
| Exceedance Plots | 2 Adobe pdf files | 0.4 MB on DVD |
| Haze Charts | 1 Adobe pdf file | 0.8 MB on DVD |
| Monthly Summaries | 1 Adobe pdf file | 0.2 MB on DVD |
| Power Generation | 1 Microsoft Excel file | 0.2 MB on DVD |
| Stage-Storage Curves | 2 Microsoft Excel files | 0.1 MB on DVD |
| STUDY 2.1 WATER TEMPERATURE MONITORING | | |
| 2_1 Reservoir Dissolved Oxygen Profile Data | 1 Microsoft Excel File | 0.5 MB on DVD |
| 2_1 Water Temperature Monitoring _ Reservoir Profile Data PH and Conductivity | 1 Microsoft Excel File | 0.9 MB on DVD |
| 2_1 Water Temperature Monitoring _ Reservoir Profile Data | 1 Microsoft Excel File | 0.5 MB on DVD |
| 2_1_Stream Temp Data | 1 DSS file | 7.6 MB on DVD |
| STUDY 2.2 WATER TEMPERATURE MODELING | | |
| Tech Memo - Model Development | 1 Adobe PDF File | 4.2 MB on DVD |
| Appendix A - Bear River Hydrology Methods Memo | 1 Adobe PDF File | 0.7 MB on DVD |
| Appendix B - Temp Model Calibration and Validation Files | 2 folders with executable data | 220 MB on DVD |
| Appendix C - Temp Model GUI Configured for the Base Case | 1 folder with executable data | 1.4 GB on DVD |
| Temp Model Output | 3 DSS files | 50.3 MB on DVD |
| STUDY 2.3 WATER QUALITY | | |
| 2_3 _Bear River Dissolved Oxygen Data | 1 Microsoft Excel File | 1.0 MB on DVD |
| 2_3_WQ lab results_August 2017 | 1 Adobe PDF File | 126.6 MB on DVD |
| 2_3_WQ lab results_June 2017 | 1 Adobe PDF File | 210.4 MB on DVD |

¹ See FERC's ELibrary Accession No. 201906075078 and Accession No. 201906075079.

Table E1-1. (continued)

| Name | File Type(s) on Disc | Total File Size |
|--|--|-----------------|
| STUDY 2.3 WATER QUALITY (CONT'D) | | |
| 2_3_WQ lab results_ November 2017 | 1 Adobe PDF File | 169.2 MB on DVD |
| STUDY 3.1 SALMONID REDDS | | |
| 3_1_Redd Survey Data Sheets | 1 Adobe PDF File | 7.9 MB on DVD |
| 3_1_Gravel Mapping Data Sheets | 1 Adobe PDF File | 2.2 MB on DVD |
| 3_1_Velocity Transect Data Sheets | 1 Adobe PDF File | 1.0 MB on DVD |
| 3_1_Gravel Permeability Data Sheets | 1 Adobe PDF File | 0.5 MB on DVD |
| 3_1_Gravel Mapping Database | 1 Microsoft Excel File | 0.7 MB on DVD |
| 3_1_Gravel Permeability_2017 | 1 Microsoft Excel File | 0.2 MB on DVD |
| 3_1_Redd data_2018 | 1 Microsoft Excel File | 0.4 MB on DVD |
| 3_1_Redd Location Map_2016_2018 | 1 Adobe PDF File | 9.4 MB on DVD |
| 3_1_Spawning Gravel Protocol | 1 Microsoft Word Document | 0.3 MB on DVD |
| STUDY 3.2 STREAM FISH | | |
| 3_2_Boat electrofishing database | 1 Microsoft Excel File | 0.1 MB on DVD |
| 3_2_eDNA sampling results | 1 Microsoft Excel File | 0.1 MB on DVD |
| 3_2_Population photos | 1 Microsoft Word File | 2.4 MB on DVD |
| 3_2_Population sampling database_Oct 2017 | 1 Microsoft Excel File | 0.1 MB on DVD |
| 3_2_Population sampling database_Apr 2018 | 1 Microsoft Excel File | 0.1 MB on DVD |
| 3_2_Population sampling database_May 2018 | 1 Microsoft Excel File | 0.1 MB on DVD |
| 3_2_Population sampling database_Jun 2018 | 1 Microsoft Excel File | 0.1 MB on DVD |
| STUDY 3.3 INSTREAM FLOW | | |
| 3_3_HDR Downstream Modeling Site | 7 Microsoft Excel Files, 21 CDG files, 1 Bed File, 1 Tagged Image File, 1 TIF World File, 4 Text Documents | 176 MB on DVD |
| 3_3_HDR Upstream Modeling Site | 7 Microsoft Excel Files, 21 CDG files, 1 Bed File, 1 Tagged Image File, 1 TIF World File, 4 Text Documents | 198 MB on DVD |
| 3_3_HSC Preference Files | 7 Text Documents | 0.1 MB on DVD |
| 3_3_USFWS Modeling Site | 1 Microsoft Excel File, 19 CDG Files, 10 Channel Index Files, 1 Bed File, 7 Text Documents | 119 MB on DVD |
| 3_3_Lower Bear River Instream Flow Study Photo Log | 1 Word Document | 24 MB on DVD |
| STUDY 3.4 BENTHIC MACROINVERTEBRATES | | |
| 3_4_BMI Calculations and Scores | 1 Microsoft Excel File | 0.04 MB on DVD |
| 3_4_BMI CEDEN data | 1 Microsoft Excel File | 0.09 MB on DVD |
| 3_4_BMI_Water Quality and Physical Habitat Data | 1 Microsoft Excel File | 0.1 MB on DVD |
| STUDY 4.1 SPECIAL STATUS PLANTS AND NNIP | | |
| 4_1_Camp Far West_Complete Flora | 1 Microsoft Excel File | 0.03 MB on DVD |
| 4_1_Camp Far West_NNIP Summary Table | 1 Microsoft Excel File | 0.06 MB on DVD |

Table E1-1. (continued)

| Name | File Type(s) on Disc | Total File Size |
|---|-------------------------|-----------------|
| STUDY 4.1 SPECIAL STATUS PLANTS AND NNIP (CONT'D) | | |
| 4_1_NNIP Occurrences_2017 | 1 Adobe PDF File | 17.7 MB on DVD |
| STUDY 4.2 SPECIAL STATUS RAPTORS | | |
| 4_2_Bald Eagle Data Sheets | 1 Adobe PDF File | 0.5 MB on DVD |
| 4_2_Golden Eagle Data Sheets | 1 Adobe PDF File | 0.2 MB on DVD |
| 4_2_Inc Observation Data Sheets | 1 Adobe PDF File | 1.3 MB on DVD |
| 4_2_Nest Observation Data Sheets | 1 Adobe PDF File | 1.5 MB on DVD |
| STUDY 4.3 SPECIAL STATUS BATS | | |
| 4_3_Acoustic Monitoring_05112017 | 1 Adobe PDF File | 0.03 MB on DVD |
| 4_3_Acoustic Monitoring_05122017 | 1 Adobe PDF File | 0.03 MB on DVD |
| 4_3_Bat Emergency Survey_05112017 | 1 Adobe PDF File | 0.03 MB on DVD |
| 4_3_Bat Emergency Survey_05122017 | 1 Adobe PDF File | 0.03 MB on DVD |
| 4_3_Bat Monitoring Site Map | 1 Adobe PDF File | 0.1 MB on DVD |
| STUDY 5.1 ESA LISTED PLANTS | | |
| No ESA listed plants were found during the survey, see Study 4.1 for Plant information. | | |
| STUDY 5.2 ESA LISTED WILDLIFE VELB | | |
| 5_2_CFW_VELB Datasheet_May 2017 | 1 Adobe PDF File | 0.1 MB on DVD |
| 5_2_VELB Location Map | 1 Adobe PDF File | 1.3 MB on DVD |
| STUDY 5.3 ESA LISTED WILDLIFE CRLF | | |
| 5_3_CRLF and Bullfrog data | 1 Microsoft Excel File | 0.02 MB on DVD |
| STUDY 6.1 RECREATION | | |
| 6_1_UseObservationLog_Campgrounds | 1 Adobe PDF File | 0.6 MB on DVD |
| 6_1_UserObservationLog_DailyForms | 1 Adobe PDF File | 6.6 MB on DVD |
| 6_1_UseObservationLog_Vehicles_People_Summary | 1 Microsoft Excel File | 0.02 MB on DVD |
| 6_1_VisitorSurveyDatabase | 1 Microsoft Excel File | 0.7 MB on DVD |
| STUDY 10.1 CULTURAL | | |
| Cultural Resources Data has been filed with FERC as Privileged on June 7, 2019 (FERC Accession No. 20190607-5079) | | |
| STUDY 10.1 TRIBAL | | |
| Tribal Resources Data has been filed with FERC as Privileged on June 7, 2019 (FERC Accession No. 20190607-5079) | | |

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Appendix E1

Attachments

Due to the size and/or format of the material in this appendix, SSWD has filed with FERC these materials on digital versatile disc (DVD) as part of this Application for New License.

Copies of the material in this appendix on DVD may be obtained upon request by contacting:

Brad Arnold
General Manager
SOUTH SUTTER WATER DISTRICT
sswd@hughes.net
(530) 656-2242

APPENDIX E2

SSWD’S PROPOSED MEASURES

Provided below are the operations and management activities that South Sutter Water District (SSWD or Licensee) proposes to undertake as measures of the new license for the Project for the purpose of protecting or mitigating impacts that would otherwise result from SSWD’s Proposed Project as described in this Application for a New License, or for the purpose of enhancing resources that could be affected by the proposed Project (PM&E measures).

For the purpose of this appendix, SSWD has assumed that the Federal Energy Regulatory Commission’s (FERC) requirements regarding inspections of Project facilities (e.g., annual FERC inspections, Part 12 Dam Safety Inspections, and Environmental and Public Use Inspections) and other similar general FERC requirements (e.g., requirement for Emergency Action Plans) will apply to SSWD’s Proposed Project if FERC issues a new license. SSWD also has assumed the specific requirements included in related approvals, such as dam certificates issued by the California Division of Safety of Dams (DSOD) for Project dams within DSOD’s jurisdiction and appropriative water rights licensed by the California State Water Resources Control Board (SWRCB) for power generation will not change under a new license. Therefore, SSWD has not included proposed measures related to these activities in this Application for New License.

In addition, for the purpose of this appendix, SSWD has assumed that FERC will include in the new license FERC’s *37 Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters and Lands of the United States* (Form L-5 Standard Articles).¹ Therefore, SSWD has not included proposed measures that would otherwise be addressed by FERC’s Form L-5 Standard Articles.

SSWD and Relicensing Participants have reached agreement, or are working towards reaching agreement, on a number of PM&E measures. The status of each measure proposed by SSWD in its Application for New License is described in Table E2-1, for which a detailed PM&E measure is included in this appendix.

Table E2-1. PM&E measures on which SSWD and Relicensing Participants reached agreement, indicated by an “X” in the respective cell.

| PM&E Measure Included in Appendix E2 of this Exhibit E | SSWD and Relicensing Participants that Support SSWD’s Proposed PM&E Measure ¹ | | | | | Explanation |
|--|---|-------|-----|------|-----|---|
| | NMFS | USFWS | NPS | CDFW | FWN | |
| WR1. Implement Water Year Types | | X | | X | X | SSWD and the indicated parties have reached agreement on this measure. For the purpose of this FLA, this agreed-on measure is included as SSWD’s Proposed Measure in SSWD’s FLA |

¹ L–5: *Constructed Major Project Affecting Navigable Waters and Lands of the United States*, 12 F.P.C. 1329 (October 23, 1953), 17 F.P.C. 110 (January 13, 1957), 38 F.P.C. 203 (July 26, 1967), 54 F.P.C. 1832 (October 31, 1975).

Table E2-1. (continued)

| PM&E Measure Included in Appendix E2 of this Exhibit E | SSWD and Relicensing Participants that Support SSWD's Proposed PM&E Measure ¹ | | | | | Explanation |
|--|---|-------|-----|------|-----|--|
| | NMFS | USFWS | NPS | CDFW | FWN | |
| AR1. Implement Minimum Streamflows | | X | | X | X | SSWD and the indicated parties have reached agreement on this measure. For the purpose of this FLA, this agreed-on measure is included as SSWD's Proposed Measure in SSWD's FLA. As a separate measure, agencies would like SSWD to provide flow data on a real-time basis. SSWD and the agencies will continue to discuss that potential measure. |
| AR2. Implement Fall and Spring Pulse Flows | | X | | X | X | SSWD and the indicated parties have reached agreement on this measure. For the purpose of this FLA, this agreed-on measure is included as SSWD's Proposed Measure in SSWD's FLA |
| AR3. Implement Ramping Rates | | | | | | SSWD and the indicated parties have had very productive discussions regarding this measure and are continuing to collaborate on this measure. SSWD and the parties anticipate reaching agreement and filing with FERC a consensus measure by the end of September 2019, at which time SSWD will amend its FLA to include the agreed-on measure. SSWD has included in this FLA its measure as proposed at this time. |
| TR1. Implement a Bald Eagle Management Plan ² | | | | | | SSWD and the indicated parties have had very productive discussions regarding this measure and are continuing to collaborate on this measure. SSWD and the parties anticipate reaching agreement and filing with FERC a consensus measure by the end of September 2019, at which time SSWD will amend its FLA to include the agreed-on measure. SSWD has included in this FLA its measure as proposed at this time. |
| TR2. Implement Blue Heron Rookery Management | | X | | X | X | SSWD and the indicated parties have reached agreement on this measure. For the purpose of this FLA, this agreed-on measure is included as SSWD's Proposed Measure in SSWD's FLA. |
| RR1. Implement Recreation Facilities Plan ² | | | | | | SSWD and relicensing participants are in substantial agreement on this measure. An outstanding item is the period when SSRA would be open. SSWD and the parties are continuing to collaborate on this issue and will file with FERC a consensus measure by the end of September 2019, at which time SSWD will amend its FLA to include the agreed-upon measure. SSWD has included in this FLA its proposed measure at this time. |

Table E2-1. (continued)

| PM&E Measure Included in Appendix E2 of this Exhibit E | SSWD and Relicensing Participants that Support SSWD's Proposed PM&E Measure ¹ | | | | | Explanation |
|--|---|-------|-----|------|-----|--|
| | NMFS | USFWS | NPS | CDFW | FWN | |
| CR1. Implement Historic Properties Management Plan ³ | | | | | | Under Section 106 of the NHPA, SSWD has consulted with SHPO and interested Tribes regarding this measure. Refer to the HPMP for a discussion of consultation. NMFS, USFWS, CDFW, NPS and FWN defer to these agencies on this measure. SSWD has submitted the final HPMP to SHPO for concurrence and will file the final HPMP with FERC when SHPO concurrence is received. SSWD has included in this FLA the HPMP that was submitted to SHPO for concurrence. |
| <i>Subtotal</i> | 0 | 4 | 0 | 4 | 4 | -- |
| Total | | | 12 | | | -- |

¹ The SWRCB participated in the collaboration meetings, but stated that it cannot agree to or take a position on the merits of any PM&E measures at this time.

² This plan is included in Appendix E2 of Exhibit E of SSWD's Application for New License, and is considered Public information.

³ This plan is included in Volume III of SSWD's Application for New License, and is considered Privileged information.

SSWD and the Relicensing Participants that agree to a PM&E measure as shown in Table E2-1 agreed to take the following actions for that measure assuming there is no additional information discovered or changes in the Project that affect the measure:

- SSWD will include the agreed-upon PM&E measure unchanged in its FLA, and SSWD will propose no other measure in the FLA related to the issue.
- USFWS and CDFW will include the PM&E measure unchanged and will propose no other measures related to the issue in their respective FPA Section 10(j) and/or FPA Section 10(a) recommendations.
- FWN will propose the PM&E measure and no other measures related to the issue in its comments on SSWD's FLA.

SSWD and Relicensing Participants have scheduled four meetings in July and August 2019 to resolve differences and come to agreement on Measures AR3 (Ramping Rates), TR1 (Bald Eagle Plan) and RR1 (Recreation Plan) in Table E2-1. By the end of September 2019, SSWD plans to file with FERC these final agreed-on measures.

1.0 **SSWD Proposed Measure WR1, Implement Water Year Types²**

Beginning within 90 days of license issuance, Licensee shall in each year determine the applicable water year type described in this measure. Licensee shall use these determinations to implement articles and measures of the license that are dependent on water year type.

² As shown in Table E2-1, SSWD, USFWS, CDFW and FWN are in agreement with this measure.

October 15 through March 14 Period

The water year type for the October 15 through March 14 period shall be determined by the previous April 1 through September 30 cumulative usable inflow into Camp Far West Reservoir, as specified in Table 1 of this measure. The water year type for the October 15 through March 14 period shall be calculated once each year by October 15, and shall apply to that entire period each year.

Table 1. Water Year types for the Camp Far West Hydroelectric Project from October 15 through March 14.

| Water Year Type | Cumulative Usable Inflow into Camp Far West Reservoir for the Previous April 1 through September 30 Period (acre-feet) |
|-----------------|--|
| Wet | Greater than or equal to 80,000 |
| Above Normal | 41,000 to 79,999 |
| Below Normal | 36,000 to 40,999 |
| Dry | 20,000 to 35,999 |
| Critically Dry | Less than 20,000 |

The Camp Far West Reservoir cumulative usable inflow in Table 1 shall be calculated as the sum of the daily canal diversions from April 1 through September 30 at South Sutter Water District's Main Canal and the Camp Far West Irrigation District's North and South canals, in cubic feet per second and multiplied by 1.98347 to convert to acre-feet, minus the difference between Camp Far West Reservoir storage on April 1 and September 30. Camp Far West storage on both dates will be limited to a maximum value of 93,737 acre-feet or the maximum storage possible before uncontrolled spill through the dam spillway.

South Sutter Water District's Main Canal diversions and the Camp Far West Irrigation District's North and South canal diversions are to be taken as the average daily flow in cubic feet per second, and storage in Camp Far West Reservoir is determined by converting the published daily reservoir elevation data to storage in acre-feet using the Camp Far West Reservoir area-capacity curve available in Exhibit B of the Licensee's Application For New License. Hourly diversion data for the Main Canal, South Canal, and North Canal diversions will be reported on a weekly basis and will be publicly available by January 1, 2020, in compliance with the California State Water Resources Control Board's Surface Water Measurement and Reporting Regulations (California Code of Regulations, Title 23, Chapters 2.7 and 2.8). The gages used to provide data for these calculations shall be:

- Main Canal Diversion
- South Canal Diversion
- North Canal Diversion
- Camp Far West Storage

March 15 through October 14 Period

The water year type for the period from March 15 through October 14, shall be based on the California Department of Water Resources (DWR) 50 percent exceedance forecast of the water year unimpaired runoff in the Yuba River near Smartsville plus Deer Creek, as set forth in DWR's Bulletin 120 entitled "Water Year Conditions in California," as specified in Table 2 of this measure. DWR's forecast published in March and April shall apply from the 15th day of that month through the 14th day of the next month. From May 15 through October 14, the water year type shall be based on DWR's forecast published in May.

Table 2. Water Year types for the Camp Far West Hydroelectric Project from March 15 through October 14.

| Water Year Type | DWR Forecast of Total Water Year Unimpaired Runoff in the Yuba River near Smartsville plus Deer Creek ¹ (acre-feet) |
|-----------------|--|
| Wet | Greater than 3,240,000 |
| Above Normal | 2,191,000 to 3,240,000 |
| Below Normal | 1,461,000 to 2,190,000 |
| Dry | 901,000 to 1,460,000 |
| Critically Dry | Equal to or less than 900,000 |

¹ DWR currently rounds Bulletin 120 forecasts to the nearest 1,000 acre-feet, and rounded values to the nearest 1,000 acre-feet will be used.

2.0 SSWD Proposed Measure AR1, Implement Minimum Streamflows³

Licensee shall, within 30 days of issuance of the new license, meet the minimum streamflow requirements for the Bear River downstream of Camp Far West Dam and Powerhouse that are shown in Table 1 of this measure.

Table 1. Minimum Streamflows in cubic feet per second (cfs) for the Camp Far West Hydroelectric Project by period and by Water Year Type, which is defined in Licensee's Proposed Measure WR1.

| Period | Water Year Type | | | | |
|----------------------|----------------------|-------------------------------|-------------------------------|----------------------|---------------------------------|
| | Wet Water Year (cfs) | Above Normal Water Year (cfs) | Below Normal Water Year (cfs) | Dry Water Year (cfs) | Critically Dry Water Year (cfs) |
| Oct 1 – Oct 14 | 10 | 10 | 10 | 10 | 10 |
| Oct 15 – Oct 31 | 50 | 25 | 25 | 10 | 10 |
| Nov 1 – Nov 14 | 100 | 60 | 30 | 20 | 10 |
| Nov 15 – Feb 28 (29) | 125 | 60 | 30 | 20 | 15 |
| Mar 1 – Mar 31 | 60 | 40 | 30 | 20 | 15 |
| Apr 1 – Apr 30 | 40 | 25 | 25 | 20 | 15 |
| May 1 – May 14 | 40 | 25 | 25 | 15 | 15 |
| May 15 – May 31 | 25 | 25 | 20 | 10 | 10 |
| Jun 1 – June 14 | 25 | 25 | 15 | 10 | 10 |
| June 15 – June 30 | 20 | 20 | 10 | 10 | 10 |
| July 1 – Sep 30 | 10 | 10 | 10 | 10 | 10 |

Minimum streamflows of 30 cfs or less shall be measured at the fish release valve off South Sutter Water District's Main Canal (USGS Gage 11423800, Bear River Fish Release below Camp Far West Reservoir, near Wheatland, CA). Minimum streamflows greater than 30 cfs shall be

³ As shown in Table E2-1, SSWD, USFWS, CDFW and FWN are in agreement with this measure.

measured as the difference between the Camp Far West Dam release (defined as the sum of the flows through the Camp Far West Powerhouse, Camp Far West Dam Low-Level Outlet, and Camp Far West Dam Spillway) less diversions (defined as the sum of South Sutter Water District Main Canal and Camp Far West Irrigation District's North and South canals). Flow through the Camp Far West Powerhouse and Camp Far West Dam Low-Level Outlet shall be measured every 15 minutes, while flow over the Camp Far West Dam Spillway shall be measured once daily. Diversions at the South Sutter Water District's Main Canal and the Camp Far West Irrigation District's North and South canals shall be measured on an hourly basis. Average daily Camp Far West Dam release and average daily diversions shall be used to measure the average daily minimum streamflows greater than 30 cfs.

Minimum streamflows may be temporarily modified as follows:

- For short periods and upon consultation with and approval by the USFWS, NMFS, CDFW and SWRCB. Licensee shall provide notification to the Commission prior to implementing such modifications.
- Due to an emergency. An emergency is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, California ISO or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of transmission lines or Project works; or other public safety incidents. If Licensee temporarily modifies the requirements of this measure, Licensee shall make all reasonable efforts to promptly resume performance of the requirements, and shall notify the USFWS, NMFS, CDFW and SWRCB within 48 hours of the start of the modification. Licensee shall provide notification to the Commission as soon as possible but no later than 10 days after such incident.

Where a facility must be modified or constructed to allow compliance with the required minimum streamflow, including flow measurement facilities, then, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facility as soon as reasonably practicable but no later than within the first 2 years of the new license term, and Licensee will complete the work as soon as reasonably practicable but no later than within 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, Licensee shall make a good faith effort to provide the specified minimum streamflows within the reasonable capabilities of the existing facilities.

3.0 **SSWD Proposed Measure AR2, Implement Fall and Spring Pulse Flows⁴**

Licensee shall, beginning in the first full calendar year after license issuance, provide the fall and spring pulse flows for the Bear River downstream of Camp Far West Dam and Powerhouse described in this measure.

A fall pulse flow shall occur between November 10 and November 17 in each Wet, Above Normal, and Below Normal water year, as detailed in Table 1 of this measure. In Wet water years, a second fall pulse flow shall occur between December 1 and December 7. Licensee shall determine the specific timing of each pulse flow within the periods of the pulse flows stated above. Modifications to the exact timing of the pulse flow outside of the stated periods in this measure may occur with the approval of the NMFS, USFWS, CDFW and SWRCB. If average daily flows equal to or greater than the pulse flows in Table 1 have occurred between November 1 and November 9, then the first fall pulse flow is not required in that year. If average daily flows equal to or greater than the pulse flows in Table 1 have occurred between November 21 and November 30, then the second fall pulse flow is not required in that year. A fall pulse flow is not required in Dry and Critically Dry water years.

Table 1. Fall (i.e., between November 10 and December 7) pulse flow in cubic feet per second (cfs) for the Camp Far West Hydroelectric Project by period and by Water Year Type.

| Period (day) | October 15 – March 14 Water Year Type as Defined in SSWD's Proposed Measure WR1 | | |
|--------------------------------------|---|-------------------------------------|-------------------------------------|
| | Wet Water Year (cfs) | Above Normal Water Year (cfs) | Below Normal Water Year (cfs) |
| FIRST FALL PULSE FLOW PERIOD | | | |
| Day 1 | ≥ 175 | ≥ 125 | ≥ 125 |
| Day 2 | ≥ 175 | ≥ 125 | ≥ 125 |
| Day 3 | ≥ 125 | ≥ 75 | ≥ 75 |
| SECOND FALL PULSE FLOW PERIOD | | | |
| Day 1 | ≥ 175 | None | None |
| Day 2 | ≥ 175 | None | None |
| Day 3 | ≥ 125 | None | None |

The spring pulse flow shall occur over a 6-day period, as shown in Table 2 in this measure. If an average daily flow equal to or greater than 200 cfs has occurred after April 1 of that year, the required spring pulse flow in Table 2 is not required in that year. A spring pulse flow is not required in Wet and Above Normal water years. The spring pulse flow shall begin and end within a 2-week period, which shall start no earlier than the following date for each water year type: Below Normal – April 27; Dry – April 19; Critically Dry – April 11.

⁴ As shown in Table E2-1, SSWD, USFWS, CDFW and FWN are in agreement with this measure.

Table 2. Spring (i.e., between April 11 and May 10) pulse flow in cubic feet per second (cfs) for the Camp Far West Hydroelectric Project by period and by Water Year Type.

| March 15 – October 14 Water Year Type as Defined in SSWD's Proposed Measure WR1 | | | | | |
|---|------------|----------------|------------|---------------------------|------------|
| Below Normal Water Year | | Dry Water Year | | Critically Dry Water Year | |
| Period (day) | Flow (cfs) | Period (day) | Flow (cfs) | Period (day) | Flow (cfs) |
| Day 1 | ≥ 200 | Day 1 | ≥ 200 | Day 1 | ≥ 200 |
| Day 2 | ≥ 200 | Day 2 | ≥ 200 | Day 2 | ≥ 200 |
| Day 3 | ≥ 150 | Day 3 | ≥ 150 | Day 3 | ≥ 150 |
| Day 4 | ≥ 100 | Day 4 | ≥ 100 | Day 4 | ≥ 100 |
| Day 5 | ≥ 75 | Day 5 | ≥ 75 | Day 5 | ≥ 75 |
| Day 6 | ≥ 50 | Day 6 | ≥ 50 | Day 6 | ≥ 50 |

The fall and spring pulse flows shall be measured as described in SSWD's Proposed Measure AR1, Minimum Streamflows. The fall and spring pulse flows are not additive to the minimum streamflows required in SSWD's Proposed Measure AR1, Minimum Streamflows.

Fall and spring pulse flows may be temporarily modified as follows:

- For short periods and upon consultation with and approval by the USFWS, NMFS, CDFW and SWRCB. Licensee shall provide notification to the Commission prior to implementing such modifications.
- Due to an emergency. An emergency is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, California ISO or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of transmission lines or Project works; or other public safety incidents. If Licensee temporarily modifies the requirements of this measure, Licensee shall make all reasonable efforts to promptly resume performance of the requirements, and shall notify the USFWS, NMFS, CDFW and SWRCB within 48 hours of the start of the modification. Licensee shall provide notification to the Commission as soon as possible but no later than 10 days after such incident.

Where a facility must be modified or constructed to allow compliance with the required pulse flow, including flow measurement facilities, then, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facility as soon as reasonably practicable but no later than within the first 2 years of the new license term, and Licensee will complete the work as soon as reasonably practicable but no later than within 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, Licensee shall make a good faith effort to provide the specified pulse flow within the reasonable capabilities of the existing facilities.

4.0 **SSWD Proposed Measure AR3, Implement Ramping Rates⁵**

Licensee shall, when the average hourly release from Camp Far West Dam is less than 725 cfs from November through May, make a good faith effort to adhere to the ramping rates provided in this condition. The ramping rates in this condition shall also apply when making changes between minimum streamflow releases in SSWD's Proposed Measure AR1 and implementing fall and spring pulse flows releases in SSWD's Proposed Measure AR2. The ramping rates in this condition are targets: if Licensee, after a good faith effort to adhere to the target ramping rates, exceeds one or more target ramping rates, the exceedance shall not be deemed a license violation. In the event that a ramping rate target is exceeded, Licensee shall notify USFWS, NMFS, CDFW, and the SWRCB within 48 hours of the exceedance. This notification will include the duration of the exceedance, flow levels during exceedance, and the reason for the exceedance (e.g., unexpected upstream releases resulting in imminent spill at Camp Far West dam).

November 1 through January 31 Period

Licensee shall, from November 1 through January 31 of each year, make a good faith effort not to reduce the combined release from Camp Far West Powerhouse and Camp Far West Dam Low-Level Outlet until such time as flow passes over the Camp Far West Dam Spillway. If the Licensee, at its own discretion, determines it is necessary to reduce the combined release from the powerhouse and low-level outlet prior to flow passing over the Camp Far West Dam Spillway, Licensee shall make a good faith effort to reduce the combined release using the ramping rates specified below in Table 1.

February 1 through May 31 Period

Licensee shall, from February 1 through May 31 of each year, make a good faith effort to not reduce the combined release from the Camp Far West Powerhouse and the Camp Far West Low-Level Outlet at a rate greater than the target ramping rates in Table 1 of this condition.

Table 1. Target ramping rates in cubic feet per second (cfs) from February 1 through May 31, excluding the period of flashboard installation at the downstream non-Project diversion dam.

| Average Hourly Release From Combination of Camp Far West Dam Low-Level Outlet and Powerhouse for Previous Hour (cfs) | Target Maximum Reduction in Release From Combination of Camp Far West Dam Low-Level Outlet and Powerhouse for That Hour (maximum of three steps per day) (cfs) |
|--|---|
| 725 – 600 | 125 |
| 599 – 450 | 100 |
| 449 – 330 | 85 |
| 329 – 230 | 70 |
| 229 – 150 | 60 |
| 149 – 100 | 45 |
| 99 – 60 | 30 |
| 59 – 10 | 20 |

⁵ As indicated in Table E2-1, SSWD, USFWS, CDFW, and FWN have had very productive discussions regarding this measure and are continuing to collaborate on this measure. SSWD and the parties anticipate reaching agreement and filing with FERC a consensus measure by the end of September 2019, at which time SSWD will amend its FLA to include the agreed-on measure. SSWD has included in this FLA its measure as proposed at this time.

Springtime Installation of Flashboards at Non-Project Diversion Dam (April or May)

During the spring installation of flashboards on the non-Project diversion dam downstream of the Project (i.e., installation includes the activities of drawing down the non-Project diversion dam pool, installing the flashboards, and refilling the non-Project diversion dam pool to initiate diversions), Licensee shall make a good faith effort to not reduce the combined release from the Camp Far West Powerhouse and/or the Camp Far West Low-Level Outlet at a rate greater than the target ramping rates in Table 2. The ramping rate values shown in Table 2 are made in recognition of the physical limitations and challenges that the operator of the non-Project diversion dam encounters when manually installing flashboards with the existing infrastructure at the non-Project diversion dam. If in the future the operator of the non-Project diversion dam automates initiation of diversions at the non-Project diversion dam such that the physical limitation and challenges no longer occur, Licensee shall adhere to the target ramping rates shown in Table 1 of this condition.

Table 2. Target ramping rates in cubic feet per second (cfs) for springtime flashboard installation at the non-Project diversion dam (April or May)

| Average Hourly Release From Combination of Camp Far West Dam Low-Level Outlet and Powerhouse for Previous Hour (cfs) | Target Maximum Reduction in Release From Combination of Camp Far West Dam Low-Level Outlet and Powerhouse for That Hour (unlimited steps per day) (cfs) |
|--|--|
| 725 – 600 | 200 |
| 599 – 450 | 150 |
| 449 – 330 | 120 |
| 329 – 230 | 100 |
| 229 – 150 | 80 |
| 149 – 100 | 50 |
| 99 – 60 | 40 |
| 59 – 30 | 30 |
| 29 – 10 | 20 |

For the purpose of this condition, the ramping rate targets shall be measured as described in SSWD's Proposed Measure AR1.

This condition is subject to temporary modification if required for repairs to the dam or associated equipment, by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent or reduce the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If Licensee temporarily modifies the requirements of this condition, Licensee shall make all reasonable efforts to promptly resume performance of the requirements and shall notify USFWS, NMFS, CDFW and SWRCB within 48 hours of the modification. Licensee shall provide notification to the Commission as soon as possible but no later than 10 days after such incident.

5.0 SSWD Proposed Measure TR1, Implement Bald Eagle Management Plan⁶

The Licensee shall, within 1 year of license issuance, implement the Bald Eagle Management Plan included in Attachment 1 of this Appendix E2.

6.0 SSWD Proposed Measure TR3, Implement Great Blue Heron Rookery Management⁷

The Licensee shall implement a Limited Operating Period (LOP) from March 15 to July 31 within a 500-foot buffer of the great blue heron (*Ardea herodias*) rookery located presently at the South Shore Recreation Area and other blue heron rookeries that may be identified on Camp Far West Reservoir. Land barriers and appropriate signage shall be placed to designate the buffer zone during the LOP from the edge of the outside nest.

7.0 SSWD Proposed Measure RR1, Implement Recreation Facilities Plan⁸

The Licensee shall, within 1 year of license issuance, implement the Recreation Facilities Plan included in Attachment 2 of this Appendix E2.

8.0 SSWD Proposed Measure CR1, Implement Historic Properties Management Plan⁹

The Licensee shall, within 1 year of license issuance, implement the Historic Properties Management Plan included in Volume III of Licensee's June 2019 Application for New License.

⁶ As indicated in Table E2-1, SSWD, USFWS, CDFW, and FWN have had very productive discussions regarding this measure and are continuing to collaborate on this measure. The parties are in general agreement regarding limited operating periods and buffers around nests, and are discussing monitoring. SSWD and the parties anticipate reaching agreement and filing with FERC a consensus measure by the end of September 2019, at which time SSWD will amend its FLA to include the agreed-on measure. SSWD has included in this FLA its measure as proposed at this time.

⁷ As shown in Table E2-1, SSWD, USFWS, CDFW and FWN are in agreement with this measure.

⁸ As indicated in Table E2-1, SSWD and relicensing participants are in substantial agreement on this measure. The outstanding item is expanding the period when SSRA would be open. SSWD and the parties anticipate reaching agreement and filing with FERC a consensus measure by the end of September 2019, at which time SSWD will amend its FLA to include the agreed-on measure. SSWD has included in this FLA its measure as proposed at this time.

⁹ Under Section 106 of the NHPA, SSWD has consulted with SHPO and interested Tribes regarding this measure. SSWD has submitted the final HPMP to SHPO for concurrence and will file the final HPMP with FERC when SHPO concurrence is received. SSWD has included in this FLA the HPMP that was submitted to SHPO for concurrence.

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APPENDIX E2

Attachment 1

Bald Eagle Management Plan

Application for New License **Major Project – Existing Dam**

Bald Eagle Management Plan

Security Level: Public

Camp Far West Hydroelectric Project
FERC Project No. 2997



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June 2019

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GLOSSARY - DEFINITION OF TERMS, ACRONYMS AND ABBREVIATIONS

| | |
|--------------------|---|
| ac | acres |
| Application | Application for New License |
| BGEPA | Bald and Golden Eagle Protection Act |
| CDFW | California Department of Fish and Wildlife |
| CESA | California Endangered Species Act |
| C.F.R | Code of Federal Register |
| ESA | Endangered Species Act of 1973, as amended (16 U.S.C. 1531 <i>et seq.</i> and 50 CFR 402) |
| FERC or Commission | Federal Energy Regulatory Commission |
| F.G.C. | Fish and Game Code |
| FR | Federal Record |
| ft | foot/feet |
| LOP | Limited Operating Period; time period within which certain Project activities would NOT occur, within a pre-defined distance from a sensitive resource area. |
| MBTA | Migratory Bird Treaty Act |
| NMWSE | Normal Water Surface Elevation |
| O&M | operations and maintenance |
| Plan | Bald Eagle Management Plan |
| Project | Camp Far West Hydroelectric Project, FERC Project No. 2997 |
| Project Vicinity | The area surrounding the proposed Project on the order of United States Geological Survey 1:24,000 quadrangles. |
| § | section |
| Special-Status | <p>Listed under the federal Endangered Species Act as Endangered, Threatened, Proposed or Candidate for listing.</p> <p>Designated by the California Department of Fish and Wildlife as a Species of Special Concern.</p> <p>Listed under the California Endangered Species Act as Threatened, Endangered or a Candidate for Listing.</p> <p>Classified as Fully Protected by the State of California.</p> <p>Protected under the Migratory Bird Treaty Act.</p> <p>Protected under the Bald and Golden Eagle Protection Act.</p> |
| SSWD | South Sutter Water District |
| take | For bald eagles, 'take' includes pursue, shoot, shoot at, poison, wound, kill, trap, collect, molest, or disturb. |
| USFWS | United States Fish and Wildlife Service |
| U.S.C | United States Code |

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SECTION 1.0

INTRODUCTION

1.1 Background

In June 2019, the South Sutter Water District (SSWD), pursuant to Sections (§§) 5.17 and 5.18 of Title 18 of the Code of Federal Regulations (C.F.R.), file with the Federal Energy Regulatory Commission (FERC or Commission) an Application for New License for Major Project – Existing Dam for SSWD’s 6.8 megawatt Camp Far West Hydroelectric Project (Project), FERC Project No. 2997. The initial license for the Project was issued by FERC to SSWD on July 2, 1981, effective on July 1, 1981. In its Application for New License (Application), SSWD proposes to continue operating the Project for the next 40 years with one modification to the spillway, a reservoir pool raise of 5 feet (ft) (from 300.0 ft Normal Maximum Water Surface Elevation [NMWSE) to 305.0 ft NMWSE), and the adoption of the resource management measures proposed in its license application.

The proposed FERC Project Boundary¹ encompasses 2,674.0 acres (ac) of land in Nevada, Placer, and Yuba Counties, California. Within the boundary, SSWD is the major landholder with 2,515.2 ac (94.8% of the area within the FERC Project Boundary). The remaining lands (146.7 ac) are privately-owned lands. Neither the existing FERC Project Boundary nor the proposed FERC Project Boundary includes federal lands. Figure 1.1-1 shows the Project Vicinity² and the proposed FERC Project Boundary.

¹ The Federal Energy Regulatory Commission Project Boundary encompasses all Project facilities and features as well as all land needed by SSWD for the normal operation and maintenance of the Project. The boundary is shown in Exhibit G of SSWD’s Application for New License.

² In this Plan, “Project Vicinity” refers to the area surrounding the Project on the order of United States Geological Survey 1:24,000 scale topographic quadrangle.

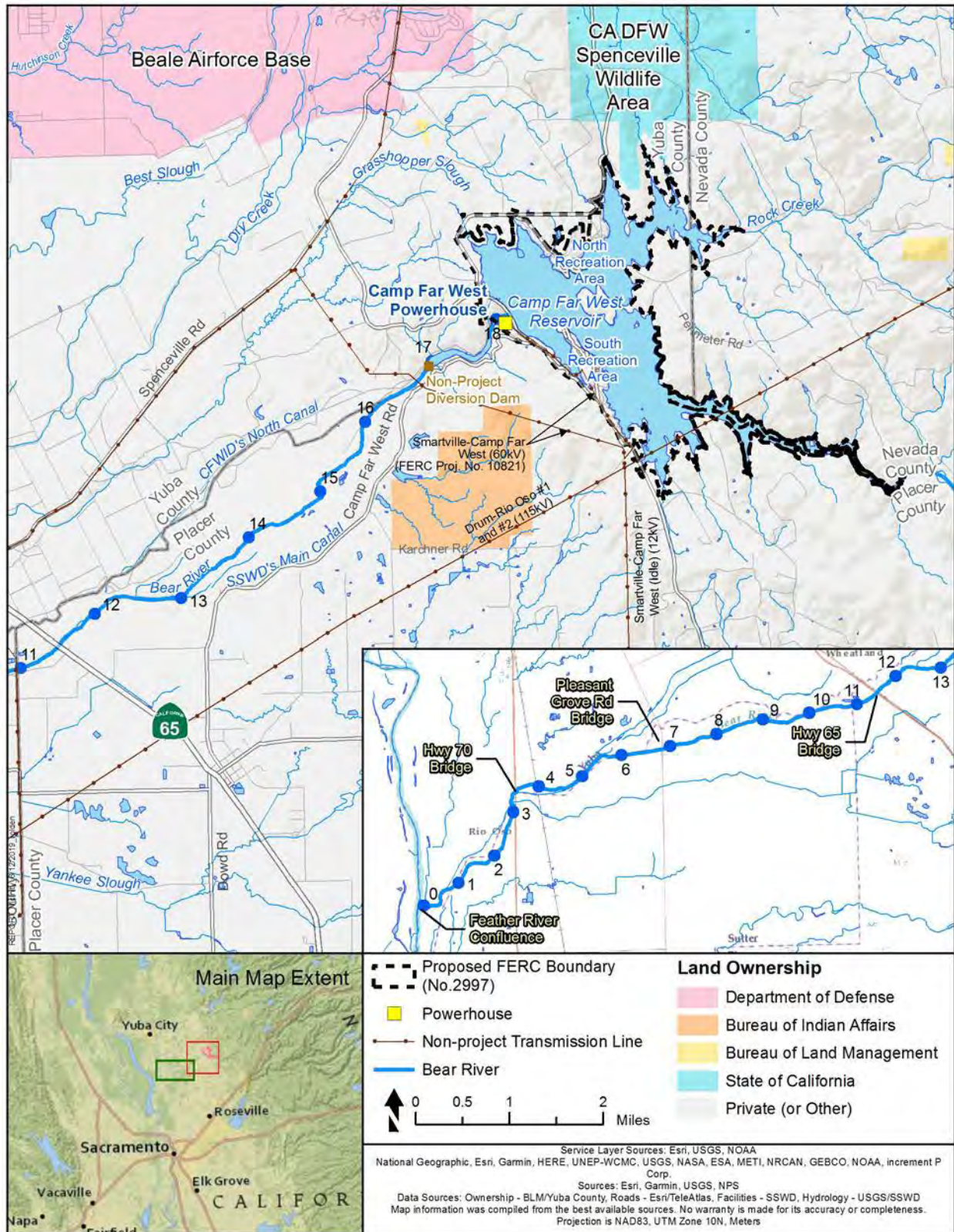


Figure 1.1-1. Camp Far West Hydroelectric Project and Project Vicinity.

1.2 Purpose of the Bald Eagle Management Plan

This Bald Eagle Management Plan (Plan) is intended to provide guidance for the protection of bald eagles (*Haliaeetus leucocephalus*) in all areas within the FERC Project Boundary where bald eagles are affected or have the potential to be affected by the Project.

SSWD will coordinate, to the extent appropriate, the efforts required under this Plan with other Project resource efforts, including implementation of other resource management plans and measures included in the new license.

1.3 Goals and Objectives of the Bald Eagle Management Plan

The goal of the Plan is to ensure that Project operations and maintenance (O&M), as well as Project-related recreation activities, do not result in “take” of bald eagles and their eggs or nests by implementing measures that are consistent with federal and State of California laws and regulations (see Section 2.1.1 for the definition of “take” under various applicable laws and regulations).

The objective of the Plan is to provide necessary guidelines to meet Plan goals.

1.4 Contents of the Bald Eagle Management Plan

This Plan includes the following major sections:

- Section 1.0. Introduction. This section includes introductory information, including the purpose and goals of the Plan.
- Section 2.0. Bald Eagle Distribution and Life History. This section provides a description and life history of bald eagles, as well as occurrences known in the Project vicinity.
- Section 3.0. Bald Eagle Protection. This section describes bald eagle protection measures for the Project.
- Section 4.0. Reporting, Consultation and Plan Revisions. This section details reporting and consultation commitments under the Plan between SSWD and appropriate state and federal agencies.
- Section 5.0. References Cited. This section provides a list of the references cited in the Plan.

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SECTION 2.0

BALD EAGLE DISTRIBUTION AND LIFE HISTORY

2.1 Bald Eagle

2.1.1 Bald Eagle Status



On March 11, 1967, the southern bald eagle was listed as endangered under the Endangered Species Act (ESA) of 1966³ (32 Federal Record [FR] 4001). This endangered status resulted from a population decline caused primarily by high levels of dichloro-diphenyl-trichloroethane in the food chain that increased egg shell thinning and drastically impaired productivity. On February 14, 1978, the United States Department of the Interior, Fish and Wildlife Service (USFWS) ruled to delete the subspecific names for the southern and northern subspecies, which resulted in the designation of a single species *Haliaeetus leucocephalus* (43 FR 6230). The February 14, 1978 ruling also listed bald eagle as endangered in 43 of the 48 contiguous United States. Bald eagle in the remaining five States (i.e., Washington, Oregon, Minnesota, Wisconsin, and Michigan) was listed as threatened (43 FR 6230). On July 12, 1995, all bald eagles listed as endangered in the 43 States were reclassified as threatened, while the status of threatened remained in effect for the five other States (60 FR 36000). On August 8, 2007, the USFWS ruled to delist the bald eagle (72 FR 37346). In the ruling, USFWS indicated that a reduction or elimination of threats, as well as habitat protection led to an increase in breeding pairs from an estimated 487 in 1963 to approximately 9,789 in 2007 in the 48 contiguous States (72 FR 37346).

Within California, the bald eagle was listed under the California Endangered Species Act (CESA) as endangered on June 27, 1971.

Section 86 of the California Fish and Game Code (F.G.C.) defines “take” to mean “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

In 1971, the State of California also assigned the status of Fully Protected Birds to bald eagle (F.G.C. § 3511). Section 3511 of the F.G.C. states:

Except as provided in Section 2081.7 or 2835, fully protected birds or parts thereof may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected bird, and no permits or licenses heretofore issued shall have any force or effect for that purpose. However, the department may authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species, and may authorize the live capture and

³ Endangered Species Preservation Act of 1966 was amended in 1969 by the Endangered Species Conservation Act of December 5, 1969 (P.L. 91-135, 83 Stat. 275), which was repealed by the ESA of 1973 (16 U.S.C. 1531-1544).

relocation of those species pursuant to a permit for the protection of livestock.

Additional protections for bald eagle in California exist under F.G.C. Sections 3503, 3503.5, and 3513, which make it unlawful to take, possess, or needlessly destroy birds' nests or eggs; take possess, or destroy raptors and their eggs and nests; and take or possess any migratory non-game bird or part thereof, designated in the Migratory Bird Treaty Act of 1918 (MBTA) (16 United States Code [U.S.C.] 703-712; Ch. 128; July 13, 1918; 40 Stat 755) as amended).⁴

Since delisting, federal protection of the bald eagle has continued under the MBTA, and the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d), as amended.

The MBTA provides protection to migratory birds and includes agreements between the United States, Great Britain on behalf of Canada, Mexico, Japan and Russia for the protection of such birds. The MBTA and its implementing regulations provide authority for the conservation of bald eagles and protect against take if the ESA protections are removed. The MBTA protects most native species of birds in the United States, including those likely to occur in the Project Vicinity (50 C.F.R. 10.13). In short, the MBTA, unless permitted by regulation, prohibits:

... taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests except as authorized under a valid permit (50 C.F.R. 21.11)

...pursuit, hunt, capture, take, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation of carriage, or export at any time, or in any manner, any migratory bird, included in the terms of the convention...for the protection of migratory birds...or any part, nest, or egg of such bird.” (16 U.S.C. 703).

The MBTA language is clear that actions resulting in a “taking” of a protected species are violations of the MBTA. The MBTA does not specifically authorize the incidental take of migratory birds, and the USFWS does not issue permits authorizing the incidental take of migratory birds⁵. In the absence of a permit from USFWS, the temporary or permanent possession of protected migratory birds and their carcasses is also a violation of the MBTA.

The BGEPA protects bald and golden eagles (*Aquila chrysaetos*),⁶ except under specific conditions, from take and includes their parts (feathers), nests or eggs. Under BGEPA, “take” is

⁴ Take under F.G.C. Section 3513 defers to the “rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act.”

⁵ On December 22, 2017 the Department of the Interior issued a legal memorandum that declared that the MBTA applies only to the purposeful actions that kill migratory birds, not to “incidental take” (U.S. DOI 2017). This memorandum is currently under litigation.

⁶ Bald Eagle Protection Act of 1940 was amended in 1978 (P.L. 95-616 [92 Stat. 3114]) to include golden eagles.

defined as “*pursue, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.*” Furthermore, disturb is defined as:

...to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior.

The BGEPA authorizes the USFWS to permit the take of eagles for certain purposes and under certain circumstances, including scientific or exhibition purposes, religious purposes of Native American tribes, and the protection of wildlife, agricultural, or other interests, so long as that take is compatible with the preservation of eagles (16 U.S.C. 668a). On December 14, 2016, the USFWS announced a final rule revising the regulations for permits for incidental take of eagles and take of eagle nests. The USFWS analyzed various alternative management options and rule revisions, including the final rule revisions, in a programmatic environmental impact statement (PEIS).

Among other revisions, the final rule addresses criteria for permit issuance, compensatory mitigation requirements, permit duration, and data standards for submitting permit applications. See <https://www.fws.gov/birds/management/managed-species/eagle-management.php>

The USFWS carries out its mission to protect wildlife and plant resources by fostering relationships with entities that have taken effective steps to avoid take, by encouraging others to implement measures to avoid take, and through investigations and enforcement when appropriate. The USFWS encourages companies to work closely with the USFWS to identify available protective measures when developing project plans to safeguard wildlife and to implement those measures where applicable. In addition, USFWS strongly encourages companies to apply for permits authorizing otherwise prohibited activity, including eagle programmatic take permits where eagle take is possible.

The development and implementation of an avian plan to avoid take of migratory birds, including bald and golden eagles, does not limit or preclude the USFWS from exercising its authority under any law, statute, or regulation. However, the USFWS Office of Law Enforcement focuses its resources on investigating and prosecuting those individuals and companies that do not identify and implement all reasonable, prudent and effective measures to avoid the take of migratory birds (including eagles) and then subsequently take individuals of such species.

Ideally, a high quality, scientifically valid, and robust avian protection plan that is implemented in a timely and effective manner, and regularly reviewed and revised as needed, will maximize avoidance of species protected under various federal laws while allowing for project development in the most environmentally conscientious ways practicable.

Ultimately, it is the responsibility of those involved with the planning, design, construction, operation, maintenance, and decommissioning of projects to conduct relevant wildlife and habitat evaluation and determine, which, if any, species may be affected, and to seek and obtain necessary permits to avoid liability.

Violation of the BGEPA can result in criminal penalties that can result in a fine of \$100,000 for an individual (\$200,000 for organizations), imprisonment for 1 year, or both, for a first offense. Penalties increase for additional offenses, and a second offense is a felony.

2.1.2 Physical Characteristics

The bald eagle is a large raptor with a wingspan between 6 and 8 ft, and can weigh up to 14 pounds. According to McCollough (1989), bald eagles molt through five plumage phases. These five phases are important for establishing the age of an individual as well as distinguishing them from golden eagles. The five plumage phases are:

- Juvenile (first year) – mostly dark including head and beak.
- Basic I (second year) – mottled with white belly and inverted triangle on back and head crown is tan.
- Basic II (third year) – body is mottled and variable with the head having a light crown and throat and dark eye stripe similar to an osprey's (*Pandion haliaetus*) head.
- Basic III (fourth year) – plumage is mostly adult like with brown flecking on head and fading eye stripe, mostly yellow beak, some white flecking on belly and chest, and a brown terminal band on an otherwise white tail.
- Basic IV (fifth year) – often indistinguishable from adult plumage, but does contain some brown flecking on the head and tail.

In addition to the plumage phases listed above, bald eagles may be further distinguished from golden eagles by their proportionately larger head and bill.

2.1.3 Life History

2.1.3.1 Nesting and Breeding

Bald eagles typically nest within 1 mile of water bodies. Their nests are large structures (i.e., approximately 6 ft in diameter), and are constructed with sticks. Nests are often found in the upper third of live, dominant or co-dominant trees, with some canopy above the nest that provides shade.⁷ Most nest trees exceed 100 ft in height. A single pair will use the same nest each year, and will often have alternate nests within their breeding territory (USFWS 2011).

Bald eagles can breed as early as 4 to 5 years of age, but in healthy populations may not breed until much older (USFWS 2011). The breeding period for bald eagles varies throughout their

⁷ Dominant or co-dominant trees are the most significant trees, in terms of size, within a stand of timber.

range and can often be influenced by weather but typically begins between January and mid-March with courtship and nest initiation, and ends when young fledge sometime in June or July (Jackman and Jenkins 2004). Table 2.2-1 outlines breeding chronology in northern California.

Table 2.2-1. Bald eagle breeding chronology in Northern California.

| Breeding Activity | Dec/Jan | Feb | Mar | Apr | May | June | July | Aug |
|----------------------------|----------------|-----|-----|-----|-----|------|------|-----|
| Courtship, Nest Initiation | X ¹ | X | X | -- | -- | -- | -- | -- |
| Egg Laying | -- | X | X | -- | -- | -- | -- | -- |
| Incubation | -- | X | X | X | -- | -- | -- | -- |
| Hatching | -- | -- | X | X | X | -- | -- | -- |
| Nestlings | -- | -- | X | X | X | X | X | -- |
| Fledging | -- | -- | -- | -- | -- | X | X | -- |
| Post Fledging | -- | -- | -- | -- | -- | X | X | X |
| Migration | -- | -- | -- | -- | -- | -- | X | X |

Source: Jackman and Jenkins 2004

¹ X indicates the month in which breeding, nesting or rearing activities generally occur.

According to Stalmaster (1987), bald eagles lay one to three eggs asynchronously, 2 to 4 days apart. Eggs typically require 35 days of incubation and nestlings remain in the nest for about 12 weeks until they are fledged. After they are fully fledged juvenile birds remain in the vicinity of the nest for about 1 month.

2.1.3.2 Foraging

Bald eagles are opportunistic feeders and will forage on fish, waterfowl, small mammals, and carrion. Generally, foraging occurs in the morning and evening hours. Hunting perches are used and have the following attributes: close proximity to potential prey; isolation from disturbance; good visibility of surrounding terrain; and accessibility for landing and departing (Stalmaster 1987). Caton et al. (1992) believed that the location of a hunting perch relative to shallow water was very important at deep water lakes because shallow water tends to concentrate fish and makes them more visible and accessible to bald eagles.

2.1.3.3 Wintering

Prior to the onset of winter, many bald eagles will migrate from colder northern climates to warmer southern climates or from higher elevations that experience complete ice coverage of water bodies to lower elevations where water bodies remain ice free. During the winter bald eagles spend the night in a roost. Paired adults will night roost within their nesting territory, and have been observed roosting in the tree containing their nest (Jackman and Jenkins 2004, Merced Irrigation District 2010).⁸ According to the USFWS (2011) and Keister et al. (1987), communal roosts: 1) are areas where bald eagles gather and perch overnight, and sometimes during the day during inclement weather; 2) are in stands of trees that contain the largest, oldest, and most open-structured trees available; 3) are as close as possible to food; 4) may be used year after year; and 5) may be occupied by non-breeding migrant birds, both adult and subadult.

⁸ A nest stand is a patch of timber that includes the tree on which a bald eagle nest was constructed.

2.1.4 Distribution

2.1.4.1 California

Bald eagles range throughout California and can be found at most lakes, reservoirs, rivers, and some rangelands and coastal wetlands. The largest concentration of wintering bald eagles has historically been in the Klamath Basin, located on the border of California and Oregon. A majority of breeding pairs are found in northern California, while a smaller number of pairs can be found in the central and southern Sierra Nevada mountains and foothills, the Central Coast range and inland southern California. Breeding pairs are also found on Santa Catalina Island. (CDFW 2016).

2.1.4.2 Camp Far West Hydroelectric Project

SSWD completed the *Special Status Wildlife – Raptors* study as part of the relicensing. Specifically, SSWD identified and mapped known nest sites for three special-status raptor species: bald eagle, golden eagle, and Swainson's hawk (*Buteo swainsoni*) and conducted nesting surveys. Surveys included an area up to approximately 0.25-mile inland from the edge of the shoreline of Camp Far West Reservoir. Nesting bald eagle surveys were performed according to the *Bald Eagle Breeding Survey Instructions* (CDFW 2017) and *Protocol for Evaluating Bald Eagle Habitat and Populations in California* (Jackman and Jenkins 2004).

Bald eagle surveys were conducted on December 20-22, 2016; January 16-18; February 15, 23-24; March 16; April 6, 25; May 2; and June 16, 2017.

Forty-seven bald eagle occurrences (including multiple at the same site) were observed during surveys. Two active bald eagle nests were found within the proposed FERC Project Boundary in 2017. One nest is historic, previously found on the Bear River Arm of Camp Far West Reservoir in adjacent trees. It was previously documented in a 2013 report by Sycamore Associates. A second active bald eagle nest was found on the Rock Creek Arm of the reservoir, east of the North Shore Recreation Area boat ramp. Figure 2.2-1 shows recorded special-status raptor sightings on Camp Far West Reservoir during the 2017 surveys.

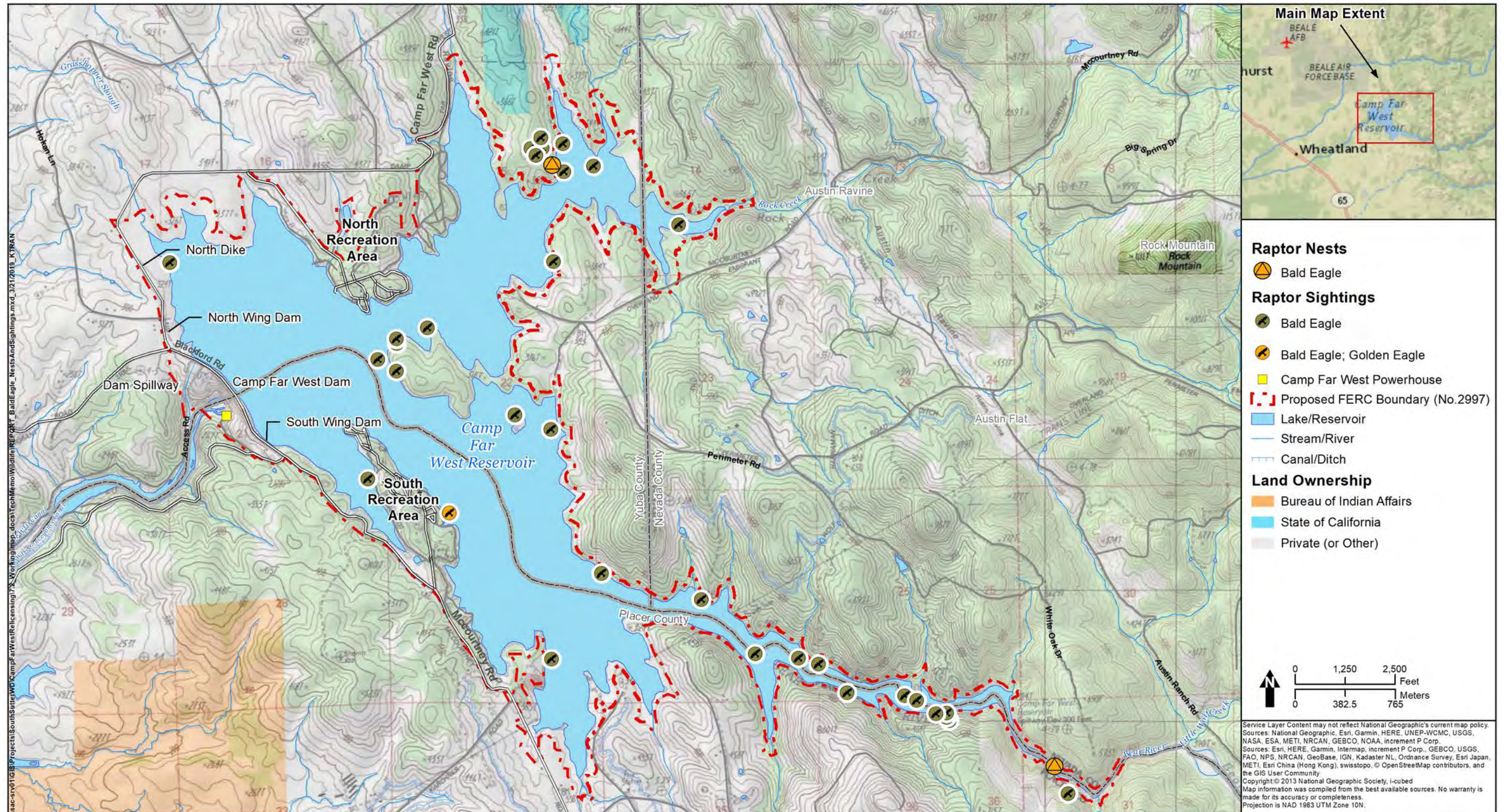


Figure 2.2-1. Bald Eagle Sightings and Nests Located During 2017 Surveys.

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SECTION 3.0

BALD EAGLE PROTECTION

3.1 Bald Eagle Protection Guidelines

SSWD will conduct surveys and implement protection guidelines described in this Plan to ensure that Project-related activities do not result in the take of bald eagles.

3.1.1 Surveys

SSWD will conduct nesting surveys via boat on Camp Far West Reservoir in the first calendar year after license issuance and in years 10, 20, 30⁹, and thereafter. Nesting surveys will be conducted in general accordance with the *Bald Eagle Breeding Survey Instructions* (CDFW 2017) and the *Protocol for Evaluating Bald Eagle Habitat and Populations in California* (Jackman and Jenkins 2004). The bald eagle nesting survey will occur in April or early May (as weather conditions allow) to ensure capturing the mid-point of a typical nesting season.

All data collected during nesting surveys will be recorded on the California Bald Eagle Nesting Territory Survey Form (CDFW 2017, Attachment A). Data collected at each site will include: 1) presence of adults; 2) courtship behavior; 3) evidence of nest repair or construction; 4) incubation; and 5) observation of old nests. Location data will be recorded, and photographs will be taken for all nests observed in a manner that does not disturb the breeding pair.

3.1.2 Establish Buffers and Limited Operating Periods

Upon completion of the nest survey, SSWD will develop a map showing a 0.25 mile buffer around all documented active bald eagle nests for implementation of buffers by SSWD operators/staff, except as noted or otherwise agreed to by SSWD, USFWS and CDFW. The buffer will encompass all SSWD-owned land and water that falls within the FERC Project Boundary in an approximate 0.25 mile radius of a documented nest or logical topographical boundary. SSWD will place markers along the shoreline (markers to be placed every 500 feet along the shoreline buffer area within the FERC Project Boundary, in a manner that would be expected to be durable) indicating that no watercraft are to be brought onto shore or anchored in the area, and pedestrians are not permitted on the shore.

The Bear River Arm nest will be protected from recreational uses and other Project activities with a 660 foot buffer within the FERC Project Boundary. SSWD will place permanent signage in the Camp Far West Reservoir approximately 660 feet downstream of the nest stating ‘no wake and quiet zone.’

In years when nesting surveys do not occur throughout the Project (e.g., License Years 2-9, 11-19, and 21-29), SSWD will visit each nest identified during the previous survey to establish if the nest is active for the given year. If it is active, SSWD will establish the buffers and limited

⁹ Surveys will continue every 10 years if SSWD receives a license for a term greater than 30 years.

operating periods (LOPs) described in this Plan. If it is inactive, SSWD will document that for the report.

Beginning January 1 through August 31 of each year where there is a nest(s) with an established buffer, SSWD will institute a LOP for all SSWD Project-related activities, as well as restrict public access, on SSWD land within the buffer areas in the FERC Project Boundary. If a new nest is documented, SSWD will institute a LOP and implement buffers for that nest as soon as practicable, but not more than 7 working days after the initial sighting. If more time is required, SSWD will consult with the CDFW and USFWS.

Additional water barriers (e.g., buoys and signage) and land barriers (e.g., fencing and signage) around known occupied bald eagle nests will be installed within the FERC Project Boundary reservoir and SSWD-owned land (i.e., not on private land without the approval of the landowner), as determined appropriate by the CDFW and USFWS, to delineate the buffers in order to restrict Project O&M and recreation activities in the vicinity of nests. The buffers may be expanded to 1 mile for Project-related activities requiring the use of helicopters or blasting. The 1 mile buffer may be adjusted (i.e., reduced) in consideration of logical topographical boundaries. It is recognized that SSWD cannot control the activities of other parties (i.e., SSWD does not have enforcement authority) within the buffer areas during the LOP period.

Nest buffers may be removed, adjusted or new buffers may be established if subsequent nesting surveys demonstrate that a nesting territory is no longer occupied or new nests are identified. Additionally, any information provided to SSWD by USFWS or CDFW regarding previously unidentified or existing nests will be used to inform the establishment of nest buffers. Requests to remove established nest buffers at any time will be submitted to USFWS and CDFW for approval. Requests to remove a nest buffer shall include a justification for the removal, including dates of eagle surveys/checks and results from that year.

SSWD O&M staff will be trained to recognize nesting bald eagles exhibiting signs of disturbance or distress and to be knowledgeable of bald eagle LOPs and associated buffers. If SSWD O&M staff incidentally observe signs of disturbance or distress to bald eagles in response to conducting routine Project O&M activities, staff will immediately cease the activities that are causing the disturbance/distress and contact SSWD Management. SSWD Management will send a qualified biologist to the area where the disturbed/distressed eagles were observed to determine if there is a nest in the area. If an active nest is detected, SSWD will establish a buffer and LOP around the nest. SSWD will contact the USFWS's FERC Coordinator or BGEPA Coordinator, as well as the CDFW's FERC Coordinator, within 1 business day after the biologist completes an assessment. The activities that disturbed/distressed the bald eagles may resume with USFWS and CDFW approval or in 1 week, whichever occurs first, if no active nest is observed.

If non-routine Project activities are scheduled on or near the Camp Far West Reservoir where an active nest is not known during the normal LOP, SSWD will survey for active nests within a 1 mi radius no more than a week prior to the start of Project activities. If an active nest is located, a buffer will be established for the remainder of the LOP.

SSWD shall annually review this Plan with Operations staff, focusing on: 1) the locations and purpose of bald eagle protection measures; 2) potential signs and identification of bald eagles; and 3) the reporting of any newly discovered individual sightings or nests.

3.2 Incidental Sightings

SSWD shall record incidental observations of other nesting raptors within and just outside (within 500 ft) the FERC Project Boundary area while conducting bald eagle nest surveys and performing O&M activities. An incidental sighting should include approximate coordinates (if possible) or a description of the location, any behavior observed, and a photograph (if possible). The purpose of this effort is to opportunistically gather data through incidental observations, not to expand the specific monitoring described in this Plan, or for SSWD staff to perform additional surveys. SSWD shall maintain a map of incidentally observed nesting raptors within the Project.

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SECTION 4.0

REPORTING, CONSULTATION AND PLAN REVISIONS

4.1 Reporting and Consultation

By December 31 of each year in which surveys were conducted or buffers and LOPs were implemented under this Plan, SSWD will provide to the USFWS and CDFW a draft annual report for that calendar year. The report will include five components. The first component will include the results of all surveys that occurred in that calendar year, including: 1) a description of the surveys and methods; 2) the results of those surveys, including maps with occurrence information for each species and their nests surveyed or incidentally observed including alternate, unused nests within the territory; and 3) if nesting is documented, a description of the proposed buffers and LOPs. The second component will be a summary of observed disturbance or distress to bald eagles recorded during that calendar year. The third component will be a brief summary of results from all previous surveys conducted. The fourth component will be any additional, relevant information regarding bald eagle and nesting within the FERC Project Boundary and adjacent areas that was provided to SSWD by the USFWS and CDFW at least 45 days in advance of the report preparation. This information is intended to inform potential changes to existing buffers and LOPs, if appropriate. The last component of the report will be a summary of specific protection measures that were applied to Project O&M and construction activities, as appropriate, during that calendar year and include a discussion of the effectiveness of those protection measures, including vandalism of signs and buoys, during the bald eagle nesting season. This will also contain a description of emergency activities undertaken, if any, within a nest buffer area during the LOP. The report will also include an appendix containing information regarding incidental sightings of special-status raptors.

In the event that an emergency activity is undertaken within an active nest buffer area, SSWD shall notify USFWS and CDFW as soon as practicable once the emergency has been identified, but not more than 48 hours after the emergency has been identified. Unless otherwise approved by CDFW and USFWS, an Avian biologist will be present during all emergency activities that take place within the buffer, or shall be present as soon as practicable after the emergency has begun. When reporting on the emergency activity during the end of year summary, SSWD shall include all observed behaviors of the nesting eagles and young during the activities, distance from the nest for any activities that occurred within the buffer, and number of young known to have fledged or likely to have fledged.

Sixty days will be allowed for the USFWS and CDFW to comment before SSWD files the final report with FERC. SSWD will include all relevant documentation of coordination/consultation with the report filed with FERC. If SSWD does not adopt a particular recommendation made by CDFW or USFWS, the filing would include the reasons for not doing so, based on Project-specific information.

4.2 Plan Revisions

SSWD, in consultation with CDFW and USFWS, will review, update, and/or revise the Plan, as needed, when significant changes in the existing conditions occur, which may include, but not be limited to: changes in the State or Federal listing status of bald eagle; changes in the occurrence of bald eagles within the Project vicinity; changes in accepted survey protocols for bald eagle; changes in State and/or Federal laws or management plans related to bald eagle; changes in Project O&M activities; and repairs to existing or new construction of Project facilities.

Sixty days will be allowed for CDFW and USFWS to comment and make recommendations before SSWD files the updated plan with FERC for FERC's approval. SSWD would include all relevant documentation of coordination/consultation with the updated Plan filed with FERC. If SSWD does not adopt a particular recommendation by CDFW and USFWS, the filing would include the reasons for not doing so, based on Project-specific information. SSWD will implement the Plan as approved by FERC.¹⁰

¹⁰ The Plan will not be considered revised until FERC issues its approval.

SECTION 5.0

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Attachment A

California Bald Eagle Breeding Survey Instructions and Nesting Territory Survey Form

STATE OF CALIFORNIA
THE RESOURCE AGENCY
DEPARTMENT OF FISH AND WILDLIFE

BALD EAGLE BREEDING SURVEY INSTRUCTIONS

BACKGROUND

The breeding season of Bald Eagles in California extends primarily from February through July. In past years, cooperating agencies, organizations, and private individuals participated in monitoring this species statewide to document nesting activities at each nesting territory. Though a coordinated monitoring is no longer occurring, the California Department of Fish and Wildlife continues to track nesting territory status based on reported data.

Breeding season surveys are an important part of the population recovery effort. Survey information is used by resource agencies to aid breeding territory management or protection activities. Additionally, population status and trends can be monitored to provide the data needed for assessing population recovery.

SURVEY TIMING AND INSTRUCTIONS

Territories should be checked at least three times during the nesting season, although more frequent checking is preferred. Emphasis should be placed on checking during incubation and early nesting periods.

1. **Early March (early incubation)** – Territories in northern California should be checked in the first half of March, if possible, or as soon thereafter as road or weather conditions allow. The purpose of the first check is to determine whether a territory is occupied (record presence of adults, courtship behavior, evidence of nest repair or construction, incubation).
2. **Late April or early May (early nesting period)** – This check is needed to confirm that a territory is unoccupied, or if occupied in March, to determine whether the breeding pair is still tending the nest (incubating eggs or tending young nestlings).
3. **Mid June (late nesting period)** – The main purpose of this check is to determine how many nestlings are approaching fledgling age.

Survey dates maybe modified from these recommended time periods if the territories can be checked more frequently or if particular breeding pairs are known to begin nesting especially early or late in the season.

We recommend that observers report the stage of development of nestlings in accordance with An Illustrated Guide for Identifying Developmental Stages of Bald Eagle Nestlings in the Field, by G.P. Carpenter (April 1990). This booklet is available from the San Francisco Zoological Society, Sloat Blvd. At the Pacific Ocean, San Francisco, CA 94132 (415-753-7080).

SUBMISSION OF SURVEY FORMS

Please report observations on the **CALIFORNIA BALD EALGE NESTING TERRITORY FORM (revised 4/2010)**. Electronic forms can be found at http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html. Forms will be maintained in Department files and annual survey results will be compiled on the basis of these reports.

Please email completed forms by September 1 of survey year to Carie.Battistone@wildlife.ca.gov, or mail them to:

California Department of Fish and Wildlife
Wildlife Branch
1812 Ninth Street
Sacramento, CA 95814
ATTN: Carie Battistone

In place of field forms, you may also submit data using the Department's Online Field Entry Form – found here: <http://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data>. This application allows users to submit data online to CNDDB. First time users will need to set up a free account. The application contains a mapping tool, allows users to generate reports of their data submissions, and saves all past and current submissions with your account. When entering data, if there are no field that exactly match to the data you wish to submit (e.g. # of young fledged, # of adults incubating, etc.), please include this information in the notes field.

If you have any questions please contact Carie Battistone at the above address or at Carie.Battistone@wildlife.ca.gov.

California Department of Fish and Game
CALIFORNIA BALD EAGLE
NESTING TERRITORY SURVEY FORM

Revised 9/2017

Territory Code: _____

County: _____ **Survey Year:** _____

Property Owner: _____ **If USFS:** _____ National Forest

Name (or general location of territory): _____

Name of nearest water body: _____

Location of Nest Site: LAT: _____ **LONG:** _____

Other location info: _____

No. of nests in territory - **Intact:** _____ **Remnant:** _____

Nest Tree: Species: _____ **Year last Used:** _____

Nest: Year last used _____

NOTE: Please attach a map showing the location of any newly documented nest tree.

Describe tree and nest condition and size, and add other remarks: _____

For each visit to a territory, note, in detail, the times, number and age of birds, behavior of birds (lying, perching, etc.), evidence of nesting (nest maintenance, courtship, incubation posture), disturbances, and other pertinent information:

| Initials of Observer | Date of Visit | Observations |
|----------------------|---------------|--------------|
| | | |
| | | |
| | | |

(Attach additional pages, if necessary)

| Initials of Observer | Date of Visit | Observations |
|----------------------|---------------|--------------|
| | | |
| | | |
| | | |

(Attach additional pages, if necessary)

General Remarks: _____

PLEASE SUMMARIZE:

A. Successful Nestings: No. of young known fledged _____ or probably fledged _____

B. If no fledglings were produced this season please answer the following:

How many adults were seen in the territory? _____

Was there evidence of nest repair or construction? Yes ☐ No ☐

Were adults seen in the nest? Yes ☐ No ☐

Were adults in incubating posture? Yes ☐ No ☐

Number of nestlings observed? _____

Failed during incubation: _____ or nestling stage: _____ .

Other remarks: _____

Observer(s) name: _____

Affiliation: _____

Address: _____

Phone: () _____ **Fax:** () _____ **Email:** _____

Mail all completed forms by September 1 of survey year to: ATTN: Carie Battistone, California Department of Fish and Wildlife, Wildlife Branch, 1812 Ninth Street, Sacramento, CA 95814. Or email completed forms to Carie.Battistone@wildlife.ca.gov.

ADDITIONAL OBSERVATIONS:**Territory:** _____ **Year:** _____

| Initials of Observer | Date of Visit | Observations (continued) |
|---------------------------------|--------------------------|---------------------------------|
| | | |
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APPENDIX E2

Attachment 2

Recreation Facilities Plan

Application for New License **Major Project – Existing Dam**

Recreation Facilities Plan

Security Level: Public

Camp Far West Hydroelectric Project
FERC Project No. 2997



Prepared by:
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June 2019

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None.

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GLOSSARY - DEFINITION OF TERMS, ACRONYMS AND ABBREVIATIONS

| | |
|--|--|
| ac | acre |
| Application | Application for New License |
| Capital Improvement | The construction, installation, or assembly of a new fixed asset, or the significant alteration, expansion, or extension of an existing fixed asset to accommodate a change of purpose. |
| DBAW | California Department of Boating and Waterways |
| Design Narrative | Describes the management objectives, design criteria, and constraints associated with the development or major rehabilitation of a recreation facility. The Design Narrative should include: (a) management objectives; (b) design criteria, including criteria on type and color of materials and accessibility; (c) existing physical conditions; (d) any rehabilitation and new construction; (e) anticipated management problems that design may minimize; (f) site capacity, durability, and protection; (g) user safety; and (h) interpretive services. |
| FERC | Federal Energy Regulatory Commission |
| ft | feet or foot |
| Major Rehabilitation Replacement Recondition Reconstruction | Making capital improvements and reconditioning or replacing an existing fixed asset or any of its components in order to restore the functionality or life of the asset. Replacement is the substitution or exchange of an existing fixed asset or component with one having essentially the same capacity and purpose. The decision to replace or rehabilitate a fixed asset or component is usually reached when replacement is more cost effective or more environmentally sound. Replacement of an asset or component usually occurs when it nears or has exceeded its useful life. |
| SSWD | South Sutter Water District |
| mi | mile |
| Minor Rehabilitation | Minor rehabilitation includes repairs, and replacement of parts that result in fewer breakdowns and fewer premature replacements, and help achieve the expected life of the fixed asset. Minor rehabilitation does not include construction of new facilities or the replacement of an existing fixed asset. Minor rehabilitation activities will arrest deterioration and appreciably prolong the life of a property. Examples include: installing a new roof, new floor, or new siding, replacing electrical wiring or heating systems, repairing or replacing pipes, pumps and motors, and repairing the paths, walks, or walls of recreation facilities. |
| Non-Peak Season | Non-peak season extends from January up to the Memorial Day holiday weekend and after Labor Day through December. |
| NMWSE | Normal Maximum Water Surface Elevation |
| Operational Maintenance | Keeping fixed assets in acceptable condition, including repairs, painting, replacement of minor parts and minor structural components. Operation maintenance, or reconditioning, neither materially adds to the value of the property nor appreciably prolongs its life. Operational maintenance excludes activities aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from, or significantly greater than those originally intended. The work serves only to keep the facility in an ordinary, efficient operation condition. Examples include: interior painting, repair of broken windows, light bulb replacement, cleaning, unplugging drains, greasing, servicing, inspecting, oiling, adjusting, tightening, aligning, sweeping, and general snow removal. Maintenance activities may include: work needed to meet laws, regulations, codes, and other legal direction (such as compliance with ADA) as long as the original intent or purpose of the fixed asset is not changed. |
| O&M | operation and maintenance |
| Peak Season | Peak season extends from the Memorial Day to Labor Day holiday weekends. |
| RA | Recreation Area |
| RD | Recreation Day: Each visit by a person to a development for recreation purposes during any portion of a 24-hour period. |

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SECTION 1.0

INTRODUCTION

1.1 Background

In June 2019, the South Sutter Water District (SSWD), pursuant to Sections (§§) 5.17 and 5.18 of Title 18 of the Code of Federal Regulations (C.F.R.), plans to file with the Federal Energy Regulatory Commission (FERC) an Application for a New License for Major Project – Existing Dam for SSWD’s 6.8 megawatt Camp Far West Hydroelectric Project (Project), FERC Project No. 2997. The initial license for the Project was issued by FERC to SSWD on July 2, 1981, effective on July 1, 1981. In its Application for New License (Application), SSWD proposes to continue operating the Project for the next 40 years with one modification to the spillway, a reservoir pool raise of 5 feet (ft) (from 300.0 ft [Normal Maximum Water Surface Elevation] NMWSE to 305.0 ft NMWSE), and the adoption of the resource management measures proposed in its license application.

The existing and Proposed Project consists of one development - Camp Far West – that, in total, includes: one main dam; one powerhouse with an associated switchyard with a capacity of 6.8 megawatts; and appurtenant facilities and structures, including recreation facilities and gages. Table 1.1-1 summarize key information for the Project’s reservoir.

Table 1.1-1. Key information regarding Camp Far West Hydroelectric Project reservoirs.

| Project Reservoir | NMWSE (ft) | Gross Storage ¹ (ac-ft) | Usable Storage ² (ac-ft) | Surface Area (ac) | Maximum Depth (ft) | Shoreline Length (mi) | Drainage Area At Dam (sq mi) |
|-------------------|------------|------------------------------------|-------------------------------------|-------------------|--------------------|-----------------------|------------------------------|
| Camp Far West | 300 | 93,737 | 92,430 | 1,886 | 155 | 29 | 284 |

The proposed FERC Project Boundary¹ encompasses 2,674.0 acres (ac) of land in Nevada, Yuba, and Placer counties in northern California. Within the boundary, SSWD is the major landholder with 2,515.2 ac (94.8% of the area within the FERC Project Boundary). The remaining lands (146.7 ac) are privately-owned lands. Neither the existing FERC Project Boundary nor the proposed FERC Project Boundary includes federal lands. Figure 1.1-1 shows the Project Vicinity,² Project facilities, and the proposed FERC Project Boundary.

¹ The Federal Energy Regulatory Commission (FERC) Project Boundary encompasses all Project facilities and features as well as all land needed by SSWD for the normal operation and maintenance (O&M) of the Project. The boundary is shown in Exhibit G of SSWD’s Application for New License.

² In this Plan, “Project Vicinity” refers to the area surrounding the Project on the order of United States Geological Survey (USGS) 1:24,000 scale topographic quadrangle.

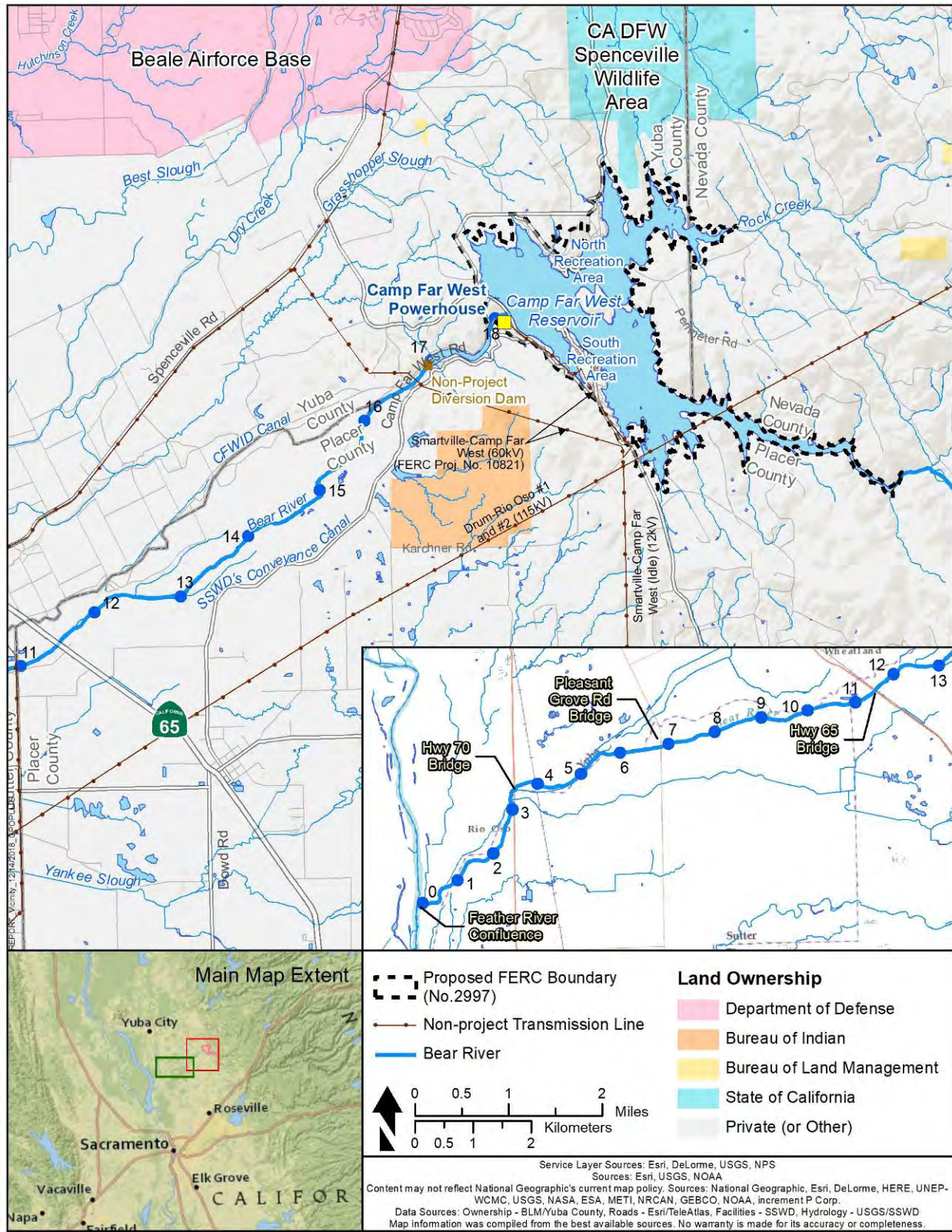


Figure 1.1-1. Camp Far West Hydroelectric Project and Project Vicinity.

1.2 Purpose of the Recreation Facilities Plan

As part of its Application, SSWD will continue to maintain and operate recreation facilities on the Project. Specifically, SSWD will include the following requirement in a new license for the Project: SSWD will implement this Recreation Facilities Plan (Plan), as outlined within to maintain, rehabilitate, and upgrade the existing Project recreation facilities over the course of the new license term. This Plan describes SSWD's responsibilities regarding recreation facilities under the new Project license.

1.3 Goals and Objectives of the Recreation Facilities Plan

The primary goal of the Plan is to guide public recreation use of the Project's recreation facilities over the term of the license, while minimizing recreation use impacts to natural, historic, and prehistoric resources within the Project Area. The Plan includes the following objectives to help achieve this goal:

1. To provide a description and plan for recreation facilities that meet the needs of Project recreation users and are designed to meet federal, state, and local legal requirements, as applicable.
2. To describe in detail SSWD's responsibilities regarding recreation facilities under the new license.

1.4 Contents of the Recreation Facilities Plan

- Section 1.0. Introduction. This section includes introductory information, including the purpose and goal of the Plan.
- Section 2.0. Existing Recreation Use and Facilities. This section describes the existing Project recreation facilities, including condition, land ownership, and 2017 use levels.
- Section 3.0. Facility Operation and Rehabilitation. This section describes the recreational facility annual operational maintenance and major rehabilitation guidelines.
- Section 4.0. Reporting and Plan Revisions. This section describes the Plan revision process.
- Section 5.0. References Cited. This section provides a bibliography of the references listed in this exhibit.

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SECTION 2.0

EXISTING RECREATION USE AND FACILITIES

The Project provides developed and undeveloped recreation opportunities at Camp Far West Reservoir. Water-related recreational opportunities include water skiing, wakeboarding, power boating, jet-skiing, wildlife viewing, non-motorized boating and warmwater fishing. Boating use and launching occurs year-round. Yuba County Ordinance 8.51.010 limits the speed of boats to 20 miles per hour on the reservoir (Yuba County 2010). Camp Far West Reservoir offers anglers shoreline and boat-based fishing opportunities for smallmouth bass, largemouth bass, striped bass, catfish and panfish (CDFW 2018a). The reservoir does not have any site-specific fishing regulations or limits (CDFW 2018b). Historically, Cal Fish and Wildlife stocked Camp Far West Reservoir with warmwater game fish species from 1964 to 1985 (CDFW 2015).

Land-based recreation opportunities provided in the Project Vicinity include camping, wildlife viewing, hiking, biking and horseback riding. Facilities developed to support camping and other land-based recreation activities are described below. While the recreation areas (RA) do not provide formal trails for hiking, biking and horseback riding, the dispersed use areas provide a network of unpaved roads that provide a trail experience for visitors. In addition, informal trails occur within the FERC Project Boundary, primarily near the NMWSE, which are a result of non-Project cattle and ranch trails as well as Project user-created trails and paths due to the gentle sloping terrain adjacent to the shoreline. Dispersed camping is allowed outside the developed RAs.

The concessionaire that operates the two developed RAs at Camp Far West Reservoir provides numerous and varied events at the RAs and reservoir, including bi-monthly fishing tournaments, boating and fishing club events, equestrian events and other group events.

As a condition of its FERC license, SSWD provides recreational opportunities and facilities within the FERC Project Boundary. Below is a description of the developed facilities and recreation opportunities at Camp Far West Reservoir. SSWD owns and maintains two developed recreation areas at Camp Far West Reservoir – the North Shore Recreation Area (NSRA) and South Shore Recreation Area (SSRA) (Table 2.0-1). The NSRA and SSRA are the only public vehicular access points to the reservoir for recreation due to private lands. Outside of the RAs, the remaining shoreline is only accessible by foot or boat. All of these facilities are located on SSWD-owned land and operated through a concessionaire. The recreation facilities were originally constructed using Davis-Grunsky Act funding and the NSRA boat ramp was reconstructed in 2005 using the California Division of Boating and Waterways (DBAW) boat launching facilities grant funding.

Table 2.0-1. Summary of the Camp Far West Hydroelectric Project recreation facilities.

| Facility | Amenity | North Shore Recreation Area | South Shore Recreation Area |
|--------------------|-------------------------|-----------------------------|-----------------------------|
| Family Campgrounds | No. Sites (standard) | 70 | 67 |
| | Sites (RV with hookups) | 10 | none |
| | Parking Spurs | 1 spur per site | 1 spur per site |
| | Overflow Parking Spaces | None | 18 single |

Table 2.0-1. (continued)

| Facility | Amenity | North Shore Recreation Area | South Shore Recreation Area |
|---------------------------------------|-------------------------------|---|--|
| Family Campgrounds | Restrooms | 2 flush | 1 flush, 2 vault |
| | Recreation Roads | 0.8 mi, 20 ft wide, paved 0.3 mi, 12 ft wide, dirt | 0.5 mi, 20 ft wide, paved 0.7 mi, 10 ft wide, paved |
| Group Campgrounds | Sites | 2, 25-person group sites, 1, 50-person horse camp site | 1, 50-person group site |
| | Parking Spaces | None ¹ | 10 |
| | Restrooms | 4 portable chemical toilets | None ² |
| | Recreation Roads | 0.05 mi, 10 ft wide, paved | 0.2 mi, 20 ft wide, paved |
| Day Use and Picnic Areas ³ | Picnic Sites | 20 | 33 |
| | Swim Beaches | 1 | 1 |
| | Parking Spaces | None ⁴ | 44 |
| | Restrooms | 1 flush | None ⁵ |
| | Recreation Roads | 0.05 mi, 20 ft wide, paved | 0.1 mi, 10 ft wide, paved (swim beach) 0.4 mi, 10 ft wide, dirt (picnic area) |
| Boat Ramps | Number | 1, 4-lane concrete ramp | 1, 2-lane concrete ramp |
| | Parking Spaces | 82 single, 73 vehicle with trailer | 52 vehicle with trailer |
| | Restrooms | 1 flush | 1 flush |
| | Recreation Roads | 0.2 mi, 24 ft wide, paved | None (entrance road access facility) |
| Dispersed Use Areas ⁶ | Sites | 2 | 2 |
| | Restrooms | 6 portable chemical toilets | 6 portable chemical toilets |
| | Recreation Roads | 3.7 mi, 10 ft wide, dirt | 1.7 mi, 10 ft wide, dirt |
| Recreational Water System Facilities | RV Dump Station & Sewage Pond | 1 | 1 |
| | Water Treatment Plant | 1 | None ⁷ |
| | Water Storage Tank | 1, 60,000-gallon tank | None ⁷ |
| | Recreation Roads | 0.8 mi, 10 ft wide, dirt | 0.1 mi, 10 ft wide, dirt |
| Entrance Facilities | Entrance Station | 1 | 1 |
| | Store | 1 | 1 |
| | Recreation Roads | 0.75 mi, 20 ft wide, paved | 0.5 mi, 20 ft wide, paved |
| Other Facilities | Concessionaire Trailers | 2 | 1 |
| | Recreation Roads | 0.4 mi, 10 ft wide, dirt | 0.3 mi, 10 ft wide, dirt |

¹ Parking is available in open areas adjacent to the group sites, but is not designated or defined.

² The group campsites use the adjoining family campground restroom building.

³ At NSRA, the picnic sites and swim beach are combined at one site; therefore, the site is categorized as a “day use area”. At SSRA, the picnic sites and swim beach are separate sites on opposite sides of the recreation area; therefore, each site is called a “picnic area” and a “swim beach”, respectively.

⁴ The day use area (picnic area and swim beach) uses the adjoining boat ramp parking area for parking.

⁵ The picnic area uses the adjoining boat ramp restroom building.

⁶ The dispersed use areas provide day use and overnight opportunities with minimal facilities (roads, portable chemical toilets and trash cans).

⁷ Water is piped under the reservoir to South Shore Recreation Area from the North Shore Recreation Area treatment plant and storage tank.

2.1 Existing Project Recreation Use Levels

All of the Project’s recreation facilities occur at the two Project RAs, and include overnight camping, picnicking, swimming and boating facilities. Recreation activities within the FERC Project Boundary are numerous and varied and include, but are not limited to, camping, fishing, boating, swimming, hiking, picnicking, sightseeing and wildlife viewing.

In 2017, the total Project recreation use was 78,641 Recreation Days (RDs) with the majority of that use occurring in the peak season (66.6% or 52,397 RDs) compared to the non-peak season (33.4% or 26,244 RDs) (Table 2.1-1). Day-use (70.6% or 55,518 RDs) accounted for the

majority of total use as compared to overnight use (29.4% or 23,123 RDs); and this day-use-to-overnight use ratio was similar during both the peak and non-peak season. When comparing use by day type overall, total use was highest on the weekends (39,599 RDs) as compared to weekdays (26,217 RDs) and holidays (12,825 RDs). When comparing overall use by recreation, NSRA accounted for the highest percentage of use (81.9% or 64,429 RDs) compared to the SSRA (18.1% or 14,212 RDs), which was open on a limited bases in 2017 on select weekdays, weekends and holidays during the peak season. The SSRA was closed during the non-peak season.

Table 2.1-1. Project recreation use estimate in Recreation Days by season and day type.

| Recreation Area | Day Type | Use Estimate in Recreation Days (RDs) | | | | | | | | |
|-----------------------------|----------------|---------------------------------------|---------------|---------------|-----------------|---------------|---------------|----------------------|---------------|---------------|
| | | Peak Season | | | Non-peak Season | | | Overall ¹ | | |
| | | Overnight Use | Day Use | Total Use | Overnight Use | Day Use | Total Use | Overnight Use | Day Use | Total Use |
| North Shore Recreation Area | Overall | 10,690 | 27,495 | 38,185 | 7,267 | 18,977 | 26,244 | 17,957 | 46,472 | 64,429 |
| | Weekday | 5,602 | 7,665 | 13,267 | 4,214 | 5,417 | 9,631 | 9,816 | 13,082 | 22,898 |
| | Weekend | 2,937 | 12,207 | 15,144 | 3,053 | 13,560 | 16,613 | 5,990 | 25,767 | 31,757 |
| | Holiday | 2,151 | 7,623 | 9,774 | n/a | n/a | n/a | 2,151 | 7,623 | 9,774 |
| South Shore Recreation Area | Overall | 5,166 | 9,046 | 14,212 | closed | closed | closed | 5,166 | 9,046 | 14,212 |
| | Weekday | 2,408 | 911 | 3,319 | closed | closed | closed | 2,408 | 911 | 3,319 |
| | Weekend | 1,820 | 6,022 | 7,842 | closed | closed | closed | 1,820 | 6,022 | 7,842 |
| | Holiday | 938 | 2,113 | 3,051 | closed | closed | closed | 938 | 2,113 | 3,051 |
| Project Total | Overall | 15,856 | 36,541 | 52,397 | 7,267 | 18,977 | 26,244 | 23,123 | 55,518 | 78,641 |
| | Weekday | 8,010 | 8,576 | 16,586 | 4,214 | 5,417 | 9,631 | 12,224 | 13,993 | 26,217 |
| | Weekend | 4,757 | 18,229 | 22,986 | 3,053 | 13,560 | 16,613 | 7,810 | 31,789 | 39,599 |
| | Holiday | 3,089 | 9,736 | 12,825 | n/a | n/a | n/a | 3,089 | 9,736 | 12,825 |

Source: Camp Far West Reservoir recreation concessionaire entrance gate records (SSWD 2016).

Legend: n/a = no holidays during non-peak season.

2.2 Existing Project Recreation Facilities at Project Reservoirs

The following section includes a description of the existing Project recreation facilities and opportunities at each recreation area. This section also provides a brief summary of each primary recreation facility's (campground, picnic area, boat launch, etc.) condition based on a 2015 condition assessment by SSWD. Facilities and site elements (e.g., vehicle spurs, tables, fire rings, ramps) are in "good" condition if they are functional, well-maintained, showed no signs of deterioration and have the majority of their useful life remaining. Facilities and components are considered in "poor" condition if they are non-functional, had missing or broken parts and/or major structural damage is evident. A facility is considered to be in "fair" condition when it has some minor structural damage that could be repaired with ease or is functional, but shows signs of wear and tear (cracked wood, broken windows or door handles, etc.). Facilities in "fair" condition generally have a portion of their useful life remaining, but do not need immediate replacement.

2.2.1 North Shore Recreation Area

The NSRA is located on the north shoreline of the reservoir on a large peninsula. The NSRA is accessible by vehicle from the west and north via Camp Far West Road (Yuba Co. 42) and Spenceville Road. The access road is gated and an entrance station is located along the access road that regulates public access to the recreation area. The NSRA consists of a family campground, group campground, day use area with swimming beach, boat ramp and dispersed use areas (Figure 2.2-1). The NSRA also includes a general store at the entrance station for use by the public. The NSRA is open year-round for day use and overnight recreation opportunities. The NSRA is set in a partially wooded oak and grassland setting. The oak trees provide substantial shading throughout the recreation area, especially within the campgrounds. Due to the predominant grasses and lack of other ground-level vegetation, there is minimal screening between the individual sites with the campgrounds and day use areas.



Figure 2.2-1. Aerial site map of the North Shore Recreation Area.

2.2.1.1 Family Campground

The family campground is located in a semi-forested setting along the south shoreline of the NSRA. The facility consists of a total of 80 campsites including 70 standard sites and 10 recreational vehicle (RV) sites with hookups. Representative photographs are provided in Figure 2.2-2. Each of the standard campsites consists of a table (i.e., concrete or wood-metal construction), a rock fire ring, a parking spur (i.e., dirt or gravel), several tent pads and a trash can. Most of the sites also have a pedestal grill. Overall, the campsite amenities are in fair condition, with the exception of the remaining wood-metal construction tables and most pedestal grills that are aging and in poor condition. Potable water³ is provided at seven spigots dispersed throughout the campground. The facility includes two flush restroom buildings each with eight stalls (i.e., 7 toilets and 1 urinal) and four sinks; and both are in aging and in fair-to-poor condition. A typical campsite provides opportunities for tent or RV camping, but does not have hookups for water, electric or sewer. The circulation roads consist of one-way, 10-ft wide and two-way, 20-ft wide road segments; and are a combination of paved and dirt surfacing; and in fair condition overall (SSWD 2016).

The family campground also includes a loop with 10 RV sites each with full-service hookups including water, electric and sewer. In addition to the hookups, each site consists of a gravel spur, metal table, concrete fire ring, and a trash can. The RV campsites utilize a restroom facility at the adjacent standard campsite loop. The circulation roads consist of a one-way, 10-ft-wide dirt road (0.3 mi long) and a two-way, 20-ft-wide paved road (0.8 mi long). Overall, the RV camping facilities are new construction and in good condition (SSWD 2016).



Typical Family Campsite

³ Currently, temporary drinking restrictions are in place while SSWD completes water treatment infrastructure improvements.



Typical Family Campsite Amenities



Typical Restroom Building



Typical RV Campsite with Full Hookups



Figure 2.2-2. Photographs (dated 7/21/15) of the family campground at the North Shore Recreation Area.

2.2.1.2 Group Campground

The group campground is located in an open setting along the west shoreline of the NSRA to the north of the boat ramp and day use area. The facility consists of two group campsites (i.e., Tree and Point sites) serving 25 people-at-one-time. Each of the campsites consists of a concrete table, rock fire ring, water spigot, portable chemical toilet, and two trash cans. The Tree site also includes a cinder-block preparation/storage area that does not exist at the other group site. The access road to the sites is a 10-ft-wide, one way dirt surface road (0.05 mi long). Overall, the facilities are aging and in fair-to-poor condition (SSWD 2016). Representative photographs are provided in Figure 2.2-3.



Figure 2.2-3. Photograph (dated 7/21/15) of the group campsites at the North Shore Recreation Area.

Horse Camp

The Horse Camp is located in the midst of the Boss Point dispersed use area and is tailored specifically for equestrian use with hitch-and-post facilities; as well as two portable chemical toilets, a large concrete fire ring, and trash cans. Overall, the facilities provided are in good condition. A representative photograph is provided in Figure 2.2-4.



Figure 2.2-4. Photograph (dated 7/21/15) of the dispersed use areas at the North Shore Recreation Area.

2.2.1.3 Day Use Area

The day use area is located in a semi-forested setting along the west shoreline of the NSRA to the north of the boat ramp. The facility consists of 20 picnic sites, a swim beach and shares a parking area with the boat ramp. Each picnic site consists of a table and a trash can. Pedestal grills and water spigots are also dispersed throughout the area. The swim beach is located between the picnic sites and the reservoir. The facility includes one flush restroom building with eight stalls (i.e., 7 toilets and 1 urinal) and four sinks. The short access road is a 20-ft-wide, two-way paved road (0.05 mi long). Overall, the facilities are aging and in fair condition (SSWD 2016). A representative photograph is provided in Figure 2.2-5.



Typical Picnic Site



Typical Picnic Site Amenities



Typical Restroom Building

Figure 2.2-5. Photographs (dated 7/21/15) of the day use area at the North Shore Recreation Area.

2.2.1.4 Boat Ramp

The boat ramp is located on the south shoreline between the family campground and the day use area. The facility consists of a boat launching ramp, parking area, restroom building and picnic site. The boat ramp is a 4-lane concrete ramp with a floating courtesy dock and a 4-lane boat preparation area. The end of the concrete ramp is at 236.0 ft elevation; however, informal boat launching is still available down to 188.0 ft elevation. The parking area is divided into three separate lots, all of which are paved with striped spaces; and provides a total of 82 single vehicle spaces, including two accessible spaces, and 73 vehicle with trailer spaces, including three accessible spaces. At lower water levels, parking is allowed adjacent to the boat ramp in dirt parking areas. The facility includes one flush restroom building with four stalls, each with a toilet and sink. A water spigot, water fountain and trash receptacles are located at the restroom building. The accessible restroom building area includes an accessible picnic table connected by an accessible ramp. The access road is a 24-ft-wide, two-way paved road (0.2 mi long). This facility was reconstructed in 2005 using a DBAW Boat Launch Facilities grant. The facilities are in good condition (SSWD 2016). Representative photographs are provided in Figure 2.2-6.



Ramp



Parking Area



Restroom and Picnic Site

Figure 2.2-6. Photographs (dated 7/21/15) of the boat ramp facilities at the North Shore Recreation Area.

2.2.1.5 Dispersed Use Areas

The NSRA has two dispersed use areas within the recreation area, which are accessed by one-way and two-way dirt roads. Jet Ski Cove dispersed use area is located on the northwest portion of the recreation area. Facilities include two portable chemical toilets and trash cans dispersed throughout the area. In all, Jet Ski Cove dispersed use area encompasses 15 ac with approximately 0.5 mi of shoreline; all of which are accessed using a 12-ft-wide dirt road (0.6 mi in length). The second dispersed use area, Boss Point, is located in the northeast portion of the recreation area. Facilities include four portable chemical toilets and trash cans dispersed throughout the area. In all, Boss Point dispersed use area encompasses 55 ac with approximately 1.6 mi of shoreline; all of which are accessed using a network of 12-ft-wide dirt roads (3.1 mi in length). The dispersed use areas provide for largely undeveloped, dispersed day-use opportunities and overnight camping with minimal facilities and direct access to the reservoir shoreline. Overall, the few facilities provided are in good condition (SSWD 2016). Representative photographs are provided in Figure 2.2-7.



Typical View of the Jet Ski Cove Dispersed Use Area



Typical View of the Boss Point Area Dispersed Use Area

Figure 2.2-7. Photographs (dated 7/21/15) of the dispersed use areas at the North Shore Recreation Area.

2.2.1.6 Recreational Water System

A recreational water system provides water throughout the NSRA, excluding the dispersed use area. The water system source is the reservoir, where two pumps in the reservoir deliver water at 70 gallons/minute (5,000,000 gallons or 15.3 ac-ft per year) uphill via underground piping to the water treatment facility atop a hill within the NSRA. After being treated, the water is piped nearby to a 60,000-gallon storage tank constructed of belted steel and recently installed in 2011. From the storage tank, underground distribution piping sends the water throughout the NSRA, where water is accessible via water hydrants dispersed throughout the recreation area facilities. The system also includes a sewage pond with an aerator to handle the sanitary needs of the flush restroom buildings and the RV dump station. The sewage system uses a gravity-feed operation and is supplemented by a pump to get the sewage to the sewage pond. The recreational water system is accessed using 10-ft-wide dirt roads (0.8 mi in length). (Figure 2.2-8)

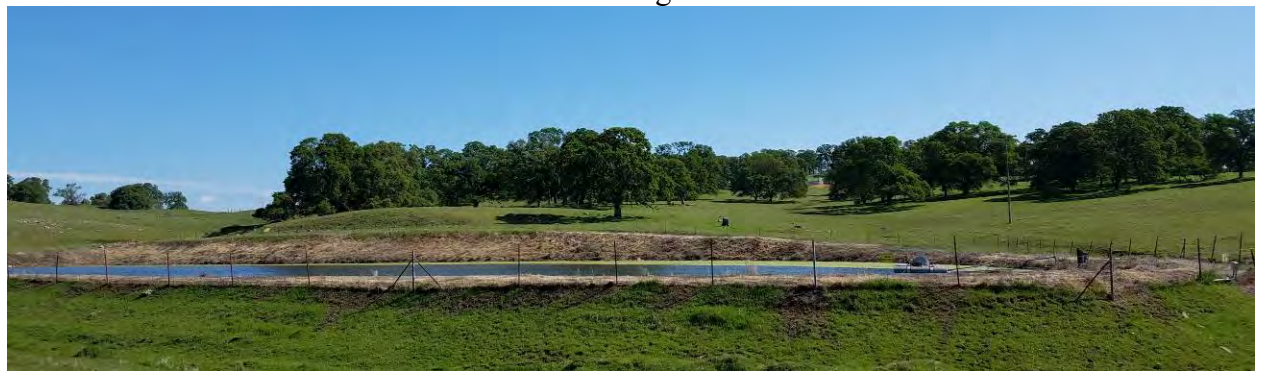
Overall, much of the major above-ground components (i.e., water treatment plants, water storage tank, sewage ponds and aeration facilities) are in good condition with the treatment plant and storage tank having been reconstructed or replaced recently (SSWD 2016). The below-ground components (i.e., distribution piping) are largely original construction are in fair condition; and the above-ground water hydrants and fountains are largely in poor condition (SSWD 2016).



Water Treatment Facility



Water Storage Tank



Sewage Pond

Figure 2.2-8. Photographs (dated 4/2/18) of the recreational water system components.

2.2.1.7 Other Facilities

The NSRA also includes a general store, RV dump station, private ranger residences and maintenance buildings. The store is located near the entrance to the NSRA facilities and also serves as the entrance station for the NSRA. The RV dump station is located near the family campground and boat ramp; and provides a 1-lane facility connected to a sewer system for disposing of RV holding tanks. Overall, these facilities are in good condition (SSWD 2016). Private concessionaire residences are also located between the entrance station and the boat ramp facilities that include residences and maintenance buildings. Photographs of these facilities are provided in Figure 2.2-9.



Figure 2.2-9. Photographs (dated 7/21/15) of the entrance station and RV dump station at the North Shore Recreation Area.

2.2.2 South Shore Recreation Area

The SSRA is located on the southwest shoreline of the reservoir on a long narrow peninsula. The SSRA is accessible by vehicle from the north and south via McCourtney Road (Placer Co. C6037). The access road is gated and an entrance station is located after the gate that regulates public access to the recreation area. The SSRA consists of a family campground, group campground, day use area, swim beach, boat ramp and dispersed use areas (Figure 2.2-10). The SSRA also includes a general store at the entrance station for use by the public located. The SSRA is generally open seasonally from April through October for day use and overnight recreation opportunities.⁴ Similar to the NSRA, the SSRA is set in a partially wooded oak and grassland setting. The oak trees provide substantial shading throughout the recreation area. Due to the predominant grasses and lack of other ground-level vegetation there is minimal screening between the individual sites with the campgrounds and day use areas.

⁴ The NSRA is open year-round for public use.



Figure 2.2-10. Aerial site map of the South Shore Recreation Area.

2.2.2.1 Family Campground

The family campground is located in a semi-forested setting on the north end of the recreation area. The facility consists of 67 standard campsites for either tent or RV camping, but the sites do not provide RV hookups. Each campsite consists of a table (i.e., concrete or wood-metal construction), a rock fire ring, a parking spur (i.e., dirt or gravel), several tent pads and a trash can. Most of the sites also have a pedestal grill. Six of the sites include a pull-through parking spur, whereas the remaining sites utilize back-in parking spurs. Water is provided at 12 spigots dispersed throughout the campground. Overall, the campsite amenities are in good condition, with the exception of the wood-metal construction tables that are aging and in fair-to-poor condition (SSWD 2016). The facility also includes one flush restroom buildings (i.e., 7 toilets, 1 urinal and 4 sinks) and two vault restroom buildings (i.e., each with 4 toilets), all of which are aging and in fair condition overall. The facility includes two overflow parking areas (paved) for a total of 18 single vehicles. The circulation roads consist of one-way, 12-ft-wide, and two-way, 20-ft-wide paved roads (1.2 mi in length). The parking areas and roads are in good condition (SSWD 2016). Representative photographs are provided in Figure 2.2-11.



Standard Campsite



Standard Campsite Table



Vault Restroom Building (4 stalls)

Figure 2.2-11. Photographs (dated 7/21/15) of the family campground at the South Shore Recreation Area.

2.2.2.2 Group Campground

The group campground consists of a single group campsite located in a forested setting on a bluff along the west shoreline of the SSRA. The facility consists of one group campsite serving 50 people-at-one-time. This site consists of a wood-metal table, large concrete fire ring, large food preparation table/area, a pedestal grill, trash cans and a gravel parking area for 10 vehicles. The access road to the sites is a two-way paved road. A water spigot is located at the start of the access road to the group campsite. Overall, the amenities are in good condition, with the exception of the wood-metal construction table that is in poor condition (SSWD 2016). A restroom building is available at the nearby family campground. The access road is a 20-ft-wide, two-way paved road (0.2 mi in length). A representative photograph of the facility is provided in Figure 2.2-12.



Group Campsite



Campsite Amenities



Figure 2.2-12. Photograph (dated 7/21/15) of the group campsite at the South Shore Recreation Area.

2.2.2.3 Picnic Area

The picnic area is located in a semi-forested setting along the east shoreline of the SSRA. The facility consists of 33 picnic sites, each with a table, and a parking area for 44 single vehicles. Pedestal grills, water spigots and trash cans are dispersed throughout the area for picnickers. The facility utilizes the boat ramp's flush restroom building (i.e., 7 toilets, 1 urinal and 4 sinks) located at the top of the boat ramp facility. The circulation road is a 10-ft-wide, one-way dirt and paved asphalt road (0.4 mi in length). Overall, the facilities are in good condition (SSWD 2016). Representative photographs of the facilities are provided in Figure 2.2-13.



Picnic Area



Picnic Site Amenities



Parking Area

Figure 2.2-13. Photographs (dated 7/21/15) of the picnic area at the South Shore Recreation Area.

2.2.2.4 Swim Beach

The swim beach is located in an open setting along the west shoreline of the SSRA in a cove commonly referred to as “Quarter Mile Cove” (Figure 2.2-14). The site provides direct water access for swimming and other water play activities for the campground visitors. Trash cans are dispersed throughout the area. The circulation road is a 10-ft-wide, one-way dirt road (0.1 mi in length). Overall, the few facilities provided (i.e., trash cans) are in good condition (SSWD 2016). The facility utilizes the family campground’s vault restroom buildings located near the swim beach area.



Figure 2.2-14. Photograph (dated 7/21/15) of the swim beach at the South Shore Recreation Area.

2.2.2.5 Boat Ramp

The boat ramp is located on the northeast shoreline between the family campground and the day use area. The facility consists of a boat launching ramp, parking area and restroom building. The boat ramp is a 2-lane concrete and asphalt ramp with a floating courtesy dock. The end of the concrete/asphalt ramp is at 220.0 ft elevation and boat launching below this level is not advisable. The concrete section of the ramp and the courtesy dock are in good condition; whereas the lower asphalt section of the ramp is in poor condition with eroding edges and extensive cracking (SSWD 2016). The parking area provides a total of 52 vehicles with trailer spaces in a gravel lot and paved lot paralleling the top of the ramp access road. The parking areas are in good condition (SSWD 2016). The facility includes one flush restroom building with seven toilets, one urinal and four sinks. The restroom building is in fair condition (SSWD 2016). The boat launch uses the main entrance access road is a 20-ft-wide, two-way paved road (0.5 mi in length), which is the main entrance road into the SSRA. Representative photographs of the facilities are provided in Figure 2.2-15.



Figure 2.2-15. Photographs (dated 7/21/15) of the boat ramp facility at the South Shore Recreation Area.

2.2.2.6 Dispersed Use Areas

The SSRA has two dispersed use areas located on the west shoreline (Quarter Mile Cove dispersed use area) and southeast shoreline adjacent to the entrance station (Entrance Gate dispersed use area). Both areas are accessed by 10-ft-wide dirt roads (1.7 mi in length). These

areas allow for dispersed day use and overnight camping, but provide minimal facilities – roads, trash cans and six portable chemical toilets. Overall, the facilities are good condition (SSWD 2016). Representative photographs of the facilities are provided in Figure 2.2-16.

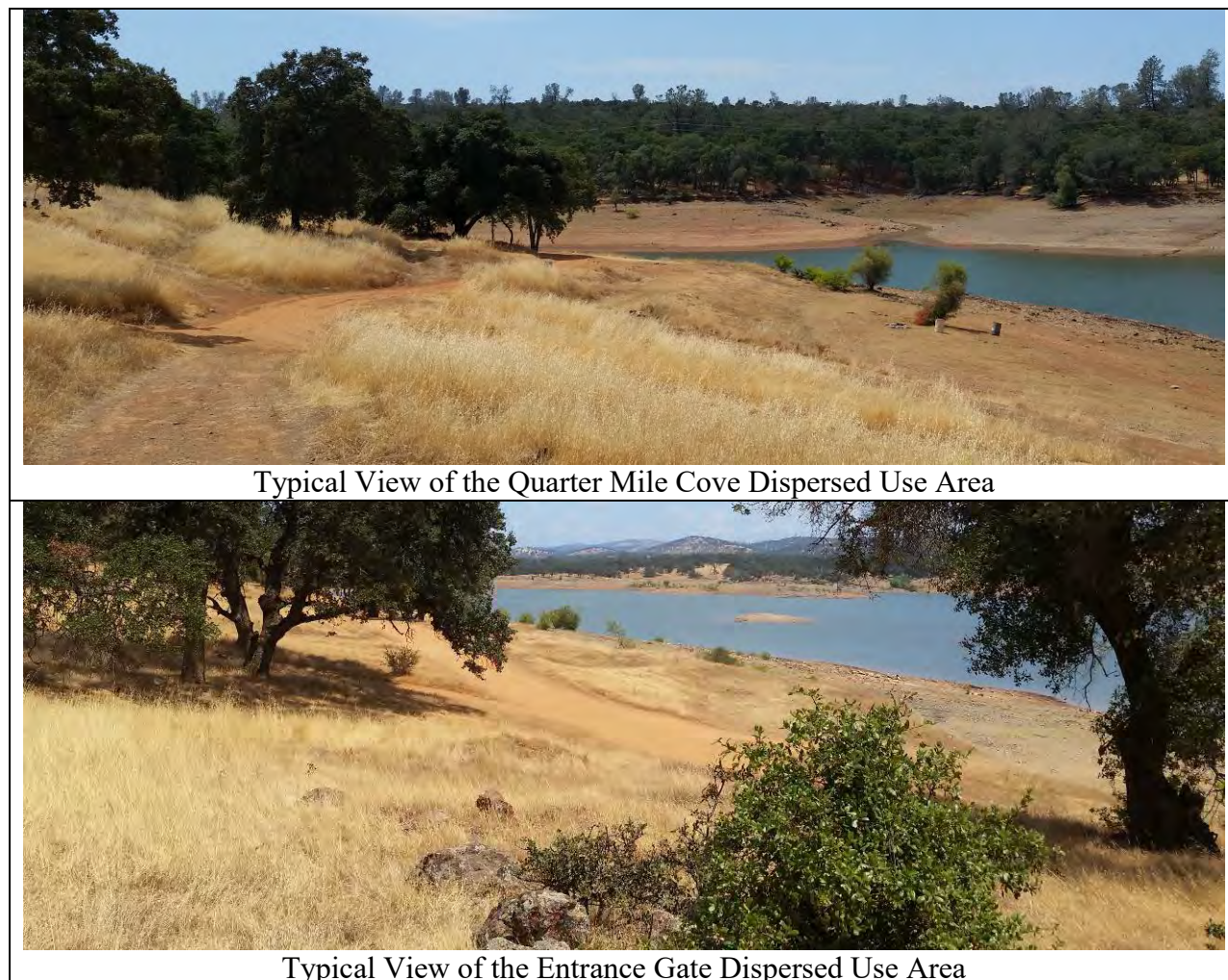


Figure 2.2-16. Photographs (dated 7/21/15) of the dispersed use areas at the South Shore Recreation Area.

2.2.2.7 Recreational Water System

A recreational water system provides water throughout the SSRA, excluding the dispersed use area. The SSRA receives water from the NSRA water treatment plant and storage tank via two pipes under the reservoir. The water is dispersed throughout the SSRA via underground distribution piping, where water is accessible via water hydrants dispersed throughout the recreation area facilities. The SSRA system also includes a sewage pond with an aerator to handle the sanitary needs of the flush restroom buildings and the RV dump station. The SSRA sewage system is a gravity-fed system. The sewage pond is accessed using a 10-ft-wide dirt road (0.1 mi in length). Overall, these facilities are in good condition (SSWD 2016).

2.2.2.8 Other Facilities

The SSRA also includes an entrance station, general store, RV dump station, and private ranger residences and maintenance buildings. The store is located near the entrance to the SSRA facilities and also serves as the entrance station for the recreation area. A fuel station is also located at the general store. The RV dump station is located across from the general store and provides a 1-lane facility connected to a sewer system for RV holding tank disposal. The main entrance access road is a 20-ft-wide, two way asphalt road (0.5 mi long). Overall, these facilities are in good-to-very good condition. Private ranger residences are also located between the entrance station and the boat ramp facilities that include residences and maintenance buildings, which is accessed by a 10-ft-wide, one way dirt road (0.3 mi long). Photographs of these facilities are provided in Figure 2.2-17.



Figure 2.2-17. Photographs (dated 7/21/15) of the entrance station and RV dump station at the South Shore Recreation Area.

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SECTION 3.0

FACILITY OPERATION & REHABILITATION

This section describes the recreation facility measures that will be implemented by SSWD for the Project during the new license. This section is divided into two sub-sections, including: 1) recreational facility annual operational maintenance and activities; and 2) recreational facility major rehabilitation.

3.1 Recreational Facility Operational Maintenance

3.1.1 Operational Maintenance Responsibility

SSWD shall be responsible for the annual maintenance, rehabilitation, and replacement of all the Project recreational facilities at the Camp Far West Reservoir Recreation Areas (RAs). SSWD intends to use a concessionaire for the administration, O&M of the Project's recreation facilities.

3.1.2 Operational Maintenance Activities

Operational maintenance activities keep permanent assets in an acceptable condition and include repairs, painting, replacement of minor parts and minor structural components. Operational maintenance, or reconditioning, neither materially adds to the value of the property nor appreciably prolongs its life. Operational maintenance excludes activities aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from, or significantly greater than those originally intended. The work serves only to keep the facility in an ordinary, efficient operating condition.

Examples of regular or routine operational maintenance activities include, but are not limited to interior painting, repair of broken windows, light bulb replacement, cleaning, unplugging drains, greasing, servicing, inspecting, oiling, adjusting, tightening, aligning, sweeping and general snow removal. Maintenance activities may include work needed to meet applicable laws, regulations, codes, and other legal direction (such as compliance with the Americans with Disabilities Act) as long as the original intent or purpose of the fixed asset is not changed.

Annual operational maintenance includes those activities that are expected to occur on an annual or semi-annual schedule, as conditions warrant. Annual maintenance activities include, but are not limited to: straightening all vehicle barriers and signs, rehabilitating picnic tables, pumping or servicing vault or portable toilets, and conducting state and local required water quality testing of the water supply system.

3.1.3 Recreation Area Campfire Policy

SSWD will allow wood burning campfires when contained within approved fire containment “fire-rings” and/or burn-barrels, and may restrict such use based on existing conditions and other local agency fire restriction policies.

3.2 Recreational Facility Major Rehabilitation

This section identifies what and how SSWD will rehabilitate and replace the existing Project recreation facilities – all located on SSWD land. Rehabilitation includes reconditioning or replacing an existing fixed asset or any of its components in order to restore the functionality or life of the asset. Replacement is the substitution or exchange of an existing fixed asset or component with one having essentially the same capacity and purpose. The decision to replace or rehabilitate a fixed asset or component is usually reached when replacement is more cost effective or more environmentally sound. Replacement of an asset or component usually occurs when it nears or has exceeded its useful life.

SSWD shall be responsible for the full cost for major rehabilitation or replacement of existing recreation facilities listed in Section 2.2. SSWD shall be responsible for performing all needed rehabilitation activities through the provision of necessary personnel, equipment, materials and management. SSWD shall be responsible to replace/rehabilitate recreation features which currently exist at their recreation facilities. All the facilities are located on SSWD land, and all new, rehabilitated, and reconstructed Project recreation facilities will meet applicable standards in place at the time of design and construction including any applicable Americans with Disabilities Act guidelines and any other applicable accessibility guidelines at the time of design.

SSWD shall rehabilitate facilities the individual facilities and components at each Project RA facility in accordance with the specifications in Table 3.2-1 when the facilities near the end of their useful life.

Table 3.2-1. Major rehabilitation guidelines for Project recreation facilities.

| Type of Facility | Major Rehabilitation Guidelines |
|---|--|
| Roads, Parking Areas and Campground Vehicle Spurs | <p>As needed, SSWD shall rehabilitate all existing roads and parking areas within the Project RAs. Specifically, SSWD shall:</p> <ul style="list-style-type: none"> • Repave (asphalt) and re-stripe parking areas, including installing vehicle barriers at each parking area and accessible parking designation; • Repave/overlay existing asphalt circulation roads with asphalt; and install vehicle barriers, where necessary; • Grade all existing dirt circulation roads; and install vehicle barriers, where necessary. • Where unpaved, gravel or dirt parking areas exist, re-grade and clear the parking area and re-install vehicle barriers, as needed; and • Repave or overlay existing asphalt campsite spurs or grade existing dirt campsite spurs and install vehicle barriers at each new spur, as needed. <p>Rehabilitation of roads, parking areas, and vehicle spurs shall occur on a site-by-site or facility-by-facility basis at all Project RAs. Roads, parking areas, and vehicle spurs shall be scheduled for rehabilitation near the end of their useful life based on the findings during regular or annual inspections.</p> |
| Fire Rings, Grills, and Picnic Tables | SSWD will replace fire rings, grills, picnic tables, and other constructed features near the end of their useful life based on regular or annual inspections. |
| Signs | SSWD shall replace all existing entrance signs, directional signs, information/bulletin signs and trailhead signs, as needed, near the end of their useful life based on regular or annual inspections. SSWD shall replace signs with a sign of a similar design, and at least to the same construction as currently exist. Alternative materials may be used (i.e. recycled plastic, metal, etc.). |

Table 3.2-1. (continued)

| | |
|--|--|
| Restroom and Sewage Pond Facilities | SSWD shall replace the existing restroom facilities, as needed, near the end of their useful life. Each restroom facility shall maintain the same general current footprint and number of toilets, sinks, and stalls, unless SSWD determines that the location and layout of the restroom facility should be modified. The flush restroom facilities throughout the Project RAs discharge to a sewer collection system that routes sewage to the respective RA sewage ponds. The sewage ponds are permitted by the State and include operating, monitoring and reporting requirements. Sewage ponds will be maintained in acceptable condition to meet permit requirements and upgraded as needed depending on equipment life and regulatory requirements. |
| Recreation Area Water Systems | SSWD shall maintained the recreational water system (i.e., distribution piping, system connections, water hydrants, storage tanks and treatment facility) in condition to meet permit requirements and upgrade the facilities as needed depending on equipment life and regulatory requirements. SSWD will replace segments or portions of the underground distribution piping as condition warrants or leaks or inefficiencies in the system are identified, which will occur on a case-by-case basis. Overall, SSWD anticipates that all of the underground distribution system will be replaced or rehabilitated before the end of the new license term. SSWD will replace all the above-ground facilities (i.e., water hydrants and fountains) within the first 3 years of the new license based on the specific condition of each individual hydrant or fountain. |
| Boat Launch Floating Boat Docks and Boat Ramps | SSWD shall replace the floating boat docks and concrete launch ramps as each facility nears the end of its useful life. At the NSRA boat launch facility (reconstructed in 2005 with DBAW grant funding), SSWD shall include the replacement of the existing floating boat dock and concrete launch ramp with structures that meet the DBAW standards at the time of design. At the SSRA boat launch facility, SSWD shall include the replacement of the existing floating boat dock and launch ramp with structures that consider user demand, resource concerns, reservoir drawdown, and design standards of the time. |
| Trash Receptacles and Dumpsters | SSWD shall replace the existing trash receptacles and dumpsters, as needed, near the end of their useful life. For the existing trash receptacles, SSWD will install attached lids to each receptacle within the first 2 years of the new license. |

Importantly, at any time during the new license when major rehabilitation is planned, the work and placement will not occur in sensitive resource areas (e.g. wetlands, culturally sensitive sites, critical wildlife habitats, sensitive botanical sites). In addition, for any ground disturbing work related to minor rehabilitation, major rehabilitation, or capital improvements, SSWD will follow the invasive weed prevention and vegetation management practices. Specifically, SSWD will follow all applicable measures related to invasive weed and aquatic invasive species prevention, revegetation of recreation facility lands, and sensitive resource buffers and/or limited operating periods.

3.3 Replacement of Existing Facilities Due to Camp Far West Reservoir Pool Raise

Construction of the Camp Far West Reservoir pool raise from 300 ft to 305 ft would inundate or impact the function of select recreational facilities along the shoreline at both the NSRA and SSRA. Overall, the pool raise would affect 104 recreational facilities or site features along the shoreline at the NSRA and SSRA. Most of the affected features would be directly affected by the pool raise by either partially or fully inundating the features (i.e., campsite living space and amenities, circulation road, etc.). Some of the features would be indirectly affected, whereby the pool raise would not inundate the feature, but would closely abut the feature likely resulting in flooding and/or erosion impacts to the features due to wind, wave or high flow events.

SSWD will replace all the impacted recreation facilities in-kind (i.e., one-to-one replacement) within each respective recreation area. SSWD anticipates that all of the affected facilities will be relocated within each existing respective recreation area boundary and FERC boundary. However, if necessary, SSWD would utilize lands outside the recreation area and FERC

boundary to replace all of the impacted facilities in-kind (and update the FERC boundary if necessary). The construction work to relocate, re-route or realign the affected features would be completed in one calendar year. Overall, the majority of the construction would occur outside the peak recreation season (i.e., Memorial Day through Labor Day holiday weekends). In instances where construction would be necessary during the peak season, the work would be restricted to select areas and conducted during low-use periods (i.e., weekdays) to minimize any impacts to the recreation facilities and visitor experiences. SSWD will comply with any pertinent sensitive resource buffers and/or limited operating periods (e.g., great blue heron rookery in the SSRA).

SECTION 4.0

PLAN REVISION

4.1 Plan Revision

SSWD will review, update, and/or revise the Plan if changes in recreation use or resources create the need to update the plan. A need may arise from day-to-day O&M of the Project, or, from other anticipated and unanticipated events that may arise during the license period. Examples of such events that may trigger a need to update the plan include unforeseen recreation needs, new recreation technologies, or significant changes in the amount and types of recreation uses.

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SECTION 5.0

REFERENCES CITED

- California Department of Fish and Wildlife (CDFW). 2018a. Online Fishing Guide. Sacramento, California. <https://www.wildlife.ca.gov/Fishing/Guide>. Accessed on June 20, 2018.
- California Department of Fish and Wildlife (CDFW). 2018b. 2018-2019 California Freshwater Sport Fishing Regulations. Sacramento, California.
- California Department of Fish and Wildlife (CDFW). 2015. Unpublished stocking and fish survey records at Camp Far West Reservoir from 1964 to 1985. Obtained from CDFW employees on 6/30/2015.
- South Sutter Water District (SSWD). 2016. Pre-Application Document: Section 2.3.6 - Recreation Resources. Prepared by HDR for South Sutter Water District. Trowbridge, California.
- Yuba County. 2010. Yuba County Code of Ordinances, Chapter 8.51 - Camp Far West Lake. Marysville, California. Adopted August 24, 2010.

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APPENDIX E3

WRITTEN COMMENTS RECEIVED REGARDING SSWD'S DRAFT LICENSE APPLICATION

Table E3-1 lists the six written comments received by the South Sutter Water District (SSWD or Licensee) regarding SSWD's December 29, 2018, Draft License Application (DLA). A copy of each written comment is included in this appendix. No written comments on the DLA were received from Indian tribes.

Table E3-1. Parties that submitted written comments to SSWD on SSWD's December 29, 2018, DLA.

| Commenter | Date of Comment Letter or E-Mail |
|--------------|----------------------------------|
| FERC | March 29, 2019 |
| USFWS | April 10, 2019 |
| SWRCB | April 12, 2019 |
| CDFW | April 14, 2019 |
| NMFS | April 15, 2019 |
| FWN | April 15, 2019 |
| Total | 6 Written Comments |

Appendix E4 to this Exhibit E contains SSWD's replies to USFWS's, CDFW's NMFS's and FWN's written comments. The SWRCB's August 25, 2018, e-mail stated the SWRCB did not have any written comments on the DLA. Appendix E5 to this Exhibit E contains SSWD's replies to FERC's written comments.

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APPENDIX E3

Attachment 1

DLA Comment Letters

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426
March 29, 2019

OFFICE OF ENERGY PROJECTS

Project No. 2997-031 – California
Camp Far West Hydropower Project
South Sutter Water District

Brad Arnold
General Manager
South Sutter Water District
2464 Pacific Avenue
Trowbridge, California 95659

Subject: Comments on Draft License Application

Dear Mr. Arnold:

This letter contains comments by Commission staff on the draft license application filed on January 2, 2019, by South Sutter Water District (South Sutter) for relicensing the Camp Far West Hydropower Project No. 2997. In order for Commission staff to have adequate information to assess potential project impacts, please review and address our comments outlined in Appendix A in the final license application.

If you have any questions, please contact Quinn Emmering at (202) 502-6382, or at quinn.emmering@ferc.gov.

Sincerely,

Timothy Konnert, Chief
West Branch
Division of Hydropower Licensing

Enclosure: Comments on the Draft License Application for the Camp Far West
Hydropower Project, FERC No. 2997-031

COMMENTS ON THE DRAFT LICENSE APPLICATION FOR THE CAMP FAR WEST HYDROPOWER PROJECT NO. 2997

Commission staff has identified that your draft license application (DLA) did not contain some of the information that will be required by our regulations for a final license application (FLA). In our comments, we note the areas of the DLA where more specific information will be needed for a complete license application.

General Content Requirements

1. In the Initial Statement, Attachment 1 – the Draft Public Notice currently lists December 2018 as the date South Sutter Water District (SSWD) applied to FERC for a new license. Please ensure the filing date is updated with the correct date before submitting the notice for publication to local newspapers as required by section 4.32(b)(6).

Exhibit A – Project Description

2. In section 3.1.1, the first paragraph lists the main embankment of the existing dam as 185 feet high and figure 3.1-1 lists the height as 181 feet high. Please clarify the height of the dam for this section and figure 3.1-1 in the FLA.
3. Section 5.3 states SSWD proposed to add an existing road that accesses the powerhouse. Based on this language it's unclear if SSWD proposes to construct a new road, modify an existing road, or something else. In addition, no details are provided regarding the physical composition, dimensions, or general configuration of the road. Please amend this section in the FLA as required by section 4.51(b).
4. Section 5.4 *FERC Project Boundary* proposes corrections to the existing project boundary around the Camp Far West Reservoir based on higher accuracy elevation data made available since the creation of the original boundary geometry. The DLA states that boundary corrections would be “defined by the lesser of either the topographic contour of 320 feet, which is 20 feet above the normal maximum water surface elevation (NMWSE), or 200 horizontal feet from the NMWSE.” In section 5.1 *Camp Far West Reservoir Pool Raise*, SSWD proposes to raise the NMWSE by 5 feet to an elevation of 305 feet; however, the DLA does not indicate that the proposed project boundary modification takes into account the new 305-foot NMWSE. The proposed 305-foot NMWSE would increase the boundary defining contour to 325 feet. Please clarify this discrepancy in the FLA. In addition, where other sections of the DLA list acreages within the project boundary (e.g. for a particular resource) please note or modify the listed acreages as necessary.

Exhibit B – Project Operation

5. In section 7.1.2 *SSWD's Proposed Conditions in the New License* it appears there is a typographical error under the *SSWD Proposed Condition TR2* subheading where “to exclude boats form” should be modified to “to exclude bats from”. Please amend in the FLA accordingly.

Exhibit C – Construction History and Proposed Construction Schedule

6. In Section 3.1.5 *Construction Sequences and Schedule*, Task 4.7, in Table 3.1-3 *Draft preliminary schedule for construction of the Pool Raise* states that relocation of campsites would last for a duration of 5 days. Further, in Section 3.1.5.9 *Campsite Relocation* you state that relocation would include clearing and grading new campsite areas, clearing and paving access, constructing new campfire pits, and relocating features such as tables, benches, and barbecue grills from existing sites to new sites. In the FLA, please clarify the following:
 - a) When you state that the relocation of campsites would last for a duration of 5 days, does that account for all of the work described in Section 3.1.5.9?
 - b) After all of the approximately 104 recreational facilities and features are relocated, rerouted, or realigned, is there a plan to clean or restore those sites before the pool raise or inundation occurs? Is this activity accounted for in the 5-day time period for relocation?

Exhibit D – Costs and Financing

7. In section 6.2.2, *O&M Costs Related to Environmental and Recreation Conditions*, you state that SSWD's estimated annual cost to implement the conditions (i.e. AR1, TR1, TR2, RR1, and CR1) is \$464,366; however, Table 6.2-1 and Table 6.2-12 show the estimated annualized cost for these measures to be \$440,433. Please clarify in the FLA which cost estimate is the correct total annualized cost for the five proposed environmental and recreation conditions.

Exhibit F – Design Drawings

8. Because design drawings were not included as part of the DLA, staff have no comments on Exhibit F at this time. Please ensure that detailed design drawings are provided in the FLA as required by section 4.51(g).

Exhibit G – Map

9. Please ensure that project boundary and feature data is filed in a geo-referenced electronic format (e.g. shapefiles) in the required format and level of accuracy when filing the FLA as required by section 4.41(h).

10. In Exhibit E, section 3.3.7.1.2 *Other Public Lands* the DLA describes Placer County's Kirk Ranch Conservation Easement (KRCE), and Figure 3.3.7-3 (page E3.3.7-10) appears to show the conservation easement parcel located about 0.5 mile southeast of the Camp Far West Dam, directly adjacent to the project boundary along McCourtney Road, and in close proximity to SSWD's South Shore Recreation Area (SSRA). However, the Exhibit G maps do not show the KRCE, but do include other nonfederal land (e.g. Spencerville Wildlife Area). Because the KRCE appears to be directly adjacent to the project boundary and near the SSRA please include the KRCE on the appropriate Exhibit G maps in the FLA for staff to better evaluate this public land easement in its environmental analysis.
11. On the Project Boundary Change Maps, Sheets 1, 3, and 4, and Sheets 6 through 10, you indicate in the map legend "Proposed Additions" to the project boundary. In some instances, you clearly identify land proposed to be added by pointing to it on the map and identifying the affected parcel (e.g. Sheet 1); however, on Sheets 4, 9, and 10 you do not point directly to proposed land additions. In the FLA, please clearly identify the proposed land additions on Sheets 4, 9, and 10.
12. On the Project Boundary Change Maps, Sheets 7 and 8, you clearly identify private lands north of the reservoir (cross-hatched areas, with APN identified), and the proposed modifications to add additional land to the project boundary within those private lands; however, there appear to be proposed additions of land, outside of the existing project boundary, and SSWD-owned lands, that are not identified as occurring within identified private land (e.g. Sheet 7, east of Valley Road). In the FLA, please clarify if these proposed additions on Sheets 7 and 8 occur within the existing project boundary, or are located within private land.

Exhibit E – Environmental Report

General

13. Please include all completed study reports and any supporting materials with the FLA as required by section 4.38(c)(4)(ii).
14. Section 1.4.2.4 *Collaborative Development of PM&E Measures* states that SSWD and interested parties did not reach agreement on any protection, mitigation, and enhancement measures. Although, collaborative agreement was not reached the FLA must include descriptions of any measures or facilities recommended by the agencies consulted for the mitigation of impacts on fish, wildlife, and botanical resources, or for the protection or improvement of those resources as required by section 4.51(f). In addition, the FLA must include an explanation of why SSWD

has rejected any measures or facilities recommended by an agency as required by sections 4.51(f). For clarity, please also indicate if no measures have been recommended for a particular resource area under the appropriate resource section(s) in the FLA.

15. The DLA currently does not appear to include all letters from resource agencies or Indian tribes containing comments, recommendations, and proposed terms and conditions, or letters from the public containing comments and recommendations. In the FLA, please include all such consultation documentation as required by section 16.8(f).
16. Although Attachment 3.3.6B provides several maps displaying where the proposed pool raise would impact recreational facilities it does not display inundation zones for other project areas. In order for staff to better understand potential effects on all environmental resource areas please provide similar maps displaying inundation zones overlaid with project facilities and boundaries in the FLA. Where appropriate, please also include any resources (e.g. terrestrial, cultural) that would be potentially impacted by inundation.
17. In order to aid staff's evaluation of potential project effects on environmental resources, please include the following supporting document as an appendix with the FLA:
 - Sycamore Associates. 2013. Biological Assessment: Camp Far West Reservoir Project. FERC No. P-2997. Sacramento, CA

Proposed Action and Alternatives

18. In section 2.1.1.9 *Primary Project Roads and Trails*, and the similar Exhibit A, Section 3.9 *Primary Project Roads and Trails*, you state that there are no primary project roads or primary project trails included as part of the FERC-licensed project facilities; however, in section 3.3.1.3 *Unavoidable Adverse Effects* you state that one, short primary project road is paved and regularly maintained. Additionally, in Exhibit B, section 6.4.2 *Other Facility Maintenance*, you state that routine maintenance activities conducted in the vicinity of project facilities includes road and trail maintenance, and in Exhibit B, section 6.4.2.4 *Road Maintenance* you state that regular inspection of the project access roads occurs during the course of day-to-day project activities and maintenance on project and shared roads occurs as needed. Multiple paved and unpaved roads exist within the North Shore Recreation Area (NSRA) and SSRA, and the Recreation Facilities Plan describes them as access roads and circulation roads, that lead to, and are situated within, formal campgrounds and in what are described as "dispersed use areas" throughout the two recreation areas. You also state that the NSRA and

SSRA do not provide a network of recreational trails, but that the paved and unpaved roads provide a trail experience for visitors. Regardless of the formal or informal nature of the recreational opportunities the NSRA and SSRA provide, recreational visitors and SSWD regularly traverse the paved and unpaved roads to reach destinations throughout the two recreation areas. Additionally, as you state, because the recreation areas do not provide formal trails for hiking, biking, and horseback riding, the roads provide a trail experience for recreational visitors. Please provide the following information as required by section 4.51(f)(5):

- a) The name, location, and purpose(s) of the primary project road mentioned in section 3.3.1.3 *Unavoidable Adverse Effects*.
 - b) The total number of project roads that exist within the project boundary.
 - c) The name, location, and purpose(s) of the shared roads mentioned in Exhibit B, section 6.4.2.4 *Road Maintenance*, related to existing project operations and maintenance.
 - d) The existence or absence of agreements between SSWD and the owner(s) of the shared roads mentioned in Exhibit B, section 6.4.2.4 *Road Maintenance*.
19. In section 2.1.5.2.3 *Bay-Delta Bear River Voluntary Agreement*, the DLA describes the Bear Agreement (a non-license voluntary agreement that expires on December 31, 2035, or sooner if the Bear River agreement were terminated), which provides a transfer of up to 4,400 acre-feet to the California Department of Water Resources during dry and critical water years and calls for the licensee to increase flows in the lower Bear River by no more than 37 cubic feet per second (cfs) from July through September, as measured immediately downstream of the diversion dam. This flow is in addition to the 10 cfs minimum flow required in the project license. At the end of the flow release period, the agreement also calls for a down ramp at a rate not to exceed 25 cfs over a 24-hour period to avoid stranding anadromous fish.
- So staff can understand the rational for the implementing the Bear Agreement, please describe in detail:
- a) its objective(s);
 - b) the years in which the agreement was implemented;
 - c) whether the objective(s) were met in years it was implemented; and
 - d) the reasons for not proposing to implement the agreement as a requirement of a new license.
20. In section 2.2.2 *Change to Existing FERC Project Boundary*, you state that the Camp Far West 60-kilovolt (kV) transmission line is part of the Camp Far West

Hydroelectric Project (P-2997). There appears to be a typographical error, because as the paragraph further explains the Camp Far West 60-kV transmission line is no longer part of the Camp Far West Hydroelectric Project, rather it is part of PG&E's Camp Far West Transmission Line Project (P-10821). In the FLA, please correct the typographical error for this section, and any additional sections where this error may occur.

Aquatic Resources

21. In section 3.3.3.3.2 *Effects of Proposed Project Operations and Maintenance*, the DLA provides an analysis of flows and water temperature at the 80 percent maximum weighted usable area (WUA) for Chinook salmon in the lower Bear River. The analyses suggests that the flows necessary to meet 80 percent maximum WUA results in excessive variability between improved and reduced habitat and increased water temperature detrimental for Chinook salmon. SSWD should consider an analysis of lower minimum flows that achieve less than maximum WUA for Chinook salmon in the lower Bear River that may produce water temperatures within a suitable range for Chinook salmon. Such an analysis should include evaluating WUA and water temperatures using small incremental increases in the existing minimum flows, rather than just the 80 percent WUA analysis presented in the DLA.

Terrestrial Resources

22. Section 3.3.4.1 *Affected Environment – Vegetation*, states that “the area within the proposed FERC project boundary encompasses 2,661.9 acres”. Please clarify if the acreages reported for the vegetation classifications are based on the proposed project boundary change using the proposed 305-foot NMWSE or the existing 300-foot NMWSE (comment 4 above).
23. Section 3.3.4.1.2 *Special-status Plants* generally describes the 505-acre study area for the Special-status Plants and Non-native Invasive Plants Study, but does not provide a map. Please include a map in the FLA displaying the study area in relation to project features for staff to better understand where the surveys were conducted.
24. In section 3.3.4.1.2 *Special-status Plants* the DLA states that the 505-acre study area selected for SSWD's *Special-Status Plants and Non-Native Invasive Plants Study* consisted of the project's two recreation areas, and areas near the project dam, dikes, spillway, and powerhouse. The DLA explains these areas were selected as this is where SSWD determined that project operations and maintenance activities or project-related recreation could affect special-status plants or spread non-native invasive plant species (NNIP). However, we note that

section 3.3.6.1.1 *Recreation Facilities and Opportunities in and Around the Project Reservoir* describes informal, user-created trails and dispersed camping occurring along the reservoir shoreline. Therefore, it's unclear why such informal recreation activities were not considered as potentially having an effect on special-status plant species or potentially spreading NNIP. Therefore, more detailed information is required in order for staff to better understand and evaluate potential recreation effects on terrestrial resources. In the FLA, please provide additional information on, and effects analysis of, project-related, informal recreation activities on these resources including more detailed information on where, to what extent (e.g. frequency), when, and what activities occur in the project area, including any areas that may occur outside of the existing project boundary.

25. Section 3.3.4.1 *Affected Environment – Vegetation* includes sufficient descriptions and maps of vegetation classifications occurring within the project boundary. Section 3.3.4.3.5 Riparian Habitat below Camp Far West Reservoir provides descriptions and maps of vegetation classifications occurring at two sites (about 0.5 mile each) downstream of the project dam that was selected as part of SSWD's Instream Flow Study, but no further information is provided on vegetation communities occurring on other reaches downstream of the project. Section 3.3.4.2.1 Wildlife Habitat includes a list of wildlife habitats and their respective acreages found within the project boundary.

However, the DLA lacks sufficient information needed for staff to evaluate potential project-related effects on vegetation and terrestrial wildlife in the project area. Operation of the project has the potential to affect riparian vegetation and wildlife habitat downstream of the project as well as habitat outside of the project boundary.

Therefore, in the FLA please provide the information listed below as required by section 4.51(f)(3).

- a) Descriptions and maps of the vegetation communities occurring downstream of the project from the Camp Far West dam to the point of confluence with the Bear River and Feather River.
- b) For all wildlife habitat classifications occurring within and adjacent to the project boundary including downstream of the project dam to the Bear River's confluence with the Feather River provide the following below.
 - Descriptions of the characteristics defining each wildlife habitat classification.
 - A wildlife habitat map displaying all habitat classifications overlaid with project features, facilities, and boundaries.

26. In section 3.3.4.2.4 *Special-status Raptor Study – Swainson’s Hawk*, information pertaining to golden eagles appears to be accidentally included under this subheading. Please modify appropriately in the FLA.
27. In section 3.3.4.3.3 *Wetlands Downstream of Camp Far West Dam*, Table 3.3.4-11 provides basic descriptions of wetlands identified by the National Wetland Inventory (NWI) database as occurring downstream of the project dam to the confluence of the Bear River and Feather River. In order for staff to evaluate potential project-related effects to wetlands occurring downstream of the project please provide a map displaying the locations of all the NWI wetlands listed in table 3.3.4-11.
28. In section 3.3.4.3.1 *Wetlands*, under the subsections Palustrine Unconsolidated Bottom and Lacustrine Unconsolidated Bottom you reference Figure 3.3.4-14, however this figure does not exist, therefore please amend the FLA appropriately.
29. Please define the term “dry season hydrology inputs” used in section 3.3.4.3 *Wetlands, Riparian, and Littoral Habitats of the Project Area*.

Threatened and Endangered Species Resources

30. Section 3.3.5.2.1 *Screening for Potentially-affected ESA-listed Species* states that on August 25, 2015, SSWD generated a list of ESA-listed species. The USFWS considers lists older than 90 days to be out of date. Because the list included in the DLA was generated over 3.5 years ago, please update the list to ensure the list includes all listed species potentially affected by the project. Please amend the FLA with any changes accordingly.
31. As described in the DLA, Valley Elderberry Longhorn Beetle (VELB) is dependent on its host plant, elderberry, which is commonly found in riparian corridors and adjacent uplands. As part of the relicensing studies SSWD conducted the *ESA-Listed Wildlife - Valley Elderberry Longhorn Beetle Study*. The 505-acre study area where surveys for elderberry were conducted consisted of the project’s two recreation areas, and areas around the project dam, dikes, spillway, and powerhouse. The DLA justifies this study area based on where SSWD’s project operations and maintenance activities or project-related recreation could affect elderberry and VELB. However, the DLA notes potential stressors to VELB/elderberry also include competition from non-native, invasive plant species and inundation from the proposed reservoir pool raise. In addition, section 3.3.6.1.1 *Recreation Facilities and Opportunities in and Around the Project Reservoir* describes informal, user-created trails and dispersed camping occurring along the reservoir shoreline. It’s unclear why these potential project-related

effects are not considered in areas outside of the study area, particularly along the reservoir shoreline. We note that SSWD found one elderberry shrub in the study area east of the dam face, on the shore of reservoir; however there was no indication that the shrub was being used by VELB.

In addition, it's unclear if the study area included the areas where informal recreation activities occur and the extent to which informal recreation occurs along the reservoir shoreline or on other project lands where suitable VELB habitat may be present.

Therefore, in the FLA please provide the additional information listed below.

- a) The rationale and any information for why VELB and elderberry surveys were limited to the study area described above and did not include other areas potentially inhabited by VELB, particularly near the reservoir shoreline.
 - b) An analysis of potential project-related effects on VELB and its host plant, elderberry potentially affected by the project, including areas potentially affected outside of the existing project boundary. The analysis should evaluate the potential effects of non-native or invasive plant species, the proposed reservoir pool raise, and any formal and informal recreation activities on this listed species.
32. Section 3.3.5.2.2 *ESA-listed Species Life Histories* states a total of 83 aquatic features were detected and delineated as they may provide suitable habitat for ESA-listed aquatic species [e.g. vernal pool fairy shrimp and California red-legged frog (CRLF)]. Figure 3.3.5-3 includes a map of these aquatic features, however only about 20 features are visible due to the scale of the map. To aid staff in understanding their relative location and potential connectedness within the project area, please modify the map in the FLA so all of these aquatic features are visible.

In addition, please include and appropriately label the “small seasonal impoundment (i.e. stock pond)” referenced in the *California Red-legged Frog* (CRLF) subsection where the U.S. Fish and Wildlife Service (FWS) reported an observation of a CRLF in May 2017.

33. The CRLF subsection references a “second site visit with FWS on February 15, 2018”, however no specific information is provided about the site visit except a brief summary of a discussion that took place. Please clarify in the FLA the objective and location(s) visited during the February 15, 2018 site visit and whether any ESA-listed species surveys were conducted and if any ESA-listed species were observed, including CRLF.

Recreational Resources

34. In Section 3.3.6.1.1 *Recreation Facilities and Opportunities in and Around the Project Reservoir*, subsection NSRA, you cite Figure 3.2.6-1 for the NSRA; however, Figure 3.3.6-1 is the correct figure for the NSRA. In the FLA, please correct the typographical error in this section, and any additional sections where this error may occur.
35. In section 3.3.6.1.1 *Recreation Facilities and Opportunities in and Around the Project Reservoir*, subsection *North Shore Recreation Area, Family Campground*, you state that the facility consists of a total of 80 campsites, including 70 standard sites and 10 recreational vehicle (RV) sites with hookups. You further state that a typical campsite provides opportunities for tent or RV camping, but does not have hookups for water, electric, or sewer. In the FLA, please clarify if RV camping is permitted at all 80 campsites within the NSRA Family Campground.
36. Figure 3.3.6-3 (page E3.3.6-9) appears to show an approximate 4-foot-high cinder-block structure to the right of the concrete picnic table. In the FLA, please identify what purpose that structure serves at that particular campsite, and clarify if a similar structure exists at the second group campsite not pictured in Figure 3.3.6-3, or at any other project campsite.
37. Table 3.3.6-1 (page E3.3.6-2) identifies the Horse Camp as a “Group Campground” located within the NSRA. The subsection Group Campground (page E3.3.6-9) does not describe the Horse Camp; however, the Horse Camp is briefly describe in the Dispersed Use Areas subsection (page E3.3.6-13), although it is not identified as one of the two NSRA Dispersed Use Areas. In the FLA, please clarify which recreational facility area within the NSRA best characterizes the Horse Camp, and describe the existing condition of the Horse Camp site features.
38. Table 3.3.6-1 identifies the picnic sites associated with the SSRA as an amenity located in the Day Use Area. Please clarify if the area described under the *Picnic Area* subsection (page E3.3.6-24) is actually the Day Use Area. Additionally, Table 3.3.6-1, describes the Day Use Area as having a swim beach; however, in the *Picnic Area* subsection, the presence of a swim beach is not mentioned. In the FLA, please clarify if a swim beach is located at this site.
39. On pages E3.3.6-15 and E3.3.6-28, respectively, you describe the NSRA and SSRA Recreational Water System, and state that below-ground components of the system are in fair condition, and above-ground water hydrants and fountains are largely in poor condition. On page E3.3.6-55 you state that the majority of the

underground water distribution system is largely original, and will likely need to be replaced during the new license term to ensure distribution of reliable potable water throughout the NSRA and SSRA. You also state that above-ground water hydrants and fountains will require near-term replacement to meet the demands of the new water treatment facility and upgraded water distribution system.

Additionally, you state that SSWD proposes, in the *Recreation Facilities Plan*, to rehabilitate the Recreational Water System Facilities as they near the end of their useful life; however, in the *Recreation Facilities Plan* you state that SSWD will maintain the system in a condition to meet permit requirements, and upgrade the facilities as needed, depending on equipment life and regulatory requirements.

The DLA does not provide descriptions of a timeframe to replace the components of the system that are in fair and poor condition, any materials to be used, demolition of the existing components, and construction of the new components.

In the FLA, please include the following information listed below.

- a) An approximate timeframe to replace the components of the Recreational Water System described as being in fair and poor condition, and a proposed schedule of construction.
 - b) The processes that would be used when installing the new components.
 - c) The materials that would be used for construction of the new components (e.g. continuously-extruded HDPE pipe).
40. In Section 3.3.6.2.1 *Effects of Construction-Related Activities* you describe potential effects to approximately 104 existing recreational facilities and features caused by SSWD's proposed Camp Far West Reservoir pool raise. On page E3.3.6-50, you describe that the majority of construction would occur outside of peak recreation season, or would be restricted to select areas, and during low-use times, if required during peak recreation season, and would be completed within one calendar year. Although you state that a variety of recreational facilities and features would be relocated, rerouted, or realigned to avoid or mitigate for inundation caused by the pool raise, you do not provide a schedule for relocating, rerouting, or realigning the recreational facilities and features. Additionally, you do not describe potential affects to existing project facilities, not directly affected by the inundation, which could be affected by relocating, rerouting, or realigning the approximately 104 facilities impacted by the inundation. Further, you do not provide drawings showing the proposed relocation, rerouting, or realignment of the approximately 104 affected recreational facilities and features. In the FLA, please provide the following information:
- a) A construction schedule for relocating, rerouting, or realigning the approximately 104 recreational facilities and features.

- b) Drawings for the proposed relocation, reroute, or realignment of the approximately 104 recreational facilities and features affected by the pool raise. These drawings should also indicate potential relocations, reroutes, or realignments of any recreational facilities, not directly affected by the inundation, which could be affected by relocating, rerouting, or realigning the approximately 104 facilities impacted by the inundation.
- c) A description of potential effects to any recreational facilities, not directly affected by the inundation, which could be affected by relocating, rerouting, or realigning the approximately 104 facilities impacted by the inundation.

Land Management and Aesthetic Resources

- 41. In Exhibit G, Sheet 3, you indicate three areas of land would be incorporated into the project boundary for the purpose of recreational use. However, you fail to mention this proposed addition of land in the Recreation Resources and Land Use sections. In the FLA, please provide the following information in the appropriate Exhibit E section:
 - a) The current (if available) and proposed recreational uses of the three areas of land proposed for incorporation into the project boundary.
 - b) Environmental effects of incorporating the three areas of land into the project boundary as it relates to recreational use (current and proposed) and land use.
- 42. In Section 3.3.7.2 *Environmental Effects* (page E3.3.7-17) you state SSWD proposes a Pool Raise of five feet, modifications of existing recreation facilities, and modification of the existing project boundary; however, you fail to mention the addition of a new primary project road for accessing the Camp Far West Powerhouse, and the environmental effects associated with the new primary project road. In the FLA, please include your proposal for the addition of the new primary project road, and describe the environmental effects of adding this road, including environmental effects caused by future operations and maintenance activities related to use of the new primary project road.
- 43. In Section 3.3.7.1.2 *Land Use*, you state that no public land occurs within the existing FERC project boundary; however, you further state that an area designated as the California National Historic Trail, that is administered by the National Park Service, runs through the FERC project boundary, and crosses Camp Far West Reservoir in two locations, in the northern portion of the reservoir. You also state that the section of trail within the project boundary is not a “developed” trail. In the FLA, please clarify your statement that no public land occurs within the existing FERC project boundary, and your statement that the trail is not a “developed” trail.

44. In Section 3.3.7.1.4 *Project-Related Land Use Permits and Easements*, you state that SSWD does not require or hold any land use permits or easements for the project, other than from the few private landowners within the project boundary. In Section 3.3.6.2.1, *Camp Far West Reservoir Dam Pool Raise* you do not list or describe permits or easements for the five private parcels where lands are proposed to be added to the project boundary. In the FLA, please list and describe permits or easement agreements that SSWD has procured for the five private parcels that would be impacted by changes to the existing project boundary for the purposes of adding the Camp Far West Dam access road, and for the changes to the NMWSE for the pool raise.
45. In Exhibit A, Section 5.0 *Proposed Changes to Existing Project* you list three changes, including SSWD's proposals to: 1) incorporate an existing, private access road into the project as a primary project road to access the Camp Far West Powerhouse; and 2) modify the existing project boundary (which, in part, would allow SSWD to incorporate the existing, private access road into the project). In Exhibit E, Section 2.2.2 *Change to Existing FERC Project Boundary*, you mention the proposal to modify the project boundary to add areas that encompass rights-of-way for road access to the Camp Far West Powerhouse, in order to maintain the dam outlet and powerhouse. Additionally, in Exhibit E, *Land Use Section 3.3.7.1.5 SSWD's Vehicular Access to Project Facilities for Operation and Maintenance* you mention a short, private access road that is currently used to access the powerhouse and dam; however, in *Land Use Section 3.3.7.2 Environmental Effects*, you fail to describe potential environmental effects related to incorporating the existing private access road into the project as a primary project road. In the FLA, please describe potential environmental effects of incorporating the existing private access road into the project as a primary project road.

**BEFORE THE
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

CERTIFICATE OF SERVICE

I hereby certify that U.S Fish and Wildlife Service's Comments on the Draft License Application for Camp Far West Hydroelectric Project, Federal Energy Regulatory Commission Project #P-2997 has this day been electronically filed with the Federal Energy Regulatory Commission and served, via deposit in U.S. mail or by electronic mail, upon each other person designated on the Service List for Project P-2997 compiled by the Commission Secretary.

Dated at Sacramento, California, this 10th of April, 2019.



Aondrea Leigh Bartoo
San Francisco Bay-Delta Fish and Wildlife Office
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United States Department of the Interior

FISH AND WILDLIFE SERVICE

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Sacramento, California 95814



In Reply Refer To:
FERC 2997

Ms. Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

APR 10 2019

Mr. Brad Arnold
South Sutter Water District
2464 Pacific Ave
Trowbridge, CA 95659

Subject: U.S. Fish and Wildlife Service Comments on Draft License Application, Camp Far West Hydroelectric Project, FERC Project #P-2997; Yuba, Nevada, and Placer Counties, California

Dear Ms. Bose and Mr. Arnold:

The U.S. Fish and Wildlife Service (USFWS) files the following comments with the Federal Energy Regulatory Commission (Commission or FERC) on South Sutter Water District's (Licensee) Draft License Application (DLA) filed with the Commission on January 2, 2019, for the Camp Far West Hydroelectric Project (Commission P-2997) (Project). The USFWS submits the following comments and recommendations in accordance with the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531, *et seq.*), the Federal Power Act (FPA) (16 U.S.C. § 791a, *et seq.*), the Fish and Wildlife Coordination Act, as amended (16 U.S.C. § 661, *et seq.*), the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. § 668-668d), and the Central Valley Project Improvement Act (CVPIA) (Pub. L. No. 102-575, 106 Stat. 4600, 4706, Title 34 (1992).

The USFWS appreciates the opportunity to comment on the DLA and looks forward to continuing to work with the Licensee to address issues and concerns raised in our comments. Flows in the lower Bear River are prescribed by the current license. The license requires a minimum of 25 cubic feet per second (cfs) for the lower Bear River from April 1 through June 30 and 10 cfs (or inflow to Camp Far West reservoir) from July 1 through March 31 in every year. Additionally, the Licensee, California Department of Water Resources, and the Camp Far West Irrigation District entered into an agreement that extends until 2035 to provide up to 37 cfs of water from July through September (in addition to that provided in the current license) to support the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. The releases to support the Water Quality Control Plan are not made every year, and the DLA does not indicate how often these releases have been made since the agreement has been in place.

Due to staffing time constraints resulting from the 35 day federal government shutdown in December 2018 and January 2019, the following should not be construed as the USFWS's final position on proposed license conditions, but rather information to assist in collaborative discussions. The USFWS has been and will continue to be an active relicensing participant for the Project.

Issues and Concerns in the DLA

The DLA should more thoroughly address: (1) Central Valley Project Improvement Act (CVPIA) doubling goals for Chinook salmon (*Oncorhynchus tshawytscha*); (2) long-term monitoring for assessing Project effects on juvenile salmonid production; (3) aquatic invasive species; (4) California red-legged frog (*Rana draytonii*) conservation and consultation under the ESA; (5) rodenticide and other pesticide use at Project facilities; or (6) protection of the existing heron rookery.

CVPIA/AFRP Doubling Goals

To address the decline of Chinook salmon and steelhead trout populations in California, the CVPIA called for doubling of Chinook salmon runs; the USFWS Anadromous Fish Restoration Program (AFRP) identified CVPIA doubling goals for Chinook salmon in the 2001 *Final Restoration Plan for the Anadromous Fish Restoration Program* (USFWS 2001), which is filed with the Commission as a comprehensive plan. The DLA discounts the AFRP doubling goal for the Bear River of 450 average annual Chinook salmon spawners by stating that the data on which the goal is based is limited. The USFWS recognizes that there is limited data on Chinook salmon in the Bear River; however, the doubling goal is based on the best science available and the doubling goals were developed by an interagency team of recognized experts on salmonids. In the USFWS's September 7, 2016, comment letter (filed with the Commission) on the Pre-Application Document and Proposed Studies for the Project, we proposed a study plan for juvenile Chinook salmon survival. This study was anticipated to provide information on survival of juvenile salmon and Bear River natural production levels. However, the Licensee opted to not conduct this study. As there is no supplemental data available for the Bear River, the USFWS supports the AFRP doubling goal for this system and requests the Commission to implement reasonable Protection, Mitigation, and Enhancement (PME) measures for Chinook salmon within the Final License Application. These measures currently are in negotiation within the Traditional Licensing Process (TLP) for relicensing of the Project, and are anticipated to include actions such as fall pulse flows to support spawning migration, spring pulse flows to support juvenile Chinook outmigration and steelhead attraction, increased minimum instream flows in the winter and spring of wetter water year types, and ramping rates when the Project is either coming off of a spill event or reducing releases to the lower Bear River (as measured immediately downstream of the non-Project diversion dam).

The AFRP is working with Reclamation District 817 and MBK Engineers to develop and implement a levee setback for a portion of the lower Bear River. This Project was developed in response to levee erosion issues in the area and multi-stakeholder pressure to provide an ecosystem benefit solution. The levee setback is anticipated to provide additional flood capacity and riparian habitat, spawning habitat, or juvenile salmonid rearing habitat for the lower Bear River. Agency PME measures for pulse flows and ramping rates for the Project would be anticipated to complement these restoration actions and contribute to the AFRP doubling goal for the Bear River. Additional information on the levee setback project is available upon request.

Additionally, the USFWS completed a habitat assessment for the Beale Air Force Base in 2016 for Dry Creek (tributary to the lower Bear River) for anadromous salmonids. This study identified a number of potential restoration actions that could improve suitability for spawning and rearing of salmonids, several of which are anticipated to be implemented in fiscal year 2020: removing Beale dam (passage impediment), low-flow crossing at the downstream end of Dry Creek (passage impediment), installing a rocky ramp at the upstream end of Beale Lake, and injection of spawning gravel. Sufficient PME measures for minimum flows and pulse flows from the Project would allow fish passage from Bear River into Dry Creek and could potentially support the Dry Creek restoration project and contribute to the AFRP doubling goal for the Bear River. Additional information on the Dry Creek restoration project is available upon request.

Long-Term Monitoring

The DLA contains no proposal to monitor the status of salmonids within the lower Bear River for the new license period. Without periodic monitoring of these populations, the USFWS is unable to ascertain the long-term effects the Project and resulting PME conditions or how these future license conditions may need to be adjusted to better manage salmonid production. The USFWS requests that the Licensee, agencies, and TLP relicensing team collaboratively develop a reasonable monitoring plan for salmonids within the lower Bear River that allows a comparison of juvenile production and survival between years. The monitoring plan should be finalized within one year of license issuance.

Aquatic Invasive Species

Six aquatic invasive species that are known to occur in the Project area were not addressed adequately in the DLA: Asian clam (*Corbicula fluminea*), Brazilian waterweed (*Egeria densa*), floating water primrose (*Ludwigia peploides* ssp. *montevidensis*), parrot's feather milfoil (*Myriophyllum aquaticum*), Eurasian watermilfoil (*Myriophyllum spicatum*), and American bullfrog (*Lithobates catesbeianus*). The Commission and Licensee should develop an Aquatic Invasive Species Management Plan that addresses these and the additional aquatic invasive species that have the potential to occur within the Project area due to their proximal known locations. Management actions related to bullfrogs should be coordinated closely with measures to protect the California red-legged frog. This plan should be developed within one year of license issuance.

California Red-Legged Frog Consultation

The USFWS requested ESA consultation on effects to the California red-legged frog (*Rana draytonii*)(frog) and the vernal pool fairy shrimp (*Branchinecta lynchi*)(shrimp), pursuant to 50 CFR 402.14(a) in a letter filed with the Commission on February 1, 2019. This letter included comments regarding Project effects on the frog as well as the shrimp. The Licensee initiated consultation for the shrimp on February 28, 2019. No ESA consultation has occurred for the frog.

The California red-legged frog was federally listed as threatened on May 23, 1996 (61 **FR** 25813). Critical habitat for the California red-legged frog was established on March 17, 2010 (75 **FR** 12816).

At issue are the current management practices for the sewage treatment ponds associated with the recreational areas. Bullfrogs are established at the North Area sewage pond. Bullfrogs are well-

known invasive, non-native predators that eat and compete with native frogs, such as the California red-legged frog. At the time of ESA-listing of the California red-legged frog, bullfrogs were “considered to be a significant and widespread threat” (USFWS 1996). Introduced bullfrogs have been, and continue to be, a significant factor in the decline of the California red-legged frog (USFWS 1996, USFWS 2002). In spite of the population pressures that bullfrogs place on them, California red-legged frogs are typically able to persist: (1) In sub-optimal habitat where conditions are unfavorable to bullfrogs; (2) in marginal habitat adjacent to bullfrog-occupied areas; (3) where habitat is managed to reduce establishment of bullfrogs; or (4) where bullfrog depredation has been implemented. In areas where bullfrogs and California red-legged frogs co-occur, surveys typically detect high numbers of bullfrogs and low or undetectable numbers of California red-legged frogs. In these same areas, bullfrog removal and/or management have led to resurgence in the California red-legged frog population.

In our September 7, 2016, Pre-Application Document comment letter, we submitted a proposal for a California red-legged frog survey at locations within the Project area with suitable habitat. While the Commission and the Licensee chose not to conduct the survey, this does not mean that the species is not within the FERC Project boundary or in the area affected by the Project. As indicated in the USFWS September 7, 2016 letter, USFWS staff with more than 20 years of experience surveying and identifying the species identified a single, adult California red-legged frog at a small, ephemeral agricultural impoundment immediately adjacent to the North Area sewage pond, in addition to more than 100 bullfrogs at the sewage pond. This occurrence was submitted to California Natural Diversity Database (CNDDDB) by the USFWS. Subsequent site visits to the vicinity of the North Area sewage treatment pond by USFWS staff revealed that the North Area sewage pond is actively managed to restrict growth of vegetation in and around the pond. Although the method for vegetation control is not included in the DLA, use of herbicides or mechanical methods would both be anticipated to have impacts on any California red-legged frogs in the area. On May 20, 2017, four great blue herons were observed sitting at the edge of the sewage pond, presumably foraging on the frogs present following a recent mowing event. Any California red-legged frogs present would have been susceptible to these predators.

The South Area sewage treatment pond appears to have had different management activities than the North Area sewage treatment pond. The management practice of restricting vegetation growth at the ponds could further impact the California red-legged frog by removing available cover from predators. If managed appropriately, both ponds have the potential to support the California red-legged frog while fulfilling their sewage-treatment function.

Due to these potential ongoing impacts to the California red-legged frog, the USFWS requests that the Commission or the Licensee complete ESA consultation for the species prior to license issuance.

Rodenticide Use at Project Facilities

Within the DLA, the Licensee described the current and future planned use of rodenticides (D-Con) at the Camp Far West powerhouse. Prior to the use of any rodenticides within the Project area, the USFWS recommends the development of an Integrated Pest Management Plan that includes sanitation and exclusion methods as primary prevention. The Licensee should minimize the use of products containing second generation anticoagulants, in favor of other methods with fewer impacts to non-target animals that may feed on the target organisms.

Protection of the Existing Heron Rookery

A great blue heron (*Ardea herodias*) rookery exists within the Project area. The USFWS recommends the protection of this rookery during the breeding season by the implementation of a Limited Operating Period from March 15 to July 31 within a buffer of 0.25 mile of the rookery. Project activities, including recreation, should be limited to those which will have a low-likelihood of impacting the nesting herons. The USFWS would like to collaborate with the relicensing team to determine what activities would be appropriate.

Comments on Proposed License Conditions

Licensee Proposed Condition AR1 maintains the current license instream flow conditions for the lower Bear River. The USFWS, CDFW, Non-Governmental Organization groups, and the Licensee are actively negotiating instream flow conditions based on new (in process of negotiation) water year type for the Project, pursuant to the TLP. Agency proposals generally maintain the current license conditions for the drier water year types and provide higher flows in the winter and spring as well as pulse flows in the fall and spring for the wetter water year types to better support salmonid production in the lower Bear River and more closely mimic natural hydrology. The agency proposals also have included ramping rates for some months of the year when the Project reduces flows to the lower Bear River to minimize impacts to salmonid redds and fry that may be present downstream. The USFWS encourages the Commission to adopt into the Final License Application (FLA) the final instream flow conditions that result from these negotiations. Should the TLP negotiations result in a lack of agreement among parties, the USFWS will file an instream flow proposal to the Commission as part of their FLA comment package.

Licensee Proposed Condition TR1 provides that within one year of license issuance and in consultation with CDFW and USFWS, the Licensee will develop a Bald Eagle and Osprey Management Plan that will provide for the protection of bald eagles and osprey during nesting at Camp Far West Reservoir. The USFWS supports the inclusion of this measure in the FLA and appreciates the Licensee's efforts to develop this plan ahead of schedule. The USFWS looks forward to development of the plan.

Licensee Proposed Condition TR2 provides that within one year of license issuance and in consultation with CDFW, the Licensee will install and thereafter maintain devices to exclude bats from Project facilities. The USFWS is concerned that improper use of excluding devices can have large impacts to bats, especially when a maternity colony is present. The USFWS would like to assist in the development of this plan.

Other Comments

White and Green Sturgeon eDNA Sampling

The Licensee conducted an eDNA study that targeted four species: Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*Oncorhynchus mykiss*), green sturgeon (*Acipenser medirostris*), and white sturgeon (*Acipenser transmontanus*). Sampling occurred in February and March of 2017, during periods of high flow and high suspended sediments (flows ranged from 1,500 to 5,600 cfs). The Licensee reported that because of the flow and suspended sediment levels, the volume of water that could be filtered

for each sample was reduced by half over the required amount as identified in the January 2017 Stream Fish Study plan. The result of sampling during periods of high turbidity could lead to a false negative interpretation of eDNA data (Goldberg *et. al* 2016). The USFWS questions the validity of the resulting negative detection of eDNA for white and green sturgeon, due to this major variance to the study protocol and because samples were taken during adverse hydrology conditions and requests that the Licensee conduct an additional survey for green and white sturgeon. The Licensee should ensure their sampling events occur as closely as practicable with historic sightings of these two species within the lower Bear River (late March through June), during appropriate hydrological conditions for the sampling, and in accordance with the approved study plan.

Conclusion

The USFWS appreciates the opportunity to comment on the DLA. We have focused on major issues and concerns, and not editorial review, because of staffing and time constraints resulting from the federal government shutdown from December 23, 2018 through January 27, 2019. The USFWS looks forward to conducting and concluding ESA consultation on the California red-legged frog and in developing conservation measures consistent with sections 2(b and c), 3 (conserve), and 7(a)(1) of the ESA. If you have any questions regarding this response, please contact A. Leigh Bartoo of my staff at (916) 930-5621.

Sincerely,



Kaylee Allen
Field Supervisor

cc:

FERC #2997 Service List, Camp Far West Hydroelectric Project
Sarah Lose, CDFW, Rancho Cordova
Beth Lawson, CDFW, Rancho Cordova
Thomas Holley, NMFS, Sacramento
Meiling Roddam, SWRCB, Sacramento

References

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Vertucci, Charles

From: Lynch, Jim
Sent: Friday, April 12, 2019 11:21 AM
To: Vertucci, Charles
Subject: FW: State Water Board Review of DLA for Camp Far West

FYI

James Lynch

D 916.679.8740 **M** 916.802.6247

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From: Padgett, Karmina@Waterboards [mailto:Karmina.Padgett@Waterboards.ca.gov]
Sent: Friday, April 12, 2019 11:19 AM
To: Brad Arnold (sswd@hughes.net) <sswd@hughes.net>
Cc: Monheit, Susan@Waterboards <Susan.Monheit@waterboards.ca.gov>; Lynch, Jim <Jim.Lynch@hdrinc.com>; Colombano, Meiling <Meiling.Colombano@Waterboards.ca.gov>; Hoobler, Sean@Wildlife <Sean.Hoobler@wildlife.ca.gov>; Lose, Sarah@Wildlife <Sarah.Lose@wildlife.ca.gov>; 'aondrea_bartoo@fws.gov' <aondrea_bartoo@fws.gov>; Lawson, Beth@Wildlife <Beth.Lawson@wildlife.ca.gov>; thomas.holley@noaa.gov
Subject: State Water Board Review of DLA for Camp Far West

Mr. Arnold,

On January 2, 2019 the State Water Board received a copy of the Draft License Application for New License (application) filed by South Sutter Water District for the Camp Far West Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC) Project No. 2997. State Water Board staff have reviewed the draft license application and have no comments.

Thank you,
Karmina Padgett
Water Resource Control Engineer
Division of Water Rights
State Water Resources Control Board
Phone: (916) 323-4642



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



April 15, 2019

Brad Arnold, General Manager
South Sutter Water District
2464 Pacific Ave.
Trowbridge, CA. 95659

SUBJECT: COMMENTS FROM THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE ON SOUTH SUTTER WATER DISTRICT'S DRAFT LICENSE APPLICATION FOR THE RELICENSING OF THE CAMP FAR WEST HYDROELECTRIC PROJECT, FERC PROJECT NO. 2997

Dear Mr. Arnold:

The California Department of Fish and Wildlife (Department) has received and reviewed the Draft License Application (DLA) filed by the South Sutter Water District (SSWD) (Licensee) for the relicensing of the Camp Far West Hydroelectric Project (Project, FERC No. 2997). The DLA was filed by the Licensee with the Federal Energy Regulatory Commission (FERC) on January 2, 2019. Pursuant to paragraph (e) of section 5.16 of Title 18 of the Code of Federal Regulations, the Department provides the following comments on the DLA.

AUTHORITIES

The Department is the appropriate State fish and wildlife agency for resource consultation and Federal Power Act Section 10(j) (16 U.S.C. section 803 (j)) purposes. The fish and wildlife resources of the State of California are held in trust for the people of the State by and through the Department (Fish & G. Code § 711.7). The Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species (Fish & G. Code § 1802). The mission of the Department is to manage California's diverse fish, wildlife, and plant resources, and the habitats on which they depend, for their ecological values and for their use and enjoyment by the public. It is the goal of the Department to preserve, protect, and as needed, to restore habitat necessary to support native fish, wildlife, and plant species within the FERC-designated boundaries of the Project, as well as the areas adjacent to the Project in which resources are affected by ongoing Project operations and maintenance activities and recreational use.

General Statement:

The Relicensing Participants (RP) (Licensee, Department, National Oceanic Atmospheric Administration, United States Fish and Wildlife Service, Non-Governmental Organizations and members of the public) have been meeting for several months to

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discuss operations of the Project and determine if there are areas where collaborative agreement can be reached on a comprehensive package of protection, mitigation, and enhancement measures that can be included in the license. The Department plans to continue to work with the Licensee and other RP's to determine where plans can be agreed upon before the filing of the Final License Application (FLA).

VOLUME I

Initial Statement

Section 2.0 Applicant and Requested Term of New License

Licensee is requesting a new license term of 40-50 years in this section and throughout the document. Pursuant to 16 U.S.C. § 808(e) any license issued by FERC shall be for a term of not less than 30 years and no more than 50 years from the date the license is issued. FERC issued a "Policy Statement on Establishing License Terms for Hydroelectric Projects" on October 19, 2017. In that Policy, FERC sets 40 years as the "default" term with three circumstances where a shorter or longer license may be issued. In this case, none of these circumstances are applicable or anticipated, therefore there is no justification for a term longer than 40 years.

Section 7.0 Pertinent Statutory and Regulatory Requirements of the State of California

The Department recommends the addition of several applicable sections of Fish and Game Code (FGC). The Department recommends the addition of;

FGC §5937 which states the following: "Sufficient Water for Fish Existing Below Dams- The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam. During the minimum flow of water in any river or stream, permission may be granted by the department to the owner of any dam to allow sufficient water to pass through a culvert, waste gate, or over or around the dam, to keep in good condition any fish that may be planted or exist below the dam, when, in the judgment of the department, it is impracticable or detrimental to the owner to pass the water through the fishway."

FGC §2302 which states: "Dreissenid Mussel; Responsibilities of Reservoir Managers or Owners- (a) Any person, or federal, state, or local agency, district, or authority that owns or manages a reservoir, as defined in Section 6004.5 of the Water Code, where recreational, boating, or fishing activities are permitted, except a privately owned reservoir that is not open to the public, shall do both of the following:

(1) Assess the vulnerability of the reservoir for the introduction of nonnative dreissenid mussel species.

(2) Develop and implement a program designed to prevent the introduction of nonnative dreissenid mussel species.

(b) The program shall include, at a minimum, all of the following:

- (1) *Public education.*
- (2) *Monitoring.*
- (3) *Management of those recreational, boating, or fishing activities that are permitted.*
- (c) *Any person, or federal, state, or local agency, district, or authority, that owns or manages a reservoir, as defined in [Section 6004.5 of the Water Code](#), where recreational, boating, or fishing activities of any kind are not permitted, except a privately owned reservoir that is not open to the public, shall, based on its available resources and staffing, include visual monitoring for the presence of mussels as part of its routine field activities.*
- (d) *Any entity that owns or manages a reservoir, as defined in [Section 6004.5 of the Water Code](#), except a privately owned reservoir that is not open to the public for recreational, boating, or fishing activities, may refuse the planting of fish in that reservoir by the department unless the department can demonstrate that the fish are not known to be infected with nonnative dreissenid mussels.*
- (e) *Except as specifically set forth in this section, this section applies both to reservoirs that are owned or managed by governmental entities and reservoirs that are owned or managed by private persons or entities.*
- (f) *Violation of this section is not subject to the sanctions set forth in [Section 12000](#). In lieu of any other penalty provided by law, a person who violates this section shall, instead, be subject to a civil penalty, in an amount not to exceed one thousand dollars (\$1,000) per violation, that is imposed administratively by the department. To the extent that sufficient funds and personnel are available to do so, the department may adopt regulations establishing procedures to implement this subdivision and enforce this section.*
- (g) *This section shall not apply to a reservoir in which nonnative dreissenid mussels have been detected."*

FGC §5943 which states: "*Public Access of Dam Waters-(a) The owner of the dam shall accord to the public for the purpose of fishing, the right of access to the waters impounded by the dam during the open season for the taking of fish in the stream or river, subject to the regulations of the commission..."*

Exhibit B Project Operations

Section 4.1 Relicensing Hydrology Datasets-Proposed Project (Future Conditions)

Licensee analyzed the proposed Project under future conditions. The Department recommends inclusion of the Nevada Irrigation District (NID) water rights application #5634X01 which seeks to appropriate up to 221,400-acre feet annually (afa) from the Bear River. NID proposes to construct a new onstream storage reservoir capable of impounding up to 110,000 afa of water as well as directly divert up to 400 cubic feet per second or 111,400 afa. The proposed onstream storage reservoir will require the construction of a new dam approximately 275 feet in height with an anticipated water depth at the dam of 255 feet. This amount of additional water storage and changes to the Bear River hydrologic conditions will likely result in impacts to water availability at Camp Far West Reservoir, the Department would like to work with the Licensee to

negotiate specific terms to include in the FERC license that address changes to water year type classifications if/when a new onstream storage reservoir is constructed upstream of the Project.

Section 5.2.5 Water Transfers

The Licensee conducted an additional water transfer in July of 2018 that should be included in this section. The water transfer was greater than 10,602-acre feet. The Department recommends the addition to this section as well as other applicable sections.

Section 6.1 Operations in Typical Dry, Normal and Wet Years

The Licensee has proposed a revision to the water year type that is reflective of its placement in the watershed and dependency on inflow from upstream purveyors. The Department is considering this proposal as well as its implications and continuing to work through its revision until consensus is reached. Additional information on water year type discussions, and relationship with instream flow and other fisheries flow measures is discussed below in our response to Volume II Section 2.2.4.1.

Section 6.4.2.3 Vertebrate Pest Management

Licensee described the following methods of vertebrate pest control:

"SSWD implements rodent control as needed in facility interiors using non-restricted rodenticides (e.g., D-Con®), which are applied in accordance with the label instructions. Rodent control occurs within the Camp Far West Powerhouse".

CDFW recommends this section be amended to state the following:

"SSWD implements rodent control as needed in facility interiors using an Integrated Pest Management approach that includes sanitation and exclusion. General Use rodenticides, applied in accordance with the label instructions, may be used when necessary. Rodent control occurs within the Camp Far West Powerhouse".

The California Department of Pesticide Regulation (CDPR) developed mitigation measures in 2014 for second generation anticoagulants rodenticide (SGAR's) to protect non-target animals such as raptors, owls, foxes, mountain lions, etc. SGAR's, such as brodifacoum and bromadiolone, can be found in many commonly used products such as D-Con® and their use should be restricted, and other alternatives considered.

Exhibit D

Section 5.1.8 Transmission Line Access Costs

This section as well as the associated Table 5.1-1 describes the Licensee's estimated annual average costs. In addition, the Licensee has requested that this Project be

omitted from the FERC Project Boundary in a list of corrections/changes that have been proposed in Exhibit A. The Department recommends that the costs of the transmission line should not be included in this estimation as it is a separate FERC project under FERC project number #10821.

Volume II

Recreation Facilities Plan

The Licensee has proposed a condition regarding recreation (RR1) which states the following: *"Implement the Recreation Facilities Plan included in SSWD's Application for New License. The plan describes how SSWD will manage recreation at Camp Far West Reservoir, including the maintenance of Project recreation facilities."*

The Recreation Facilities Plan is included as an appendix in Volume II of the DLA. At a March 1st, 2019, meeting between the Department, SSWD, and other RP's, the Department made several recommendations that are under consideration by the Licensee. These recommendations include the following;

- improving the boat ramp at the South Shore Recreation Area (SSRA) to allow for better access to visitors
- a 1:1 campground replacement and less condensed sites
- replacement of the swim beach
- opening the SSRA for a longer season
- permanent fish cleaning stations
- wildlife proof trash cans

The Department plans to work with Licensee and other Relicensing Participants in the next several months to attempt to reach a collaborative agreement on this measure for inclusion in the new license.

1.4.2.4 Collaborative Development of PM&E Measures

The Licensee did not propose any Protection, Mitigation & Enhancement (PM&E) measures in their Draft Licensee Application stating that "SSWD and licensing participants did not reach agreement on any PM&E measures that SSWD could propose in its Draft Application for New License". However, the Licensee further stated that they are "fully committed to reaching collaborative agreement on as many measures as possible with as many agencies as possible and include those collaboratively-agreed to measures in its final Application for New License that will be filed with FERC in June 2018".

The Department looks forward to continuing to work with the Licensee and other RPs to fully develop and agree on the following plans/measures for inclusion into the Final License Application prior to submittal to FERC:

- Bald Eagle and Osprey Management
- Aquatic Invasive Species Management
- Recreation Plan
- Instream Flow
- Pulse Flows
- Ramping Rate Plan

Additionally, the Department recommends the Licensee develop a framework for the monitoring of aquatic and water resources. At a minimum, an aquatic and water resources monitoring plan should address the following areas: stream fish, benthic macroinvertebrates, water temperature, and water quality (potentially including mercury bioaccumulation) so that the Licensee and the RP can obtain a baseline and determine if the revised flow and ramping schedule is impacting these suggested parameters.

Section 2.2.4.1 SSWD's Proposed Conditions in the FERC license

Measure AR1 (Instream Flow)

Licensee and Relicensing Participants have not had the opportunity to complete discussions including operations, water temperature, and instream flow modeling to determine appropriate protection, mitigation and enhancement measures related to instream flows and water year types. The Licensee's DLA application does not contain any recommendations to include changes to any measures to improve ramping, instream flows, or pulse flows in the Bear River below Camp Far West Reservoir. The Department has expressed an interest during discussions with the Licensee in developing conditions that would provide for higher minimum instream flows to be released during winter and spring months, fall and spring pulse flows and other measures to improve conditions for native aquatic species in the lower Bear River. The Department plans to work with the Licensee and other Relicensing Participants in the next several months to attempt to reach a comprehensive and collaborative agreement on instream flow measures and other protection, mitigation and enhancement measures for the new license.

In addition to instream flow measures, the accompanying water year types for this Project are still in discussion. For most FERC projects in the Sierra, water year types recommended by the Department are based on rain and snowmelt runoff or calculated runoff values throughout the water year. In higher water year types, the Department's instream flow, pulse flow, and geomorphic flow recommendations are higher in attempt to mimic more natural watershed conditions. The California State Water Resources Control Board's (SWRCB) 2017 Scientific Basis Report states that:

"Fish species have continued to experience precipitous declines since the last major update and implementation of the Bay-Delta Plan in 1995 that was intended to halt and reverse the aquatic species declines occurring at that time. In the early 2000s, scientists noted a steep and lasting decline in population abundance of several native estuarine fish species that has continued and worsened during the recent drought. Simultaneously, natural production of all

runs of Central Valley salmon and steelhead remains near all-time low levels. These declines are attributed in part to flow modifications due to dams and water diversions and related operations. At certain times in some streams, flows are completely eliminated or significantly reduced by direct water diversions and impoundment in reservoirs. At other times, flows are increased from reservoirs, but then exported from the watershed before contributing to Delta outflows. At the same time, the dams that impound that water block access to upstream cold water habitat and may cause significant warming of water downstream. Further, water project operations in the southern Delta alter circulation patterns, interfering with fish migration, changing water quality, and entraining fish and other aquatic organisms. A significant and compelling amount of scientific information indicates that restoration of more natural flow functions throughout the watershed from natal streams to the nearshore ocean is needed now to reverse the species declines in an integrated fashion with physical habitat improvements and other actions. While it is not possible to replicate natural flows or the natural landscapes in which those flows occurred and interacted in the Bay-Delta, it is possible to take actions to provide more natural functional flows in coordination with other complementary actions to improve and restore habitat functions to support a resilient ecosystem."

Because of the large amount of impairment upstream of this reservoir in the Yuba and Bear watersheds, the Department staff are considering the Licensee's proposal to base fall and winter water year types and resulting instream flows on the amount of water available at Camp Far West Reservoir. It is the goal of the Department to provide more natural flow regimes that include higher flows in larger water year types so that aquatic resources can benefit from more natural flow functions. In dry water year types, it is the goal of the Department to recommend minimum protections for aquatic species based on preserving as much habitat as possible given water availability constraints.

In addition, the Department staff recognize that water year types developed for the existing condition may not represent conditions in the watershed in the future. In particular, the potential development of an upstream storage reservoir could significantly affect the amount of water available to Camp Far West Reservoir. Department staff intend to continue to discuss water year types under existing conditions in this watershed, as well as required potential changes to the water year types under foreseeable development conditions during the FERC license term.

Section 3.3.3.1.2 Aquatic Invasive Species

The Department recommends the Licensee develop an Aquatic Invasive Species Management Plan in order to comply with Fish and Game Code 2302. Per the DLA, a search of the USGS Non-indigenous Aquatic Animals database and the CalWeedMapper database and other information, six aquatic invasive species (AIS) occur in Camp Far West Reservoir.

Section 3.3.3.1.3 Aquatic Resources of the Bear River Area

SSWD's Relicensing eDNA Sampling

The Licensee conducted an eDNA study that sampled four targeted species: 1) chinook salmon (*Oncorhynchus tshawytscha*); 2) steelhead (*Oncorhynchus mykiss*); 3) green sturgeon (*Acipenser medirostris*); and 4) white sturgeon (*Acipenser transmontanus*). Sampling occurred between February 22 and March 1, 2017 and was followed by a second survey that occurred on March 8, 2017, and March 15, 2017. The Licensee reports that samples were collected during high flows in the Bear River that ranged from 1,523 to 5,659 cfs throughout sampling events in accordance with the approved study plan. However, the Licensee reported that because of high flows, turbidity was also high, which severely limited the volume of water that could be filtered for each sample. *"Suspended sediment clogged the filter quickly. As a result, the field team used five filters for each sample and recorded the volume of water filtered by each filter. On average, this was approximately 1 liter (total of five filters) for each sample."* Lastly, the Licensee reports that they did not detect or observe any sturgeon in the Lower Bear River during their studies.

The Department is concerned that the Licensee's eDNA study was not completed in accordance with the January 2017 approved "Stream Fish Study" plan. The approved study plan required the Licensee collect the following: *"For each sample, 2 liters of water will be filtered using sterile tubing and a portable peristaltic pump."* (Stream Fish Study). The Licensee only collected 1 liter at each sample location, or half the required volume of water per sample. The Department considers this a major variance to the study.

Unfortunately, the Licensee did not consult with the Department and other resource agencies regarding the high suspended sedimentation in the water during sampling. Although the Licensee did reach out to a third-party "analysis lab" to discuss possible alternatives, they ultimately decided on reducing the sample volume. Had consultation occurred, the Department may have recommended delaying sample collection out of concerns for potential dilution of eDNA and possible sample contamination.

Three important processes contribute to the removal of eDNA from the aquatic environment and influences the length of time a target organism can be detected. First, eDNA transport during high water flows in lotic systems. Second, eDNA becomes unavailable for survey as the DNA is degraded (i.e., decay of genetic material). Third, eDNA can be transported vertically out of suspension by binding to particulate matter, settling and becoming incorporated into substrates (Buxton et.al 2017) and therefore not available for sampling from the vertical water column. The result of sampling during periods of high turbidity could lead to a false negative interpretation eDNA data (Goldberg et. al 2016). Given the circumstances of the sampling summarized in the top paragraph of this section, we have reason to suspect a false negative interpretation in this case and recommend that SSWD conduct another survey for Green and White Sturgeon. Moreover, anecdotal evidence of the presence of sturgeon is reported on Page E3.3.3-35 of Exhibit E – Environmental Report:

“...March 28, 2017, DWR biologists reported detecting 24 adult sturgeons while conducting DIDSON surveys in the lower 1 mile of the Bear River. During that same time period, DWR staff reported they received anecdotal reports of anglers landing sturgeon in Wheatland just above the Highway 65 Bridge”.

Sturgeon sightings reported by DWR occurred less than 13 days after the last sampling event. Additionally, the angler reports of sturgeon landings occurred in proximity to eDNA sampling locations Reaches 3, 4, and 5 (DLA Figures 3.3.3-11 and 3.3.3-12). It is not clear to the Department if the false negative observations surrounding sturgeon detection were a result of the study plan variance (reduce volume of sample) or the Licensee's decision to collect samples during periods of reported high turbidity (dilution of eDNA). Regardless of the cause, resampling is warranted if for no other reason than to determine the species of sturgeon present in the Bear River.

The Department recommends that the Licensee complete a second year of an eDNA study to determine the species of sturgeon. The Licensee should align sampling events with reported temporal occurrences of sturgeon sighted in the Lower Bear River (Late March to June) and in accordance with the approved study plan.

Section 3.3.3.4 Wildlife Resources

Section 3.3.3.4.2 Bald Eagles and Osprey

As a part of a study filed with FERC on January 9, 2017, Special-status Wildlife, Raptor Study Plan, the Licensee identified and mapped known raptor nesting sites, conducted surveys with specific protocols for special status raptors, and performed a QA/QC review. During this period of study, 47 bald eagle (*Haliaeetus leucocephalus*) occurrences were reported and two active nests. In addition, three osprey (*Pandeion haliaetus*) nests were discovered during this time period.

Licensee conducted winter surveys and nesting surveys by following the *Protocol for Evaluating Bald Eagle Habitat and Populations in California* (Jackman and Jenkins 2004), *Bald Eagle Breeding Survey Instructions* (CDFG 1999). Nesting territories for bald eagles were checked at least three times during the nesting season (primarily February through July). Bald eagle surveys were conducted on December 20-22, 2016; January 16-18; February 15, 23-24; March 16; April 6, 25; May 2; and June 16, 2017. During the study, SSWD recorded any raptor sightings and nests observed looking inland within 0.25-mi from the edge of the shoreline at the Camp Far West Reservoir, photographed the nest, and recorded the location using GPS. Incidental sightings of other special-status raptors including northern harrier (*Circus hudsonius*), short-eared owl (*Asio flammeus*), long-eared owl (*Asio otus*), and white-tailed kite (*Elanus leucurus*) were recorded when they were seen. If reasonably possible, SSWD made determinations as to whether the raptor nest was active or inactive during the survey year. Additionally, SSWD biologists recorded all bird species observations throughout the special-status raptor study, and these species are documented in Table 3.3.4-7 of the DLA. As mentioned above, forty-seven bald eagle occurrences (including multiple bald eagles at the same site), six golden eagles (*Aquila chrysaetos*), and three

Swainson's hawks (*Buteo swainsoni*) were observed during surveys. A map of these special-status raptor 2017 sightings within the FERC Project Boundary is included in Figure 3.3.4-2 of the DLA. Two active bald eagle nests were found within the proposed Project Boundary in 2017. One nest is historic, previously found on the Bear River Arm of Camp Far West Reservoir in adjacent trees. It was previously documented in a 2013 report by Sycamore Associates. A second active bald eagle nest was found on the Rock Creek Arm of the reservoir, east of the North Shore Recreation Area (NSRA) boat ramp. Both active bald eagle nests and the three osprey nests found within the FERC Project Boundary are identified on the map included in Figure 3.3.4-3.

Bald eagle is a State listed endangered species and fully protected bird species. Osprey is a State watch list species. The DLA contains Licensee's proposed conditions for bald eagle (SSWD Proposed Condition TR 1) and states that, "SSWD shall within one year of license issuance and in consultation with CDFW and USFWS develop a Bald Eagle Management Plan that will provide for the protection of bald eagles during nesting at Camp Far West Reservoir." The Department appreciates the fact that the Licensee is developing a Bald Eagle/Osprey Management Plan (per proposed condition TR-1) earlier than the proposed 1-year timeframe, in order to expedite protection of the resource. The Department and other resource agency partners will continue to work with the Licensee to develop this plan.

A great blue heron (*Ardea herodias*) rookery was also located in the SSRA, near the site location of the bald and golden eagles. The Department recommends the protection of this rookery during the breeding season by the implementation of a Limited Operating Period from March 15 to July 31 within a buffer of 0.25-mile around the rookery.

Section 3.3.4.2.3 Special-Status Bat Species

The Licensee has proposed the following:

"SSWD Proposed Condition TR2. SSWD shall within one year of license issuance and in consultation with CDFW install and thereafter maintain devices to exclude bats from Project facilities within 1 year of license issuance."

The Department recommends the following addition to this proposed condition to ensure continued protection of the resource:

"TR2-1: Prior to initiating any Project operations and maintenance activities (including exclusion), a qualified biologist will inspect the facilities for bats immediately prior to initiating activities. If winter hibernacula of special-status bats are present and likely to be affected by the activities (e.g., noise disturbance, structure modification), work will be limited to avoid the hibernacula season when bats are sensitive to disturbance (November through March) or consultation with the agencies about protective measures will be initiated. If construction is planned for the hibernacula season, exclusion methods may be planned before construction has occurred."

The Department appreciates the opportunity to provide comments on the DLA. The Department looks forward to working collaboratively with the Licensee and other Project relicensing participants to review and discuss the results of studies, determine Project effects on fish, wildlife, and plants resources, and develop appropriate PM&E measures for the new FERC license. If you have questions regarding our comments or would like to discuss the contents of this letter further, please contact Sarah Lose, Senior Environmental Scientist, at Sarah.Lose@wildlife.ca.gov or (916) 747-5226.

Sincerely,



Kevin Thomas
Regional Manager

cc: Brad Arnold, sswd@hughes.net
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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
WEST COAST REGION
650 Capitol Mall, Suite 5-100
Sacramento, California 95814-4706

April 15, 2019

In response refer to:
TH:WCR:FERC P-2997-031

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: NOAA's National Marine Fisheries Service, West Coast Region, Comments on the Draft Final License Application for the Camp Far West Hydroelectric Project, Federal Energy Regulatory Commission Project No. P-2997-031.

The U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) has reviewed the Draft License Application (DLA) filed by South Sutter Water District (SSWD or Licensee) for the Camp Far West Hydroelectric Project, FERC No. 2997-031 (Project) filed December 31, 2018, and hereby provides our comments below.

If you have questions regarding this letter, please contact Mr. Tom Holley at (916) 930-5592. (Thomas.Holley@noaa.gov).

Sincerely,

A handwritten signature in black ink, appearing to be "SE", written over a light gray circular background.

Steve Edmondson
FERC Hydropower Branch Supervisor
NMFS, WCR, Sacramento Area Office

cc: FERC Service List for P-2997

1.0 Introduction

NMFS has statutory responsibility for the protection and enhancement of living marine resources, including anadromous fish and their supporting habitats, under the Federal Endangered Species Act (ESA) (16 U.S.C. §1531 *et seq.*), Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. §1801 *et seq.*), Fish and Wildlife Coordination Act (16 U.S.C. §661 *et seq.*), and Reorganization Plan No.4 of 1970 (84 Stat. 2090). NMFS has authority to prescribe fish passage at licensed projects under the Federal Power Act (FPA) §18, and the duty to provide recommendations for the protection, mitigation of damage to, and enhancement of fish and their habitats under FPA § 10(j) and 10(a). NMFS submits these comments pursuant to its authorities under these statutes.

The anadromous fish and anadromous fish habitat potentially impacted by facilities and operations of the Camp Far West Hydroelectric Project (P-2997) are preliminarily determined to be those occurring in the lower Bear River watershed, including Dry Creek, and in areas downstream in the Feather River, Sacramento River, and the Sacramento-San Joaquin Delta; these resources are identified below:

Anadromous fish and habitat resources protected under the Endangered Species Act (ESA):

- 1) Central Valley (CV) spring-run Chinook salmon evolutionarily significant unit (ESU) (*Oncorhynchus tshawytscha*), threatened (June 28, 2005, 70 FR 37160);
- 2) CV spring-run Chinook salmon critical habitat (September 2, 2005, 70 FR 52488);
- 3) California CV (CCV) steelhead distinct population segment (DPS) (*Oncorhynchus mykiss*), threatened (January 5, 2006, 71 FR 834);
- 4) CCV steelhead critical habitat (September 2, 2005, 70 FR 52488);
- 5) Southern DPS of North American (NA) green sturgeon (*Acipenser medirostris*), threatened (April 7, 2006, 71 FR 17757); and
- 6) Southern DPS of NA green sturgeon critical habitat (October 9, 2009, 74 FR 52300);

Anadromous fish habitat resources protected under the Magnuson-Stevens Fishery Conservation and Management Act (MSA):

- 1) CV fall/late fall-run (fall-run) Chinook salmon ESU, Species of Concern (those species about which NMFS has concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the ESA): April 15, 2004, 69 FR 19975 and
- 2) Chinook salmon “Essential Fish Habitat” (EFH), (October 15, 2008 73 FR 60987); EFH has been identified in the Bear River extending upstream to approximately Camp

Far West Dam and in areas downstream in the Feather and Sacramento Rivers, and the Sacramento-San Joaquin Delta.

2.0 General Comments on the Draft License Application

The Licensee did not propose any protection, mitigation and enhancement (PM&E) measures in their Draft Licensee Application stating that “SSWD and licensing participants did not reach agreement on any PM&E measures that SSWD could propose in its Draft Application for New License”. However, the Licensee further stated that they are “fully committed to reaching collaborative agreement on as many measures as possible with as many agencies as possible and include those collaboratively-agreed to measures in its final Application for New License that will be filed with FERC in June 2018.” (DLA p.E1-37)

NMFS, along with fellow Federal and State Agencies and non-governmental organizations, have been meeting with the Licensee for several months to determine if there are areas where collaborative agreement can be reached on protection, mitigation, and enhancement measures that can be included a new license for the Camp Far West Project. NMFS plans to continue to work with the TLP participants to reach agreement on as many issues as possible before filing the Final License Application (FLA).

NMFS expects FERC will adopt PM&E measures that fully mitigate the Project’s effects to anadromous fish and their habitat. These measures should include:

- 1) Instream flows that mitigate the Project’s alteration of the natural hydrograph including ramping/rate of change and temperature effects.
- 2) Large wood and spawning gravel augmentation that mitigate the Project’s disruption of downstream transport of these important elements of salmonid habitat.
- 3) An aquatic monitoring plan that can document the effectiveness of the PM&E measures and adaptively manage license conditions during the period of the new FERC license.

3.0 Specific Comments on the Draft License Application

DLA p.E2-50 SSWD Proposed Conditions in the FERC License:

“SSWD Proposed Conditions ARI. SSWD shall maintain a continuous minimum flow of 25 cfs from April 1 through June 30 and 10 cfs from July 1 through March 31 or inflow to Camp Far West Reservoir, whichever is less, as measured immediately below the non-Project diversion dam downstream of Camp Far West Dam.”

NMFS Comment: The Licensee’s DLA does not include changes to the current flow regime in the Bear River below Camp Far West Reservoir. NMFS plans to work with the Licensee and other TLP Participants to attempt to reach a collaborative agreement on instream flow measures as well as other PM&E measures for a new FERC license. It is NMFS’ goal to provide a more natural flow regime that includes higher flows in wetter water year types so that aquatic resources can benefit from more natural flow functions. In dry water year types, NMFS’ goal is

to provide minimum protections for aquatic species based on preserving as much habitat as possible given water availability constraints.

Because of the high degree of impairment upstream of the Project in the Yuba and Bear watersheds, the Licensee has proposed to base fall and winter water year types and resulting instream flows on the amount of water available at Camp Far West Reservoir. NMFS recognizes that water year types developed for the existing condition may not represent conditions in the watershed in the future. In particular, the potential development of an upstream Centennial Reservoir could significantly affect the amount of water available to Camp Far West Reservoir. NMFS intends to continue to discuss water year types under existing conditions in this watershed, as well as required potential changes to the water year types under foreseeable development conditions during the new FERC license term.

DLA p. E3.3.3-84:

“The Instream Flow Study does not consider temperature as a parameter of suitability and assumes that water temperatures for each life stage of CV fall-run Chinook salmon ESU is adequate. However, this is not true at all times in the lower Bear River. The lower Bear River is a relatively small, valley floor tributary to the Feather River that is a rain-fed watershed and lacks any access to snowpack or water-on-snow freshet runoff. As a result, summer conditions, even pre-Project, would typically be represented by warm, low flows, more akin to a coastal stream than a coldwater Sierran stream. The system can respond rapidly to precipitation, but is highly influenced by ambient warming from late spring into early fall and from releases from upstream water projects. As a result, water temperature is currently a limiting factor to salmonids.”

NMFS Comment:

The Bear River below the Project does not provide suitable water temperatures for year-round use by salmonids. However, the Bear River currently supports seasonal salmonid use as adults enter the system in the fall and outmigrate in the spring. The Project affects water temperatures in the lower Bear River during the fall where water releases from the dam can be warmer than pre-project conditions, as well as during the winter and spring when the Project is storing and releasing water.

DLA p.E3.3.3-87:

“temperature in the lower Bear River that has not fully chilled due to seasonal ambient cooling. The low elevation of the Bear River and relatively smaller reservoir does not cool the water as quickly as other watersheds. As a result, as shown in Table 3.3.3-31, water temperatures are not suitable for spawning in October, marginal at best in November (i.e., 30% to 48% of the days suitable, most of which occurs in the wetter water years), and become suitable in December and January. Temperature results appear to correlate with significant spawning activity observed in January during SSWD’s redd surveys with moderate amounts or spawning in November and December.”

NMFS Comment:

As discussed above, the Project affects water temperatures in the lower Bear River during the peak months for fall-run Chinook salmon spawning (Oct-Dec). In addition, the Project also captures and stores inflow during these months; as a result migration cues and pulse flows that would have occurred in absence of the Project are altered or captured by the reservoir. In this way the Project effects initiation and timing of fall-run upstream migration and spawning—this project effect should be mitigated to the maximum extent possible.

DLA p.E3.3.3-95 Effects on Fish in the Lower Bear River:

*“The Proposed Project would have a beneficial effect on fish in the lower Bear River.”
 “...with seasonal utilization by CV fall-run Chinook salmon ESU. Given that CV fall-run Chinook salmon ESU is the species in the lower Bear River that is most sensitive to flow and temperature, the discussion below focuses on this species.”*

NMFS Comment:

NMFS does not agree that the Project is beneficial to anadromous fish resources in the Bear River. While currently there are some suitable amounts of large woody material (LWM) and spawning gravels downstream, the Project’s dam blocks any ongoing recruitment of LWM and spawning gravels. Without augmentation, LWM and gravel will continue to be depleted as seasonal high flows transport these materials downstream and into the Feather River. While NMFS acknowledges that water projects upstream divert water flows seasonally, the Project’s operations (and associated non-project dam) further alter the natural hydrograph of the lower Bear River, including the natural recession rates from high to low flows.

In addition, NMFS believes that fall-run Chinook salmon are not the only anadromous fish, *“that is most sensitive to flow and temperature.”* In addition, CCV steelhead, North American (NA) green sturgeon, and CV spring-run Chinook salmon juveniles, listed as threatened under the ESA, are also seasonally present. All of these NMFS resources are sensitive to changes in water flow and water temperature.

DLA p.E3.3.3-96 Table 3.3.3.35: Proposed 80% WUA Flow Schedule:

NMFS Comment:

Table 3.3.3-35 presents an average percentage of suitable water temperature days, based on USEPA (2003) criteria, for only CV Chinook salmon, and under a specific flow schedule (“80% WUA”). Although “WY [water years] 1976-2014” is mentioned, it is not clear why an average of all water years is shown, as averaging may mask seasonally important periods for anadromous fish life stages. In addition, separating this information by water years would likely show how the suitability of water temperatures for anadromous fish varies between wetter years and dryer years. The 80%WUA proposed flow schedule does not mimic all components of a natural hydrograph, including wet-season initiation flows that stimulate upstream salmonid migration, flush gravel and cycle nutrients. Gradual recession from high to low flow levels that more

closely mimics natural rates of fluctuation should also be considered as a Project effect that should be mitigated.

DLA p.E3.3.3-102:

“The cumulative effects resulting from past, present, and reasonably foreseeable future actions, including the proposed Project, have the potential to affect fisheries resources in the lower Bear River. These activities include timber harvest, livestock grazing, mining, and operation of upstream and downstream water projects.”

“The proposed Project will continue to capture sediment, truncate high flows, and alter flow and water temperature in the lower Bear River, which may affect fish (and habitat) downstream of the Project.”

NMFS Comment:

NMFS agrees with these sections. See NMFS comments below for DLA Sections 3.3.5.3 and 3.3.5.4 (Effects/Aggregate Effects, respectively), on threatened and endangered species. Similar language was used in both sections.

DLA p.E3.3.5-51:

“Camp Far West Dam will continue to store water and capture sediment and large woody material that would otherwise move downstream. The general effects of reduced sediment and large woody debris in streams below other impoundments include changes in instream habitat structure, such as fewer pools and loss of spawning gravel, and indirect effects on riparian vegetation. However SSWD’s relicensing studies showed that there is available sediment of suitable size and quality for ESA-listed fish spawning and large woody material is present.”

NMFS Comment:

SSWD implies that no sediment or LWM augmentation is needed over the potentially decades-long license term. However, while there may be some acceptable amounts and quality of sediment and LWM “available” now, hydrologic conditions will change due to changing climate and reoperation of upstream hydropower projects. During the term of the next license, the Project will continue to block downstream transport of all bedload material. Given the Project can have significant spill events that would transport some of the existing substrate downstream, it is reasonable to consider that future sediment/LWM surveys and new substrate augmentations are likely to be needed over the decades-long term of the new license. This Project effect should be acknowledged and long-term mitigation measures should be developed.

DLA p.E3.3.5-52:

“The Proposed Action will continue to release minimum instream flows below Camp Far West Dam, as measured downstream of the non-Project diversion dam and described in measure ARI. ... Minimum flows have the potential to affect ESA-listed fish in the lower Bear River by changing the amount of available habitat and water temperature. These impacts are considered cumulative when considering the upstream water projects and the downstream non-Project diversion dam.”

NMFS Comment:

The anadromous fish resources which are seasonally present in the Bear River consists of those anadromous fish not listed under the ESA (CV fall-run Chinook, resident *O. mykiss*, and white sturgeon) and those that are ESA-listed as threatened (CCV steelhead, CV spring-run Chinook salmon (juveniles) and NA green sturgeon). These fish opportunistically utilize the Bear River when seasonally available habitat conditions become favorable. However, measures that improve instream flow and manage the recession of uncontrolled spill could maximize and enhance existing anadromous fish habitat. In addition, improved seasonal flows would also ensure that any existing and augmented-as-needed spawning gravels and LWM would be sorted and transported for the benefit of anadromous fish resources and related riparian habitats.

DLA p.E3.3.5-58:

“The aggregate effects resulting from past, present, and reasonably foreseeable future actions, including the Proposed Action, have the potential to affect ESA-listed fish (and habitat) in the lower Bear River. These activities include timber harvest, livestock grazing, mining, and operation of upstream and downstream water projects.”

NMFS Comment:

SSWD uses the term “aggregate effects” instead of the more commonly used “cumulative effects” it is unclear why SSWD chose to make this distinction. The term “cumulative effects” should be used to maintain consistency with other sections of the DLA.

DLA p.E5-1 Conclusions:

“This section compares the developmental and non-developmental effects of SSWD’s Proposed Project and the No Action Alternative... FERC will complete this section in its draft EA or draft EIS, if FERC decides to prepare an EIS instead of an EA.”

NMFS Comment:

NMFS and other resource agencies are currently meeting with South Sutter Water District to address the Project effects and jointly develop terms and conditions for the new license. NMFS looks forward to working with the Licensee and FERC to develop license terms that mitigates the Projects’ effects and enhances anadromous resources in the Bear River.

DLA p.E5-10 Consistency with NMFS' (2014) Central Valley Salmonid Recovery Plan

NMFS Comment:

This section repeats pertinent information for the Bear River from NMFS' (2014) Recovery Plan for Sacramento River winter-run Chinook salmon, CV spring-run Chinook salmon ESU, and CV steelhead Distinct Population Segment (DPS). However, there is no discussion regarding how the Project facilities, operations and maintenance are consistent with NMFS' Recovery Plan.

NMFS' *Final Recovery Plan for Sacramento River Winter-run Chinook Salmon, Central Valley Spring-run Chinook Salmon, and California Central Valley Steelhead* (Recovery Plan) (NMFS 2014), classified the Bear River as a core 3 watershed for steelhead. This means that the Bear River is part of the steelhead recovery process, but it is considered a lower priority watershed. Core 3 watersheds support populations that are characterized as being small, possibly intermittent, and dependent on other nearby populations for their existence. Although the Bear River is considered a low priority for CCV steelhead recovery, its persistence does increase the species' viability by providing increased habitat and life history diversity and serving as a buffer against local catastrophic occurrences that could affect other nearby populations (e.g., Feather or Yuba river populations).

Inadequate streamflow in the Bear River prevents the establishment of a self-sustaining CCV steelhead population (JSA 2004 as cited in NMFS 2014). The minimum flows released below Camp Far West (CFW) diversion dam to meet current FERC license requirements are likely to warm to support all freshwater life-stages of CCV steelhead. However, during periods of high flows, CCV steelhead are known to utilize the river for limited spawning (JSA 2004 as cited in NMFS 2014). The present system of diversions results in abnormal flow fluctuations, in contrast to historical natural seasonal flow variations. The presence of the diversion dam limits upstream migration and any habitat that may have occurred upstream of the Project is now inundated by the CFW Reservoir.

4.0 References

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National Marine Fisheries Service (NMFS). 2014. Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook salmon and the Distinct Population Segment of California Central Valley Steelhead. California Central Valley Area Office. July 2014.

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United States Fish and Wildlife Service (USFWS). 1995. Working Paper on Restoration Needs: Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California, Vol. 2. Stockton, CA.

United States Environmental Protection Agency (USEPA). 2003. *USEPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards*. EPA 910-B-03-002. Region 10 Office of Water, Seattle, Washington.

Yoshiyama, R.M., E.R. Gerstung, F.W. Fisher, and P.B. Moyle. 2001. Historical and Present Distribution of Chinook Salmon in the Central Valley Drainage of California *in* Contributions to the Biology of Central Valley Salmonids. Vol. 1. California Department of Fish and Game, Fish Bulletin 179, R.L. Brown, ed.

Enclosure A

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

South Sutter Water District)
Camp Far West Hydroelectric Project)
Bear River)

Project No. 2997-031

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document, by first class mail or electronic mail, a letter to Secretary Bose, Federal Energy Regulatory Commission (FERC), the National Marine Fisheries Service's comments on the South Sutter Water District's Draft License Application and this Certificate of Service upon each person designated on the official service list compiled by FERC in the above-captioned proceeding.

Dated this 15th day of April 2019



William E. Foster
National Marine Fisheries Service



Foothills Water Network

COMMENTS ON DRAFT LICENSE APPLICATION FOR THE CAMP FAR WEST PROJECT (P-2997-031)

April 17, 2019

Hon. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Via Electronic Submittal

Dear Ms. Bose:

Attached you will find a copy of comments made by the Foothills Water Network on the Draft License Application (DLA) for the Camp Far West Project (P-2997-031). Our comments were delivered to the South Sutter Water District (SSWD) on April 15th. The Network appreciates the opportunity to provide comments on the DLA. We look forward to continuing discussions with South Sutter Water District (SSWD or Licensee) and the Resource Agencies to find agreement on more license terms and conditions.

Respectfully submitted,



Foothills Water Network

Traci Sheehan Van Thull
Coordinator, Foothills Water Network
PO Box 573
Coloma, CA 95613
traci@foothillswaternetwork.org



Foothills Water Network

COMMENTS ON DRAFT LICENSE APPLICATION FOR THE CAMP FAR WEST PROJECT (P-2997-031)

April 15, 2019

Mr. Brad Arnold, General Manager
South Sutter Water District
2464 Pacific Avenue
Trowbridge, CA 95659
Via U.S. Mail/hand delivery

Dear Mr. Arnold:

The Foothills Water Network (Network) submits these Comments on the Draft License Application (DLA) for the Camp Far West Project (CFW or Project) as filed on December 31, 2018 by the South Sutter Water District (SSWD or licensee).¹

Foothills Water Network

This response was jointly developed and signed by non-governmental organizations and individuals participating in the Camp Far West Project relicensing. The Network represents a broad coalition of non-governmental organizations and water resource stakeholders in the Yuba, Bear, and American watersheds. The overall goal of the Foothills Water Network is to provide a forum that increases the effectiveness of non-profit conservation organizations to achieve river and watershed restoration and protection benefits for the Yuba, Bear, and American Rivers. This includes negotiations at the county, state, and federal levels, with an immediate focus on the FERC relicensing processes.

BACKGROUND

The initial license for the Project was issued to SSWD by FERC on July 2, 1981 for a period of 40 years.² On March 14, 2016, SSWD filed with FERC a Notice of Intent to File an Application for a New License for the Project on or before June 30, 2019, 2 years prior to the expiration of the existing FERC license.³ In its DLA, SSWD proposes to continue operating the Project for the next 40 years with one modification to the spillway, a reservoir pool raise of 5 feet, and the adoption of the resource management measures proposed in its license application.⁴

¹ eLibrary no: 20190102-5329. All subsequent footnote citations or references to the DLA omit the eLibrary Accession number.

² DLA, p. IS-1.

³ *Id.*

⁴ *Id.*

COMMENTS ON SPECIFIC PRIORITY ISSUES AND SECTIONS OF THE DLA

FLOW REQUIREMENTS

In the DLA, SSWD propose no changes to current flow requirements. SSWD did not provide any measures or recommendations to improve ramping, instream flows or pulse flows in the lower Bear River.

In discussions with licensee, stakeholders and consultants, the Network has focused on opportunities to improve conditions in the lower Bear River for fall-run Chinook salmon, primarily during the November 15th thru April 1st time period. Because the Camp Far West reservoir is low in the watershed and does not maintain a year-long cold water pool, opportunities to improve fisheries in the summer and early fall are limited between May 15th and November 15th in most years.

The greatest opportunities to improve conditions for fall-run salmon are in water years with substantial carryover storage going into November. Fall-run salmon are the main target species for management, because the project is able to provide flows from storage to enhance spawning, incubation and rearing habitat in the winter.

Opportunities to improve the *O. mykiss* fishery are limited due to the need of the species to spend at least a year in fresh water, combined with consistently elevated water temperatures in the summer in the lower Bear River.

Sturgeon use the lower Bear occasionally for spawning and also for juvenile rearing. Most of the opportunities for the Bear River to provide sturgeon habitat are related to spill. In addition, juvenile salmon and steelhead from adjacent watershed use the lower reaches of the Bear River for rearing in the winter and spring. The Network therefore recommends ramping rates to avoid the stranding of sturgeon or rearing salmonids as spill flows recede.

Working with the licensee and consultants, FWN and the resource agencies have identified a framework for determining water year types that allows enhancement of conditions for fall-run salmon while limiting the risk to loss of project water supply. This framework relies on evaluation of April-September “project usable inflow” in any given year. The usable inflow is the inflow during this time period that can be stored or delivered for irrigation. Spill does not count as usable inflow.

The Network recommends that the Final License Application adopt this approach to water-year types and also adopt specific flow augmentations in the November 15 – April 1 time period that enhance conditions for fall-run salmon in the lower Bear River. The Network is committed to working with the licensee and other stakeholders to develop the details of a recommendation prior to the filing of a Final License Application.

In addition, discussions among the licensee, consultants, resource agencies and the Network have sought to identify and limit operations that might induce spawning in locations that are likely to be subsequently dewatered prior to fry emergence.

The Network looks forward to working with the district to identify these high-value, low-cost, and low-risk opportunities to enhance the anadromous fisheries of the lower Bear River while maintaining the water supply benefit for which the project was created.

IMPACTS OF FUTURE PROJECTS

In our conversations with the licensee, consultant and other stakeholders, the Network has approached opportunities for fisheries improvements in the framework of the existing facilities in the watershed. The Network is concerned that the construction of the proposed Centennial reservoir by the Nevada Irrigation District upstream of the Camp Far West Reservoir could limit these opportunities for improvements that are mutually acceptable to the Network, the Resource Agencies and to SSWD. The Network would like to work with relicensing participants to find specific terms to include in the license that address changes to water year type classifications. The Network believes that the Final License Application should evaluate the impacts of the construction and operation of Centennial Reservoir (if built) on SSWD's current and proposed operations. The Network believes that FERC will need to analyze the construction of Centennial as an alternative under the National Environmental Protection Act.

AQUATIC MONITORING

The DLA does not contain any recommendations or a proposal for monitoring of salmonids in the lower Bear River. The Network believes that monitoring is important in determining the actual benefits of the proposed actions. FWN would like to work with the Licensee and agencies to develop a proposal that can effectively measure and monitor this fish population.

COMMENTS ON SPECIFIC MEASURES

IMPLEMENT MINIMUM INSTREAM FLOWS: Proposed Condition AR1

In its DLA, SSWD proposes no changes to its current flow schedule in its license. Relicensing participants are now actively discussing flow conditions in the lower Bear River, as discussed above.

RECREATION FACILITIES PLAN: Proposed Condition RR1

Provide adequate facilities for public use

In general, the Network supports the Recreation Facilities Plan (Plan) and the work done to date by SSWD and consultants in its development. However, the current plan does not take into account the growing demand for recreation opportunities in the area and the need for diverse

types of recreation for jet skiers, boaters and families. The current practice is for the South Shore facilities to be closed unless the North Shore facilities fill to capacity during the peak season.

For this reason, the Network recommends opening the South Shore facilities for a longer season and improvement of the South Shore boat ramp to allow better access for recreational users. The Network looks forward to working with SSWD and the resource agencies towards a collaborative agreement on recreational issues for inclusion in the new license.

GENERAL COMMENTS ON THE DLA

Requested Term of New License: Section 2.0

Licensee is requesting a new license term of 40-50 years. On October 19, 2017 FERC issued a “Policy Statement on Establishing License Terms for Hydroelectric Projects.” That policy set a term of 40 years as the “default” term for licensees. The policy did set forth three circumstances where a shorter license could be issued; however none of those circumstances fit in this case. There does not appear to be proposed development at the project that would warrant a 50-year license term. Accordingly, a 40-year license terms appears appropriate.

Relicensing Hydrology Datasets-Proposed Project (Future Conditions) Exhibit B Project Operations, Section 4.1

As mentioned previously, the Network recommends including the Centennial Reservoir Project in this Project Operations section of the FLA. The Nevada Irrigation District proposes to construct a new 275-foot dam upstream of the existing CFW project. NID’s application for 5634 states that it will store or divert up to 221,400 acre-feet annually (afa) and directly divert 400 cubic feet per second (cfs) or 111,400 afa. The amount of water that could be diverted or stored upstream would likely impact water availability of water flow water supply and instream purposes at CFW.

Water Year Types: Section 6.1

As discussed above, SSWD has proposed setting new Water Year Types based on the conditions of the watershed and upstream reservoirs and operations. The Network is engaged in conversations with the licensee and the resource agencies on this topic.

CONCLUSION

Thank you for considering these comments. If you have comments or questions, please contact Traci Sheehan Van Thull, Coordinator, Foothills Water Network.

Respectfully submitted,



Foothills Water Network

A handwritten signature in black ink, appearing to read 'Traci' followed by a stylized surname.

Traci Sheehan Van Thull
Coordinator, Foothills Water Network
PO Box 573
Coloma, CA 95613
traci@foothillswaternetwork.org



A handwritten signature in black ink, appearing to read 'Chandra Ferrari'.

Chandra Ferrari
California Water Policy Director
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A handwritten signature in black ink, reading "Chris Shutes".

Chris Shutes
FERC Projects Director
California Sportfishing Protection Alliance
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A handwritten signature in black ink, reading "Allan Eberhart".

Allan Eberhart
Chair, Sierra Club - Mother Lode Chapter
24084 Clayton Road
Grass Valley, CA 95949
valliali@wildblue.net



A handwritten signature in black ink that reads "Melinda Booth". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Melinda Booth
Executive Director
South Yuba River Citizens League
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APPENDIX E4

SSWD's REPLY TO AGENCY COMMENTS

SSWD received five letters or emails from resource agencies or other interested parties providing comments on the DLA including:

- Letter from USFWS dated April 10, 2019
- E-mail from SWRCB dated April 12, 2019
- Letter from CDFW dated April 14, 2019
- Letter from NMFS dated April 15, 2019
- Letter from Foothill Water Network dated April 15, 2019

The email received from the SWRCB stated the SWRCB had no comments on the DLA.

In addition, SSWD received comments on the DLA from FERC, and FERC's comments are addressed in Appendix E5 in this Exhibit E.

SSWD has applied an alpha-numeric designation to each comment in USFWS, NMFS, CDFW and FWN, and provides below a reply to each of the comments, which are repeated verbatim below with the page number from the comment letter indicated grouped comments by topic where appropriate and provides a single reply to comments that are identical or nearly identical.

1.1 General Comments

CDFW-1 Comment (pg. 2): *"The licensee is requesting a new license term of 40-50 years. FERC sets 40 years as the "default" term with three circumstance where a shorter or longer license may be issued. None of the circumstances are applicable or anticipated, therefore there is no justification for a term longer than 40 years."*

SSWD's Reply: As described in Section 2.0 in the Initial Statement in SSWD's FLA, FERC's Policy Statement on Establishing License Terms for Hydroelectric Projects, 161 FERC ¶ 61,078 (2017) includes as a justification for granting a longer license term where significant measures are expected to be implemented under the new license for non-development purposes (environmental, recreation, water supply) or those that enhance power and developmental purposes. FERC's long-standing practice is to consider costs of improvements relative to the size of the project. Further, America's Water Infrastructure Act of 2018, Pub. L. No. 115-270, 132 Stat. 3765, requires FERC to give equal weight to investments by the licensee over the term of the existing license that resulted in redevelopment, new construction, new capacity, efficiency, modernization, rehabilitation or replacement of major equipment, safety improvements, or environmental, recreation, or other measures conducted over the term of the existing license.

Based on these FERC and Congressional directives, SSWD is requesting a new license term of

50 years in the FLA. SSWD is in the process of constructing a new auxiliary spillway structure and related modifications which constitute a major investment in the Project. SSWD expects to spend approximately \$8,812,206 on the spillway modifications (i.e., Secondary Spillway) and related Project modifications. Further, SSWD is proposing a 5 foot pool raise that will enhance the water supply benefits of the Project. SSWD's estimated cost for the pool raise is \$3,942,264. SSWD also is proposing to relocate recreational facilities impacted by the pool raise, at an additional estimated cost of \$725,000. These Project investments would total approximately \$13,479,470, a very substantial amount for a 6.8 MW project, and are in addition to the costs of the PM&E measures proposed in the FLA. SSWD believes that a 50 year license is necessary and appropriate to recognize these Project investments.

FWN-7 Comment (pg. 5): *“The licensee requested a license term for 40-50 years. The three circumstance to shorten or lengthen a license from the default 40 years are not applicable. The license term should be 40 years.”*

SSWD's Reply: Refer to SSWD's reply to CDFW-1 Comment.

CDFW-5 Comment (pgs. 3 & 4): *“The Department recommends inclusion of the Nevada Irrigation District water rights application #5634X01 which seeks to appropriate up to 221,400-acre feet annually from the Bear River. The Department would like to work with the Licensee to negotiate specific terms to include in the FERC license that address changes to water year type classifications if/when a new instream storage reservoir is constructed upstream of the Project (Centennial).”*

SSWD's Reply: Section 3.2.3.2 in Exhibit E of the FLA states that SSWD has not included NID's water rights application #5634X01 in SSWD's cumulative effects analysis in the FLA under reasonably foreseeable future actions because it is not a reasonably foreseeable future action. At this time, it is not possible to know whether or not NID's water rights request will be approved and issued by the SWRCB and, if so, how it would affect Project operations. NID's application is undergoing review by the SWRCB, which will conduct its own environmental review of effects consistent with State law and appropriate regulations.

FWN-3 Comment (pg. 4): *“FWN believes the FLA should evaluate the impacts of potential Centennial Reservoir on SSWD's current and proposed operations.”*

SSWD's Reply: Section 3.2.3.2 in Exhibit E of the FLA states that SSWD has not included NID's Centennial Reservoir Project in SSWD's cumulative effects analysis in the FLA under reasonably foreseeable future actions because it is not reasonably foreseeable. NID's Centennial Reservoir Project has not undergone either state or federal environmental review (i.e., CEQA or NEPA); NID has not obtained necessary permits to construct, maintain or operate the project; NID has not funded the project; and NID has not put forward sufficient engineering or operations details of the project that would allow for an environmental review, let alone allow SSWD to evaluate how the project would affect SSWD's Camp Far West Hydroelectric Project.

FWN-8 Comment (pg. 5): *“FWN recommends including the Centennial Reservoir Project in the Project Operations section of the FLA.”*

SSWD's Reply: Refer to SSWD's reply to FWN-3 Comment.

NMFS-2 Comment (pgs. 3 & 4): *"The Licensee's DLA does not include changes to the current flow regime in the lower Bear River. NMFS plans to work with relicensing participants to reach a collaborative agreement and recognizes the high degree of impairment upstream of the Project and that existing conditions may not represent conditions in the future (Centennial Reservoir)."*

SSWD's Reply: SSWD's FLA addresses all reasonably, foreseeable future changes to the current flow regime, including those upstream of the Project. Refer also to SSWD's replies to CDFW-5, FWN-3 and FWN-5 comments.

CDFW-9 Comment (pgs. 4 & 5): *"The Department recommends that the cost of the transmission line should not be included in the Licensee's estimated annual average costs as it is a separate FERC project under FERC project number #10821."*

SSWD's Reply: Section 5.1.8 in Exhibit D of the FLA identifies transmission line access cost (i.e., cost for an agreement with PG&E to wheel the Project's power over PG&E's transmission lines, not cost to operate and maintain PG&E's FERC Project No. 10821), and estimates that average annual cost to be \$1,000, which is a legitimate and proper Project cost to be included in Exhibit D. No other costs related to electricity transmission are included in Exhibit D. The Project does not include a transmission line.

CDFW-2 Comment (pg. 2): *"The Department recommends the addition of Fish and Game Code §5937; Sufficient Water for Fish Existing Below Dams [to the Initial Statement]."*

SSWD's Reply: Section 7.0 in the Initial Statement of SSWD's FLA includes, as requested by CDFW, a reference to California Fish and Game Code (F.G.C.) Section 5937. However, as a project licensed by FERC under the Federal Power Act, the Project is not subject to state fish and wildlife laws and regulations.

CDFW-3 Comment (pgs. 2 & 3): *"The Department recommends the addition of Fish and Game Code §2302; Dreissenid Mussel; Responsibilities of Reservoir Managers or Owners [to the Initial Statement]."*

SSWD's Reply: Section 7.0 in the Initial Statement of SSWD's FLA includes, as requested by CDFW, a reference to F.G.C. Section 2302. However, as a project licensed by FERC under the Federal Power Act, the Project is not subject to state fish and wildlife laws and regulations. SSWD notes that, outside relicensing, it is consulting with CDFW on the development of a Dreissenid Plan for Camp Far West Reservoir.

CDFW-4 Comment (pg. 3): *"The Department recommends the addition of Fish and Game Code §5943; Public Access of Dam Waters [to the Initial Statement]."*

SSWD's Reply: Section 7.0 in the Initial Statement of SSWD's FLA includes, as requested by CDFW, a reference to F.G.C. Section 5945. However, as a project licensed by FERC under the Federal Power Act, the Project is not subject to state fish and wildlife laws and regulations.

CDFW-6 Comment (pg. 4): *“The 2018 water transfer should be added to section 5.2.5 and any other applicable sections.”*

SSWD’s Reply: Section 5.2.5 in Exhibit B of SSWD's FLA includes that SSWD transferred water in 2018, besides in 2008, 2009, 2010 and 2014, and states the volume of water transferred in 2018 was approximately 10,500 ac-ft.

USFWS-1 Comment (pgs. 2 & 3): *“The DLA discounts the AFRP doubling goal for the Bear River of 450 average annual Chinook salmon spawners. PM&E measures for Chinook salmon are anticipated to include action such as fall pulse flows to support spawning migration, spring pulse flows to support juvenile Chinook outmigration and steelhead attraction, increased minimum instream flows in the winter and spring of wetter water year types, and ramping rates when the Project is either coming off of a spill event or reducing releases to the lower Bear River.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions, including those related to anadromous fish. SSWD appreciates NMFS's collaboration on these conditions. Section 5.4.20 in Exhibit E of SSWD's FLA discusses the Project's consistency with the ARFP's Doubling Goal policy.

Comment NMFS-12 (pg. 8): *“There is no discussion regarding how the Project facilities, operations and maintenance are consistent with NMFS' Recovery Plan.”*

SSWD’s Reply: Sections 3.3.5 and 5.4.15 in Exhibit E of SSWD's FLA address the Project's consistency with the NMFS Recovery Plan.

1.2 PM&E Development and Collaboration

CDFW-11a Comment (pgs. 5 & 6): *“The Department looks forward to continuing to fully develop and agree on the following plans/measures for inclusion into the FLA: Bald Eagle and Osprey Management, Aquatic Invasive Species Management, Recreation Plan, Instream Flow, Pulse Flow, and Ramping Rate Plan.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's Proposed Conditions regarding water year types, minimum streamflows, fall and spring pulse flows, ramping rates, bald eagle management plan, and recreation management plan. SSWD appreciates CDFW's collaboration on these conditions. As described in Section 1.4.2.4 in Exhibit E of SSWD's FLA and in SSWD's response to CDFW-13 comment, SSWD does not propose an aquatic invasive species management plan.

USFWS-7 Comment (pg. 5): *“Licensee Proposed Condition ARI maintains the current license instream flow conditions for the lower Bear River. The USFWS, CDFW, Non-Governmental Organization groups, and the Licensee are actively negotiating instream flow conditions based*

on new (in process of negotiation) water year type for the Project, pursuant to the TLP. Agency proposals generally maintain the current license conditions for the drier water year types and provide higher flows in the winter and spring as well as pulse flows in the fall and spring for the wetter water year types to better support salmonid production in the lower Bear River and more closely mimic natural hydrology. The agency proposals also have included ramping rates for some months of the year when the Project reduces flows to the lower Bear River to minimize impacts to salmonid redds and fry that may be present downstream. The USFWS encourages the Commission to adopt into the Final License Application (FLA) the final instream flow conditions that result from these negotiations. Should the TLP negotiations result in a lack of agreement among parties, the USFWS will file an instream flow proposal to the Commission as part of their FLA comment package.”

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions related to flow. SSWD appreciates USFWS's collaboration on these conditions.

FWN-5 Comment (pg. 4): *“Minimum instream flows should continue to be discussed and implemented in the FLA.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions related to flow. SSWD appreciates FWN's collaboration on this condition.

CDFW-12 Comment (pgs. 6 & 7): *“The Department plans to work with the Licensee and other Relicensing Participants to reach a comprehensive and collaborative agreement on instream flow measures and other PME measures for the new license. The Department intends to continue to discuss water year types under existing conditions in this watershed, as well as required potential changes to the water year types under foreseeable development conditions during the FERC license term.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions related to water year types, instream flows and other conditions. SSWD appreciates CDFW's collaboration on this condition. In addition, refer to SSWD's response to comment USFWS-7, NMFS-9, and FWN-5.

NMFS-11 Comment (pg. 7): *“NMFS looks forward to working with the Licensee and FERC to develop license terms that mitigates the Projects' effects and enhance anadromous resources in the lower Bear River.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions. SSWD appreciates NMFS's collaboration on these conditions.

NMFS-9 Comment (pg. 7): *“Measures to improve instream flow and manage the recession of uncontrolled spill could maximize and enhance existing anadromous fish habitat. Improved seasonal flows would also ensure that any existing and augmented-as-needed spawning gravels and LWM would be sorted and transported for the benefit of anadromous fish resources and related riparian habitats.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions related to a water year types, minimum streamflow, fall and spring pulse flows and ramping rates. SSWD appreciates NMFS's collaboration on these conditions. As discussed in SSWD's response to NMFS-8, SSWD's FLA does not include a SSWD proposed condition for sediment injection downstream of the Project because existing sediment levels are adequate to support aquatic resources.

NMFS-4 Comment (pgs. 4 & 5): *“The Project effects initiation and timing of fall-run upstream migration and spawning by altering migration cues and pulse flows that would have occurred in the absence of the Project. This Project effect should be mitigated to the maximum extent possible.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions related to a water year types, minimum streamflow, fall and spring pulse flows and ramping rates. SSWD appreciates NMFS's collaboration on this condition.

1.3 Aquatic Monitoring

CDFW-11b Comment (pg. 6): *“Additionally, the Department recommends the Licensee develop a framework for the monitoring of aquatic and water resources, addressing at minimum, stream fish, benthic macroinvertebrates, water temperature, and water quality.”*

SSWD’s Reply: SSWD's has not included in its FLA a PM&E measure for monitoring aquatic and water resources for three reasons, which are described in Section 1.4.2.4 in Exhibit E of SSWD's FLA. First, CDFW does not provided an adequate description of the rational, scope or estimated cost for its suggested monitoring so that SSWD can provide a detailed reply to CDFW's request. Without these details, SSWD can only evaluate and reply to CDFW's suggestion in general terms. Second and in general terms, the need for monitoring is unclear: the best available science shows SSWD's proposed PM&E measures would improve conditions for stream fish, benthic macroinvertebrates (BMI) and water temperature (water quality is in good condition, and SSWD's proposed PM&E measures would have no effect on water quality) in the lower Bear River, and CDFW does not suggest a mechanism under normal Project O&M that would negate these improvements. CDFW provides no basis for monitoring improvements in stream fish, BMI and water temperature that would occur under SSWD's proposal. Monitoring these improvements is not needed because it would not provide additional improvements. Third and in general terms, the use of monitoring data is unclear. Specifically, CDFW does not describe a mechanisms to isolate in monitoring data Project-related effects from

non-Project-related effects on these resources, or how the monitoring data would be used to modify license conditions. While monitoring would track changes in stream fish, BMI and water temperature over time, information that may be useful to agencies that are delegated the responsibility to manage these resources, the monitoring would be of no value from a Project license compliance perspective.

USFWS-2 Comment (pg. 3): *“Request to collaboratively develop a reasonable monitoring plan for salmonids within the lower Bear River that allows a comparison of juvenile production and survival between years. The monitoring plan should be finalized within one year of license issuance.”*

SSWD's Reply: SSWD's has not included in its FLA a PM&E measure for monitoring salmonids in the lower Bear River for three reasons. First, USFWS does not provided an adequate description of the rational, scope or estimated cost for its suggested monitoring so that SSWD can provide a detailed reply to USFWS's request. Without these details, SSWD can only evaluate and reply to USFWS's suggestion in general terms. Second and in general terms, the need for monitoring is unclear: best available science shows SSWD's proposed PM&E measures would improve conditions for salmonids in the lower Bear River, and USFWS does not suggest a mechanism under normal Project O&M that would negate these improvements. USFWS provides no basis for monitoring improvements salmonids in the lower Bear River that would occur under SSWD's proposal. Monitoring these improvements is not needed because it would not provide additional improvements. Third and in general terms, the use of monitoring data is unclear. Specifically, USFWS does not describe a mechanisms to isolate in monitoring data Project-related effects from non-Project-related effects on salmonids, or how the monitoring data would be used to modify license conditions. While monitoring would track changes in salmonids in the lower Bear River over time, information that may be useful to USFWS as an agency delegated the responsibility to manage these resources, the monitoring would be of no value from a Project license compliance perspective.

FWN-4 Comment (pg. 4): *“FWN recommends adopting an aquatic monitoring program for salmonids in the lower Bear River.”*

SSWD's Reply: SSWD's has not included in its FLA a PM&E measure for monitoring salmonids in the lower Bear River for three reasons. First, FWN does not provided an adequate description of the rational, scope or estimated cost for its suggested monitoring so that SSWD can provide a detailed reply to FWN's request. Without these details, SSWD can only evaluate and reply to FWN's suggestion in general terms. Second and in general terms, the need for monitoring is unclear: best available science shows SSWD's proposed PM&E measures would improve conditions for salmonids in the lower Bear River, and FWN does not suggest a mechanism under normal Project O&M that would negate these improvements. FWN provides no basis for monitoring improvements of salmonids in the lower Bear River that would occur under SSWD's proposal. Monitoring these improvements is not needed because it would not provide additional improvements. Third and in general terms, the use of monitoring data is unclear. Specifically, FWN does not describe mechanisms to isolate monitoring data Project-related effects from non-Project-related effects on salmonids, or how the monitoring data would be used to modify license conditions. While monitoring would track changes in salmonids in the

lower Bear River over time, information that may be useful to agencies delegated the responsibility to manage this resource, the monitoring would be of no value from a Project license compliance perspective.

NMFS-8 Comment (pg. 6): *“The Project effects on the recruitment of large woody material and spawning gravel should be mitigated for based on the length of the license. Even though these resources are available now, the Project will continue to inhibit the addition of new materials; future sediment/LWM surveys and new substrate augmentation are likely to be needed. This Project effect should be acknowledged and long-term mitigation measures should be developed.”*

SSWD’s Reply: SSWD has not included in its FLA a PM&E measure for monitoring or augmenting large woody material (LWM) or spawning gravels in the Bear River downstream of Camp Far West Dam and the non-Project diversion dam for the following reasons. First, NMFS does not provide an adequate description of the rationale, scope, or estimated cost for the suggested monitoring and augmentation so that SSWD can respond in detail to NMFS's request. Without these details, SSWD can only evaluate and reply to NMFS's suggestion in general terms. Second, and in general terms, the need for monitoring is unclear, because the best available science shows that adequate quantities of these resources currently exist and continue to persist in the lower Bear River, and because NMFS does not provide adequate description of a mechanism by which these resources would become depleted in the future. Finally, and also in general terms, the use of monitoring data and utility of LWM and gravel augmentation is unclear. Specifically, NMFS does not describe a mechanism to isolate in monitoring data Project-related effects from non-Project-related effects on these resources, and does not describe how monitoring data would be used to inform and guide augmentation activities.

1.4 Recreation Facilities Plan

CDFW-10 Comment (pg. 5): *“The Department plans to work with Licensee and other Relicensing Participants in the next several months to attempt to reach a collaborative agreement on the proposed condition regarding recreation (RR1). Recommendations from the Department as stated in the March 1st, 2019 meeting are: improving boat ramp at the South Shore Recreation Area, a 1:1 campground replacement and less condensed sites, replacement of the swim beach, opening the South Shore Recreation Area for a longer season, permanent fish cleaning stations, and wildlife proof trash cans.”*

SSWD’s Reply: Section 3.3.6.2.1 in Exhibit E of SSWD's FLA states that SSWD will replace one-for-one all inundated recreation facilities as a result of the Pool Raise, including the swim beach. Following the new license issuance and prior to implementing the Pool Raise, SSWD will develop detailed design drawings that show the location and extent of the replaced recreation facilities and provide the drawings to FERC for approval before constructing the replacement facilities.

Regarding the recommendation to open the South Shore Recreation Area (SSRA) for a longer period, as described in Section 1.4.2.4 in Exhibit E of SSWD's FLA, currently SSWD opens the

SSRA based upon the recreational demand at the Project. This is usually during peak recreation use periods (i.e., weekends/Friday-Sunday) during the peak recreation season (i.e., late May through early September) and during special events. Per the occupancy rates in Section 3.3.6.1.2 in Exhibit E of the FLA, the North Shore Recreation Area (NSRA) facilities are more than adequate to meet the recreational demand during the weekdays during the peak recreation season and on weekends and weekdays outside the peak recreation season (see the campground occupancy rates in Table 3.3.6-4, parking area occupancy rates in Table 3.3.6-5, and picnic site occupancy rates in Table 3.3.6-8). Thus, the current recreational demand does not warrant opening the SSRA beyond the weekends (Friday through Sunday) during the peak recreation season from late May through early September and during special events.

Regarding the recommendation to improve the SSRA boat ramp, as described in Section 1.4.2.4 in Exhibit E of SSWD's FLA, the NSRA boat ramp is adequate to meet the current recreational demand at Camp Far West Reservoir; and the limited demand and open periods at the SSRA do not warrant the investment to improve the boat ramp at this time. Further, 95 percent of the visitors surveyed at the SSRA rated the SSRA boat ramp condition as acceptable or offered no opinion at all; and only 15 percent of visitors surveyed preferred adding more lanes to the boat ramp (see Section 3.3.6, Attachment E3.3.6A-Visitor Survey Questionnaire Results).

Regarding the recommendations for permanent fish cleaning stations and wildlife proof trash receptacles, as described in Section 1.4.2.4 in Exhibit E of the FLA, the relicensing visitor survey data not indicate a need for these types of facilities as visitors surveyed did not indicate a preference for improved trash receptacles or the addition of fish cleaning stations. More specifically, approximately 95 percent of the visitors surveyed at both the SSRA and NSRS indicated the camping and picnicking site amenities (i.e., where the majority of the trash receptacles are located) were acceptable or offered no opinion (see Section 3.3.6, Attachment E3.3.6A-Visitor Survey Questionnaire Results). In addition, refer to SSWD's reply to FWN-6 Comment.

FWN-6 Comment (pgs. 4 & 5): *“The SSRA facilities should be open for a longer season and the boat ramp should be improved.”*

SSWD's Reply: As discussed in Section 1.4.2.4 in Exhibit E of SSWD's FLA, the SSRA is opened based upon the recreational demand at the Project. Currently, the SSRA is open during peak recreation use periods (i.e., weekends/Friday-Sunday) during the peak recreation season (i.e., late May through early September). Per the occupancy rates in Section 3.3.6.1.2 of the FLA, the NSRA facilities are more than adequate to meet the recreational demand during the weekdays during the peak recreation season and on weekends and weekdays outside the peak recreation season (see the campground occupancy rates in Table 3.3.6-4, parking area occupancy rates in Table 3.3.6-5, and picnic site occupancy rates in Table 3.3.6-8). Thus, the current recreational demand does not indicate a need to have the SSRA open beyond the weekends (Friday through Sunday) during the peak recreation season from late May through early September. Of note, SSWD opens the SSRA outside these times when special events are scheduled and the demand warrants additional open dates. See response to CDFW-10 regarding the SSRA boat ramp improvements.

1.5 Aquatic Invasive Species Management Plan

CDFW-13 Comment (pg. 7): *“The Department recommends the Licensee develop and Aquatic Invasive Species Management Plan.”*

SSWD’s Reply: Based on the AIS known from and with the potential to be introduced to the Project, SSWD believes a specific Aquatic Invasive Species Management Plan is unnecessary. Outside of the FERC relicensing process, SSWD has developed a Dreissenid Mussel Vulnerability Assessment per state law and Fish and Game Code § 2302 (described in sections 3.3.3.1.2 and 3.3.3.3.2 in Exhibit E of the FLA) which includes public education provisions for prevention of introduction of dreissenid mussel species that will also apply to other aquatic invasive species. Since prevention is the main management tool for aquatic invasive species, an additional management plan would not provide added benefit. There are no currently known effective management strategies for the four species located in the FERC Project Boundary-Asian clam, Eurasian milfoil, floating water primrose and American bullfrog, so prevention of further spread also remains the best management tool. Although American bullfrog control is possible through sustained efforts at small and medium ponds, American bullfrog populations control at the Project would be exceptionally difficult and require permanent, ongoing efforts, as there are uncontrollable source populations all around the Project and the population is already well established.

USFWS-3 Comment (pg. 3): *“The commission and Licensee should develop an Aquatic Invasive Species Management Plan that addresses species not addresses adequately in the DLA: Asian Clam, Brazilian waterweed, floating water primrose, parrot's feather milfoil, Eurasian water milfoil, and American bullfrog. Bullfrog management actions should be coordinately closely with measures to protect the California red-legged frog.”*

SSWD’s Reply: Refer to SSWD’s reply to CDFW-13 Comment.

1.6 eDNA Sampling

CDFW-14 Comment (Pgs. 8 & 9): *“The Licensee should complete a second year of eDNA sampling, aligning sampling events with reported temporal occurrences of sturgeon sighted in the Lower Bear River.”*

SSWD’s Reply: As described in Section 3.3.3.1.3 in Exhibit E of SSWD's FLA, a second year of eDNA sampling is not required to assess Project effects or inform license conditions. CDFW cites study variances and observations of sturgeon in the lower Bear River as to why the study should be repeated. With regards to study variances, SSWD performed the eDNA Study as requested by CDFW in an email dated December 7, 2016 (Attachment E4-1), including eDNA sampling locations, timing, and flow considerations, with two exceptions that did not affect the study results. Specifically, CDFW requested SSWD modify SSWD's proposed eDNA study plan to include six specific sampling areas, each with 3-5 sampling sites (25 sites total), with sampling to be conducted twice between mid-February and April 1, with no less than 2 weeks between sampling occasions, with sampling occurring at flows of 2,000 cfs or greater, 2 liters (L)

of water collected during each sampling, and two filters used during each sampling. SSWD conducted the study as requested by CDFW, with the exception of the volume of water that was filtered at each site and the number of filters used. Due to high turbidity at the time of sampling, less than the 2 L of water was filtered at each sampling site (the average amount filtered across all sites and occasions was 894 mL and ranged from 500 mL to 1,000 mL). Also, because of the lower-than-expected filtration rates, the number of filters used at each site was increased from two to five. These study variances have no effect on study results. After sampling was initiated and the issue of turbidity was realized, SSWD discussed with Genidaqs, experts in the field of eDNA analysis and the lab used to analyze samples collected during the study, whether the decrease in sampling volume or increase in number of filters would potentially affect the results of the analysis. Genidaqs responded that the decreased volume and number of filters would not affect the results of the analysis (Attachment E4-2).

The second evidence CDFW puts forth to question the results of the study and support that the study should be redone is that DWR stated it identified adult sturgeon using DIDSON in the lower 1 mile of the Bear River in late March 2018 shortly after SSWD collected its eDNA sample in that area. SSWD believes using this information to conclude that the study was conducted improperly is faulty because the information only confirms that sturgeon were present after the study was conducted, and says nothing about whether sturgeon were present during or before the study. Additionally, the same sampling conditions yielded positive detections for *O. mykiss*, which SSWD's stream fish study showed to be present in low numbers (see Section 3.3.3.1.3 in Exhibit E of the FLA), indicating that the sampling was effective for seasonally-present, low-abundance species regardless of the decreased filtration volumes resulting from increased turbidity.

USFWS-10 Comment (pgs. 5 & 6): *“Requests the Licensee conduct an additional eDNA survey for green and white sturgeon.”*

SSWD's Reply: As described in Section 3.3.3.1.3 in Exhibit E of SSWD's FLA, a second year of eDNA sampling is not required to assess Project effects or inform license conditions. USFWS cites study variances and sampling during periods of high turbidity as reasons why the study should be repeated. With regards to study variances, SSWD performed the eDNA Study as requested by CDFW in an email dated December 7, 2016 (Attachment E4-1), including eDNA sampling locations, timing, and flow considerations, with two exceptions that did not affect the study results. Specifically, CDFW requested SSWD modify SSWD's proposed eDNA study plan to include six specific sampling areas, each with 3-5 sampling sites (25 sites total), with sampling to be conducted twice between mid-February and April 1, with no less than 2 weeks between sampling occasions, with sampling occurring at flows of 2,000 cfs or greater, 2 liters (L) of water collected during each sampling, and two filters used during each sampling. SSWD conducted the study as requested, with the exception of the volume of water that was filtered at each site and the number of filters used. Due to high turbidity at the time of sampling, less than the 2 L of water was filtered at each sampling site (the average amount filtered across all sites and occasions was 894mL). Also, because of the lower-than-expected filtration rates, the number of filters used at each site was increased from two to five. These study variances have no effect on study results. After sampling was initiated and the issue of turbidity was realized, SSWD discussed with Genidaqs, experts in the field of eDNA analysis and the lab used to

analyze samples collected during the study, whether the decrease in sampling volume or increase in number of filters would potentially affect the results of the analysis. Genidaqs responded that the decreased volume and number of filters would not affect the results of the analysis (Attachment E4-2). Regarding the potential effect of turbidity on the study results, the same sampling conditions yielded positive detections for *O. mykiss*, which SSWD's stream fish study found to be present in low numbers (see Section 3.3.3.1.3 in Exhibit E of the FLA), indicating that the sampling was effective for seasonally-present, low-abundance species regardless of the decreased filtration volumes resulting from increased turbidity.

NMFS-3 Comment (pg. 4): *“The lower Bear River does not provide suitable water temperatures for year-round use by salmonids, although it currently supports seasonal salmonid use. ... The Project affects water temperatures in the lower Bear River during the fall where water releases from the dam can be warmer than pre-project conditions, as well as during the winter and spring when the Project is storing and releasing water.”*

SSWD's Reply: Sections 3.3.3 and 3.3.5 in Exhibit E of SSWD's FLA describes suitability for salmonids of water temperatures in the Bear River downstream of the Project that occur under current conditions (i.e., the environmental baseline) and that would occur under SSWD's Proposed Project. NMFS has not provided any evidence, including water temperatures under pre-Project conditions, to support its statements that in fall, winter and spring, Project releases would be warmer than pre-Project conditions. It is important to note that the Bear River downstream of the Project does not experience a natural hydrograph and associated natural water temperatures because of the cumulative effects of the operations of four projects upstream of Camp Far West Reservoir and the non-Project diversion dam downstream of the Project.

NMFS-5 Comment (pg. 5): *“NMFS does not agree that the Project is beneficial to anadromous fish resources in the Bear River. The Project's dam blocks any ongoing recruitment of large woody material and spawning gravels as well as operations altering the natural hydrograph, including the natural recession rates from high to low flows. NMFS also believes that fall-run Chinook salmon are not the only anadromous fish, “that is most sensitive to flow and temperature.” CCV steelhead, North American green sturgeon, and CV spring-run Chinook salmon are also seasonal present and are sensitive to changes in flow and water temperature.”*

SSWD's Reply: SSWD clarifies that the proposed Project, as described in Appendix E2 and evaluated in Section 3.3.3.2.2 and Section 3.3.5.3.2 in Exhibit E of the FLA, is anticipated to be beneficial to anadromous fish resources in the Bear River, because of the inclusion of flow-related measures that are being collaboratively developed by SSWD, NMFS, and other agencies.

While SSWD is collaborating on proposed conditions to provide pulse flows and ramping rates, the proposed flow-related measures (see Appendix E2) do not represent an attempt to mimic the 'natural hydrograph' but simply to provide more favorable conditions for aquatic species in the lower Bear River. The Bear River does not experience a natural hydrograph because of the cumulative effects of the operations of four projects upstream of Camp Far West and the non-Project diversion dam downstream.

Regarding large woody material (LWM) and spawning gravels, SSWD agrees with NMFS that there are currently suitable amounts of LWM and spawning gravels in the lower Bear River, as described in SSWD's FLA (see sections 3.3.1.1.7, 3.3.1.2.3, and 3.3.3.1.3 in Exhibit E of the FLA). However, SSWD believes that these resources are not being depleted and will persist into the future, since they exist in sufficient quantities more than 90 years after initial construction of Camp Far West Dam and more than 50 years after Camp Far West Dam was expanded to its current size.

Additionally, SSWD clarifies that, although existing information suggests periodic usage of the lower Bear River by sturgeon, steelhead, and spring-run Chinook salmon, SSWD found limited evidence of opportunistic utilization of the lower Bear River by O. mykiss and white sturgeon, and no evidence of the presence of green sturgeon or spring-run Chinook salmon. SSWD also reiterates that flow-related PM&E measures collaboratively developed by SSWD, NMFS, and other agencies are anticipated to benefit all anadromous fishes in the lower Bear River.

NMFS-6 Comment (pgs. 5 & 6): *“The 80% WUA proposed flow schedule does not mimic all components of a natural hydrograph, including initiation flows. Gradual recession from high to low flow levels that more closely mimics natural rates of fluctuation should also be considered as a Project effect that should be mitigated.”*

SSWD's Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions related to pulse flows and ramping rates. SSWD appreciates NMFS' collaboration on these conditions. As a clarification, the proposed flow-related measures (see Appendix E2) do not represent an attempt to mimic the 'natural hydrograph' but simply to provide more favorable conditions for aquatic species in the lower Bear River. The lower Bear River, prior to the Project, did not experience a natural hydrograph because of the cumulative effects of the operations of four water projects upstream of Camp Far West Reservoir and the non-Project diversion dam downstream, which significantly altered unimpaired flows.

1.7 Terrestrial Resources

CDFW-8 Comment (pg. 4): *“The Department recommends amending the Vertebrate Pest Management (6.4.2.3) section to state the following: “SSWD implements rodent control as needed in facility interiors using an Integrated Pest Management approach that includes sanitation and exclusion. General Use rodenticides, applied in accordance with the label instruction, may be used when necessary. Rodent control occurs within the Camp Far West Powerhouse.”*

SSWD's Reply: Section 6.4.2.3 in Exhibit B of SSWD's FLA states: *“SSWD implements rodent control as needed in facility interiors using an integrated pest management approach that includes sanitation and exclusion. General use of rodenticides, applied in accordance with the label instruction, may be used when necessary.”* In addition, refer to SSWD's response to comment USFWS-5.

USFWS-5 Comment (pg. 4): *“The Licensee should minimize the use of products containing second generation anticoagulants, in favor of other methods with fewer impacts to non-target animals that may feed on the target organisms.”*

SSWD’s Reply: Section 6.4.2.3 in Exhibit B and Section 2.1.6.2.3 in Exhibit E of SSWD's FLA states: "SSWD, to the extent possible, minimizes the use of products containing second generation anticoagulants, in favor of other methods with fewer impacts to non-target animals that may feed on the target organisms."

CDFW-15 Comment (pgs. 9 & 10): *“It is appreciated that the Licensee is developing a Bald Eagle/Osprey Management Plan earlier than the proposed timeframe.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions related to a bald eagle management plan. SSWD appreciates CDFW's collaboration on this condition.

USFWS-8 Comment (pg. 5): *“USFWS supports the inclusion of a Bald Eagle and Osprey Management Plan and the Licensee's efforts to develop this plan ahead of schedule.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in SSWD's Exhibit E states SSWD's current understanding of collaboration among SSWD and agencies regarding agreement on SSWD's proposed conditions related to a bald eagle management plan. SSWD appreciates CDFW's collaboration on this condition.

CDFW-16 Comment (pg. 10): *“It is recommended that the Licensee protect the great blue heron rookery in the South Shore Recreation Area and implement a Limited Operating Period from March 15 to July 31 within a buffer of 0.25 mile around the rookery.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in Exhibit E include SSWD's Proposed Condition TR2, Great Blue Heron Rookery Management, which states that SSWD will adhere to a Limited Operating Period from March 15 to July 31 within a buffer of 500 ft around the rookery. A map showing the location of the great blue heron rookery is included in Section 3.3.4 as Figure 3.3.4-9. As described in Section 1.4.2.4 and Appendix E2, SSWD understands that CDFW agrees with this condition. SSWD appreciates CDFW's collaboration on this condition.

USFWS-6 Comment (pg. 5): *“USFWS recommends the protection of the great blue heron rookery within the project area by implementing a Limited Operating Period from March 15 to July 31 within a buffer of 0.25 miles of the rookery.”*

SSWD’s Reply: Section 1.4.2.4 and Appendix E2 in Exhibit E include SSWD's Proposed Condition TR2, Great Blue Heron Rookery Management, which states that SSWD will adhere to a Limited Operating Period from March 15 to July 31 within a buffer of 500 ft around the rookery. A map showing the location of the great blue heron rookery is included in Section 3.3.4 as Figure 3.3.4-9. As described in Section 1.4.2.4 and Appendix E2, SSWD understands that USFWS agrees with this condition. SSWD appreciates USFWS's collaboration on this condition.

CDFW-17 Comment (pg. 10): *“The Department recommends the following addition to the Special-Status Bat Species section: "TR2-1: Prior to initiating any Project operations and maintenance activities (including exclusion), a qualified biologist will inspect the facilities for bats immediately prior to initiating activities. If winter hibernacula of special-status bats are present and likely to be affected by the activities (e.g., noise disturbance, structure modification), work will be limited to avoid the hibernacula season when bats are sensitive to disturbance (November through March) or consultation with the agencies about protective measures will be initiated. If construction is planned for the hibernacula season, exclusion methods may be planned before construction has occurred.”*

SSWD’s Reply: During continued collaboration between SSWD and the agencies, it was agreed to by SSWD, CDFW, and USFWS that the Project did not require any bat-related measures. Refer to the PM&E Resolution Meeting Summary in Appendix E6 in Exhibit E of SSWD's FLA.

USFWS-9 Comment (pg. 5): *“The USFWS would like to assist in the development of the plan to install and maintain devices to exclude bats from Project facilities.”*

SSWD’s Reply: Refer to SSWD’s reply to CDFW-17 comment.

1.8 ESA-Listed Threatened or Endangered Species

NMFS-10 Comment (pg. 7): *“SSWD uses the term "aggregate effects" instead of "cumulative effects" and should revise to "cumulative" to maintain consistency with other sections of the DLA.”*

SSWD’s Reply: In the FLA, SSWD named the section “Cumulative Effects”.

USFWS-4 Comment (pgs. 3 & 4): *“USFWS requests that the Commission of the Licensee complete ESA consultation for California red-legged frog and vernal pool fairy shrimp prior to license issuance.”*

SSWD’s Reply: As discussed in the introductory section of Section 3.3.5 in Exhibit E of the FLA, if the federal lead agency (i.e., FERC) determines a Proposed Action may affect a species protected under the ESA, the lead agency is required to consult with the jurisdictional agency (i.e., USFWS in this case). Only the lead agency and the jurisdictional agency can "complete" consultation under Section 7 of the ESA. As FERC's designated non-federal representative for ESA consultation, SSWD has consulted with USFWS regarding needed information (see Section 3.3.5.1 in Exhibit E of the FLA), although ESA consultation only requires use of the best commercially available information, and on potential PM&E conditions to be included in the new license. SSWD cannot "complete" Section 7 consultation.

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APPENDIX E4

Attachment 1

**CDFW's December 7, 2016,
E-mail Regarding eDNA Sampling**

Vertucci, Charles

From: Milloy, Anna@Wildlife <Anna.Milloy@wildlife.ca.gov>
Sent: Wednesday, December 7, 2016 7:43 PM
To: Brad Arnold (sswd@hughes.net); Lynch, Jim; Vertucci, Charles
Cc: Hoobler, Sean@Wildlife; Roddam, Meiling@Waterboards; Tom Holley; Willy, Alison; Aondrea_Bartoo@fws.gov; Chris Shutes (blancapaloma@msn.com); Traci Van Thull (traci@foothillswaternetwork.org); Lawson, Beth@Wildlife
Subject: eDNA Sampling Proposal for Camp Far West Hydroelectric Project (FERC Project No. 2997)

Brad, Chuck, and Jim,

Please see the California Department of Fish and Wildlife's proposal for eDNA sampling as a part of South Sutter Water District's proposed *Study 3.2 – Stream Fish* for the Camp Far West Hydroelectric Project (FERC Project No. 2997):

- Six sample areas on the lower Bear River from the non-Project diversion dam to the mouth with 3-5 samples per area as described below for a total of 25 sample sites.
- Two sample events, no less than two weeks apart between mid-February and April 1.
- Initiation of sampling will be triggered when flows meet or exceed 2000 cfs during the sampling time period identified above. As a general rule, each sample collection event must occur when flows are at least 2,000 cfs.
- Total samples = 25 per sampling event x 2 sampling events = 50 total eDNA samples.

Sample Areas (from mouth to non-Project diversion dam):

- Sample Area #1: Just upstream of mouth (38°56'33.04"N and 121°34'20.68"W) (approximately 949 meters from confluence)
 - Sample Site 1a: At the GPS coordinates
 - Sample Site 1b: 100 m upstream of Sample Site 1a
 - Sample Site 1c: 100 m downstream of Sample Site 1a
 - Sample Site 1d: 200m downstream of Sample Site 1a
 - Sample Site 1e: 300m downstream of Sample Site 1a
- Sample Area #2: Railroad Crossing just upstream of Highway 70 (38°58'27.56"N and 121°32'6.36"W)
 - Sample Site 2a: At the railroad crossing
 - Sample Site 2b: 100 m upstream of Sample Site 2a
 - Sample Site 2c: 100 m downstream of Sample Site 2a
 - Sample Site 2d: 200m downstream of Sample Site 2a
- Sample Area #3: Dry Creek Confluence (38°58'42.03"N and 121°31'0.13"W)
 - Sample Site 3a: At the confluence
 - Sample Site 3b: 100 m upstream of Sample Site 3a (Bear River)
 - Sample Site 3c: 100 m downstream of Sample Site 3a (Bear River)
 - Sample Site 3d: 200m downstream of Sample Site 3a (Bear River)
 - Sample Site 3e: 300m downstream of Sample Site 3a (Bear River)
- Sample Area #4: Highway 65 Crossing (38°59'59.37"N and 121°24'23.68"W)
 - Sample Site 4a: At the tail of the pool below the Highway 65 Crossing
 - Sample Site 4b: 100 m upstream of Sample Site 4a

- Sample Site 4c: 100 m downstream of Sample Site 4a
 - Sample Site 4d: 200m downstream of Sample Site 4a
- Sample Area #5: Second pool below non-Project diversion dam (approximate coordinates: 39° 2'15.92"N and 121°20'18.19"W)
- Sample Site 5a: At the tail of the pool
 - Sample Site 5b: 100 m upstream of Sample Site 5a
 - Sample Site 5c: 100 m downstream of Sample Site 5a
 - Sample Site 5d: 200m downstream of Sample Site 5a
- Sample Area #6: First pool immediately below non-Project diversion dam (39° 2'29.40"N and 121°19'58.38"W)
- Sample Site 6a: At the tail of the pool
 - Sample Site 6b: 100 m downstream of the tail of the pool
 - Sample Site 6c: 200 m downstream of the tail of the pool

CDFW believes the sampling effort will be much more informative and useful for relicensing purposes if conducted in two events during the time period and flows proposed above. We developed this proposal in consideration of the following:

- CDFW anadromous fish biologists' knowledge of anadromous fish habitat preferences and where those habitats may exist in the lower Bear River as well as the timing of the potential presence of certain anadromous species in the lower Bear River.
- The location of sturgeon observations in the lower Bear River as reported by the Department of Water Resources.
- Sampling considerations for eDNA sampling communicated by our Department geneticist Jeff Rodzen.
- The sampling design of Bergman et al. (2016) (Full citation: Bergman, P.S., Schumer, G., Blankenship, S., Campbell, E. 2016. Detection of adult green sturgeon using environmental DNA analysis. PLoS ONE 11(4): e0153500).

Thank you for considering this proposal.

Anna

Anna Milloy, Senior Environmental Scientist Specialist
 FERC Program Coordinator
 California Department of Fish and Wildlife
 North Central Region
 1701 Nimbus Road
 Rancho Cordova, CA 95670
Anna.Milloy@wildlife.ca.gov
 (916) 358-2384

APPENDIX E4

Attachment 2

**Genidaqs' May 31, 2019,
E-mail Regarding eDNA Sampling**

Vertucci, Charles

From: Scott Blankenship <scott.blankenship@fishsciences.net>
Sent: Friday, May 31, 2019 2:05 PM
To: Onanian, Benjamin
Cc: Poxon, Brian; Vertucci, Charles
Subject: RE: Bear River eDNA Questions

I just forwarded two emails (threads) to you Ben. One was the results spreadsheet and .kml, while the other was the only reference I had to design. Design email did not mention anything about sample volume though, so we must have spoken about that on the phone.

As flows were super high, far in excess for original sampling purpose re: 2000 cfs flow migration trigger, I recall having a discussion about turbidity and sampling volume. On the order of aggregating proximate samples during interpretation. I also recall that the number of filters collected increased from 2 to 5 per site to accommodate conditions at time of sampling.

While the exact probability of detection (per filter) was not estimated prior to sampling (as that task was not requested and well beyond project scope), sampling should have been fine for Camp Far West application, given the replication of both sites and filters. Volumes should be sufficient for DNA detection. We had positive DNA detections from species other than sturgeon during eDNA field survey, so it is unlikely that volume, varying (by filter) across survey, had a material effect on design. It is more likely that sturgeon were not present during surveys. With all that said, we have a sampling (statistical error) model showing effect sizes on DNA detection given relevant covariates (filter volume, distance from source, etc). We could simulate an eDNA survey given assumed covariates.

Scott

From: Onanian, Benjamin <Benjamin.Onanian@hdrinc.com>
Sent: Thursday, April 25, 2019 2:22 PM
To: Scott Blankenship <scott.blankenship@fishsciences.net>
Cc: Poxon, Brian <Brian.Poxon@hdrinc.com>; Vertucci, Charles <Charles.Vertucci@hdrinc.com>
Subject: Bear River eDNA Questions

Hey Scott,

Hope everything is well, just had a few questions regarding the lower Bear River eDNA analysis Genidaqs did for us in 2017.

The first is regarding a personal communication from February 2017, the purpose of the communication was to discuss the volume of water we were able to filter during sampling. Originally, it was stated that 2 L of water would be filtered, however, due to high turbidity the actual sampling volume ended up being closer to 1 L per sampling location. The personal communication in question would have likely been with Joel Passovoy to discuss any potential ramifications of reducing the volume of water filtered at each location. Is it possible that you still have an email record of that conversation?

The second question I have is whether or not a pdf report, like the one prepared for the Piru Creek sampling, was ever generated for the lower Bear analysis? I was going through our files and located a excel spreadsheet with the detection results but could not find an official report with a coversheet, methods, etc.

Thanks for your time Scott, let me know if you need any further clarification or information.

Ben Onanian

Aquatic Scientist I

HDR

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APPENDIX E5

SSWD'S REPLY TO FERC COMMENTS

In its March 29, 2019, letter, FERC provided 45 comments regarding SSWD's DLA. SSWD has applied an alpha-numeric designation to each comment and provides below a reply to each of the comments, which are repeated verbatim below with the page number from the comment letter.

1.0 Initial Statement

FERC-1 Comment (pg. 1): *"In the Initial Statement, Attachment 1 – the Draft Public Notice currently lists December 2018 as the date South Sutter Water District (SSWD) applied to FERC for a new license. Please ensure the filing date is updated with the correct date before submitting the notice for publication to local newspapers as required by section 4.32(b)(6)."*

SSWD's Reply: The Initial Statement in the FLA states the date is June 2019, the correct date.

2.0 Exhibit A

FERC-2 Comment (pg. 1): *"In section 3.1.1, the first paragraph lists the main embankment of the existing dam as 185 feet high and figure 3.1-1 lists the height as 181 feet high. Please clarify the height of the dam for this section and figure 3.1-1 in the FLA."*

SSWD's Reply: Figure 3.1-1 in Exhibit A of the FLA shows the dam height as 185 ft., the correct height.

Comment FERC-3 (pg. 1): *"Section 5.3 states SSWD proposed to add an existing road that accesses the powerhouse. Based on this language it's unclear if SSWD proposes to construct a new road, modify an existing road, or something else. In addition, no details are provided regarding the physical composition, dimensions, or general configuration of the road. Please amend this section in the FLA as required by section 4.51(b)."*

SSWD's Reply: Section 5.3 in Exhibit A of the FLA states that SSWD proposes to add as a Project facility (Primary Project Road) in the new license one existing road, which is on SSWD-owned land within the existing and proposed FERC Project boundaries. The road extends approximately 0.25 miles from a SSWD locked gate at Camp Far West Road to the Camp Far West Powerhouse and Switchyard. The road, which is not open to the public for safety reasons, is used and maintained solely by SSWD to access the Camp Far West Powerhouse and Switchyard, and has an asphalt-paved surface approximately 20 ft wide and shoulder width of approximately 2 feet. The road was constructed when Camp Far West Powerhouse and Switchyard were constructed and is SSWD's only vehicular access route to Camp Far West Powerhouse and Switchyard, but was inadvertently omitted from the existing license as a Project facility. Figure 2.1-1 in Exhibit A and Figure 2.0-1 and Attachment G-1 of Exhibit G of the FLA show the location of the existing road. SSWD's proposal to include the existing road as a Project facility in the new license simply corrects an oversight in the existing license.

FERC-4 Comment (pg. 1): *“Section 5.4 FERC Project Boundary proposes corrections to the existing project boundary around the Camp Far West Reservoir based on higher accuracy elevation data made available since the creation of the original boundary geometry. The DLA states that boundary corrections would be “defined by the lesser of either the topographic contour of 320 feet, which is 20 feet above the normal maximum water surface elevation (NMWSE), or 200 horizontal feet from the NMWSE.” In section 5.1 Camp Far West Reservoir Pool Raise, SSWD proposes to raise the NMWSE by 5 feet to an elevation of 305 feet; however, the DLA does not indicate that the proposed project boundary modification takes into account the new 305-foot NMWSE. The proposed 305-foot NMWSE would increase the boundary defining contour to 325 feet. Please clarify this discrepancy in the FLA. In addition, where other sections of the DLA list acreages within the project boundary (e.g. for a particular resource) please note or modify the listed acreages as necessary.”*

SSWD’s Reply: Exhibits A and G in SSWD’s FLA clarify that the proposed FERC Project Boundary around Camp Far West Reservoir corresponds to the 320-foot elevation contour for most of the reservoir, with three general exceptions. The first exception is in areas where the 320-foot elevation counter would result in an excessive amount of land that is not necessary for Project operation and maintenance (e.g., farthest upstream drainage areas that tend to flatten out). In those areas, the Proposed FERC Project Boundary provides an adequate amount of land (approximately 15 feet) for Project operation and maintenance and recreation use. The second exception is around recreation areas. The Proposed Boundary in those areas includes all recreation facilities and adequate lands for a reasonable amount of dispersed recreation near the reservoir. The last exception is near Camp Far West Dam and Powerhouse. In that area, the Proposed FERC Project Boundary encompasses all facilities and an adequate amount of land for Project operation and maintenance. These changes to the existing Project Boundary are shown in Figure 2.0-1 Sheets 1 through 10 in Exhibit G of the FLA and are consistent with the preferred methods of defining project boundaries, as outlined in the FERC Drawing Guide (FERC 2012).

3.0 Exhibit B

FERC-5 Comment (pg. 2): *“In section 7.1.2 SSWD’s Proposed Conditions in the New License it appears there is a typographical error under the SSWD Proposed Condition TR2 subheading where “to exclude boats form” should be modified to “to exclude bats from”. Please amend in the FLA accordingly.”*

SSWD’s Reply: Based on a consensus of USFWS, CDFW and FWN, the bat exclusion device measure has been removed as one of SSWD’s proposals. Therefore, it is not mentioned in Section 7.1.2 in Exhibit B of SSWD’s FLA.

4.0 Exhibit C

FERC-6 Comment (pg. 2): *“In Section 3.1.5 Construction Sequences and Schedule, Task 4.7, in Table 3.1-3 Draft preliminary schedule for construction of the Pool Raise states that relocation of campsites would last for a duration of 5 days. Further, in Section 3.1.5.9 Campsite Relocation you state that relocation would include clearing and grading new campsite areas,*

clearing and paving access, constructing new campfire pits, and relocating features such as tables, benches, and barbecue grills from existing sites to new sites. In the FLA, please clarify the following:

- a) When you state that the relocation of campsites would last for a duration of 5 days, does that account for all of the work described in Section 3.1.5.9?*
- b) After all of the approximately 104 recreational facilities and features are relocated, rerouted, or realigned, is there a plan to clean or restore those sites before the pool raise or inundation occurs? Is this activity accounted for in the 5-day time period for relocation?”*

SSWD’s Reply: Section 3.1.5 (Table 3.1-3) in Exhibit C of the FLA includes a corrected timeframe of 90 days to complete the recreation facilities relocation (not 5 days) and further states that this work will occur for 90 days but in phases to minimize impacts to recreation area visitors (mostly outside the peak recreation season). Section 3.3.6.2.1 in Exhibit E of the FLA provides additional detail regarding how SSWD proposes to time and complete the recreation facilities relocation. Section 3.1.5.9 of Exhibit C of the FLA includes a description of what recreation facilities and site amenities will be restored, cleaned, removed, or left in place (as-is) prior to inundation.

5.0 Exhibit D

FERC-7 Comment (pg. 2): *“In section 6.2.2, O&M Costs Related to Environmental and Recreation Conditions, you state that SSWD’s estimated annual cost to implement the conditions (i.e. AR1, TR1, TR2, RR1, and CR1) is \$464,366; however, Table 6.2-1 and Table 6.2-12 show the estimated annualized cost for these measures to be \$440,433. Please clarify in the FLA which cost estimate is the correct total annualized cost for the five proposed environmental and recreation conditions.”*

SSWD’s Reply: Section 6.2.2 in Exhibit D of the FLA shows SSWD's estimated costs to implement SSWD's proposed environmental and recreation measures. The costs are consistent among the text in Section 6.2.2 and Tables 6.2-1 and 6.2-2. The costs in the FLA are different than the costs that were in the DLA because SSWD has modified its proposal in the FLA.

6.0 Exhibit F

FERC-8 Comment (pg. 2): *“Because design drawings were not included as part of the DLA, staff have no comments on Exhibit F at this time. Please ensure that detailed design drawings are provided in the FLA as required by section 4.51(g).”*

SSWD’s Reply: Exhibit F in the FLA includes, as CEII, detailed Design Drawings in conformance with 18 CFR 4.51(g).

7.0 Exhibit G

FERC-9 Comment (pg. 2): *“Please ensure that project boundary and feature data is filed in a geo-referenced electronic format (e.g. shapefiles) in the required format and level of accuracy when filing the FLA as required by section 4.41(h).”*

SSWD’s Reply: Exhibit G in the FLA includes Project Maps that show SSWD's proposed FERC Project Boundary. The FLA filing includes geo-referenced, electronic format shapefiles that comply with 18 CFR § 4.41(h).

FERC-10 Comment (pg. 3): *“In Exhibit E, section 3.3.7.1.2 Other Public Lands the DLA describes Placer County’s Kirk Ranch Conservation Easement (KRCE), and Figure 3.3.7-3 (page E3.3.7-10) appears to show the conservation easement parcel located about 0.5 mile southeast of the Camp Far West Dam, directly adjacent to the project boundary along McCourtney Road, and in close proximity to SSWD’s South Shore Recreation Area (SSRA). However, the Exhibit G maps do not show the KRCE, but do include other nonfederal land (e.g. Spencerville Wildlife Area). Because the KRCE appears to be directly adjacent to the project boundary and near the SSRA please include the KRCE on the appropriate Exhibit G maps in the FLA for staff to better evaluate this public land easement in its environmental analysis.”*

SSWD’s Reply: Exhibit G-1 (Attachment G-1) in Exhibit G of SSWD's FLA shows the KRCE adjacent to the FERC boundary. Likewise, Figure 2.0-1 Sheets 1 and 10 (Pages G-7 and G-16) in Exhibit G of the FLA have the KRCE in the map frame and an entry in the legend.

FERC-11 Comment (pg. 3): *“On the Project Boundary Change Maps, Sheets 1, 3, and 4, and Sheets 6 through 10, you indicate in the map legend "Proposed Additions" to the project boundary. In some instances, you clearly identify land proposed to be added by pointing to it on the map and identifying the affected parcel (e.g. Sheet 1); however, on Sheets 4, 9, and 10 you do not point directly to proposed land additions. In the FLA, please clearly identify the proposed land additions on Sheets 4, 9, and 10.”*

SSWD’s Reply: Sheets 4, 9 and 10 of Figure 2.0-1 in Exhibit G of SSWD's FLA have callout boxes to clearly identify where "Proposed Additions" to the existing FERC Project Boundary are located. The legend entry "Proposed Additions" clearly indicates if the features are present in the specific map sheet, and callouts on the map identify their exact locations.

FERC-12 Comment (pg. 3): *“On the Project Boundary Change Maps, Sheets 7 and 8, you clearly identify private lands north of the reservoir (cross-hatched areas, with APN identified), and the proposed modifications to add additional land to the project boundary within those private lands; however, there appear to be proposed additions of land, outside of the existing project boundary, and SSWD-owned lands, that are not identified as occurring within identified private land (e.g. Sheet 7, east of Valley Road). In the FLA, please clarify if these proposed additions on Sheets 7 and 8 occur within the existing project boundary, or are located within private land.”*

SSWD's Reply: Figure 2.0-1, Sheets 7 and Sheet 8, in Exhibit G of SSWD's FLA are labeled to clearly indicate proposed modifications to the FERC Project Boundary on parcels in which the modification is proposed. In the case of the additions on Sheet 7, the modifications extend to the boundaries on SSWD-owned parcels, and the APN is specified in the callouts in the sheet.

8.0 **Exhibit E**

FERC-13 Comment (pg. 3): *“Please include all completed study reports and any supporting materials with the FLA as required by section 4.38(c)(4)(ii).”*

SSWD's Reply: SSWD provides the results and conclusions of its studies in the appropriate resources section of Exhibit E. Supporting materials for each study are provided on compact disc as Appendix E1 to Exhibit E.

FERC-14 Comment (pg. 3): *“Section 1.4.2.4 Collaborative Development of PM&E Measures states that SSWD and interested parties did not reach agreement on any protection, mitigation, and enhancement measures. Although, collaborative agreement was not reached the FLA must include descriptions of any measures or facilities recommended by the agencies consulted for the mitigation of impacts on fish, wildlife, and botanical resources, or for the protection or improvement of those resources as required by section 4.51(f). In addition, the FLA must include an explanation of why SSWD has rejected any measures or facilities recommended by an agency as required by sections 4.51(f). For clarity, please also indicate if no measures have been recommended for a particular resource area under the appropriate resource section(s) in the FLA.”*

SSWD's Reply: Section 1.4.2.1 in Exhibit E of the FLA summarizes SSWD's collaborative development of PM&E measures, noting any agreements and differences between SSWD and PM&E measures suggested by agencies in agencies' written comments on the DLA. Further, Appendices E3, E4 and E6 to Exhibit E of the FLA provide copies of agencies' written comments on SSWD's January 2019 DLA, SSWD's replies to agencies' written comments, and a summary of SSWD's May 13, 2019, meeting with agencies to resolve differences regarding PM&E measures, respectively. Last, each resource section in Exhibit E of the FLA includes a discussion of PM&E measures suggested by an agency in its written comments on the DLA, whether the suggestion was adopted by SSWD and, if not, why SSWD did not adopt the suggestion.

FERC-15 Comment (pg. 4): *“The DLA currently does not appear to include all letters from resource agencies or Indian tribes containing comments, recommendations, and proposed terms and conditions, or letters from the public containing comments and recommendations. In the FLA, please include all such consultation documentation as required by section 16.8(f).”*

SSWD's Reply: As described in SSWD's reply to FERC-14, Appendix E3 in Exhibit E of the FLA provides copies of agencies' written comments on SSWD's January 2019 DLA. These comments include any written agency suggestions regarding PM&E measures. SSWD has not received any other written comments regarding PM&E measures.

FERC-16 Comment (pg. 4): *“Although Attachment 3.3.6B provides several maps displaying where the proposed pool raise would impact recreational facilities it does not display inundation zones for other project areas. In order for staff to better understand potential effects on all environmental resource areas please provide similar maps displaying inundation zones overlaid with project facilities and boundaries in the FLA. Where appropriate, please also include any resources (e.g. terrestrial, cultural) that would be potentially impacted by inundation.”*

SSWD’s Reply: Figure 2.0 in Exhibit G of SSWD's FLA shows the 300 feet and 305 feet elevation contours for the entire Camp Far West Reservoir shoreline, which is the area that would be inundated by the Pool Raise, as well as land ownership and Project facilities in that 5 foot band. Section 3.3.4.4.2 in Exhibit E of the FLA describes potential impacts to terrestrial resources from the Pool Raise, and SSWD's Privileged Cultural Resources Report provides maps showing cultural resources impacted by the Proposed Pool Raise and potential effects.

FERC-17 Comment (pg. 4): *“In order to aid staff’s evaluation of potential project effects on environmental resources, please include the following supporting document as an appendix with the FLA:*

Sycamore Associates. 2013. Biological Assessment: Camp Far West Reservoir Project. FERC No. P-2997. Sacramento, CA”

SSWD’s Reply: Appendix E-7 in Exhibit E of the FLA includes the complete Sycamore Associates (2013) document.

8.1 Section 2.0 Proposed Actions and Alternatives

FERC-18 Comment (pgs. 4 & 5): *“In section 2.1.1.9 Primary Project Roads and Trails, and the similar Exhibit A, Section 3.9 Primary Project Roads and Trails, you state that there are no primary project roads or primary project trails included as part of the FERC-licensed project facilities; however, in section 3.3.1.3 Unavoidable Adverse Effects you state that one, short primary project road is paved and regularly maintained. Additionally, in Exhibit B, section 6.4.2 Other Facility Maintenance, you state that routine maintenance activities conducted in the vicinity of project facilities includes road and trail maintenance, and in Exhibit B, section 6.4.2.4 Road Maintenance you state that regular inspection of the project access roads occurs during the course of day-to-day project activities and maintenance on project and shared roads occurs as needed. Multiple paved and unpaved roads exist within the North Shore Recreation Area (NSRA) and SSRA, and the Recreation Facilities Plan describes them as access roads and circulation roads, that lead to, and are situated within, formal campgrounds and in what are described as “dispersed use areas” throughout the two recreation areas. You also state that the NSRA and SSRA do not provide a network of recreational trails, but that the paved and unpaved roads provide a trail experience for visitors. Regardless of the formal or informal nature of the recreational opportunities the NSRA and SSRA provide, recreational visitors and SSWD regularly traverse the paved and unpaved roads to reach destinations throughout the two recreation areas. Additionally, as you state, because the recreation areas do not provide formal trails for hiking, biking, and horseback riding, the roads provide a trail experience for*

recreational visitors. Please provide the following information as required by section 4.51(f)(5):

- a) The name, location, and purpose(s) of the primary project road mentioned in section 3.3.1.3 Unavoidable Adverse Effects.*
- b) The total number of project roads that exist within the project boundary.*
- c) The name, location, and purpose(s) of the shared roads mentioned in Exhibit B, section 6.4.2.4 Road Maintenance, related to existing project operations and maintenance.*
- d) The existence or absence of agreements between SSWD and the owner(s) of the shared roads mentioned in Exhibit B, section 6.4.2.4 Road Maintenance.”*

SSWD's Reply: Section 5.3 in Exhibit A of the FLA states that SSWD proposes to add as a Project facility (Primary Project Road) in the new license one existing road, which is on SSWD-owned land within the existing and proposed FERC Project boundaries, that extends approximately 0.25 miles from a SSWD locked gate at Camp Far West Road to the Camp Far West Powerhouse and Switchyard. The road, which is not open to the public for safety reasons, is used and maintained solely by SSWD to access the Camp Far West Powerhouse and Switchyard, and has an asphalt-paved surface approximately 20 ft wide and shoulder width of approximately 2 feet. While the road was constructed when Camp Far West Powerhouse and Switchyard were constructed and is SSWD's only vehicular access route to Camp Far West Powerhouse and Switchyard, the road is not identified in the existing license as a Project facility. Figure 2.1-1 in Exhibit A and Figure 2.0-1 and Attachment G-1 of Exhibit G of the FLA shows the location of the existing road. SSWD's proposal to include the existing road as a Project facility in the new license simply corrects an oversight in the existing license.

In comparison to the above closed-to-the-public access road the Camp Far West Powerhouse, SSWD considers existing open-to-the-public roads in the North Shore and South Shore recreation areas to be integral parts of the Project recreation facilities. Section 3.3.6.1 in Exhibit E of SSWD's FLA describes the roads associated with each individual recreation facility in both the North Shore and South Shore recreation areas, and includes a description (i.e., length, width and travel surface) of each recreation-related roads in the North Shore and South Shore recreation areas. Section 3.2 (Table 3.2-1) details the management guidelines that SSWD will follow to maintain the Camp Far West Powerhouse access road and the recreation-related roads over the term of the new license.

FERC-19 Comment (pg. 5): *“In section 2.1.5.2.3 Bay-Delta Bear River Voluntary Agreement, the DLA describes the Bear Agreement (a non-license voluntary agreement that expires on December 31, 2035, or sooner if the Bear River agreement were terminated), which provides a transfer of up to 4,400 acre-feet to the California Department of Water Resources during dry and critical water years and calls for the licensee to increase flows in the lower Bear River by no more than 37 cubic feet per second (cfs) from July through September, as measured immediately downstream of the diversion dam. This flow is in addition to the 10 cfs minimum flow required in the project license. At the end of the flow release period, the agreement also calls for a down ramp at a rate not to exceed 25 cfs over a 24-hour period to avoid stranding anadromous fish.*

So staff can understand the rationale for the implementing the Bear Agreement, please describe in detail:

- a) its objective(s);*
- b) the years in which the agreement was implemented;*
- c) whether the objective(s) were met in years it was implemented; and*
- d) the reasons for not proposing to implement the agreement as a requirement of a new license.”*

SSWD's Reply: Section 2.1.5.2.3 in Exhibit E of the FLA describes: 1) the objective of SSWD, SWRCB and DWR's Bay-Delta Bear River Settlement Agreement (Agreement) (i.e., to settle the responsibilities of the SSWD, CFWID and other Bear River water rights holders' obligations to provide water to implement the water quality objectives of the SWRCB's May 1995 Bay-Delta Water Quality Control Plan); 2) that the Agreement has been in effect from 2000 through the present; and 3) that the objectives of the Agreement have been met in every year in which the Agreement has been in effect (i.e. the section includes a table showing in which years water was transferred to DWR in accordance with the Agreement).

SSWD does not propose to include the requirements of the Agreement in the new license for the following reasons. First, no Relicensing Participant to the relicensing has suggested the requirements be included in the new license. Second, the requirements in the Agreement resulted from prolonged negotiations to resolve a water rights and water quality issue, which is outside FERC's jurisdiction under Section 27 of the Federal Power Act. Third, the Agreement has resulted in a paid water transfer and is not appropriately characterized as a PM&E measure (except for the down ramp restriction to avoid fish stranding resulting from the water transfer). Fourth, the release of water in "dry" and "critically dry" years provides little, if any, benefit to aquatic resources in the Bear River because the water is provided in the July through September period when releases are too warm to be of any benefit in the Bear River; and providing benefits to aquatic resources in the Bear River is not the purpose of the Agreement (the principal purpose is to provide Delta outflow). Fifth, the Agreement terminates on December 31, 2035, or sooner if agreed to by SSWD, SWRCB and DWR. Sixth, the Agreement does not contemplate, nor did the parties bargain for, the need to go through a FERC license amendment process to terminate the benefits and obligations of the Agreement.

FERC-20 Comment (pgs. 5 & 6): *“In section 2.2.2 Change to Existing FERC Project Boundary, you state that the Camp Far West 60-kilovolt (kV) transmission line is part of the Camp Far West Hydroelectric Project (P-2997). There appears to be a typographical error, because as the paragraph further explains the Camp Far West 60-kV transmission line is no longer part of the Camp Far West Hydroelectric Project, rather it is part of PG&E's Camp Far West Transmission Line Project (P-10821). In the FLA, please correct the typographical error for this section, and any additional sections where this error may occur.”*

SSWD's Reply: Section 2.2.2 in Exhibit E of the FLA correctly states that FERC removed the Camp Far West Transmission Line for the Camp Far West existing license in 1991, but the boundary was not modified to reflect the removal of the transmission line. SSWD's proposed Project Boundary shown in the FLA corrects this oversight.

8.2 Section 3.3.3 Aquatic Resources

FERC-21 Comment (pg. 6): *“In section 3.3.3.3.2 Effects of Proposed Project Operations and Maintenance, the DLA provides an analysis of flows and water temperature at the 80 percent maximum weighted usable area (WUA) for Chinook salmon in the lower Bear River. The analyses suggests that the flows necessary to meet 80 percent maximum WUA results in excessive variability between improved and reduced habitat and increased water temperature detrimental for Chinook salmon. SSWD should consider an analysis of lower minimum flows that achieve less than maximum WUA for Chinook salmon in the lower Bear River that may produce water temperatures within a suitable range for Chinook salmon. Such an analysis should include evaluating WUA and water temperatures using small incremental increases in the existing minimum flows, rather than just the 80 percent WUA analysis presented in the DLA.”*

SSWD's Reply: Section 3.3.3.3.2 in Exhibit E of SSWD's FLA provides an analysis of fish habitat that would be provided by SSWD's proposed flow releases. As described in Section 1.4.2.4 and Appendix E2 in Exhibit E of SSWD's FLA, understands that most interested agencies tentatively agree with SSWD's proposed flow releases. SSWD considered reasonable modifications to its proposed flow releases.

8.3 Section 3.3.4 Terrestrial Resources

FERC-22 Comment (pg. 6): *“Section 3.3.4.1 Affected Environment – Vegetation, states that “the area within the proposed FERC project boundary encompasses 2,661.9 acres”. Please clarify if the acreages reported for the vegetation classifications are based on the proposed project boundary change using the proposed 305-foot NMWSE or the existing 300-foot NMWSE (comment 4 above).”*

SSWD's Reply: Section 3.3.4.1 in Exhibit E of the FLA clarifies that the 2,661.9 acres encompass the land between Camp Far West Reservoir's existing NMWSE of 300.0 ft and SSWD's proposed FERC Project Boundary, as shown in Exhibit G of the FLA.

FERC-23 Comment (pg. 6): *“Section 3.3.4.1.2 Special-status Plants generally describes the 505-acre study area for the Special-status Plants and Non-native Invasive Plants Study, but does not provide a map. Please include a map in the FLA displaying the study area in relation to project features for staff to better understand where the surveys were conducted.”*

SSWD's Reply: Section 3.3.4.1.3 in Exhibit E of the FLA includes Figure 3.3.4-6 showing the 505-acre study area for SSWD's Special-Status Plants Study.

FERC-24 Comment (pgs. 6 & 7): *“In section 3.3.4.1.2 Special-status Plants the DLA states that the 505-acre study area selected for SSWD’s Special-Status Plants and Non-Native Invasive Plants Study consisted of the project’s two recreation areas, and areas near the project dam, dikes, spillway, and powerhouse. The DLA explains these areas were selected as this is where SSWD determined that project operations and maintenance activities or project-related recreation could affect special-status plants or spread non-native invasive plant species (NNIP). However, we note that section 3.3.6.1.1 Recreation Facilities and Opportunities in and Around the Project Reservoir describes informal, user-created trails and dispersed camping occurring along the reservoir shoreline. Therefore, it’s unclear why such informal recreation activities were not considered as potentially having an effect on special-status plant species or potentially spreading NNIP. Therefore, more detailed information is required in order for staff to better understand and evaluate potential recreation effects on terrestrial resources. In the FLA, please provide additional information on, and effects analysis of, project-related, informal recreation activities on these resources including more detailed information on where, to what extent (e.g. frequency), when, and what activities occur in the project area, including any areas that may occur outside of the existing project boundary.”*

SSWD’s Reply: Dispersed recreation and the possible spread of NNIP are discussed in Section 3.3.4.4.2. SSWD considered that dispersed recreation could spread NNIP around the reservoir, however, the surrounding private lands already have a significant number of NNIP occurrences and other vectors can carry NNIP into the Project.

FERC-25 Comment (pg. 7): *“Section 3.3.4.1 Affected Environment – Vegetation includes sufficient descriptions and maps of vegetation classifications occurring within the project boundary. Section 3.3.4.3.5 Riparian Habitat below Camp Far West Reservoir provides descriptions and maps of vegetation classifications occurring at two sites (about 0.5 mile each) downstream of the project dam that was selected as part of SSWD’s Instream Flow Study, but no further information is provided on vegetation communities occurring on other reaches downstream of the project. Section 3.3.4.2.1 Wildlife Habitat includes a list of wildlife habitats and their respective acreages found within the project boundary.*

However, the DLA lacks sufficient information needed for staff to evaluate potential project-related effects on vegetation and terrestrial wildlife in the project area. Operation of the project has the potential to affect riparian vegetation and wildlife habitat downstream of the project as well as habitat outside of the project boundary.

Therefore, in the FLA please provide the information listed below as required by section 4.51(f)(3).

- a) Descriptions and maps of the vegetation communities occurring downstream of the project from the Camp Far West dam to the point of confluence with the Bear River and Feather River.*
- b) For all wildlife habitat classifications occurring within and adjacent to the project boundary including downstream of the project dam to the Bear River’s confluence with the Feather River provide the following below.*

- *Descriptions of the characteristics defining each wildlife habitat classification.*
- *A wildlife habitat map displaying all habitat classifications overlaid with project features, facilities, and boundaries.”*

SSWD’s Reply: Section 3.3.4.1.2 in Exhibit E of SSWD's FLA discusses vegetation downstream of the FERC Project Boundary. Figures 3.3.4-2 to 3.3.4-5 show the locations of VegCAMP communities (and thus, wildlife habitat) within a 250 foot buffer of the Bear River from Camp Far West Dam to the confluence of the Bear River with the Feather River. The only Project operation that could affect downstream vegetation and wildlife is flow, but the proposed changes to Project flows are minimal and are not anticipated to change vegetation communities downstream or impact wildlife using that habitat. There are no Project O&M activities outside of the FERC Project Boundary that might impact special-status wildlife.

FERC-26 Comment (pg. 8): *“In section 3.3.4.2.4 Special-status Raptor Study – Swainson’s Hawk, information pertaining to golden eagles appears to be accidentally included under this subheading. Please modify appropriately in the FLA.”*

SSWD’s Reply: The Section 3.3.4.2.4 subsection on Swainson's hawk has been updated to include only information related to Swainson's hawk, with specific information on golden eagles removed. The subsection on golden eagle includes all information related to golden eagles.

FERC-27 Comment (pg. 8): *“In section 3.3.4.3.3 Wetlands Downstream of Camp Far West Dam, Table 3.3.4-11 provides basic descriptions of wetlands identified by the National Wetland Inventory (NWI) database as occurring downstream of the project dam to the confluence of the Bear River and Feather River. In order for staff to evaluate potential project-related effects to wetlands occurring downstream of the project please provide a map displaying the locations of all the NWI wetlands listed in table 3.3.4-11.”*

SSWD’s Reply: Section 3.3.4.3.3 in Exhibit E of the FLA includes Figure 3.3.4-11 and 3.3.4-12 that show wetlands identified by NWI's database from Camp Far West Dam to the confluence of the Bear River with the Feather River.

FERC-28 Comment (pg. 8): *“In section 3.3.4.3.1 Wetlands, under the subsections Palustrine Unconsolidated Bottom and Lacustrine Unconsolidated Bottom you reference Figure 3.3.4-14, however this figure does not exist, therefore please amend the FLA appropriately.”*

SSWD’s Reply: Section 3.3.4.3.1 in Exhibit E of the FLA references Figure 3.3.4-9, the correct reference. In addition, the figure reference in the FLA is correct in the two subsections; Palustrine Unconsolidated Bottom (PUB) and Lacustrine Unconsolidated Bottom (LUB).

FERC-29 Comment (pg. 8): *“Please define the term “dry season hydrology inputs” used in section 3.3.4.3 Wetlands, Riparian, and Littoral Habitats of the Project Area.”*

SSWD’s Reply: Section 3.3.4.3 in Exhibit E of the FLA defines "dry season hydrology inputs" as water inputs during the non-rainy season (approximately May-November), which include

artificial sources, like irrigation runoff from nearby fields and natural sources, such as nearby springs and seeps.

8.4 Section 3.3.5 Threatened and Endangered Species Resources

FERC-30 Comment (pg. 8): *“Section 3.3.5.2.1 Screening for Potentially-affected ESA-listed Species states that on August 25, 2015, SSWD generated a list of ESA-listed species. The USFWS considers lists older than 90 days to be out of date. Because the list included in the DLA was generated over 3.5 years ago, please update the list to ensure the list includes all listed species potentially affected by the project. Please amend the FLA with any changes accordingly.”*

SSWD's Reply: Section 3.3.5.2.1 in Exhibit E of the FLA includes a screening of USFWS's database for potentially-affected ESA-listed species that was performed by SSWD on April 30, 2019. The April 30, 2019, screening did not identify any potentially-affected ESA-listed species that were not identified in SSWD's August 25, 2015 screening.

FERC-31 Comment (pgs. 8 & 9): *“As described in the DLA, Valley Elderberry Longhorn Beetle (VELB) is dependent on its host plant, elderberry, which is commonly found in riparian corridors and adjacent uplands. As part of the relicensing studies SSWD conducted the ESA-Listed Wildlife - Valley Elderberry Longhorn Beetle Study. The 505-acre study area where surveys for elderberry were conducted consisted of the project's two recreation areas, and areas around the project dam, dikes, spillway, and powerhouse. The DLA justifies this study area based on where SSWD's project operations and maintenance activities or project-related recreation could affect elderberry and VELB. However, the DLA notes potential stressors to VELB/elderberry also include competition from non-native, invasive plant species and inundation from the proposed reservoir pool raise. In addition, section 3.3.6.1.1 Recreation Facilities and Opportunities in and Around the Project Reservoir describes informal, user-created trails and dispersed camping occurring along the reservoir shoreline. It's unclear why these potential project-related effects are not considered in areas outside of the study area, particularly along the reservoir shoreline. We note that SSWD found one elderberry shrub in the study area east of the dam face, on the shore of reservoir; however there was no indication that the shrub was being used by VELB.*

In addition, it's unclear if the study area included the areas where informal recreation activities occur and the extent to which informal recreation occurs along the reservoir shoreline or on other project lands where suitable VELB habitat may be present.

Therefore, in the FLA please provide the additional information listed below.

- a) The rationale and any information for why VELB and elderberry surveys were limited to the study area described above and did not include other areas potentially inhabited by VELB, particularly near the reservoir shoreline.*
- b) An analysis of potential project-related effects on VELB and its host plant, elderberry potentially affected by the project, including areas potentially affected outside of the existing project boundary. The analysis should evaluate the potential effects of non-native*

or invasive plant species, the proposed reservoir pool raise, and any formal and informal recreation activities on this listed species.”

SSWD’s Reply: As described in the Valley Elderberry Longhorn Beetle (VELB) subsection of Section 3.3.5.2.2 of Exhibit E in the FLA, the Sycamore Associates BA, which is included in Appendix E7 in Exhibit E, conducted surveys along the 5-foot band (i.e., elevation 300 feet to 305 feet) along the Camp Far West Reservoir shoreline that would be affected by the Pool Raise, including looking for VELB habitat and indicators. Those surveys, together with the study performed by SSWD during relicensing, are sufficient to assess potential Project effects on VELB. Note that Sycamore did not observe any VELB indicators within the band, but did locate two elderberry shrubs. One of these shrubs, along with the one shrub located during relicensing surveys, may be impacted by the dam raise, as described in the subsection on VELB in Section 3.3.5.3.1 and shown on Figure 3.3.5-1.

As described in Section 3.3.6.1.1, informal shoreline recreation use does occur outside the developed recreation areas, but this use occurs below the NMWSE and for day uses related to water contact activities (i.e., swimming, water skiing, wakeboarding, fishing, etc.). The terrain and private lands surrounding Camp Far West Reservoir are not conducive to non-water contact recreational uses. Overall, the vast majority of informal recreation occurs within the North and South Shore Recreation Areas in the dispersed use areas. Dispersed overnight camping outside the recreation areas while allowed was not observed during the relicensing study season and SSWD is not aware of any areas of recurrent dispersed shoreline camping. As described in the subsection on VELB in Section 3.3.5.3.1, there were signs of use by fisherman in the area of the elderberry located during relicensing surveys, including trails and litter. The use of the area could compact the root system of the shrub, depending on the amount and intensity of the informal recreation. There were no reported signs of informal recreation at the two elderberry shrubs located by Sycamore Associates for the BA. No NNIP were reported around any of the elderberry, so there would be no effect from NNIP.

FERC-32 Comment (pg. 9): *“Section 3.3.5.2.2 ESA-listed Species Life Histories states a total of 83 aquatic features were detected and delineated as they may provide suitable habitat for ESA-listed aquatic species [e.g. vernal pool fairy shrimp and California red-legged frog (CRLF)]. Figure 3.3.5-3 includes a map of these aquatic features, however only about 20 features are visible due to the scale of the map. To aid staff in understanding their relative location and potential connectedness within the project area, please modify the map in the FLA so all of these aquatic features are visible.*

In addition, please include and appropriately label the “small seasonal impoundment (i.e. stock pond)” referenced in the California Red-legged Frog (CRLF) subsection where the U.S. Fish and Wildlife Service (FWS) reported an observation of a CRLF in May 2017.”

SSWD’s Reply: Appendix E1 in Exhibit E of the FLA includes a map showing the locations of the numbered aquatic sites included in the SSWD’s relicensing ESA-Listed Species - California Red-legged Frog Study. In addition, the map shows the location of the stock pond examined by SSWD in May 2017. Section 3.3.4.3.2 and 3.3.5 in Exhibit E of the FLA describe vernal pools within SSWD’s FERC Project Boundary. Vernal pools outside of SSWD’s proposed FERC

Project Boundary are not discussed in the FLA because they are not affected by the existing Project or SSWD's Proposed Project.

FERC-33 Comment (pg. 9): *“The CRLF subsection references a “second site visit with FWS on February 15, 2018”, however no specific information is provided about the site visit except a brief summary of a discussion that took place. Please clarify in the FLA the objective and location(s) visited during the February 15, 2018 site visit and whether any ESA-listed species surveys were conducted and if any ESA-listed species were observed, including CRLF.”*

SSWD's Reply: Section 3.3.5.2.2 in Exhibit E of SSWD's FLA clarifies that the visit on February 15, 2018 was a site visit requested by USFWS staff to the sewage pond at the NSRA and the nearby non-Project stock pond, and SSWD's biologist accompanied USFWS staff on the visit to observe only - the visit was not part of a SSWD relicensing study. SSWD's biologist did not perform a protocol-level ESA-listed species survey nor did he observe USFWS's staff performing a protocol-level survey. SSWD biologists recorded one incidental observation of a Sierran chorus frog (*Pseudacris sierra*) in the seasonal stock pond during the visit.

8.5 Section 3.3.6 Recreational Resources

FERC-34 Comment (pg. 10): *“In Section 3.3.6.1.1 Recreation Facilities and Opportunities in and Around the Project Reservoir, subsection NSRA, you cite Figure 3.2.6-1 for the NSRA; however, Figure 3.3.6-1 is the correct figure for the NSRA. In the FLA, please correct the typographical error in this section, and any additional sections where this error may occur.”*

SSWD's Reply: Section 3.3.6.1.1 in Exhibit E of the FLA references Figure 3.3.6-1, which is the correct reference.

FERC-35 Comment (pg. 10): *“In section 3.3.6.1.1 Recreation Facilities and Opportunities in and Around the Project Reservoir, subsection North Shore Recreation Area, Family Campground, you state that the facility consists of a total of 80 campsites, including 70 standard sites and 10 recreational vehicle (RV) sites with hookups. You further state that a typical campsite provides opportunities for tent or RV camping, but does not have hookups for water, electric, or sewer. In the FLA, please clarify if RV camping is permitted at all 80 campsites within the NSRA Family Campground.”*

SSWD's Reply: Section 3.3.6.1.1 in Exhibit E of the FLA states "RVs are allowed at all 80 campsites, but only 10 campsites have RV hookups."

FERC-36 Comment (pg. 10): *“Figure 3.3.6-3 (page E3.3.6-9) appears to show an approximate 4-foot-high cinder-block structure to the right of the concrete picnic table. In the FLA, please identify what purpose that structure serves at that particular campsite, and clarify if a similar structure exists at the second group campsite not pictured in Figure 3.3.6-3, or at any other project campsite.”*

SSWD's Reply: Section 3.3.6.1.1 in Exhibit E of the FLA states "The Tree Site also includes a cinder-block preparation/storage area that does not exist at the other group site."

FERC-37 Comment (pg. 10): *“Table 3.3.6-1 (page E3.3.6-2) identifies the Horse Camp as a “Group Campground” located within the NSRA. The subsection Group Campground (page E3.3.6-9) does not describe the Horse Camp; however, the Horse Camp is briefly describe in the Dispersed Use Areas subsection (page E3.3.6-13), although it is not identified as one of the two NSRA Dispersed Use Areas. In the FLA, please clarify which recreational facility area within the NSRA best characterizes the Horse Camp, and describe the existing condition of the Horse Camp site features.”*

SSWD’s Reply: Section 3.3.6.1.1 in Exhibit of the FLA includes a separate heading that describes Horse Camp. The Horse Camp is technically for groups and, thus, a group campsite, but it has a specialized use.

FERC-38 Comment (pg. 10): *“Table 3.3.6-1 identifies the picnic sites associated with the SSRA as an amenity located in the Day Use Area. Please clarify if the area described under the Picnic Area subsection (page E3.3.6-24) is actually the Day Use Area. Additionally, Table 3.3.6-1, describes the Day Use Area as having a swim beach; however, in the Picnic Area subsection, the presence of a swim beach is not mentioned. In the FLA, please clarify if a swim beach is located at this site.”*

SSWD’s Reply: To clarify, Table 3.3.6-1 categorizes all the day use type facilities under the overall category of "Day Use Areas". This overall category includes the picnic areas, day use areas, boat launches, and swim beaches. Also, the facilities are named slightly differently between NSRA and SSRA. At the NSRA, the "Day Use Area" consists of picnic sites and swim beach at the same site; and, thus, the picnic sites and swim beach are described together under the "Day Use Area" facility heading. In contrast, at the SSRA, the picnic sites are separate from the swim beach (i.e., opposite sides of the recreation area); and, thus, the picnic sites are described as part of the "Picnic Area" facility and the swim beach is a separate facility consisting of only the swim beach. SSWD provides this detail as a footnote to Table 3.3.6-1.

FERC-39 Comment (pgs. 10 & 11): *“On pages E3.3.6-15 and E3.3.6-28, respectively, you describe the NSRA and SSRA Recreational Water System, and state that below-ground components of the system are in fair condition, and above-ground water hydrants and fountains are largely in poor condition. On page E3.3.6-55 you state that the majority of the underground water distribution system is largely original, and will likely need to be replaced during the new license term to ensure distribution of reliable potable water throughout the NSRA and SSRA. You also state that above-ground water hydrants and fountains will require near-term replacement to meet the demands of the new water treatment facility and upgraded water distribution system. Additionally, you state that SSWD proposes, in the Recreation Facilities Plan, to rehabilitate the Recreational Water System Facilities as they near the end of their useful life; however, in the Recreation Facilities Plan you state that SSWD will maintain the system in a condition to meet permit requirements, and upgrade the facilities as needed, depending on equipment life and regulatory requirements. The DLA does not provide descriptions of a timeframe to replace the components of the system that are in fair and poor condition, any materials to be used, demolition of the existing components, and construction of the new components.”*

- a) *An approximate timeframe to replace the components of the Recreational Water System described as being in fair and poor condition, and a proposed schedule of construction.*
- b) *The processes that would be used when installing the new components.*
- c) *The materials that would be used for construction of the new components (e.g. continuously-extruded HDPE pipe)."*

SSWD's Reply: Section 3.3.6.2.2 in Exhibit E and Section 3.2 of the Recreation Facilities Plan in the FLA details how and when SSWD will replace the above-ground elements (water hydrants and fountains) and underground elements (piping) of the recreational water system (i.e., underground distribution pipes and connections and above ground hydrants/fountains).

FERC-40 Comment (pgs. 11 & 12): *"In Section 3.3.6.2.1 Effects of Construction-Related Activities you describe potential effects to approximately 104 existing recreational facilities and features caused by SSWD's proposed Camp Far West Reservoir pool raise. On page E3.3.6-50, you describe that the majority of construction would occur outside of peak recreation season, or would be restricted to select areas, and during low-use times, if required during peak recreation season, and would be completed within one calendar year. Although you state that a variety of recreational facilities and features would be relocated, rerouted, or realigned to avoid or mitigate for inundation caused by the pool raise, you do not provide a schedule for relocating, rerouting, or realigning the recreational facilities and features. Additionally, you do not describe potential affects to existing project facilities, not directly affected by the inundation, which could be affected by relocating, rerouting, or realigning the approximately 104 facilities impacted by the inundation. Further, you do not provide drawings showing the proposed relocation, rerouting, or realignment of the approximately 104 affected recreational facilities and features. In the FLA, please provide the following information:*

- a) *A construction schedule for relocating, rerouting, or realigning the approximately 104 recreational facilities and features.*
- b) *Drawings for the proposed relocation, reroute, or realignment of the approximately 104 recreational facilities and features affected by the pool raise. These drawings should also indicate potential relocations, reroutes, or realignments of any recreational facilities, not directly affected by the inundation, which could be affected by relocating, rerouting, or realigning the approximately 104 facilities impacted by the inundation.*
- c) *A description of potential effects to any recreational facilities, not directly affected by the inundation, which could be affected by relocating, rerouting, or realigning the approximately 104 facilities impacted by the inundation."*

SSWD's Reply: SSWD is not certain when the new license will be issued. Rather than speculate what the exact recreational uses and patterns will be when the new license is issued, SSWD proposes to wait until after the FERC issues the new license, and before SSWD initiates the Pool Raise, to complete a detailed land survey of the recreation area inundation areas, detailed design drawings, and a schedule for relocating, rerouting, or realigning the approximately 104 recreational facilities and features. Once SSWD has completed the detailed survey, design drawings, and construction schedule, SSWD will be able to accurately identify

any other recreational facilities and uses that may be impacted by the construction work. At that time, SSWD will provide to FERC for approval the detailed information and documents. Deferring development of detailed plans will allow SSWD to best design the relocated, rerouted, or realigned facilities to be consistent with the recreational demand and uses at the time of the new license issuance.

8.6 Section 3.3.7 Land Management and Aesthetic Resources

FERC-41 Comment (pg. 12): *“In Exhibit G, Sheet 3, you indicate three areas of land would be incorporated into the project boundary for the purpose of recreational use. However, you fail to mention this proposed addition of land in the Recreation Resources and Land Use sections. In the FLA, please provide the following information in the appropriate Exhibit E section:*

- a) The current (if available) and proposed recreational uses of the three areas of land proposed for incorporation into the project boundary.*
- b) Environmental effects of incorporating the three areas of land into the project boundary as it relates to recreational use (current and proposed) and land use.”*

SSWD's Reply: Section 3.3.6.2.3 in Exhibit E of the FLA addresses the addition of the three parcels to the proposed FERC Project Boundary. SSWD proposes the addition of three areas between the existing FERC Boundary and Camp Far West Road in the NSRA Boss Point Dispersed Area. These lands are currently being used as part of the NSRA for the same dispersed uses as currently described in the Boss Point Dispersed Use Area in Section 3.3.6.1.1 in Exhibit E. These proposed changes are essentially making corrections to the Project Boundary.

FERC-42 Comment (pg. 12): *“In Section 3.3.7.2 Environmental Effects (page E3.3.7-17) you state SSWD proposes a Pool Raise of five feet, modifications of existing recreation facilities, and modification of the existing project boundary; however, you fail to mention the addition of a new primary project road for accessing the Camp Far West Powerhouse, and the environmental effects associated with the new primary project road. In the FLA, please include your proposal for the addition of the new primary project road, and describe the environmental effects of adding this road, including environmental effects caused by future operations and maintenance activities related to use of the new primary project road.”*

SSWD's Reply: Section 3.3.7.2 in Exhibit E of the FLA states that SSWD proposes to add to the new license the existing Camp Far West Powerhouse Road as a Project Facility (i.e. Primary Project Road), and that addition of the existing road to the license will have no environmental effects. The road is located entirely on SSWD-owned land within both the existing and proposed Project Boundary, is closed to the public due to safety concerns, has been maintained solely by SSWD or Project purposes since the existing Project was constructed and SSWD does not propose any changes to these maintenance activities. The road was included in the study area for SSWD's relicensing cultural and botanical studies. SSWD's proposal to include the road as a Project facility in the new license simply corrects an oversight in the existing license. In addition, refer to SSWD's replies FERC-3, FERC-18 and FERC-45.

FERC-43 Comment (pg. 12): *“In Section 3.3.7.1.2 Land Use, you state that no public land occurs within the existing FERC project boundary; however, you further state that an area designated as the California National Historic Trail, that is administered by the National Park Service, runs through the FERC project boundary, and crosses Camp Far West Reservoir in two locations, in the northern portion of the reservoir. You also state that the section of trail within the project boundary is not a “developed” trail. In the FLA, please clarify your statement that no public land occurs within the existing FERC project boundary, and your statement that the trail is not a “developed” trail.”*

SSWD’s Reply: Section 3.3.7.1.2 in Exhibit E of the FLA clarifies that there is no trail, *per se*, but only isolated features of the pioneer trail, graves, monuments, landmarks, historic structures and other traces along the route that have been identified to commemorate existing remnants of the trail (NPS 2015). The nearest trail feature to the Project is California Historic Landmark No. 799-3, Overland Emigrant Trail, commemorating the Pioneer trail on Spenceville Road, lies well beyond the Project Boundary, located approximately 3.5 mi outside of Wheatland (OHP 2015). The section within the FERC Project Boundary contains no public lands or features and is not a ‘developed’ trail with any features, but rather is a line on the map where the trail once existed, as depicted in Figure 3.3.7-1 in Exhibit E.

FERC-44 Comment (pg. 13): *“In Section 3.3.7.1.4 Project-Related Land Use Permits and Easements, you state that SSWD does not require or hold any land use permits or easements for the project, other than from the few private landowners within the project boundary. In Section 3.3.6.2.1, Camp Far West Reservoir Dam Pool Raise you do not list or describe permits or easements for the five private parcels where lands are proposed to be added to the project boundary. In the FLA, please list and describe permits or easement agreements that SSWD has procured for the five private parcels that would be impacted by changes to the existing project boundary for the purposes of adding the Camp Far West Dam access road, and for the changes to the NMWSE for the pool raise.”*

SSWD’s Reply: SSWD identified six parcels where the Proposed FERC Project Boundary would expand. Section 10.0 in Exhibit H of SSWD’s FLA states that SSWD has notified the landowners by certified mail and provided a description of these boundary changes to them. SSWD is not certain when the new license will be issued or if the new license will include the Project Boundary as proposed by SSWD in its FLA. Rather than speculate what the boundary will be and negotiate new easements for new area to be included in the Boundary in the new license, SSWD proposes to wait until after FERC issues its Final Environmental Impact Statement, which will provide more certainty on the Boundary in the new license, to negotiate the necessary easements with the landowners.

FERC-45 Comment (pg. 13): *“In Exhibit A, Section 5.0 Proposed Changes to Existing Project you list three changes, including SSWD’s proposals to: 1) incorporate an existing, private access road into the project as a primary project road to access the Camp Far West Powerhouse; and 2) modify the existing project boundary (which, in part, would allow SSWD to incorporate the existing, private access road into the project). In Exhibit E, Section 2.2.2 Change to Existing FERC Project Boundary, you mention the proposal to modify the project boundary to add areas that encompass rights-of-way for road access to the Camp Far West Powerhouse, in order to*

maintain the dam outlet and powerhouse. Additionally, in Exhibit E, Land Use Section 3.3.7.1.5 SSWD's Vehicular Access to Project Facilities for Operation and Maintenance you mention a short, private access road that is currently used to access the powerhouse and dam; however, in Land Use Section 3.3.7.2 Environmental Effects, you fail to describe potential environmental effects related to incorporating the existing private access road into the project as a primary project road. In the FLA, please describe potential environmental effects of incorporating the existing private access road into the project as a primary project road."

SSWD's Reply: These comments are addressed in SSWD's replies to FERC-3, FERC-18 and FERC-42.

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APPENDIX E6

SUMMARY OF PM&E RESOLUTION MEETING

Pursuant to Section 4.38(c)(6)(i) of Title 18 of the Code of Federal Regulations (C.F.R.), the South Sutter Water District (SSWD or Licensee), held a meeting with agencies and interested parties to attempt to reach agreement on protection, mitigation and enhancement (PM&E) measures proposed by SSWD in its January 2019 Draft Application for New License (DLA) Major Project - Existing Dam - for the Camp Far West Hydroelectric Project (Project) and measures suggested in written comments by agencies and interested parties on SSWD's DLA. The agencies' and interested parties' written comments are available in Appendix E4 in Exhibit E of this FLA.

The meeting was held on May 13, 2019, from 9:30 AM to 12:30 PM at HDR's (SSWD's consultant) office in Sacramento California, after consultation with interested parties on the scheduling of the joint meeting, per 18 C.F.R. Section 4.38(c)(6)(ii). On April 29, 2019, SSWD filed with the Federal Energy Regulatory Commission (FERC) an agenda for the meeting and provided the agenda to agencies and interested parties, per 18 C.F.R. Section 4.38(c)(6)(iii). Attachment E6-A contains the agenda.

Besides SSWD representatives and the facilitator, 11 people attended the joint meeting: three from the United States Department of the Interior (USDOI), Fish and Wildlife Service (USFWS); one from the USDOI, National Park Service (NPS); one from the United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS); three from California Department of Fish and Wildlife (CDFW); one from the California State Water Resources Control Board (SWRCB); one from the California Sportfishing Protection Alliance (CSPA); and one from the Foothill Water Network (FWN). Interested tribes were invited to the meeting, but did not attend. Attachment E6-B contains the sign-in sheet for the meeting.

SSWD identified eight differences between PM&E measures in SSWD's DLA and PM&E measures recommended by agencies and interested parties that filed written comments on the DLA. Five were new PM&E measures requested by the agencies and three were modifications to PM&E measures proposed by SSWD in its DLA. Each difference is described below along with the outcome from the meeting. SSWD also provides written responses to each of the comments related to these eight PM&E differences in Appendix E4 in Exhibit E of SSWD's FLA.

1.0 PM&E Measures under Collaboration

The agencies and interested parties in their comment letters did not suggest specific PM&E measures related to water year types, minimum flows, pulse flows, ramping rates and bald eagles, but encouraged SSWD to continue to collaborate with the agencies and interested parties regarding these measures. SSWD's collaborative process related to these measures is described in Exhibit E in Section 1.4.2.4 and in Appendix E2.

2.0 Resolved PM&E Measure Differences

2.1 USFWS and CDFW Suggested SSWD Include in Its FLA an Integrated Pest Management Plan Regarding Use of Rodenticide

The comments regarding the request for an integrated pest management approach were reviewed and the agencies clarified they were not asking for a specific management plan, but clearer language regarding the use of rodenticides, similar to what was provided in the DLA comment letters. SSWD agreed to modify the language for the FLA. Refer to Section 6.4.2.3 in Exhibit B of SSWD's FLA for the modified wording.

At this time, SSWD considers this difference to be resolved.

2.2 USFWS and CDFW Suggested SSWD include in Its FLA a PM&E measure to Implement a 0.25-Mile-Wide Limited Operating Period Buffer at the Existing Great Blue Heron Rookery on the South Shore of Camp Far West Reservoir from March 15 through July 31 Each Year

The comments regarding the request to include a new measure related to the great blue heron (*Ardea herodias*) rookery were reviewed. SSWD stated it would be more comfortable if the boundary was 500-ft instead of 0.25-mile because a 500-ft limited operating period (LOP) buffer would still be protective of the rookery given activity in the area, and the smaller buffer would not impact the main entrance to the South Shore Recreation Area. The agencies considered the request and agreed. SSWD agreed to add a new condition in the FLA. Refer to SSWD's Proposed PM&E Measure TR2 in Appendix E2 in Exhibit E of SSWD's FLA for the proposed PM&E measure.

Subsequent to PM&E Measure Resolution meeting, on May 13, 2019, SSWD, the agencies and interested parties reviewed and agreed on the specific wording of the measure.

At this time, SSWD considers this difference to be resolved.

2.3 USFWS Suggested USFWS be Included in the Planning of Using Bat Exclusion Devices for bats. CDFW Suggested SSWD Add Language to SSWD's Proposed PM&E Measure TR2 Regarding Inspections and Avoidance of Bat Winter Hibernacula

The comments related to SSWD's proposed Bat Management Condition were reviewed and additional dialogue occurred. SSWD was generally agreeable to the additional language proposed by the agencies, and agreed to revise the proposed condition. However, subsequent to PM&E Measure Resolution meeting, on May 13, 2019, SSWD, the agencies and interested parties agreed a bat management condition was not needed in the new license, and SSWD would not propose one.

At this time, SSWD considers this difference to be resolved.

2.4 CDFW and FWN Suggested SSWD Modify its Recreation Facilities Plan to include that the SSRA Boat Ramp be Improved, and CDFW Suggested Including in the Plan Permanent Fish Cleaning Stations and Replacing Existing Trash Receptacles with Wildlife-Proof Trash Receptacles

The comments related to modifying SSWD's proposed Recreation Facilities Plan were reviewed. SSWD felt that the requested modifications to the plan were not warranted and provided its rationale, which focused on the relicensing data that did not indicate a need for providing these new or improved facilities. Regarding improving the SSRA boat ramp, nearly all (i.e., 95%) of the visitors surveyed at the SSRA rated the boat ramp condition as acceptable or offered no opinion at all. Regarding the permanent fish cleaning stations, the relicensing visitor survey data did not indicate a need for permanent fish cleaning stations, and, if installed, the stations are unlikely to get much use since most anglers and boaters overall moor or beach their boats at the shoreline near their campsites or day use sites within the recreation areas and would not use the cleaning station at the boat ramp. Regarding the wildlife-proof trash receptacles, nearly all (i.e., 95%) of the visitors surveyed at both the NSRA and SSRA indicated the camping and picnicking site amenities, where the majority of the trash receptacles are located, were acceptable or offered no opinion; SSWD's concessionaire is located on site at both recreation areas and provides frequent trash patrols; and wildlife-proof trash receptacles are robust trash facilities mostly intended to keep bears out of trash, but bears are not an issue at the Project recreations areas. However, CDFW clarified that the term "wildlife-proof" was not to mean new heavy-duty receptacles designed primarily as a bear deterrent, but attaching lids to the existing receptacles to provide a basic, enhanced level of wildlife deterrence. Given this clarification, SSWD agreed to include a measure in SSWD's Recreation Facilities Plan to provide attached lids on trash receptacles at the NSRA and SSRA. After discussion, the agencies and interested parties stated they agreed with SSWD.

At this time, SSWD considers this difference to be resolved.

3.0 Unresolved PM&E Measure Differences

3.1 USFWS and CDFW Suggested SSWD Include in Its FLA a Camp Far West Reservoir Aquatic Invasive Species Management Plan

The comments regarding the request to include an Aquatic Invasive Species Management Plan were reviewed and SSWD stated that it does not think a plan is warranted considering it is developing a Dreissenid Mussel Vulnerability Assessment Plan as required by California Fish and Game Code Section 2302 outside of relicensing. SSWD believes the Dreissenid Mussel Vulnerability Assessment Plan will provide adequate coverage related to aquatic invasive species at Camp Far West Reservoir. The agencies requested to see a draft of the plan before they could agree or disagree with SSWD, and SSWD provided the draft Dreissenid Mussel Vulnerability Assessment Plan to CDFW on May 31, 2019, and to USFWS and SWRCB on June 1, 2019.

At this time, SSWD considers this difference to be unresolved.

3.2 CDFW and FWN Suggested SSWD Modify its Recreation Facilities Plan to Include the SSRA be Open Longer

The comments related to modifying SSWD's proposed Recreation Facilities Plan were reviewed. SSWD felt that the requested modifications to the plan were not warranted and provided its rationale. SSWD currently opens the SSRA based upon the recreational demand at the Project, which is typically during peak recreation use periods (i.e., most weekends or Friday through Sunday) during the peak recreation season (i.e., late May through early September), and during special events. Per the occupancy rates in Section 3.3.6.1.2 in Exhibit E of the FLA, the NSRA facilities are more than adequate to meet the recreational demand during the weekdays during the peak recreation season and on weekends and weekdays outside the peak recreation season. Thus, the current recreational demand does not warrant SSWD opening the SSRA beyond the periods that SSWD currently opens it, which is responsive to the existing recreational demand. After additional discussion, the agencies and interested parties agreed that the agencies would work on draft language for triggers related to opening the SSRA more often. SSWD agreed to review any language provided and continue discussions.

At this time, SSWD considers this difference to be unresolved.

3.3 CDFW Suggested SSWD Include in Its FLA a Lower Bear River Aquatic Monitoring Plan for Stream Fish, Benthic Macroinvertebrates, Water Temperature And Water Quality, and USFWS and FWN Suggest Monitoring for Salmonids

The comments regarding the request to include a lower Bear River aquatic monitoring plan were reviewed. SSWD stated that it did not feel a monitoring plan was warranted because: 1) no party had explained how SSWD's proposed measures, which are designed to improve conditions for aquatic resources, would have adverse effects; 2) monitoring for monitoring's sake would not provide any resource protection; and 3) the responsibility for gathering data to manage resources was the responsibility of the agency whose jurisdiction it was to manage those resources. The agencies and interested parties stated they believed monitoring was necessary in the new license.

At this time, SSWD considers this difference to be unresolved.

3.4 NMFS Suggested SSWD Include in Its FLA a PM&E Measure to Augment Large Wood and Sediment in the Lower Bear River, If it Becomes Necessary to Do So, and to Monitor for Effectiveness

The comment regarding the request to augment and monitor large woody material and sediment in the lower Bear River was reviewed. SSWD stated that it did not believe augmentation or monitoring were warranted because surveys during the relicensing showed adequate quantities of large wood and sediment for aquatic resources. NMFS stated it would review the information

related to large woody material and sediment, and may provide additional comments at a later time.

At this time, SSWD considers this difference to be unresolved.

4.0 Other Topics Discussed during the PM&E Resolution Meeting

In addition, the agencies and interested parties identified five items to be included during the meeting that were not PM&E differences. SSWD and the meeting participants discussed each of these items, reaching agreement on one and no agreement on four. Table E6-1 describes the specific topic and which agency comment. SSWD's response in Appendix E4 more information can be found.

Table E6-1. Non-PM&E topics discussed during the PM&E Resolution Meeting and their corresponding Agency DLA comment and SSWD response in Appendix E4.

| Topic | Agency Comment and SSWD Response in Appendix E4 |
|--|---|
| USFWS and CDFW suggested SSWD conduct additional eDNA sampling in the lower Bear River for green sturgeon and white sturgeon. | CDFW-14 and USFWS-10 |
| USFWS suggested SSWD's FLA more thoroughly address the Central Valley Project Improvement Act / Anadromous Fish Restoration Plan doubling goal for the Bear River. | USFWS-1 |
| USFWS requested FERC or SSWD complete ESA consultation for Endangered Species Act-listed California red-legged frog and vernal pool fairy shrimp. USFWS requests informal discussion with SSWD regarding potential adjustments to maintenance practices at two sewage ponds and potential enhancement actions to benefit California red-legged frog at the sewage ponds. | USFWS-4 |
| CDFW, NMFS and FWN suggested SSWD consider in its FLA Nevada Irrigation District's Centennial Reservoir as a reasonably foreseeable future condition. | CDFW-5, NMFS-2, FWN-3, and FWN-8 |
| CDFW and FWN suggested SSWD request in its FLA a new license term of 40 years. | CDFW-1 and FWN-7 |

5.0 List of Attachments

E6-A. May 13, 2019 PM&E Resolution Meeting Agenda

E6-B. May 13, 2019 PM&E Resolution Meeting Sign-In Sheet

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APPENDIX E6

Attachment A

May 13, 2019 PM&E Resolution Meeting Agenda

CAMP FAR WEST HYDROELECTRIC PROJECT

Meeting to Resolve Differences on PM&E Measures¹

When: Beginning at 9:30 AM on Monday, May 13, 2019

Where: HDR Engineering Office, Suite 200, 2379 Gateway Oaks Drive, Sacramento, CA. Interested parties are encouraged to participate in person, but those who cannot attend in person may participate via telephone by calling (866) 583-7984 and using the following passcode when prompted: 2924178#.

Purpose of Meeting: South Sutter Water District (SSWD), as applicant for a new license for its Camp Far West Hydroelectric Project, Federal Energy Regulatory Commission (FERC) Project Number 2997, is holding this meeting to comply with the requirements of 18 C.F.R.² Section 4.38(c)(6), which states that if an applicant for a new license concludes a written comment on its Draft License Application (DLA) indicates an agency or Indian tribe has a substantive disagreement with the applicant's conclusions regarding resource impacts or its proposed protection, mitigation and enhancement (PM&E) measures, the applicant will, in consultation with the agency or Indian tribe, schedule and hold a meeting with the disagreeing agency or tribe, and invite to the meeting other agencies or Indian tribes with an interest in the issue, no later than 60 days from the date of the comment letter to discuss and attempt to reach agreement of the applicant's plan for PM&E measures. The applicant will include documentation of the meeting, including any agreements, in its final license application (FLA).

AGENDA³

A. Introduction

1. Round-table introductions
2. Safety moment
3. Relicensing schedule review
4. Meeting purpose, procedure and objectives

B. Overview

1. Excluding a letter from FERC, four comment letters/e-mails were received from agencies and one comment letter was received from a non-governmental organization.
 - a. USFWS letter dated April 10, 2019
 - b. SWRCB e-mail dated April 12, 2019

¹ SSWD filed with FERC a notice of the meeting and a copy of the agenda on April 29, 2019.

² SSWD consulted with agencies regarding the meeting and agenda.

³ If all meeting participants agree, the agenda may be revised at the meeting.

- c. CDFW letter dated April 14, 2019
 - d. NMFS letter dated April 15, 2019
 - e. Foothill Water Network letter dated April 15, 2019
- 2. No comment letters were received from Indian tribes.
 - 3. USFWS, NMFS, CDFW and FWN did not suggest specific PM&E measures related to water year types, minimum flows, pulse flows, ramping rates and bald eagles, but encouraged SSWD to continue to collaborate with the agencies regarding these measures.

C. PM&E Measure Differences

- 1. USFWS and CDFW suggest SSWD include in its FLA a Camp Far West Reservoir Aquatic Invasive Species Management plan.
- 2. USFWS and CDFW suggest SSWD include in its FLA an Integrated Pest Management Plan regarding use of rodenticide.
- 3. USFWS and CDFW suggest SSWD include in its FLA a PM&E measure to implement a 0.25-mile-wide limited operating period buffer at the existing great blue heron rookery on the south shore of Camp Far West Reservoir from March 15 to July 31 each year.
- 4. USFWS suggests USFWS be included in the planning of using exclusion devices for bats. CDFW suggests SSWD add language to Condition TR2 regarding inspections and avoidance of bat winter hibernacula.
- 5. CDFW and FWN suggest SSWD modify its Recreation Facilities Plan to include the South Shore Recreation Area be open longer and the SSRA Boat Ramp be improved. CDFW also suggests including a permanent fish cleaning station and replacement of existing trash receptacles with wildlife-resistant trash receptacles.
- 6. CDFW suggests SSWD include in its FLA a lower Bear River Aquatic Monitoring Plan for stream fish, benthic macroinvertebrates, water temperature and water quality. USFWS and FWN suggest monitoring for salmonids.
- 7. NMFS suggests SSWD include in its FLA a PM&E measure to augment large wood and sediment in the lower Bear River, and to monitor for effectiveness.

D. Other

- 1. USFWS and CDFW suggest SSWD conduct additional eDNA sampling in the lower Bear River for green sturgeon and white sturgeon.
- 2. USFWS suggests SSWD's FLA more thoroughly address the Central Valley Project Improvement Act / Anadromous Fish Restoration Plan doubling goal for the Bear River.
- 3. USFWS requests FERC or SSWD complete ESA consultation for Endangered Species Act-listed California red-legged frog and vernal pool fairy shrimp. USFWS requests informal discussion with SSWD regarding potential adjustments to maintenance practices at two sewage ponds and potential enhancement actions to benefit California red-legged frog at the sewage ponds.

4. CDFW, NMFS and FWN suggest SSWD consider in its FLA Nevada Irrigation District's Centennial Reservoir as a reasonably foreseeable future condition.
5. CDFW and FWN suggest SSWD request in its FLA a new license term of 40 years.

E. Summarize Resolutions / Agreements

F. Adjourn

APPENDIX E6

Attachment B

May 13, 2019 PM&E Resolution Meeting Sign-In Sheet




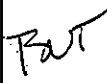




**South Sutter Water District
Camp Far West Hydroelectric Project
(FERC Project No. 2997)**

**DLA Comment Discussions Meeting
Monday, May 13, 2019, at 9:30 A.M
HDR Sacramento**

| Listed Alphabetically by Last Name | | | | |
|------------------------------------|---|--|----------------|------------------------------|
| Initials | Name and Title | Affiliation Address | Phone Number | E-mail Address |
| BA | Arnold, Brad | Sacramento Suburban Water District South Sutter Water District, 2464 Pacific Avenue Trowbridge, CA 95659 | (530) 656-2242 | Sswd@hughes.net |
| LB | Bartoo, Leigh | 650 Capitol Mall Room 8-300 Sacramento, CA 95814 | (916) 930-5621 | Aondrea_bartoo@fws.gov |
| LB | Bergfeld, Lee Principal Engineer | MBK Engineers 455 University Ave #100 Sacramento, CA 95825 | (916) 456-4400 | Bergfeld@mbkengineers.com |
| | Bertolino, Jon | SMUD 6301 S St Sacramento, CA 95817 | (930) 647-5016 | Jbertolino@smud.org |
| SB | Bowes, Steve | National Park Service | (415) 623-2321 | Stephen_bowes@nps.gov |
| | Burnes, Peter A. | South Yuba River Citizens League 313 Railroad Ave Nevada City, CA 95959 | (650) 460-7139 | Ahugetrout-2@yahoo.com |
| | Caldwell, Jarvis Resources Business Group Manager | HDR 2379 Gateway Oaks Dr #200 Sacramento, CA 95833 | (916) 679-8875 | Jarvis.caldwell@hdrinc.com |
| | Campbell, Beth | U.S. Fish & Wildlife Service 2800 Cottage Way w2928 Sacramento, CA 95825 | (209) 403-1344 | Elizabeth_campbell@fws.com |
| | Campbell, Leah | Sierra Streams Institute 431 Uren Street, Suite C Nevada City, CA 95959 | (401) 369-5411 | Leah@sierrastreams.org |
| | DeGabriele, Tom Senior Aquatic Scientist | HDR 2379 Gateway Oaks Dr #200 Sacramento, CA 95833 | (916) 679-8766 | Thomas.DeGabriele@hdrinc.com |

Listed Alphabetically by Last Name

| Initials | Name and Title | Affiliation Address | Phone Number | E-mail Address |
|----------|--|---|----------------|----------------------------------|
| | Eberhart, Allan | Sierra Club 909 12th St #202 Sacramento, CA 95814 | (530) 268-1890 | Oalliali@ourdblul.net |
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APPENDIX E7

SYCAMORE ASSOCIATES BIOLOGICAL ASSESSMENT

Appendix E7 includes SSWD's CFW Reservoir Project BA prepared by Sycamore Associates.

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Camp Far West Reservoir Project BA



Biological Assessment

Camp Far West Reservoir Project
Yuba, Placer, and Nevada Counties, CA
FERC No. P-2997

July 2013

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Biological Assessment

Camp Far West Reservoir Project
Yuba, Placer, and Nevada Counties, CA
FERC No. P-2997

July 2013

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Summary

The Camp Far West Reservoir Project (Project) proposes to increase the spillway capacity to accommodate the Probable Maximum Flood (PMF) in order to comply with Federal Energy Regulatory Commission (FERC) regulations. The Project will also raise the maximum pool elevation to recapture approximately 10,000 acre-feet of water storage area that has been lost as a result of siltation. The Project is located at the Camp Far West Reservoir in the Bear River Basin in northern central California, approximately 7 miles northeast of the town of Wheatland. The Camp Far West Reservoir is in parts of three counties: Nevada, Placer, and Yuba. The Biological Study Area (BSA) for the Project occupies about 2,079 acres, most of which is occupied by the Reservoir itself (1,792 acres).

The proposed Project consists of lowering the existing uncontrolled spillway crest to increase discharge capacity to accommodate the PMF. To recapture water storage lost as a result of siltation, the maximum pool elevation will be raised from the current 300 foot elevation to 305 feet. This will be accomplished by installing Obermeyer Spillway Gates which will be raised to maintain the maximum pool level at 305 feet. The Obermeyer Spillway Gates are controlled using inflatable air bladders, which can be adjusted by controlling pressure in the bladders to raise or lower water elevation. Raising the maximum pool elevation by five feet would allow South Sutter Water District (SSWD) full use of the existing water right. Camp Far West Dam and Reservoir would continue to be operated to provide irrigation water to users, meet Bear River in-stream flow requirements for fish, and to generate power. During construction work on the spillway, a temporary construction staging area will be in the adjacent bed of the Reservoir, when the water level is low and the area is dry.

Before construction of the Project, SSWD is required to comply with FERC's three-stage consultation process. FERC requires identification of pertinent issues and concerns associated with the proposed action. The biological field studies and preparation of this biological assessment partially fulfills the requirements of Stage 2. FERC must comply with Executive Orders and other federal laws including the Federal Endangered Species Act (FESA) and the National Environmental Policy Act (NEPA) before authorizing the Project. As the lead local agency, SSWD is responsible for compliance with the California Environmental Quality Act (CEQA).

The BSA provides potential habitat for federal-threatened valley elderberry longhorn beetle (VELB), California red-legged frog (CRLF), and Layne's ragwort. The Project may affect, but is not likely to adversely affect VELB or CRLF. A floristic botanical survey was conducted and

Layne's ragwort was not found. The project will not affect Layne's ragwort. The BSA does not contain essential fish habitat (EFH) for Pacific salmon.

The State-endangered bald eagle is present at the Reservoir and an active nest was observed near the BSA. Bald eagle has been delisted from the federal ESA. The nest is near the Bear River outlet into Reservoir, away from where construction will occur at the spillway. Two osprey nests were observed on high-voltage electrical towers near the BSA, also away from the spillway. The Project will not affect bald eagle or osprey. The BSA provides potential habitat for burrowing owl, Swainson's hawk, northern harrier, and white-tailed kite, but none were observed during field surveys.

Other special-status species with the potential to occur in the BSA were not observed during field surveys. Two California Native Plant Society Rank 4 plants were found in the BSA. Plants of Rank 4 may or may not be considered special-status at the discretion of the CEQA lead agency.

The Project will result in the expansion of the surface area of the Reservoir. Most of the Reservoir is bordered by blue oak woodland, interior live oak woodland, or annual grassland. Channels and wetlands around the Reservoir margin will be inundated during the wet season by the 5 foot higher maximum pool elevation that will result from the Project.

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List of Abbreviated Terms

| | |
|-----------------|---|
| ac | acre(s) |
| BMP | Best Management Practice |
| BSA | Biological Study Area |
| Cal-IPC | California Invasive Plant Council |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFR | Code of Federal Regulations |
| CFWR; Reservoir | Camp Far West Reservoir |
| CNDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| Corps | U.S. Army Corps of Engineers |
| CRLF | California red-legged frog |
| CWA | Clean Water Act |
| CDFW | California Department of Fish and Wildlife |
| DPS | Distinct Population Segment |
| EFH | Essential Fish Habitat |
| ESU | Evolutionarily Significant Unit |
| FERC | Federal Energy Regulatory Commission |
| FESA | Federal Endangered Species Act |
| FPA | Federal Power Act |
| ft | foot/feet |
| FYLF | Foothill yellow-legged frog |
| ICD | Initial Consultation Document |
| MBTA | Migratory Bird Treaty Act |
| mi | mile(s) |
| NEPA | National Environmental Policy Act |
| NFH | National Fish Hatchery |
| NMFS | National Marine Fisheries Service (a division of National Oceanic and Atmospheric Administration) |
| NPDES | National Pollutant Discharge Elimination System |
| NWI | National Wetlands Inventory |
| OHWM | ordinary high water mark |
| PFCM | Pacific Fishery Management Council |
| PMF | Probable Maximum Flood |
| quad | USGS topographic quadrangle |
| RWQCB | Regional Water Quality Control Board |
| SSC | California Species of Special Concern |
| SSWD | South Sutter Water District |
| SWPPP | Stormwater Pollution Prevention Plan |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| VELB | Valley Elderberry Longhorn Beetle |
| WPT | Western pond turtle |

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Chapter 1. Introduction

1.1. Project History

The Camp Far West Reservoir (CFWR; Reservoir), owned and operated by the South Sutter Water District (SSWD), was constructed in 1963 to provide irrigation water. The Reservoir was licensed as a hydropower energy facility by the Federal Energy Regulatory Commission (FERC) in 1981. In 2005, the Probable Maximum Flood (PMF) was recalculated for the Camp Far West Hydroelectric project and identified that the spillway capacity was less than the PMF. The spillway capacity was consequently deemed inadequate. The spillway capacity needs to be increased to comply with FERC regulations and pass the PMF without overtopping the dam.

Additionally, recent bathymetric surveys indicated that approximately 10,000 acre-feet of water storage has been lost as a result of siltation. When the dam was built, the Reservoir had a surface area of 2,020 acres (ac) and storage volume of 104,000 acre feet at the normal maximum storage pool elevation of 300 feet (ft). Based on the recent surveys, the current reservoir surface area is 1,886 acres with a storage capacity of approximately 93,740 acre feet at the maximum normal water surface elevation of 300 ft.

In conjunction with increasing the spillway capacity of the dam as required by FERC, the SSWD desires to raise the maximum pool level from the current elevation of 300 feet to 305 feet to recapture the storage area that has been lost. Raising the maximum pool level at Camp Far West Dam requires an amendment to the existing Camp Far West Hydroelectric Project (FERC Project No. 2997) license in accordance with the FERC. This type of modification is a non-capacity-related change. Non-capacity amendments are typically not required to follow FERC's three-stage consultation process as outlined in Federal Power Act (FPA) Regulations 18 CFR, Part 4, Section 4.38. However, a non-capacity-related change that includes any repair, modification, or reconstruction of an existing dam that would result in a significant change in the normal maximum surface area or elevation of an existing impoundment as identified in 18 CFR, Part 4, Section 4.38 (a)(6)(v), is required to comply with FERC's three-stage consultation process. The amendment to Camp Far West Hydroelectric Project is classified as a non-capacity-related amendment, because changes to the normal maximum water surface elevation are proposed, the provisions of 18 CFR, part 4, Section 4.38 (three-stage consultation process) would apply.

Briefly put, the three-stage consultation process involves:

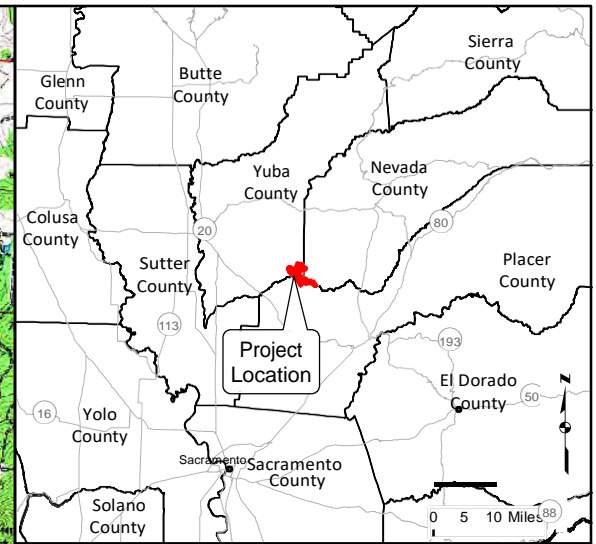
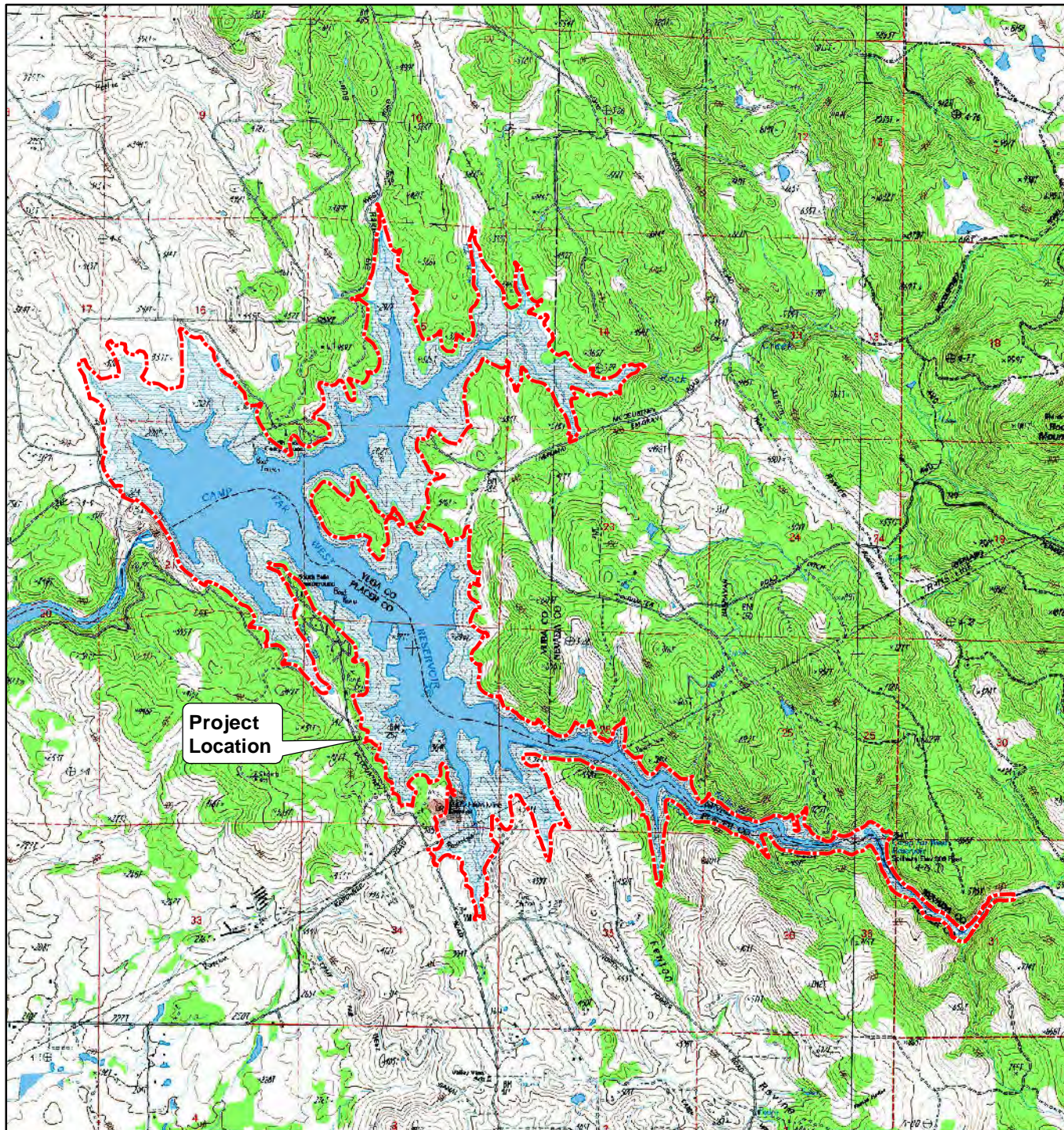
- *Stage 1* – Applicant prepares an Initial Consultation Document (ICD). Special studies scopes, if any, will be determined in the Stage 1 consultation negotiations with the resource agencies. Applicant conducts joint agency/public meeting and site visit. Resource agencies and tribes provide written comments.
- *Stage 2* – Completion of the studies requested during the first stage, determination of appropriate mitigation measures, and preparation and review of a draft application.
- *Stage 3* – Provision of a final amendment application to the FERC and stakeholders incorporating information generated during the first two stages of consultation.

The Camp Far West facility consists of the main earthfill dam; three smaller earthfill dams, an overflow spillway, the outlet works, and a powerhouse. FERC Regulation 18 CFR, Part 4, Section 4.38(b)(2) requires identification of pertinent issues and concerns associated with the proposed action. The ICD prepared for Stage 1 requires a biological field survey of affected shoreline to fully identify and evaluate potential impacts on biological resources that would be affected by the change in normal water surface elevation. The biological field studies and preparation of this BA partially fulfills the requirements of Stage 2.

1.2. Project Description

The Biological Study Area (BSA) for the Camp Far West Reservoir Project (Project) is located in the Sierra Nevada foothills, approximately 7 miles northeast of the town of Wheatland. The Reservoir impounds the waters of both the Bear River and Rock Creek near what was formerly the confluence of the two streams. The BSA is in parts of three counties: Nevada, Placer, and Yuba (Figure 1, Figure 2). The BSA is primarily located on the Camp Far West USGS topographic quad (T14N, R6E, Sections 14, 15, 16, 17, 21, 22, 25, 26, 27, 28, 24, 25, and 36); a small segment of the BSA along the Bear River is located on the Wolf USGS topographic quad (T14N, R7E, Sections 31 and 36). Photographs of the BSA are in Appendix D.

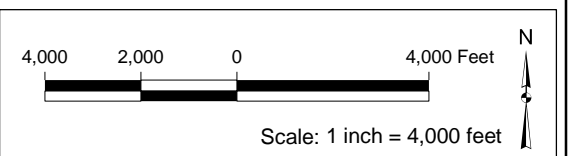
The approximately 1,792 acre Reservoir has approximately 29 miles of shoreline. Water levels reach their maximum around January and start to decrease in April or May. The lowest water levels are typically in September or October. The BSA extends up to approximately the 310-315 foot contour around the Reservoir. The area included in the BSA around the Reservoir margin is wider where the slope is gentle and much narrower where the slope is steep.



Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
23 July 2013

Figure 1. Project Location Map

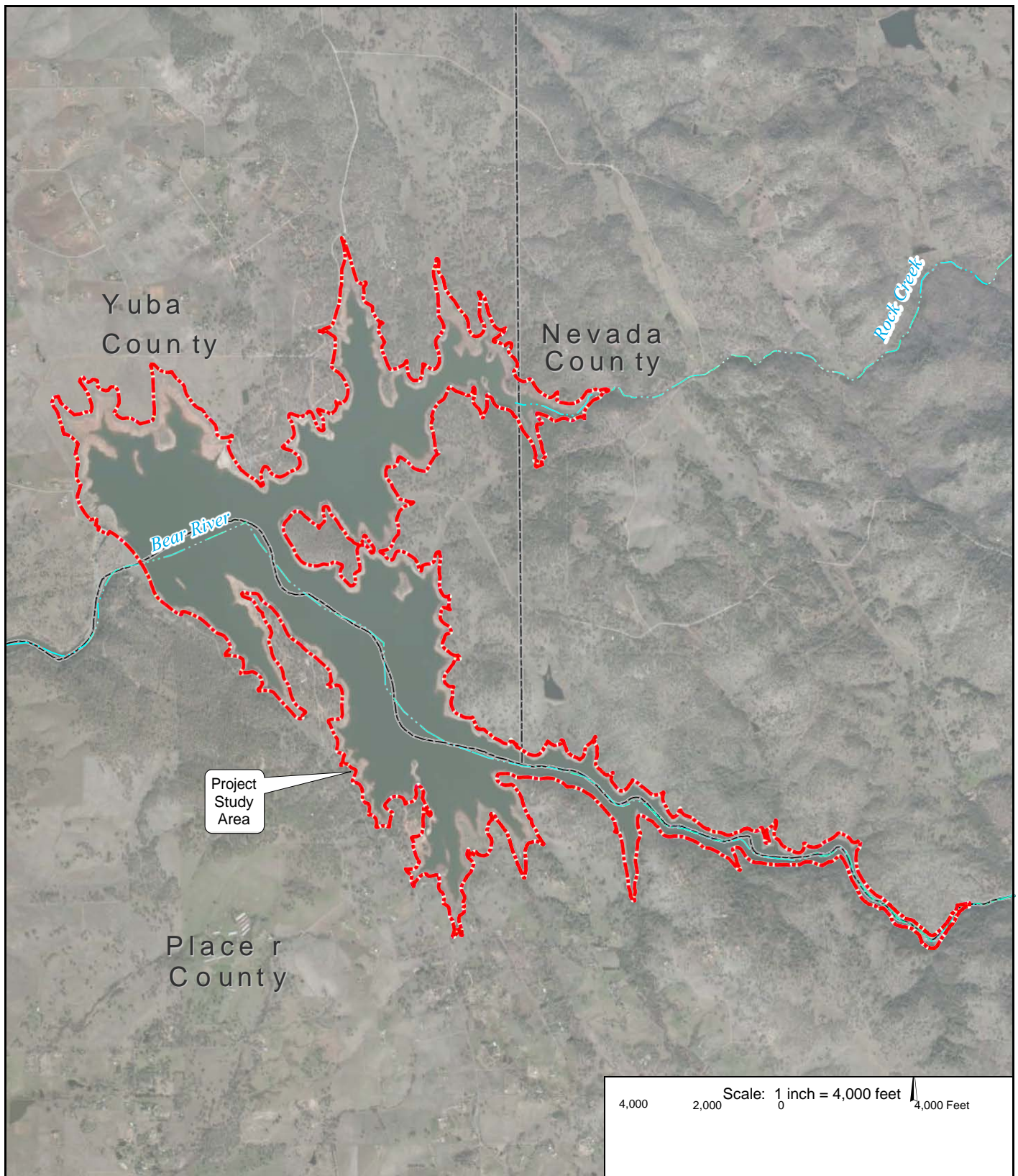
 Project Location



SYCAMORE
Environmental
Consultants, Inc.

Camp Far West & Wolf, CA (1995)
 CASIL California USGS Digital Raster Graphics (DRG),
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 o_nw0202.sid

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Camp Far West
Reservoir Project
Yuba, Nevada and
Placer Counties, CA
23 July 2013

- Project Study Area (PSA)
- NHD Flow lines
- County Boundary



SYCAMORE
Environmental
Consultants, Inc.

Aerial Photograph: 2 February 2012
UC-G, US-CA-Sacramento Microsoft Imagery
ESRI ArcGIS Basemap Layer

Figure 2. Aerial Photograph

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There are two alternatives: the No Project Alternative and the Proposed Spillway Modification Alternative.

No Project Alternative

Under the No Project Alternative, the spillway capacity would not be increased and would continue to be out of compliance with FERC regulations. Additionally, the Reservoir would continue to not retain the full storage allowed by the existing water right.

Proposed Spillway Modification Alternative

The spillway modification project consists of lowering the existing uncontrolled spillway crest to increase discharge capacity using an ogee shape for the lowered spillway and installing Obermeyer Spillway Gates to simulate a new ogee spillway with a crest at elevation 296.3 ft. Obermeyer Spillway Gates are comprised of a row of bottom hinged steel gate panels supported on their downstream side by inflatable air bladders. By controlling the pressure in the bladders, the water elevation maintained by the gates can be adjusted within the system control range (full inflation to full deflation). The spillway gates are anchored to the foundation structure. The air bladders are clamped over the anchor bolts and connected to the air supply pipes, and the air bladder hinge flaps are fastened to the gate panels. The individual steel gate panels will be fabricated in 20-foot widths designed to withstand two feet of overtopping while in the raised position. The gaps between adjacent panels are spanned by reinforced interpanel seals clamped to adjacent gate panel edges. Two concrete piers would be constructed along the length of the spillway to create three separate sections of gates. At each pier and abutment a low-friction lip seal is affixed to the gate panel edge which moves along the stainless steel abutment plate.

SSWD intends to raise the maximum pool level from its current 300 foot elevation to 305 foot elevation to recapture the water storage lost as a result of siltation. The Obermeyer Gates will be operated to maintain the pool elevation at 305 feet. The storage capacity at 305 ft is 103,570 acre-feet. Raising the normal water pool elevation by five feet allows SSWD to recoup the storage loss within the Reservoir resulting from siltation and allows full use of the existing water right. With the proposed changes, the pool elevation will be between 300 and 305 ft for 5 to 6 months of the year.

Camp Far West Dam and Reservoir would continue to be operated to provide irrigation water to users, meet Bear River in-stream flow requirements for fish, and to generate power. Generally, operations of the reservoir and power plant would not change except that there would be more head to generate power and the Reservoir would be maintained at a higher level. The proposed operations of the Reservoir will follow the same seasonal fluctuations seen

currently. With implementation of the proposed project, approximately 10,000 acre-feet of water currently spilled over the spillway channel into the downstream river will under the proposed Project be stored within the Reservoir and released later in the year by SSWD for consumptive uses within the confines of their existing water right. Annual inflows and outflows of the Reservoir would not change, but seasonal spills would be decreased and consumptive water releases would be increased seasonally. Under the proposed conditions, the Reservoir would still be drawn down to the same minimum pool.

Raising the maximum pool by five feet should not impact the water quality of the Reservoir. There will be no change in the inflows to the reservoir, nor any new sources of contamination. Releases will continue to be made for irrigation and hydropower from the existing intake structures in the reservoir, thus there is unlikely to be any effect on temperature or other water quality parameters downstream.

Chapter 2. Study Methods

An evaluation of biological resources was conducted to determine whether any special-status plant or wildlife species, or their habitat, or sensitive habitats occur in the BSA. Data on special-status species and habitats known in the area were obtained from state and federal agencies. Maps and aerial photographs of the BSA and surrounding areas were reviewed. A field survey was conducted to determine the habitats present. The field survey, map review, and a review of the biology of evaluated species and habitats were used to determine the special-status species and sensitive habitats that could occur in the BSA.

Special-status species in this BA are those listed (or candidate or proposed) under the federal or state endangered species acts, under the California Native Plant Protection Act, as a California species of special concern or fully protected by the California Department of Fish and Wildlife (CDFW), or that are Ranked 1 or 2 by the California Native Plant Society (2013a). Special-status natural communities in this BA are waters, wetlands, riparian communities, and any natural community ranked S1, S2, or S3 by CDFW (2010). A jurisdictional delineation of wetlands and waters was separately prepared for the BSA (Sycamore Environmental 2013). The results of the delineation are incorporated into this BA for the purposes of impact identification.

2.1. Regulatory Requirements

The purpose of the BA is to document biological studies and perform analyses and evaluations necessary to satisfy the legal requirements of State and federal statutes. These statutes include:

- National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.);
- Section 404 of the Clean Water Act (33 U.S.C. 1251-1376);
- Section 401 Water Quality Certification (33 U.S.C. 1341);
- Section 402 of the Clean Water Act (33 U.S.C. 1342)
- Section 10 of the Rivers and Harbors Act (33 U.S.C. 401 et seq.);
- Section 1602 of the California Fish and Game Code pertains to streambed alterations;
- Federal Endangered Species Act (16 U.S.C. 1531-1543);
- Fish and Wildlife Coordination Act (16 U.S.C. 661-666);
- National Wild and Scenic Rivers Act (16 U.S.C. 1271-1287);
- Executive Order 11990, Protection of Wetlands (May 24, 1977);
- California Environmental Quality Act (P.R.C. 21000 et seq.);
- California Endangered Species Act (California Fish and Game Code 2050 et seq.);
- Native Plant Protection Act (California Fish and Game Code 1900-1913);

- California Wild and Scenic Rivers Act (P.R.C. 5093.50 et seq.);
- Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711);
- Magnuson-Stevens Fishery Conservation and Management Act (as amended through 11 October 1996);
- Executive Order 13112, Invasive Species (3 February 1999).

Section 404 Permit - U.S. Army Corps of Engineers (Corps)

The Corps and the U.S. Environmental Protection Agency regulate the discharge of dredge and fill material into “waters of the United States” under Section 404 of the Clean Water Act (33 U.S.C. 1344). The Corps issues permits for certain dredge and fill activities in waters of the U.S. pursuant to the regulations in 33 CFR 320-330.

Section 401 Water Quality Certification - Regional Water Quality Control Board

Under Section 401 of the Clean Water Act (33 U.S.C. 1341), applications for a federal permit or license for any activity that may result in a discharge to a water body, require a State Water Quality Certification to ensure that the proposed activity complies with state water quality standards.

Section 402 of the Clean Water Act - NPDES Phase II Permit - Regional Water Quality Control Board

Section 402(p) of Clean Water Act establishes a permit under the National Pollution Discharge Elimination System Permit (NPDES) program for discharges of storm water resulting from ground disturbing construction activities, such as grading. For ground disturbing construction activities in excess of one acre (ac) a NPDES Phase II permit from the RWQCB is required. The preparation of a Stormwater Pollution Prevention Plan (SWPPP) is a requirement of the NPDES Phase II permit.

Federal Endangered Species Act (FESA)

FESA defines take (Section 9) and prohibits taking of a federal-listed endangered or threatened animal without an Incidental Take Permit (16 U.S.C. 1532, 50 CFR 17.3). If a federal-listed animal could be harmed, harassed, injured, or killed by a project, a Section 7 consultation is initiated by a federal agency or a Section 10 consultation is initiated by a local agency or private applicant. Formal consultations culminate with a Biological Opinion and may result in the issuance of an Incidental Take Permit.

Federal Migratory Bird Treaty Act (MBTA)

All migratory birds are protected under the federal MBTA of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Part 21). Any construction-related disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds, is restricted under the MBTA. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a ‘take’ of the species under federal law.

Section 1602 Streambed Alteration Agreement – CA Department of Fish and Wildlife

Section 1602 of the DFW Code requires any person, government agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposes to use any material from a streambed, must first notify DFW of such proposed activity.

California Endangered Species Act (CESA)

CESA prohibits take of wildlife and plants listed as threatened or endangered by the California Fish and Game Commission. “Take” is defined under California Fish and Game Code as any action or attempt to “hunt, pursue, catch, capture, or kill.” CESA allows exceptions for take that occurs during otherwise lawful activities. Section 2081 of the California Fish and Game Code describes the requirements needed for incidental take applications under CESA. Incidental take of state-listed species may be authorized if an applicant submits a plan that minimizes and mitigates the impacts of take.

California Fish and Game Code

The California Fish and Game Code defines ‘take’ (Section 86) and prohibits ‘taking’ of a species listed as threatened or endangered under CESA (California Fish and Game Code Section 2080) or otherwise fully protected, as defined in California Fish and Game Code Sections 3511, 4700, and 5050.

Other Special-Status Species Classifications

Other special-status species classifications evaluated in this BA include California Species of Special Concern (SSC), species on lists 1B and 2 of the California Native Plant Society (CNPS 2013a), plants listed under the California Native Plant Protection Act, and active raptor nests.

Invasive Plant Species

Section 5.5 evaluates invasive plant species in the study area. Executive Order 13112, issued 3 February 1999, directs federal agencies, whose actions may affect the status of invasive plant species, to use relevant programs and authorities to prevent the introduction of invasive species, control existing populations of such species, monitor populations of such species, and provide for the restoration of native species.

The California Invasive Plant Council (Cal-IPC) maintains an inventory of invasive nonnative plants that threaten wildland areas of California (Cal-IPC 2006). Assessments are based on Warner et al. (2003; “Criteria for Categorizing Non-Native Plants that Threaten Wildlands”). The Cal-IPC inventory involves evaluation of ecological impacts, invasive potential, and ecological distribution. Species receive an overall rating of High, Moderate, or Limited. Ratings are defined below (Cal-IPC 2006).

High: “These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.”

Moderate: “These species have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.”

Limited: “These species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.”

2.2. Studies Required

A list was obtained from the U.S. Fish and Wildlife Service (USFWS), Sacramento Field Office (Appendix A). The list identifies federal-listed, candidate, or proposed species that potentially occur in or could be affected by projects on the Camp Far West Quad or in Nevada, Placer, or Yuba County.

The California Natural Diversity Database (CNDDDB) was queried for known occurrences of special-status species in or near the BSA (Camp Far West Quad and the eight surrounding quads including Wolf; Appendix B). The California Native Plant Society (CNPS) online inventory of rare and endangered plants was queried for known occurrences of special-status plants in or near the BSA (Camp Far West Quad and the eight surrounding quads including Wolf; Appendix B).

Data received from USFWS, CNDDDB, and CNPS were used to compile a table of regional species and habitats of concern (Table 2). The CNDDDB tracks other species that have not been designated by CDFW as a California species of special concern; these species were not evaluated as special-status species in this BA. Biological surveys consisted of walking through the BSA to determine if any special-status species or their habitat were present. Wildlife species observed, their sign, and potential habitats were recorded. Appendix C is a list of plant and wildlife species observed during surveys. Photographs of the BSA are in Appendix D. Botanical surveys are described below in Section 2.3.

2.3. Personnel and Survey Dates

Fieldwork for the general biological survey was conducted concurrently with fieldwork for the jurisdictional delineation and floristic botanical survey. Fieldwork for the jurisdictional delineation was conducted by Chuck Hughes, M.S., Mike Bower, M.S., and/or Jessica Orsolini on 5, 7, 8, 12–14 and 27 March, and on 1 and 9 April 2013. A follow-up visit by boat to the south side of part of the Bear River reach of the BSA was made on 6 June 2013 to do fieldwork in difficult access areas.

Floristic botanical surveys were conducted in accordance with CDFW (2009) protocol. The surveys were timed to coincide with the evident and identifiable period of special-status plants for which potential habitat may be present. In addition to a botanical survey concurrent with the delineation fieldwork on the days above, an additional botanical survey was conducted by Chuck Hughes, M.S., Mike Bower, M.S., and/or Juliette Robinson on 2, 6, 14, 16, 17, and 22 May, and 4 and 6 June 2013. Approximately 63 person-hours were spent on-site during the surveys in May and June, which were timed specifically for the evident and identifiable period of special-status plants known from the area. An additional approximately 130 person-hours were spent on-site during surveys in March and April. Time during March and April was split between fieldwork for the jurisdictional delineation and botanical fieldwork. The botanical surveys consisted of walking through the BSA systematically to look for all vascular plants present. In general, transects were walked within 20–30 feet of each other, depending on the width of the BSA in a particular area along the margin of the Reservoir. Frequent deviations and stops were made to search areas of particular interest, such as rock outcrops, wetlands, or

channels. An additional approximately 48 person-hours were spent keying plant specimens collected in the field. All identifications were made by Chuck Hughes or Mike Bower. All plants observed are listed in Appendix C, and plants for which voucher collections were made are noted.

2.4. Limitations That May Influence Results

There were two elevation contour datasets available for the production of figures. One was lines digitized from the 300 and 320 foot contours on the USGS topographic quads (20 foot contour interval), and an intermediate 305 foot contour interpolated from those lines. The second was a set of 1 foot contour intervals generated from the National Elevation Dataset, based on a grid point spacing of one per 10 meters (about 33 feet). Neither dataset has enough resolution to adequately depict the high water mark of the Reservoir at the scale of the biological resources map. In the field, the ordinary high water mark (OHWM) was located with a sub-meter accurate GPS around most of the Reservoir. Where the OHWM could not be located with GPS, it was estimated with a georeferenced aerial photo. The OHWM is approximately at the known elevation of the Reservoir spillway, 300 feet. Once the OHWM line was established, the BSA boundary and impact lines were estimated based on Data from the NED dataset, GPS data from the field, field notes, and aerial photographs.

Four small islands in the Reservoir (on sheets 5, 7, 9, and 14 in Appendix E) were not accessed during the survey due to water levels. The islands were viewed with binoculars and no elderberry shrubs were observed. The islands are not in areas with soils that have a heightened probability of rare plants, and do not contain any habitats different than habitats along the main shoreline. Other islands in the Reservoir were accessible and were surveyed on foot along with the main shoreline.

Part of the BSA along southern edge of the Bear River reach is very steep and vegetation is thick. One small segment contains a cliff at a rock outcrop. There is no SSWD access to this area other than by boat. This area was accessed by a boat provided by SSWD on 6 June 2013. The boat was moored in several spots in this reach and the shoreline surveyed for channels, wetlands, and special-status species, but the foot survey did not include the entire reach. In other areas, the boat moved slowly along as the shoreline was scanned with binoculars. No other problems or limitations were encountered that may have influenced the results.

Chapter 3. Results: Environmental Setting

3.1. Description of the Existing Biological and Physical Conditions

3.1.1. Biological Study Area

The BSA is located at the CFWR east of the community of Wheatland in the western foothills of the Sierra Nevada Mountains. The BSA is south of Beale Air Force Base and the Spenceville Wildlife Area operated by the CDFW. The BSA includes the Reservoir and the approximately 29 mile long shoreline. The topography around the Reservoir consists mostly of rolling hills with slopes ranging from 2 to 30 percent. In the Bear River reach of the reservoir the slopes are much steeper. Most of the land around the margin of the Reservoir consists of blue oak woodland and is grazed by cattle, including the recreational areas during the winter and early spring when there is little or no public use. Land in the vicinity of the BSA is mostly rural residences and cattle ranching.

The BSA includes part of the Camp Far West Dam and spillway. The spillway is concrete and the dam is lined with rip-rap. There are two recreational areas, one on the north shore of the Reservoir and one on the south shore. Each recreational area is open to the public and includes a campground and boat ramp. The recreational area on the north shore is open to the public year-round, the recreational area on the south shore is only open in the summer.

The Dairy Farm Mine, operated during the 1920s and 1930s, is located on the south shore of the reservoir in Placer County. An open pit mine at this location is inundated when the water levels in the reservoir are high, and the pit is hydraulically isolated when water levels are low (Alpers et. al. 2008).

3.1.2. Physical Conditions

The BSA is primarily located on the Camp Far West USGS topographic quad (T14N, R6E, Sections 14, 15, 16, 17, 21, 22, 25, 26, 27, 28, 24, 25, and 36); a small segment of the BSA along the Bear River is located on the Wolf quad (T14N, R7E, Sections 31 and 36). The BSA is in the Upper Bear Hydrologic Unit (hydrologic unit code 18020126). Its centroid is 39.048214° north, 121.301277° west, UTM coordinate 647,000 meters E, 4,323,500 meters N, Zone 10N (WGS84). Elevation in the BSA is approximately 300 feet above sea level.

Soil series in the BSA are: Auburn, Argonaut, Boomer, Rescue, Ricecross, Riverwash, Rock Land, Rock Outcrop, and Sobrante. More detailed soil information is in the Jurisdictional Delineation Report (Sycamore Environmental 2013).

3.1.3. Biological Conditions in the BSA

Biological communities are defined by species composition and relative abundance. Natural communities described below were mapped at the alliance level and correlate where applicable with Sawyer et al. (2009) and CDFW (2010). The locations of biological communities and other features are shown in Appendix E. The acreages of biological communities in the BSA are in Table 1. Special-status biological communities include those with rarity rankings of S1-S3 in CDFW (2010). Invasive plant species in the BSA are discussed in Section 5.5. Plant and wildlife species observed are in Appendix C.

3.1.3.1. CAMP FAR WEST RESERVOIR

The Reservoir level varies widely and may fall by more than a hundred feet in elevation in the dry season. Patchy, widely-spaced woody vegetation has established itself in some places around the reservoir below the ordinary high water mark. Where present, this vegetation consists primarily of California button willow (*Cephalanthus occidentalis*), willow (*Salix* sp.), and the nonnative invasive Scarlet sesban (*Sesbania punicea*).

3.1.3.2. BLUE OAK WOODLAND

This tree canopy of this woodland is discontinuous and dominated by blue oak (*Quercus douglasii*; Photo 3). Interior live oak (*Q. wislizeni*) and grey pine (*Pinus sabiniana*) are also common in the tree canopy. The shrub layer is mostly absent. The herb layer is dominated by nonnative annual grasses, and both native and nonnative forbs, similar to the annual brome grassland.

3.1.3.3. BLUE OAK WOODLAND - RECREATIONAL USE

This community is the same as the blue oak woodland, but the level of disturbance is higher due to public use (Photo 1). This community includes the developed campgrounds, and some adjacent day use areas where vehicles, fishing, and other recreational activities are common. The herb layer in this community is generally more disturbed by vehicle and foot traffic, invasive weeds are more common, and some areas are mowed.

3.1.3.4. ANNUAL BROME GRASSLAND

This community is dominated by nonnative grasses and forbs such as bromes (*Bromus* sp.), wild oat (*Avena* sp.), silver hair grass (*Aira caryophyllea*), medusa head (*Elymus caput-medusae*), fescues (*Festuca* sp.), filaree (*Erodium* sp.), and clover (*Trifolium* sp.). Native plants, mostly forbs, occur at relatively low abundances. Few trees or shrubs are present (Photo 2).

Table 1. Natural Communities in the BSA

| Natural Community | Vegetation Alliance and DFG Alliance Code | Rarity Rank ¹ | Acreage |
|---|---|-----------------------------|----------------|
| Camp Far West Reservoir | -- | -- | 1,792 |
| Blue Oak Woodland | <i>Quercus douglasii</i> Woodland Alliance (71.020.00) | G4 S4 | 133.41 |
| Blue Oak Woodland - Recreational Use | <i>Quercus douglasii</i> Woodland Alliance (71.020.00) | G4 S4 | 57.75 |
| Annual Brome Grassland | <i>Bromus (diandrus, hordeaceus)-</i> <i>Brachypodium distachyon</i> Semi-natural Herbaceous Stands (42.026.00) | -- | 49.63 |
| Interior Live Oak Woodland | <i>Quercus wislizeni</i> Woodland Alliance (71.080.00) | G4 S4 | 30.24 |
| Grey Pine Woodland | <i>Pinus sabiniana</i> Woodland Alliance (87.130.00) | G4 S4 | 5.20 |
| Dam and Spillway | -- | -- | 3.53 |
| Dairy Farm Mine | -- | -- | 1.38 |
| Bear River | -- | -- | 1.05 |
| Rock Creek | -- | -- | 0.30 |
| Intermittent Channels | -- | -- | 0.67 |
| Ephemeral Channels | -- | -- | 0.16 |
| Seasonal Pond | -- | -- | 0.10 |
| Seasonal Wetlands | -- | -- | 0.08 |
| Seasonal Wetland Swales | -- | -- | 0.22 |
| Seeps | -- | -- | 0.46 |
| Emergent Wetlands | -- | -- | 1.02 |
| Irrigated Wetlands | -- | -- | 1.48 |
| Scrub-Shrub Wetland | -- | -- | 0.24 |
| Total: | | | 2078.92 |

¹ CDFW (2010). State (S) ranks of 1-3 are considered of high priority for inventory. Where associations of high priority for inventory occur within the alliance, those associations were checked to determine if they occurred in the BSA.

3.1.3.5. INTERIOR LIVE OAK WOODLAND

The tree canopy of this woodland is dominated by interior live oak. This woodland is more dense than the blue oak woodland and tree canopy gaps are uncommon (Photo 5). Blue oak, grey pine, and California buckeye (*Aesculus californica*) are also common in the tree canopy. The shrub layer is patchy, and where present is dominated by western poison oak (*Toxicodendron diversilobum*). The herb layer is sparser than the blue oak woodland and contains a higher component of native forbs.

3.1.3.6. GREY PINE WOODLAND

The discontinuous tree canopy of this woodland is dominated by grey pine, and contains some of the steepest slopes in the BSA (Photo 4). Interior live oak is also common in the tree canopy. The shrub layer is patchy and dominated by toyon (*Heteromeles arbutifolia*). The herb layer is heavily dominated by the invasive nonnative false brome (*Brachypodium distachyon*). This community occurs in a “rock land” mapping unit, with some Rescue series soils mapped nearby (USDA 2013). Rescue series soils are known to support high-densities of special-status plants in some areas, such as the Pine Hill area of El Dorado County. As a result, this community was considered to be the only potential habitat in the BSA for some of the special-status plants evaluated in Section 4.6.

3.1.3.7. DAM AND SPILLWAY

This area includes the Camp Far West Dam and adjacent spillway. The dam is covered with rip-rap along the high water level of the Reservoir. The dam slope above the rip-rap is mostly covered with nonnative invasive annual grasses and forbs (Photo 12). A few shrubs grow in the rip-rap along the high water line. There are no trees. The spillway consists of concrete.

3.1.3.8. DAIRY FARM MINE

The Dairy Farm Mine is no longer in operation. The pit of the mine is now within the Reservoir, but partially dries out in summer when the water level falls sufficiently. The margin of the Reservoir adjacent to the pit consists of rock cliffs (Photo 8). This area of the BSA includes some adjacent areas disturbed as a result of the mine where vegetation is mostly absent.

3.1.3.9. CHANNELS AND WETLANDS

Conditions in the channels and wetlands, including Bear River and Rock Creek, are discussed in the jurisdictional delineation report (Sycamore Environmental 2013).

3.2. Regional Species and Habitats of Concern

Data received from USFWS, CNDDDB, DFW, and CNPS were used to compile a table of regional species and habitats of concern (Table 2). Table 2 provides a general habitat description for each species and a rationale as to why habitat is either present or absent from the BSA.

Table 2. Regional Species and Habitats of Concern

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/ Absent ^c | Rationale |
|--|-----------------------------------|-----------------------------|---------------------------|---|---|---|
| Invertebrates | | | | | | |
| <i>Branchinecta conservatio</i> | Conservancy fairy shrimp | E, CH | -- | Occurs in vernal pools found on several different landforms, geologic formations and soil types. Observations suggest this species is often found in pools that are relatively large, and turbid, at elevations ranging from 16 to 5,577 ft. Known from a few isolated populations distributed over Central and Southern California (USFWS 2005). | Absent | There are no vernal pools in the BSA. Critical habitat for this species does not occur in the BSA (USFWS 2013b). |
| <i>Branchinecta lynchi</i> | Vernal pool fairy shrimp | T, CH | -- | Exist only in vernal pools or vernal pool-like habitats. Currently found in 28 counties across the Central Valley and coast ranges of CA. Occupies a variety of vernal pool habitats (USFWS 2005). | Absent | There are no vernal pools in the BSA. Critical habitat for this species does not occur in the BSA (USFWS 2013b). |
| <i>Desmocerus californicus dimorphus</i> | Valley elderberry longhorn beetle | T, CH | -- | Requires an elderberry shrub (<i>Sambucus mexicana</i> or <i>Sambucus racemosa</i> var. <i>microbotrys</i>) as a host plant (USFWS 1999a). | Present | See text. |
| <i>Lepidurus packardii</i> | Vernal pool tadpole shrimp | E, CH | -- | Occurs in vernal pools and sometimes other areas of similar hydrology across the Central Valley of CA and in the San Francisco Bay area. Requires a minimum of about 25 days to mature, and usually inhabits large, deep vernal pools that pool continuously for many months (USFWS 2005). They can also make use of smaller pools that are present as part of a larger vernal pool complex (Witham et al. 1998), and they may be able tolerate temporary dry conditions (USFWS 2005). | Absent | There are no vernal pools in the BSA. Critical habitat for this species does not occur in the BSA (USFWS 2013b). |
| Fish | | | | | | |
| <i>Acipenser medirostris</i> | Green sturgeon (southern DPS) | T, CH | SSC | Anadromous fish that occupy freshwater rivers from the Sacramento River up through British Columbia. Spawning confirmed in only two CA rivers: Sacramento River (including the Feather River) and Klamath River basin. The Eel River no longer sustains a spawning run. Some spawning may take place in the San Joaquin River. Spawning occurs between March and July, in deep fast water. Preferred spawning habitat is large cobble, but can range from clean sand to bedrock (Moyle 2002). Federal listing includes all spawning populations south of the Eel River (CDFW 2011). | Absent | There is no habitat for this species in the BSA. The Camp Far West Diversion Dam and the Camp Far West Dam, located at the west end of the lake and on the Bear River, are total barriers to fish passage (Calfish 2013). Critical habitat for this species does not occur in the BSA (NMFS 2009) |

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/ Absent ^c | Rationale |
|---|--|-----------------------------|---------------------------|---|---|--|
| <i>Hypomesus transpacificus</i> | Delta smelt | T, CH | E | Euryhaline (tolerant of a wide salinity range) species that is confined to the San Francisco Estuary, principally in the Delta and Suisun Bay. Currently found only from the San Pablo Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo cos. Can be washed into San Pablo Bay during high-outflow periods, but do not establish permanent populations there (Moyle 2002). | Absent | The BSA is outside the geographic range of this species. There is no habitat for this species in the BSA. Critical habitat for this species does not occur in the BSA (USFWS 2013b). |
| <i>Oncorhynchus</i> (=Salmo) <i>clarki henshawi</i> | Lahontan cutthroat trout | T | -- | Non-anadromous stream-spawning salmonid known from both lake and river habitats. Known only from three natural populations: 1) Western Lahontan basin comprised of Truckee, Carson, and Walker river basins; 2) Northwestern Lahontan basin comprised of Quinn River, Black Rock Desert, and Coyote Lake basins; and 3) Humboldt River basin (USFWS 1994). | Absent | The BSA is outside the geographic range of this species. There is no habitat for this species in the BSA. |
| <i>Oncorhynchus mykiss</i> | Steelhead – Central Valley distinct population segment (DPS) | T, CH | -- | Anadromous salmonid historically distributed throughout the Sacramento and San Joaquin river drainages. While steelhead are found elsewhere in the Sacramento River system, the principal remaining wild populations are a few hundred fish that spawn annually in Deer and Mill Creeks in Tehama County and a population of unknown size in the lower Yuba River. With the possible exception of a small population in the lower Stanislaus River, steelhead appear to have been extirpated from the San Joaquin basin (Moyle 2002). Spawning occurs in small tributaries on coarse gravel beds in riffle areas (Busby et al. 1996). Federal listing includes all runs in the Sacramento & San Joaquin Rivers and their tributaries (CDFW 2011). | Absent | There is no habitat for this species in the BSA. The Camp Far West Diversion Dam and the Camp Far West Dam, located at the west end of the lake and on the Bear River, are total barriers to fish passage (Calfish 2013). Critical habitat for this species occurs below the Camp Far West Diversion Dam, but does not occur in the BSA (USFWS 2013b). |
| <i>Oncorhynchus tshawytscha</i> | Chinook salmon - Central Valley spring-run evolutionarily significant unit (ESU) | T, CH | T | Anadromous salmonid historically distributed throughout the Sacramento and San Joaquin river drainages. Extant populations spawn in the Sacramento River and its tributaries (Moyle 2002). Populations in the San Joaquin River are believed to be extirpated (NMFS 1998). The state listing is for the Sacramento River Drainage. The Federal listing includes populations spawning in the Sacramento River and its tributaries (CDFW 2011). | Absent | There is no habitat for this species in the BSA. The Camp Far West Diversion Dam and the Camp Far West Dam, located at the west end of the lake and on the Bear River, are total barriers to fish passage (Calfish 2013). Critical habitat for this species does not occur in the BSA (USFWS 2013b). |

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/Absent ^c | Rationale |
|---------------------------------|--|-----------------------------|---------------------------|---|-------------------------------------|--|
| <i>Oncorhynchus tshawytscha</i> | Chinook salmon – winter-run Sacramento River ESU | E, CH | E | Winter-run Chinook salmon originally spawned in cold waters of the McCloud, Pit, and upper Sacramento Rivers, but are presently found only in the mainstem Sacramento River, below Keswick Dam (Moyle 2002). Emigrates predominately as fry and subyearlings and enters the Sacramento/ San Joaquin Basin from December through July and spawns from April through July. Adult female Chinook will prepare a spawning bed in a stream with suitable gravel composition, water depth, and velocity (McGinnis 1984). | Absent | There is no habitat for this species in the BSA. The Camp Far West Diversion Dam and the Camp Far West Dam, located at the west end of the lake and on the Bear River, are total barriers to fish passage (Calfish 2013). Critical habitat for this species does not occur in the BSA (USFWS 2013b). |
| Amphibians | | | | | | |
| <i>Ambystoma californiense</i> | California tiger salamander, central population | T, CH | T, SSC | Occurs in grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Spends much time underground in mammal burrows. Requires pools lasting approximately 10 weeks or longer to complete larval development (Jennings and Hayes 1994). Usually breeds in temporary ponds such as vernal pools but may also breed in slower parts of streams and some permanent waters (Stebbins 2003). The state listing refers to the entire range of the species. The federal threatened listing is only for the Central Valley population. The Sonoma and Santa Barbara populations are federally listed as endangered (CDFW 2013). | Absent | There is no habitat for this species in the BSA. Critical habitat for this species does not occur in the BSA (USFWS 2013b). |
| <i>Rana boylei</i> | Foothill yellow-legged frog | -- | SSC | Occurs in woodland and forest areas near streams and rivers, especially near riffles where there are exposed rocks. Requires permanent streams in which to reside (CWHR 2013). | Present | See text. |
| <i>Rana draytonii</i> | California red-legged frog | T, CH | SSC | Inhabits quiet pools of streams, marshes, and occasionally ponds with dense, shrubby, or emergent vegetation. Requires permanent or nearly permanent pools for larval development (CWHR 2013; USFWS 2010). The range of CA red-legged frog extends from near sea level to approximately 5,200 ft, though nearly all sightings have occurred below 3,500 ft. CRLF was probably extirpated from the floor of the Central Valley before 1960 (USFWS 2002). | Present | See text. |

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/Absent ^c | Rationale |
|--|----------------------------------|-----------------------------|---------------------------|---|-------------------------------------|---|
| <i>Rana sierrae</i> (= <i>muscosa</i>) | Sierra Nevada yellow-legged frog | C | CE, SSC | Occurs in the Sierra Nevada from Plumas Co. to Fresno Co, north of the ridge dividing the middle and south forks of the Kings River and east of the Sierra Nevada crest. Elevation range in the Sierra extends from 4,500 ft to over 11,980 ft. Associated with streams, lakes, and ponds in montane riparian, lodgepole pine, sub-alpine conifer, and wet meadow habitat types. Always encountered within a few feet of water (CWHR 2013). Federal candidate status refers to all populations that occur north of the Tehachapi Mountains in the Sierra Nevada (CDFW 2011). | Absent | The BSA is below the elevation range of this species. |
| Reptiles | | | | | | |
| <i>Emys marmorata</i> | Western pond turtle | -- | SSC | Prefers aquatic habitats with abundant vegetative cover and exposed basking sites such as logs. Associated with permanent or nearly permanent water in a wide variety of habitat types, normally in ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams (CWHR 2013). | Present | See text. |
| <i>Phrynosoma blainvillii</i> | Coast horned lizard | -- | SSC | Occurs in valley-foothill hardwood, conifer and riparian habitats, as well as in pine-cypress, juniper and annual grassland habitats, especially sandy areas, washes, flood plains and wind-blown deposits. Needs loose soil for cover and reproduction. Occurs in the Sierra Nevada foothills from Butte Co. to Kern Co. and throughout the central and southern California coast. Found chiefly below 2,000 ft in the northern end of its range and 3,000 ft in the southern end (CWHR 2013). | Present | See text. |
| <i>Thamnophis gigas</i> | Giant garter snake | T | T | Endemic to the Central Valley of California, where they occupy a variety of agricultural, managed, and natural wetlands, including their waterways and adjacent upland habitats. Agricultural wetlands include irrigation and drainage canals, ricelands, marshes, sloughs, ponds, small lakes, and low gradient streams. Essential habitat consists of the following: 1) adequate water during the snake's active season (early spring through mid-fall); 2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes; 3) upland habitat with grassy banks and openings in waterside vegetation for basking; and 4) higher elevation uplands for cover and refuge during the snake's inactive season in winter. Inhabits small mammal burrows during winter dormancy (USFWS 1999b). | Absent | The BSA is outside the geographic range of this species. There is no habitat for this species in the BSA. |

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/Absent ^c | Rationale |
|------------------------------|----------------------|-----------------------------|---------------------------|--|-------------------------------------|---|
| Birds | | | | | | |
| <i>Agelaius tricolor</i> | Tricolored blackbird | -- | SSC | Common locally throughout the Central Valley and in coastal districts from Sonoma Co. south. Breeds near freshwater, preferably in emergent wetland of tall, dense cattails or tules, and also in thickets of willow, blackberry, tall herbs and wild rose. The nesting area is highly colonial, supporting a minimum of 50 pairs (CWHR 2013). Nesting colonies are of concern to CDFW (2011). | Absent | Suitable nesting habitat does not occur in the BSA. |
| <i>Ammodramus savannarum</i> | Grasshopper sparrow | -- | SSC | An uncommon and local summer resident and breeder in foothills and lowlands west of Cascade-Sierra Nevada crest from Mendocino and Trinity cos, south to San Diego. Occurs in dry, dense grasslands, especially with scattered shrubs for perching. A thick cover of grasses and forbs is essential for concealment. Nests are built of grasses and forbs in slight depression in ground hidden by a clump of grasses or forbs. Usually nests solitarily from early April to mid-July. May form semicolonial breeding groups of 3-12 pairs (CWHR 2013). Nesting sites are of concern to CDFW (2011). | Absent | Suitable nesting habitat does not occur in the BSA. |
| <i>Asio otus</i> | Long-eared owl | -- | SSC | Uncommon yearlong resident throughout the state except the Central Valley and southern CA deserts where it is an uncommon winter visitor. Requires dense, riparian or live oak thickets near meadow edges, and nearby woodland and forest habitats. Also found in dense conifer stands at higher elevations (CWHR 2013). Nesting sites are of concern to CDFW (2011). | Absent | Suitable nesting habitat does not occur in the BSA. |
| <i>Athene cunicularia</i> | Burrowing owl | -- | SSC | Yearlong resident of open, dry grassland and desert habitat, and in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats. Uses small mammal burrows, often ground squirrel, for roosting and nesting cover (CWHR 2013). Burrowing sites and some wintering sites are of concern to CDFW (2011). | Present | See text. |
| <i>Buteo swainsoni</i> | Swainson's hawk | -- | T | Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Co., and Mojave Desert. Nests in stands with few trees in juniper-sage flats, in riparian areas and in oak savannah in the Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Feeds on small birds, rodents, mammals, reptiles, large arthropods, amphibians, and, rarely, fish (CWHR 2013). Nesting sites are of concern to CDFW (2011). | Present | See text. |

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/Absent ^c | Rationale |
|---|------------------------------|-----------------------------|---------------------------|---|-------------------------------------|---|
| <i>Circus cyaneus</i> | Northern harrier | -- | SSC | Occurs in annual grassland up to lodgepole pine and alpine meadow habitat as high as 10,000 ft. Breeds from sea level to 5,700 ft in the Central Valley and Sierra Nevada, and up to 3,600 ft in northeastern California. Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetland, but seldom found in wooded areas. Uses tall grasses and forbs in wetland, or at wetland/field border, for cover. Roosts and nests on ground in shrubby vegetation, usually at marsh edge. Mostly nests in emergent wetland or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water (CWHR 2013). Nesting sites are of concern to CDFW (2011). | Present | See text. |
| <i>Coccyzus americanus occidentalis</i> | Western yellow-billed cuckoo | C | E | Uncommon to rare summer resident of valley foothill and desert riparian habitats in scattered locations in CA. Breeding populations known from the Colorado River (southeast CA border), Sacramento and Owens valleys, along the South Fork of the Kern River (Kern Co.), along the Santa Ana River (Riverside Co.), and along the Amargosa River (Inyo & San Bernardino cos). They may also nest along San Luis Rey River (San Diego Co.). Nests in dense cover of deciduous trees and shrubs, especially willows, which usually about a slow-moving watercourse, backwater or seep. Also utilizes adjacent orchards, especially walnuts, in the Central Valley (CWHR 2013). Nesting sites are of concern to CDFW (2011). | Absent | The BSA is outside the current known range of this species. Suitable nesting habitat does not occur in the BSA. |
| <i>Dendroica petechia brewsteri</i> | Yellow warbler | -- | SSC | Breeding distribution includes coast range in Del Norte Co., east to Modoc plateau, south along the coast range to Santa Barbara and Ventura cos. and along the western slope of Sierra Nevada south to Kern Co. Also breeds along the eastern side of CA from the Lake Tahoe area south through Inyo Co. and in several southern CA mountain ranges and throughout most of San Diego Co. Breeds in riparian woodlands from coastal and desert lowlands up to 8,000 ft in the Sierra Nevada. Also breeds in montane chaparral, and in open ponderosa pine and mixed conifer habitats with substantial amounts of brush. Usually found in riparian deciduous habitats in summer. In migration, visits woodland, forest, and shrub habitats (CWHR 2013). Nesting sites are of concern to CDFW (2011). | Absent | Suitable nesting habitat does not occur in the BSA. |

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/Absent ^c | Rationale |
|--|-----------------------|-----------------------------|---------------------------|--|-------------------------------------|--|
| <i>Elanus leucurus</i> | White-tailed kite | -- | FP | Yearlong resident in coastal and valley lowlands; rarely found away from agricultural areas. Inhabits herbaceous and open stages of most habitats mostly in cismontane CA. Substantial groves of dense, broad-leaved deciduous trees are used for nesting and roosting. Nest placed near top of dense oak, willow, or other tree stand located near open foraging area. Forages in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands (CWHR 2013). Nesting sites are of concern to CDFW (2011). | Present | See text. |
| <i>Haliaeetus leucocephalus</i> | Bald eagle | D | E, FP | Occurs along coasts, rivers, and large, deep lakes and reservoirs in CA. Nests mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity cos. More widespread as a winter migrant. Requires large bodies of water, or free flowing rivers with abundant fish, and adjacent snags or other perches. Nests in large, old-growth, or dominant live tree with open branchwork, especially ponderosa pine (CWHR 2013). Nesting and wintering sites are of concern to CDFW (2011). | Present | See text. |
| <i>Laterallus jamaicensis coturniculus</i> | California black rail | -- | T, FP | Resident in saline, brackish, and fresh emergent wetlands in the Bay Area, Delta, coastal southern CA, the Salton Sea, and the lower Colorado River. Typically occurs in tidal emergent wetlands dominated by pickleweed, in brackish marshes supporting bulrushes in association with pickleweed (CWHR 2013). Populations have also been found in Yuba, Butte, and Nevada cos. An additional population was discovered in 2003 in Placer Co. The Placer birds are thought to be non-migratory based on observations made throughout the year (CDFW 2011). In freshwater habitats, black rails are restricted to breeding in marshes with stands of tule, cattail, bulrush, and sedge. These sites are very shallow (usually less than 3 cm) but require perennial water. A narrow range of conditions is required for occupancy and successful breeding. Water depth is an important parameter for successful nest sites as rising water levels can prevent nesting or flood nests and reduce access to foraging habitat. Too little water will lead to abandonment of the site until the water source is reestablished. In the foothills of the central Sierra Nevada, rails occur in marshes ranging from 0.5 ac to 25 ac in size, with 32% of occupied sites in wetlands less than 0.75 ac. (Technology Associates 2009) | Absent | There is no habitat for this species in the BSA. Wetlands in the BSA experience regular water fluctuations which are not suitable for CA black rail nesting habitat. |

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/Absent ^c | Rationale |
|--------------------------------|--------------------------|-----------------------------|---------------------------|---|-------------------------------------|--|
| <i>Riparia riparia</i> | Bank swallow | -- | T | Found primarily in riparian and other lowland habitats in CA west of the deserts during the spring-fall period. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine textured sandy soils, into which in digs nesting holes. Approx. 75% of breeding population in CA occurs along banks of the Sacramento and Feather rivers in the northern Central Valley. Other colonies are known from the central coast from Monterey to San Mateo cos., and northeastern CA in Shasta, Siskiyou, Lassen, Plumas, and Modoc cos. Colonial breeder, with 10 to 1,500, typically 100-200, nesting pairs (CWHR 2013). Nesting sites are of concern to CDFW (2011). | Absent | Suitable nesting habitat does not occur in the BSA. |
| Mammals | | | | | | |
| <i>Corynorhinus townsendii</i> | Townsend's big-eared bat | -- | SSC | Found throughout CA in all but subalpine and alpine habitats, and may be found at any season throughout its range. Most abundant in mesic habitats. Requires caves, mines, tunnels, buildings, or other human-made structures for roosting. May use separate sites for night, day, hibernation, or maternity roosts. Hibernation sites are cold but not below freezing. Maternity roosts are warm. Gleans from brush or trees or feeds along habitat edges. Shows high site fidelity if undisturbed; extremely sensitive to disturbance of roosting sites (CWHR 2013). | Absent | There are no caves, mines, tunnels, or buildings suitable for roosting habitat for this species. |
| <i>Lasiurus blossevillii</i> | Western red bat | -- | SSC | The western red bat is a tree bat associated with cottonwoods in riparian areas at elevations below 6,500 ft. They especially favor roosts where leaves form a dense canopy above and branches do not obstruct the bats' flyway below. Western red bats are also known to roost in orchards, especially in the Sacramento Valley. Western red bats typically feed along forest edges, in small clearings, or around street lights (BCI 2012). Day roosts typically in edge habitats adjacent to streams or open fields, orchard, and sometimes urban areas. Occasionally uses caves (WBWG 2005). | Absent | There are no cottonwood riparian areas or orchards in the BSA. |

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/Absent ^c | Rationale |
|--------------------------------------|-------------------------|-----------------------------|---------------------------|---|-------------------------------------|---|
| <i>Martes pennanti (pacific)</i> DPS | Pacific fisher | C | SSC | Permanent resident of the Sierra Nevada, Cascades, Klamath Mountains, and the North Coast Range. Occurs above 3,200 ft in the Sierra Nevada and Cascades (Jameson and Peeters 2004). Occurs in coniferous or deciduous riparian habitats with intermediate to large trees and closed canopies. Dens in protected cavities, brush piles, logs, or under an upturned tree. Hollow logs, trees, and snags are especially important. Mostly nocturnal and crepuscular (CWHR 2013). Federal candidate status refers to the distinct population segment in WA, OR & CA (CDFW 2011). | Absent | The BSA is below the elevation range of this species. |
| Plants /CNPS ^b | | | | | | |
| <i>Balsamorhiza macrolepis</i> | Big-scale balsamroot | -- | --/ 1B.2 | Perennial herb found in chaparral, cismontane woodland, and valley and foothill grassland, sometimes serpentinite soils, from 300 to 5,100 ft. Known from the Sierra Nevada foothills, central high Sierra Nevada, Sacramento Valley, and eastern San Francisco Bay Area (Baldwin et al. 2012). Blooms March through July (CNPS 2013a, Baldwin et al. 2012). | Present | See text. |
| <i>Calystegia stebbinsi</i> | Stebbins' morning-glory | E | E/ 1B.1 | Perennial rhizomatous herb found in serpentine or gabbroic soils in chaparral openings and cismontane woodland from 607 to 3,576 ft. Known from fewer than 20 occurrences in El Dorado and Nevada cos. (CNPS 2013a). Blooms April through July (CNPS 2013a, Baldwin et al. 2012). | Absent | The BSA is outside the localized range of this species. |
| <i>Ceanothus roderickii</i> | Pine Hill ceanothus | E | R/ 1B.2 | Perennial evergreen shrub found in serpentine or gabbroic soils in chaparral and cismontane woodland from 804 to 2,067 ft. Known from El Dorado Co. (CNPS 2013a). Blooms April through June (CNPS 2013a, Baldwin et al. 2012). | Absent | The BSA is outside the localized range of this species. |
| <i>Downingia pusilla</i> | Dwarf downingia | -- | --/ 2.2 | Annual herb found in mesic valley and foothill grassland, and vernal pools, from 3 to 1,460 ft. Known from the Outer North Coast Ranges, Inner North Coast Ranges, Sacramento Valley, north and central San Joaquin Valley, and northern San Francisco Bay Area. Blooms March through May (CNPS 2013a, Baldwin et al. 2012). | Present | See text. |
| <i>Fremontodendron decumbens</i> | Pine Hill flannelbush | E | R/ 1B.2 | Perennial evergreen shrub found on rocky gabbroic and serpentine soil in chaparral and cismontane woodland from 1,394 to 2,493 ft. Known from fewer than 20 occurrences in El Dorado and Nevada cos. Uncertain about distribution or identity in Yuba Co. (CNPS 2013a). Blooms April through July (CNPS 2013a, Baldwin et al. 2012). | Absent | The BSA is outside the localized range of this species. |

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/Absent ^c | Rationale |
|--|-------------------------|-----------------------------|---------------------------|--|-------------------------------------|---|
| <i>Galium californicum</i> ssp. <i>sierrae</i> | El Dorado bedstraw | E | R/ 1B.2 | Perennial herb found on gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 328 to 1,919 ft. Known from approximately ten occurrences in El Dorado Co. (CNPS 2013a). Blooms March through July (CNPS 2013a, Baldwin et al. 2012). | Absent | The BSA is outside the localized range of this species. |
| <i>Gratiola heterosepala</i> | Boggs Lake hedge-hyssop | -- | E/ 1B.2 | Annual herb found on clay soil in shallow water of vernal pools and lake margins from 30 to 7,790 ft. Known from the inner North Coast Ranges, Cascade Range, north and central Sierra Nevada foothills, Great Central Valley, and Modoc Plateau in California. Blooms April through September (CNPS 2013a, Baldwin et al. 2012). | Present | See text. |
| <i>Ivesia webberi</i> | Webber's ivesia | C | --/ 1B.1 | Perennial herb found on sandy or gravelly soils in volcanic ash Great Basin scrub, lower montane coniferous forest, and pinyon and juniper woodland from 3,281 to 6,808 ft. Known from fewer than fifteen occurrences over its range. In CA, known only from Sierra and Dog Valleys in Lassen, Plumas and Sierra cos. (CNPS 2013a). Blooms May through July (CNPS 2013a, Baldwin et al. 2012). | Absent | The BSA is outside the elevation and geographic range of this species. |
| <i>Juncus leiospermus</i> var. <i>ahartii</i> | Ahart's dwarf rush | -- | --/ 1B.2 | Annual herb found in mesic valley and foothill grassland from 100 to 750 ft. Known from approximately 10 occurrences in Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba cos. (CNPS 2013a). Blooms March through May (CNPS 2013a, Baldwin et al. 2012). | Present | See text. |
| <i>Legenere limosa</i> | Legenere | -- | --/ 1B.1 | Annual herb found in vernal pools from 3 to 2,887 ft. Known from Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, Shasta, San Joaquin, San Mateo, Solano, Sonoma, Tehama and Yuba cos. Presumed extirpated from Stanislaus Co. (CNPS 2013a). Blooms April through June (CNPS 2013a, Baldwin et al. 2012). | Absent | There are no vernal pools in the BSA. |
| <i>Navarretia myersii</i> ssp. <i>myersii</i> | Pincushion navarretia | -- | --/ 1B.1 | Annual herb found in vernal pools that are often acidic from 66 to 1,083 ft. Known from fewer than 20 occurrences in Amador, Calaveras, Merced, Placer and Sacramento cos. (CNPS 2013a). Blooms April through May (CNPS 2013a, Baldwin et al. 2012). | Absent | There are no vernal pools in the BSA. |
| <i>Orcuttia viscida</i> | Sacramento Orcutt grass | E, CH | E / 1B.1 | Annual herb found in vernal pools from 98 to 328 ft. Known from approximately 10 occurrences in Sacramento Co. (CNPS 2013a). Blooms April through July (CNPS 2013a, Baldwin et al. 2012). | Absent | There are no vernal pools in the BSA. The BSA is outside the known geographic range of this species. The BSA is not located with critical habitat for this species (USFWS 2013b). |

| Scientific Name | Common Name | Federal Status ^a | State Status ^a | General Habitat Description | Habitat Present/Absent ^c | Rationale |
|---|-------------------------------|-----------------------------|---------------------------|---|-------------------------------------|---|
| <i>Packera</i> (= <i>Senecio</i>) <i>layneae</i> | Layne's ragwort (=butterweed) | T | R/ 1B.2 | Perennial herb found on rocky serpentinite or rocky gabbroic soil in chaparral and cismontane woodland from 656 to 3,280 ft. Known from Butte, El Dorado, Placer, Tuolumne and Yuba cos. (CNPS 2013a). Blooms April through August (CNPS 2013a, Baldwin et al. 2012). | Present | See text. |
| <i>Pseudobahia bahiifolia</i> | Hartweg's golden sunburst | E | E / 1B.1 | Annual herb found on clay, often acidic, soil in cismontane woodland and valley and foothill grassland from 49 to 492 ft. Known from El Dorado, Fresno, Madera, Merced, Stanislaus, and Tuolumne cos. Presumed extirpated from Yuba Co. (CNPS 2013a). Blooms March through May (CNPS 2013a, Baldwin et al. 2012). | Absent | There are no clay soils in the BSA. |
| <i>Rorippa subumbellata</i> | Tahoe yellow-cress | C | E/ 1B.1 | Perennial rhizomatous herb found on decomposed granitic beaches in lower montane coniferous forest and meadows and seeps from 6,217 to 6,234 ft. Known in CA only from Lake Tahoe area in El Dorado and Placer cos. Presumed extirpated in Nevada Co (CNPS 2013a). Blooms May through September (CNPS 2013a, Baldwin et al. 2012). | Absent | The BSA is below the elevation range of this species. The BSA is outside the localized range of this species. |
| Natural Communities | | | | | | |
| Northern Hardpan Vernal Pool | | -- | --/ -- | A low emergent wetland community dominated by annual herbs and grasses on very acidic soils with an iron-silicon cemented hardpan. Evaporation (not runoff) dries pools in spring creating concentric bands of vegetation. Occurs primarily on old alluvial terraces on the east side of the Great Valley from Tulare or Fresno County north to Shasta County (Holland 1986). | Absent | This community type does not occur in the BSA. |

^a **Status:** Candidate (C); Candidate Endangered (CE); Candidate Threatened (CT); Delisted (D); Endangered (E); Critical Habitat (CH); Fully Protected (FP); Proposed (P); Proposed Critical Habitat (PCH); Proposed Endangered (PE); Proposed Threatened (PT); Species of Special Concern (SSC); Species of Local Concern (SLC); State Rare (R); Threatened (T).

^b **CNPS List.** 1A = Presumed Extinct in CA; 1B = Rare or Endangered in CA and elsewhere; 2 = R/E in CA and more common elsewhere. **CNPS List Decimal Extensions:** .1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); .2 = Fairly endangered in California (20-80% occurrences threatened); .3 = Not very endangered in California (<20% of occurrences threatened or no current threats known).

^c **Absent** = No habitat present and no further work needed. **Present** = habitat is, or may be present.

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

Species of concern identified in Table 2 as having potential habitat present in the BSA are further discussed in this chapter. Wetlands and waters potentially subject to CWA jurisdiction, birds listed under the Federal Migratory Bird Treaty Act, birds listed under CA Fish and Game Code 3503.5, and impacts to sensitive natural communities are also discussed. Table 3 estimates the acreage of each natural community that will be affected by Project.

Table 3. Affected Natural Communities

| Natural Community | Existing Acreage in the BSA | Acreage Affected by Seasonal Inundation |
|--------------------------------------|-----------------------------|---|
| Blue Oak Woodland | 133.41 | 58.49 |
| Blue Oak Woodland - Recreational Use | 57.75 | 24.53 |
| Annual Brome Grassland | 49.63 | 22.18 |
| Interior Live Oak Woodland | 30.24 | 13.10 |
| Grey Pine Woodland | 5.20 | 1.95 |
| Dam and Spillway | 3.53 | 1.51 |
| Dairy Farm Mine | 1.38 | 0.61 |
| Uplands Subtotal: | 281.14 | 122.37 |
| Camp Far West Reservoir | 1,792 | -- ¹ |
| Bear River | 1.05 | 0.65 |
| Rock Creek | 0.30 | 0.24 |
| Intermittent Channels | 0.67 | 0.28 |
| Ephemeral Channels | 0.16 | 0.09 |
| Seasonal Pond | 0.10 | 0.10 |
| Waters Subtotal: | 1,794.28 | 1.36 |
| Seasonal Wetlands | 0.08 | 0.03 |
| Seasonal Wetland Swales | 0.22 | 0.12 |
| Seeps | 0.46 | 0.13 |
| Emergent Wetlands | 1.02 | 0.68 |
| Irrigated Wetlands | 1.48 | 0.92 |
| Scrub-Shrub Wetland | 0.24 | 0.10 |
| Wetlands Subtotal: | 3.50 | 1.98 |
| Total: | 2,078.92 | 125.71 |

¹ The Reservoir will increase in size by approximately the acreage of other areas affected, 125.71 acres.

The upland communities in the BSA are not considered sensitive natural communities by CDFW (2010). The acreage of these communities that will be below the new OHWM of Camp Far West Reservoir is negligible relative to the extent of these communities in the vicinity of the Reservoir. The Reservoir itself will increase in extent as a result of the Project. Project effects on channels and wetlands are discussed below.

4.1. Natural Communities of Special Concern

4.1.1. Discussion of Bear River and Rock Creek

4.1.1.1. SURVEY RESULTS

Bear River and Rock Creek are both perennial tributaries to the Reservoir. Riparian communities along both waters are limited by the extent of bedrock at the surface. Riparian vegetation is mostly absent along the Bear River due to the lack of soil and highly scoured bedrock (Photo 6). Vegetation is also limited by bedrock at Rock Creek, but there are some areas of sediment and some riparian vegetation occurs in a band generally a few feet wide (Photo 7). Fish from the Reservoir have access to both waters under existing conditions.

4.1.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts for the Bear River or Rock Creek are proposed.

4.1.1.3. PROJECT IMPACTS

The Project will result in seasonally higher water along approximately 470 feet (0.646 acre) of the Bear River and along 295 feet (0.243 acre) of Rock Creek. From approximately January through May, the affected areas of Bear River and Rock Creek will have up to five feet more inundation. The depth of inundation will diminish farther upstream in the affected area of each watercourse. During the dry season, conditions will be similar to existing dry season conditions. Microtopography at the mouth of Rock Creek is diverse and complex with elevation changes of several feet. Riparian vegetation is expected to shift and reestablish in the area of the mouth of Rock Creek. Under existing conditions California button willow (*Cephalanthus occidentalis*) grows just below the mouth of Rock Creek, below the OHWM of the Reservoir. Over the course of years, the California button willow is expected to reestablish uphill along Rock Creek.

4.1.1.4. COMPENSATORY MITIGATION

No compensatory mitigation for the Bear River or Rock Creek is proposed.

4.1.1.5. CUMULATIVE EFFECTS

No cumulative effects were identified.

4.1.2. Discussion of Ephemeral Channels

4.1.2.1. SURVEY RESULTS

The ephemeral channels flow sporadically in response to precipitation during the wet season and too briefly to support a riparian community. Most have narrow, 1 to 2 foot wide beds of cobble or scoured soil.

4.1.2.1. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts for ephemeral channels are proposed.

4.1.2.2. PROJECT IMPACTS

Approximately 0.09 acre of ephemeral channels will be inundated with up to 5 feet of water from about January through May. Substantial wet season inundation will cover the channels during most of the season when they normally flow. Some woody vegetation that occurs sporadically in small draws below the existing Reservoir OHWM, such as California button willow and willow, may establish in the former ephemeral channels. In general, the ephemeral channels are expected to convert to habitat similar to the conditions that currently exist in the near-shore area below the Reservoir OHWM (photo 9).

4.1.2.3. COMPENSATORY MITIGATION

No compensatory mitigation for the ephemeral channels is proposed.

4.1.2.4. CUMULATIVE EFFECTS

No cumulative effects were identified.

4.1.3. Discussion of Intermittent Channels

4.1.3.1. SURVEY RESULTS

The hydrology for the intermittent channels includes dry season hydrology inputs, from either natural or artificial sources. About 11 of the 24 intermittent channels likely receive irrigation runoff. Some of the intermittent channels have riparian vegetation, but the riparian communities are mostly patchy or not well developed.

4.1.3.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts for the intermittent channels are proposed.

4.1.3.3. PROJECT IMPACTS

Approximately 0.28 acre of intermittent channel will be inundated with up to 5 feet of water from about January through May. Where present, much of the existing riparian vegetation along the intermittent channels is expected to withstand the wet season inundation that will result from the Project. Upland vegetation next to the channels will not persist and is expected to convert to habitat similar to the conditions that currently exist just below OHWM along some of the intermittent channels (Photo 10).

4.1.3.4. COMPENSATORY MITIGATION

No compensatory mitigation for the intermittent channels is proposed.

4.1.3.5. CUMULATIVE EFFECTS

No cumulative effects were identified.

4.1.4. Discussion of Seasonal Wetlands and Seasonal Wetland Swales

4.1.4.1. SURVEY RESULTS

The hydrology for seasonal wetlands and seasonal wetland swales is primarily surface runoff from wet season storms. There is little or no dry season wetland hydrology. As a result, these features tend to be dominated by annual vegetation or low perennial vegetation that can survive the dry season by dying back to underground storage structures.

4.1.4.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts for seasonal wetlands and swales are proposed.

4.1.4.3. PROJECT IMPACTS

Approximately 0.03 acre of seasonal wetland and 0.12 acre of seasonal wetland swale will be inundated with up to 5 feet of water from about January through May. Substantial wet season inundation is expected to shift the vegetation communities present in the wetlands. Cover of annual vegetation is expected decrease. Existing herbaceous perennial wetland vegetation may persist with the seasonal inundation. Some woody vegetation that occurs sporadically below the existing Reservoir OHWM, such as California button willow and willow, may establish in the former seasonal wetland areas. In general, the seasonal wetlands and swales are expected to convert to habitat similar to the conditions that currently exist in the near-shore area below the Reservoir OHWM (photo 11).

4.1.4.4. COMPENSATORY MITIGATION

No compensatory mitigation for the seasonal wetlands and swales is proposed.

4.1.4.5. CUMULATIVE EFFECTS

No cumulative effects were identified.

4.1.5. Discussion of Seeps, Emergent Wetlands, Scrub-Shrub Wetland, and Irrigated Wetlands

4.1.5.1. SURVEY RESULTS

The hydrology for the seeps, emergent wetlands, scrub-shrub wetland, and irrigated wetlands includes dry season hydrology inputs, from either natural or artificial sources. Surface runoff from wet season storms may be a supplemental source of hydrology, depending on landscape position. Vegetation in these wetlands is dominated by perennial hydrophytes. Most of the dominant plants in the seeps and emergent wetlands consist of species capable of withstanding periods of dry conditions, suggesting that these wetlands do typically dry by late-summer or fall. The irrigated wetlands may experience more dry-season hydrology, but vegetation is mostly kept low by grazing.

4.1.5.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts for the seeps, emergent wetlands, scrub-shrub wetland, and irrigated wetlands are proposed.

4.1.5.3. PROJECT IMPACTS

Approximately 0.13 acre of seep, 0.68 acre of emergent wetland, 0.10 acre of scrub-shrub wetland, and 0.92 acre of irrigated wetland will be inundated with up to 5 feet of water from about January through May. The vegetation communities present in these wetlands may change less than the seasonal wetlands because these wetlands are influenced primarily by dry season hydrological inputs, and the existing perennial hydrophytic vegetation is more likely to withstand the wet season inundation that will result from the Project. In general, although the seeps, emergent wetlands, and irrigated wetlands will be inundated for much of the wet season, the dry season conditions in these wetlands is expected to be similar to current conditions.

4.1.5.4. COMPENSATORY MITIGATION

No compensatory mitigation for the seeps, emergent wetlands, scrub-shrub wetland, and irrigated wetlands is proposed.

4.1.5.5. CUMULATIVE EFFECTS

No cumulative effects were identified.

4.2. Special-Status Invertebrates

4.2.1. Discussion of Valley Elderberry Longhorn Beetle (VELB; *Desmocerus californicus dimorphus*)

VELB was listed as a federal threatened species on 8 August 1980, with critical habitat for this species designated at the time of listing. In a 5 Year Review for VELB, USFWS recommended VELB be delisted (USFWS 2006). USFWS received a petition to delist VELB in September 2010 based on the analysis and recommendations contained in the most recent 5-year review for the species. USFWS determined that the petition presented substantial information indicating that delisting of VELB may be warranted, and initiated a status review of the species in August 2011. USFWS completed a 12-month finding on 2 October 2012 which proposed removal of VELB from the list of federal endangered and threatened wildlife and remove designation of critical habitat (USFWS 2012). A 60-day comment period was subsequently opened and ended 3 December 2012. The comment period was reopened for 30 days on 23 January 2013, with a closing on 22 February 2013 (USFWS 2013a). A ruling for delisting has not been finalized.

VELB is a two centimeter long beetle that is found only in association with its host plant elderberry (*Sambucus mexicana*). Adults emerge from mid-March through June. Adults feed on foliage, perhaps also the flowers, and mate during this period. The females then lay eggs on living elderberry plants. The first larval instar bores through the center of the elderberry stem and develops for one to two years while feeding on the elderberry pith. Prior to pupation, the larva chews a hole through the bark and plugs it with wood shavings. The larva crawls back into its pupal chamber, metamorphoses, and emerges as an adult (USFWS 2006).

The elderberry host plant for VELB occurs in a variety of habitats, most commonly in riparian forests and margins and adjacent grassy savannas. Elderberry shrubs are also known to occur in oak woodland and mixed chaparral-foothill woodland (USFWS 1991). At the time of listing, loss of riparian habitat was identified as a major threat to VELB (USFWS 2006). VELB is found in population clusters that are unevenly distributed across available host plants. Host plants are typically large and mature plants, though how the beetle selects a particular host is unknown. Exit holes are circular or slightly oval, and between 7 and 10 mm in diameter (USFWS 1991).

Range: Endemic to the Central Valley. When VELB was listed in 1980, it was known from less than 10 locations on the American River, Putah Creek, and the Merced River in the Central Valley. Currently, VELB is known throughout the Central Valley from southern Shasta County south to Fresno County, and from the east side of the Coast Range to the foothills of the Sierra Nevada. There are records for VELB in Kern County, but they have not been verified (USFWS 2006).

Critical Habitat: Critical habitat for VELB occurs in Sacramento County (USFWS 1980). The BSA is not in critical habitat for VELB. Although not officially designated critical habitat, the American River Parkway just west of Nimbus Dam, and Putah Creek at Solano Lake Park are considered essential habitat (USFWS 1980). The BSA is not in essential habitat for VELB.

Known Records: The closest CNDDDB record for VELB is located approximately 6.6 miles southwest of the Reservoir at a Wildlands mitigation bank. Habitat at the site consists of elderberry woodland, elderberry savannah, and riparian. Exit holes were observed at several locations in July 1999. Four newly-emerged beetles were observed in April 2003.

4.2.1.1. SURVEY RESULTS

Two elderberry shrubs were observed in the BSA (Table 4). No exit holes were observed. Both shrubs were in upland communities near the margin of the Reservoir. The USFWS (1999a) Conservation Guidelines discuss “riparian” as a vegetation community, not merely a landscape setting near water, because riparian forests with an elderberry shrub component are important for VELB ecology. Both elderberry shrubs in the BSA are considered not riparian because historically they would have been far above the Bear River, and currently they do not occur within a riparian vegetation community. The USFWS (1999a) assumes all elderberry shrubs in the Sierra Nevada below 3,000 ft elevation are occupied by VELB.

Table 4. Elderberry Shrubs

| Elderberry Shrub | Stems 1-3 inches in diameter | Stems 3-5 inches in diameter | Stems > 5 inches in diameter | Located in Riparian Habitat? | Exit Holes Observed? |
|------------------|------------------------------|------------------------------|------------------------------|------------------------------|----------------------|
| EB 1 | 0 | 0 | 1 | No | No |
| EB 2 | 0 | 1 | 0 | No | No |
| Total | 0 | 1 | 1 | -- | -- |

4.2.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

EB 2 is at approximately 310 feet elevation (Photo 13). The Project will result in a maximum pool elevation of 305 feet. Elderberries are a common component of riparian forests near seasonally high water. Most roots are in the upper foot of soil and the new pool elevation will be about 5 feet below EB 2. The Project will not affect EB 2.

4.2.1.3. PROJECT IMPACTS

EB 1 is at approximately 305 feet elevation (Photo 12). The soil around EB 1 will be seasonally inundated by the Project, and could lead to the decline or death of EB 1. Although elderberries commonly occur in riparian forests that may experience brief and occasional flood events, elderberry shrubs generally are not found in locations where they are annually flooded on an extended basis, especially at a time of year at which the shrub will be breaking bud and growing leaves.

EB 1 is not in a riparian forest or stand of multiple elderberry shrubs where populations of VELB are more likely to occur. No exit holes were observed in EB 1. The nearest known record is about 6.6 miles away and VELB are poor dispersers. There is no evidence that EB 1 is occupied by VELB, other than that the shrub is in the Sierra Nevada foothills, which together with the Central Valley and parts of the Coast Ranges constitute the range of the subspecies. The Project may affect, but is not likely to adversely affect VELB.

4.2.1.4. COMPENSATORY MITIGATION

The proposed project will require at least informal consultation with USFWS for VELB. The Project could follow the “Conservation Guidelines for the Valley Elderberry Longhorn Beetle” (USFWS 1999a). The 1999 Guidelines would require transplantation of affected shrubs to suitable habitat elsewhere, and the planting of additional seedlings of both elderberry and other native riparian trees and shrubs. Based on the 1999 Guidelines, the Project would need to plant at least three elderberry seedlings and three associated native riparian plants. If, at the discretion of USFWS, the affected shrub is not a suitable transplant candidate, the numbers of additional elderberry seedlings planted will be increased.

Alternatively, SSWD could mitigate Project impacts to VELB through the purchase of VELB mitigation credits as approved by the USFWS. The amount of mitigation credits is based on the same parameters in the 1999 Guidelines as for elderberry shrub transplantation.

4.2.1.5. CUMULATIVE EFFECTS

No cumulative effects were identified. The Project will not cause a change in land use at or around the Reservoir.

4.3. Special-Status Amphibians

4.3.1. Discussion of Foothill Yellow-Legged Frog (FYLF; *Rana boylei*)

FYLF is a CDFW species of special concern (CDFW 2011). This species occurs in or near perennial rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadows (CWHR 2013). FYLF most often use streams and rivers near riffles where there are rocks (Stebbins 2003). FYLF require permanent streams in which to reside (Verner and Boss 1980). In California, breeding and egg laying usually occurs at the end of spring flooding and may commence any time from mid-March to May, depending on local water conditions. The breeding season generally lasts two weeks. Egg clusters are attached to gravel or rocks in moving water near stream margins. Eggs hatch in about five days. Tadpoles require water for at least 3 or 4 months while completing their aquatic development (CWHR 2013).

Nonnative bullfrogs have been implicated in FYLF decline in the Sierra. Nonnative centrarchid fishes (sunfish) readily eat *Rana* eggs, and, where introduced into foothill streams, may also contribute to local FYLF extirpation (CWHR 2013).

Range: FYLF occur in the Coast Ranges from the Oregon border south to the Transverse Mountains in Los Angeles County, in most of northern California west of the Cascade crest, and along the western flank of the Sierra south to Kern County. An isolated population has been reported in San Joaquin County on the floor of the Central Valley. Isolated populations are also known from the mountains of Los Angeles County (CWHR 2013). FYLF have not been observed south of the Transverse Ranges since 1970 (Jennings and Hayes 1994). Its elevation range extends from near sea level to 6,370 ft in the Sierra (CWHR 2013).

Known Records: The closest CNDDDB record for FYLF is located approximately 14.6 mi east of the BSA at Dog Bar Bridge along the Bear River. Habitat consists of a backwater pool, edgewater, glide and run. Substrates include cobble and boulder. Two juveniles were observed in September 2007 and two juveniles were observed in June 2008.

4.3.1.1. SURVEY RESULTS

FYLF were not observed during the biological field surveys. The BSA occurs at the western edge of the range of FYLF (CWHR 2013). Rock Creek and the Bear River in the BSA provide potential habitat for FYLF. The Reservoir does not provide the necessary moving water or cobble substrate for FYLF breeding habitat.

4.3.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

The Project will not impact FYLF, therefore no avoidance and minimization efforts are necessary. See Project Impacts discussion below.

4.3.1.1. PROJECT IMPACTS

The Project will raise water levels up to 5 feet in FYLF habitat from approximately January to April/May. The CDFW conducted a fish survey in April 2012 using electroshock and, among other species, found several sunfish species in the Reservoir (Mead and Hunt 2012). Under existing conditions, the sunfish species have access to FYLF habitat in the BSA when the Reservoir is full or near-full. There are no barriers to fish passage in the BSA. The Project's seasonally increased water elevation will occur during the same timeframe as the current high water and will not increase the area accessible to sunfish.

The maximum water levels in the Reservoir will (and currently do) occur in winter and spring. The higher water levels will overlap with the start of the FYLF breeding season. Approximately 470 linear feet of the Bear River and 295 linear feet of Rock Creek will be seasonally inundated during the FYLF breeding season during the project, hindering or delaying the ability of FYLF to lay eggs in those areas. Both watercourses have similar potential FYLF habitat for miles upstream of the BSA. If FYLF are present, they may be able to still lay eggs in the affected area as the Reservoir level recedes. The project will not have a substantial adverse effect on FYLF.

4.3.1.2. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.3.1.3. CUMULATIVE EFFECTS

No adverse cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.3.2. Discussion of California Red-Legged Frog (CRLF; *Rana draytonii*)

The CRLF was listed as a federal-threatened species on 23 May 1996 (FR 61:25813-25833). The CRLF inhabits quiet pools of streams, marshes, and occasionally ponds (CWHR 2013). CRLF habitat is characterized by dense, shrubby riparian vegetation associated with deep (>2 ft), still, or slow-moving water (Jennings and Hayes 1994). Although CRLF can breed in temporary or permanent streams or ponds, populations probably cannot be maintained in temporary water bodies unless the surrounding area contains suitable aestivation habitat as well as migration corridors linking the breeding habitat to the aestivation habitat. CRLF have

been observed using migration corridors that consist of undisturbed habitats, such as grasslands and riparian areas, as well as relatively disturbed habitats, such as closely grazed fields, plowed agricultural land, areas with maturing crops, and pastureland. Aestivation habitat must provide sufficient moisture for survival during the nonbreeding season, sufficient cover to moderate temperature extremes, and protection from predators (Fellers and Kleeman 2007). Ephemeral channels, which flow only in response to storm events and contain surface water for a few hours or days continuously, are not breeding or aestivation habitat.

Breeding occurs from January to July (peak in February) in the south, and March to July in the north (CWHR 2013), though is likely influenced by local precipitation and ambient temperature. CRLF typically breed after significant rainfall and after the cold periods of winter have passed. Female CRLF deposit egg masses on emergent vegetation so that the masses float on the surface of the water. Embryos hatch in 1-4 weeks depending on water temperature. The tadpoles metamorphose within 3-5 months, usually from July through September (Cook 1997).

During summer, CRLF often disperse from their breeding habitat to forage and seek aestivation habitat if water is not available. Aestivation habitat is essential for the survival of CRLF within a watershed (USFWS 1996). During dry periods, CRLF are rarely encountered far from water. Summer habitat could include spaces under boulders or rocks and organic debris, such as downed trees or logs; or industrial debris, such as drains and watering troughs (USFWS 2002). Most CRLF do not disperse farther than the nearest suitable non-breeding habitat. In rare instances, CRLF have been documented to travel up to a mile from their breeding areas (Fellers and Kleeman 2007).

Introduced aquatic vertebrates and invertebrates including bullfrogs, crayfish, and various species of fishes, especially bass, catfish (*Ictalurus* spp.), sunfish (*Lepomis* spp.), and mosquitofish (*Gambusia affinis*) are predators on one or more life stages of CRLF and have been a significant factor in the decline of CRLF (USFWS 2002).

Range: CRLF are endemic to California and Baja California, Mexico (USFWS 2002). They occur along the Coast Ranges from Mendocino County south and in portions of the Sierra Nevada and Cascade ranges (CWHR 2013). Its elevation range extends from near sea level to approximately 5,200 ft, though nearly all sightings have occurred below 3,500 ft (USFWS 2002). CRLF historically occurred through Pacific slope drainages from the vicinity of Redding (Shasta County) inland and to Point Reyes (Marin County) southward to the Santo Domingo River drainage in Baja California, Mexico (Jennings and Hayes 1994). CRLF is

now known only from isolated localities in the Sierra Nevada, northern Coast, and northern Transverse Ranges (USFWS 2002).

Critical Habitat: Critical habitat was designated for CRLF in April 2006 (USFWS 2006) and revised in March 2010 (USFWS 2010). The closest critical habitat for CRLF is located in Nevada County, northeast of Nevada City, approximately 23 miles northeast of the BSA (USFWS 2010). The critical habitat designation identifies the physical and/or biological features essential to the conservation of CRLF that may require special management consideration or protection. The features are known as the primary constituent elements, and are as follows:

- 1) aquatic breeding habitat consisting of standing bodies of fresh water (with salinities less than 4.5 ppt), including natural and manmade ponds, slow-moving streams or pools within streams, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in all but the driest of years;
- 2) aquatic non-breeding habitat that includes freshwater pond and stream habitats, as described above, that may not hold water long enough for the species to complete its aquatic life cycle but which provide for shelter, foraging, predator avoidance and aquatic dispersal of juvenile and adult CRLF;
- 3) upland habitat adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to a distance of one mile in most cases (i.e., depending on surrounding landscape and dispersal barriers) including various vegetation types such as grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance for the CRLF. Upland features are also essential in that they are needed to maintain the hydrologic, geographic, topographic, ecological, and edaphic features that support and surround the aquatic, wetland, riparian habitat; and
- 4) dispersal habitat that includes accessible upland or riparian habitat within and between occupied or previously occupied sites that are located within one mile of each other, and that support movement between such sites (USFWS 2010).

Recovery Plan: USFWS prepared a Recovery Plan for CRLF to protect existing populations within 8 recovery units throughout California. The BSA is in two recovery units: CRLF Recovery Unit 1, which is defined as Sierra Nevada Foothills and Central Valley and CRLF Recovery Unit 2, which is defined as the North Coast Range Foothills and Western Sacramento River Valley. Within recovery units are core areas representing 35 focused areas

that will allow for long-term viability and reestablishment of CRLF populations. The BSA is in not located in a core area (USFWS 2002).

Known Records: The closest CNDDDB record for CRLF occurs on the Georgetown Quad. Two CRLF records occur on this quad. The locations are considered sensitive information by CNDDDB and the exact locations are suppressed. The center of the Georgetown quad is located approximately 25.4 miles east-southeast of the BSA. The records are from 2009 and habitat at both sites consists of a series of small pools/ wet areas. The stream channel is occasionally scoured.

4.3.2.1. SURVEY RESULTS

No CRLF were observed during the biological fieldwork. The USFWS issued a *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (Guidance) in August 2005. The Guidance provides information to assess the likelihood of CRLF presence in the vicinity of a project site. The Guidance recommends that the following questions be answered when assessing habitat for CRLF in the vicinity of a project site:

1. Is the project site within the current or historic range of CRLF?

The BSA is located in the historic range of CRLF as shown on Figure 3 in the “Recovery Plan for the California Red-legged Frog” (USFWS 2002).

Only the eastern edge of the BSA at Rock Creek and the Bear River is located in the current range of CRLF as mapped by CWHR (2013).

CRLF appears on the USFWS list that identifies federal-listed species that could potentially occur in or could be affected by projects on the Camp Far West quad and in Nevada, Placer, and Yuba counties.

The BSA is located within two recovery units: CRLF Recovery Unit 1, which is defined as Sierra Nevada Foothills and Central Valley and CRLF Recovery Unit 2, which is defined as the North Coast Range Foothills and Western Sacramento River Valley. The BSA is in not located in a core area (USFWS 2002).

There are three records for CRLF in central Placer County and one record in Yuba County on the CRLF distribution map in *Amphibian and Reptile Species of Special Concern in California*. The mapped records in Placer County are labeled as “extinct based on verified museum record” and the mapped record in Yuba County is labeled as “extinct based on verified sighting” (Jennings and Hayes 1994).

There are no CNDDDB records for CRLF on the Camp Far West or eight adjacent quads.

The Project site does not occur within the CRLF designated critical habitat. The closest critical habitat for CRLF is located approximately 23 miles northeast of the BSA (USFWS 2010).

2. Are there known records of CRLF at the site or within a one mile radius of the site?

There are no known occurrences of CRLF in the BSA.

No CNDDDB records for CRLF occur within one mile of the BSA. The closest CNDDDB record occurs approximately 25.4 miles east-southeast of the BSA. Information about the closest CNDDDB record is described in Section 4.3.2 above.

The California Academy of Sciences, Department of Herpetology, has no collections of CRLF from Placer, Nevada, or Yuba counties (California Academy of Sciences 2013).

The University of California, Berkeley Museum of Vertebrate Zoology has no collections of CRLF from Nevada or Yuba counties and has collections of CRLF from three locations in Placer County. Three specimens were collected from a site 0.5 mi northeast of Dutch Flat in June and July 1939; one specimen was collected from Auburn in April 1956; and one specimen was collected from Michigan Bluff in August 1916 (Museum of Vertebrate Zoology 2013).

3. What are the habitats within the project site and within one mile of the project boundary?

Upland communities in the BSA are blue oak woodland, blue oak woodland with recreational use, interior live oak woodland, gray pine woodland, and annual brome grassland. Aquatic communities in the BSA are the Reservoir, Rock Creek, Bear River, intermittent and ephemeral channels, and wetlands. The Reservoir does not provide breeding habitat for CRLF due to a lack of emergent vegetation and CRLF are not known from large reservoirs or lakes. The Bear River does not provide breeding habitat for CRLF due to the bedrock bed and banks, resulting lack of emergent vegetation, and the swiftly flowing water. The intermittent and ephemeral channels, seasonal pond, and wetlands do not provide breeding habitat due to a lack of sufficient water depth and/or duration. Pools in Rock Creek in the BSA provide potential breeding habitat for CRLF.

Upland areas within one mile of the BSA primarily consist of blue and interior live oak woodland with large parcel residences and cattle ranching. Annual brome grassland occurs northwest of the Reservoir with large parcel residences.

Aerial images from various dates were examined in Google Earth and the USFWS online National Wetlands Inventory (NWI) map was examined to determine aquatic habitats within one mile of the BSA. The NWI identifies eight ponds, five drainages, and two marshes within one mile of the PSA. Numerous ponds are visible within one mile of the BSA on Google Earth images. The majority of the ponds are impoundments along ephemeral and intermittent drainages, some with additional irrigation inputs. Ponds identified on the NWI map and aerial photos within one mile of the BSA could provide potential breeding habitat for CRLF.

4.3.2.2. AVOIDANCE AND MINIMIZATION EFFORTS

The Project will not impact CRLF, therefore no avoidance and minimization efforts are necessary. See Project Impacts discussion below.

4.3.2.3. PROJECT IMPACTS

The Project will not increase the access of nonnative fish to new areas. The seasonally higher water levels resulting from the Project are unlikely to substantially alter potential CRLF breeding conditions. Emergent vegetation will continue to grow, and can be expected to expand marginally outward from Rock Creek. Seasonally deeper pools in Rock Creek created as a result of the Project will not decrease potentially available CRLF breeding habitat. Emergent vegetation used for egg attachment, which becomes submerged by the increased water levels, is expected to regrow on the bank, just upslope of where it currently exists. The Project will not affect dispersal opportunities for CRLF. The Project may affect, but is not likely to adversely affect CRLF.

4.3.2.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.3.2.5. CUMULATIVE EFFECTS

No adverse cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.4. Special-Status Reptiles

4.4.1. Discussion of Western Pond Turtle (*Emys marmorata*)

Western pond turtle (WPT) is a California species of special concern (CDFW 2011). WPT is associated with permanent or nearly permanent water in a wide variety of habitat types, normally in ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams. WPT require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks (CWHR 2013). They are omnivorous generalists and opportunistic predators that prey upon small insects, aquatic invertebrates, fish, frogs, snakes, and small mammals. They also eat aquatic plant material and carrion (Stebbins 2003).

Two distinct habitats may be used for oviposition. Along large slow-moving streams, eggs are deposited in nests constructed in sandy banks. Along foothill streams, females may climb hillsides, sometimes traveling up to 325 ft to find a suitable nest site. Nests have been observed in many soil types from sandy to very hard. Soil must usually be at least 4 inches deep for nesting. Nests must have a relatively high internal humidity for eggs to develop and hatch properly. Generally, 3 to 11 eggs are laid from March to August depending on local conditions and are incubated for approximately 73 to 80 days (CWHR 2013).

Range: WPT occur throughout California west of the Sierra-Cascade crest. They are absent from desert regions, except the Mojave Desert along the Mojave River and its tributaries. Elevation range extends from near sea level to 4,690 feet (CWHR 2013).

Known Records: The two closest CNDDDB records for WPT are approximately 2.8 miles north of the BSA along Dry Creek. Habitat at this location consists of the area at the bottom of a gentle rifle and the top of a glide section of creek with a gravel bottom. One radio-tagged turtle was captured and one untagged turtle was observed in March 2008. Signals of other tagged turtles were also detected in the area, but were not seen. A third CNDDDB record of WPT occurs on the Gold Hill Quad west of the BSA. The location is considered sensitive information by CNDDDB and the exact location is suppressed. The center of the Gold Hill Quad is located approximately 7.6 mi southeast of the BSA. The record is from 2010 and habitat consists of blue oak woodland with a network of ponds and seasonal creeks.

4.4.1.1. SURVEY RESULTS

No WPT were observed during fieldwork, but they could occur in the BSA. The Reservoir, the Bear River, and Rock Creek are perennial water bodies that provide potential habitat for WPT.

4.4.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts for WPT are proposed.

4.4.1.3. PROJECT IMPACTS

The Project will result in seasonally higher water levels in the Reservoir, up to a maximum pool elevation of 305 feet instead of the current 300 feet. Under current conditions the water level in the Reservoir fluctuates widely on a seasonal basis. The Project will not impact WPT.

4.4.1.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.4.1.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.4.1. Discussion of Coast Horned Lizard (*Phrynosoma blainvillii*)

Coast horned lizard is a California species of special concern (CDFW 2011). They are uncommon to common in valley-foothill hardwood, conifer, riparian, pine-cypress, juniper, and annual grassland habitats. Within these habitats, they especially use sandy areas, washes, floodplains, and wind-blown deposits. Coast horned lizards forage on the ground in open areas, usually between shrubs and often near ant nests. Coast horned lizards burrow into loose soil to avoid extreme heat and predators. Periods of inactivity and winter hibernation are spent burrowed into the soil under surface objects such as logs or rocks, in mammal burrows, or in crevices (CWHR 2013).

The reproductive season for coast horned lizard varies from year to year and geographically depending on local conditions. Egg-laying in southern California has been reported from late May through June (CWHR 2013).

Range: Coast horned lizards occur in the Sierra Nevada foothills from Butte County to Kern County and throughout the central and southern California coast. The elevation range extends up to 4,000 feet in the Sierra Nevada foothills and up to 6,000 feet in the mountains of southern California, though they are primarily found below 2,000 feet in the north and 3,000 feet in the south (CWHR 2013). Coast horned lizards have a spotty distribution from Shasta Lake southward along the edges of the Sacramento Valley into much of the South Coast Ranges, San Joaquin Valley, and Sierra Nevada foothills to northern Los Angeles, Santa Barbara and Ventura counties (Jennings and Hayes 1994).

Known Records: The closest CNDDDB record for coast horned lizard is located approximately 12 miles northeast of the BSA around the Nevada County landfill. Habitat at this location consists of chaparral dominated by manzanita, with some gray pine, yellow pine, MacNab cypress, blue oak, black oak, and live oak. Two adult lizards were found in a leachfield area during fieldwork conducted from 1974 to 1995.

4.4.1.1. SURVEY RESULTS

No coast horned lizards were observed in the BSA during fieldwork. Upland areas around the margin of the Reservoir may provide potential habitat for coast horned lizard.

4.4.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts for coast horned lizards are proposed.

4.4.1.3. PROJECT IMPACTS

The Project will result in impacts to potential coast horned lizard habitat. If there is a population of coast horned lizard around the Reservoir margin, the Project's marginal impacts to uplands, relative to the surrounding landscape of extensive woodlands, would not significantly impact the population. The Project will not substantially adversely affect coast horned lizard.

4.4.1.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.4.1.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.5. Special-Status Birds

4.5.1. Birds of Prey and Birds Listed by the Migratory Bird Treaty Act Discussion

Fish and Game Code 3503.5 protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds of prey). Birds of prey include raptors, falcons, and owls. Most bird species, including species that are resident in California, are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by

implementing regulations (50 CFR 21). Any disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds, is restricted under the MBTA. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a 'take' of the species under federal law.

4.5.1.1. SURVEY RESULTS

The BSA provides nesting habitat for many species of birds. Nests of bald eagle, osprey, turkey vulture, Canada goose, great blue heron, killdeer, tree swallow, cliff swallow, and bushtit were detected in or around the BSA during surveys, and the nests of many other species are expected to occur. Bald eagle and osprey are protected under Fish and Game Code 3503.5 and the observed nest locations are indicated in Appendix E. Bald eagle is also state-endangered and is discussed in Section 4.5.1. Two active osprey nests were observed, both on high-voltage electrical towers outside of but near the BSA. The nest locations are indicated in Appendix E.

4.5.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts are necessary. See Project Impacts discussion below.

4.5.1.3. PROJECT IMPACTS

The nesting season is generally considered to be 15 February to 31 August. Water levels typically reach their maximum in the Reservoir in January and start to decrease in April or May. The Project will not impact the nests of ground or shrub nesting birds around the perimeter of the Reservoir because the reservoir will be full or receding at the time the nesting season begins. No nests will be inundated with rising water, and low-nesting birds can establish nests above the water level.

4.5.1.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed for birds of prey or MBTA birds.

4.5.1.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.5.2. Discussion of Burrowing Owl (*Athene cunicularia*)

Burrowing owl is a CDFW species of special concern (CDFW 2011). Burrowing owls inhabit open, dry grassland and desert habitats, and in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats (CWHR 2013, Shuford and Gardali 2008). Main habitat components include burrows for roosting and nesting, and relatively short vegetation with sparse shrubs and taller vegetation (Shuford and Gardali 2008). Burrowing owls most commonly use ground squirrel burrows, but they may also use badger, coyote, and fox holes or dens; or human-made structures such as culverts, piles of concrete rubble, pipes and nest boxes (CWHR 2013, Shuford and Gardali 2008). An active nest chamber is often lined with excrement, pellets, debris, grass and feathers (CWHR 2013). This species also thrives in highly altered human landscapes. In agricultural areas, owls nest along roadsides, under water conveyance structures, and near and under runways and similar structures. In urban areas, burrowing owls persist in low numbers in highly developed parcels, busy urban parks, and adjacent to roads with heavy traffic. In the Imperial Valley, owls are able to excavate their own burrows in soft earthen banks of ditches and canals (Shuford and Gardali 2008).

Burrowing owls are a semi-colonial species that breeds in California from March through August, with peak in April and May, though breeding can begin as early as February and extend into December (Shuford and Gardali 2008, CWHR 2013). The female typically lays two to 10 eggs and young emerge from the burrow in about two weeks. The young are able to fly by week four (CWHR 2013). A large proportion of adults show strong nest site fidelity, though both young and adults have a high dispersal rate (Shuford and Gardali 2008).

Burrowing owls will perch in open sunlight in the early morning, and move to shade or the burrow when hot (CWHR 2013). Owls typically feed on a broad range of arthropods, but also feed on small rodents, birds, amphibians, reptiles, and carrion. Foraging usually occurs close to their burrow. The greatest threat to burrowing owls is habitat loss and degradation from rapid urbanization of farmland in the core of the Central and Imperial valleys (Shuford and Gardali 2008). Burrow sites and some wintering sites are of concern to CDFW (2011).

Range: Burrowing owls are a year round resident in most of the state, particularly in the Central Valley, San Francisco Bay region, Carrizo Plain, and Imperial Valley (Shuford and Gardali 2008). This species is generally absent from the humid coastal counties north of Marin and mountainous areas above 5,300 feet (CWHR 2013, Shuford and Gardali 2008). This species has declined along the central and southern coast, but large populations remain in agricultural areas in the Central and Imperial valleys, often on private lands (Shuford and Gardali 2008).

Known Records: The closest CNDDDB record for burrowing owl is from 1906 and is located approximately 8.2 miles south of the BSA. The location mapped is based off the collection information on a museum record at the Museum of Vertebrate Zoology (UC Berkeley).

4.5.2.1. SURVEY RESULTS

Burrowing owls were not observed during the biological fieldwork. Several ground squirrels and burrows which could provide burrowing owl habitat were observed around the perimeter of the Reservoir in the BSA during the biological fieldwork.

4.5.2.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts are necessary. See Project Impacts discussion below.

4.5.2.3. PROJECT IMPACTS

Burrowing owls typically nest from March through August. Water levels typically reach their maximum in the Reservoir in January and start to decrease in April and May. The Project will not impact burrowing owl because the reservoir will be full or receding at the time the nesting season begins. No nests will be inundated with rising water.

4.5.2.4. COMPENSATORY MITIGATION

No compensatory mitigation is necessary for burrowing owl.

4.5.2.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.5.3. Discussion of Swainson's hawk (*Buteo swainsoni*)

Swainson's hawk is state listed as threatened (CDFW 2011). Swainson's hawks breed from late March to late August, with peak activity late May through July. Between two to four eggs are incubated for 25 to 28 days (CWHR 2013). Throughout its range, Swainson's hawks nest almost exclusively in trees. In a few instances, they have been recorded nesting on cliffs, coulees, structures, and the ground, but these sites are rarely used (BLM 2006). Nesting habitat includes stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Nests are built on a platform of sticks, bark, and fresh leaves in a tree, bush, or utility pole from 4 to 100 feet above the ground (CWHR 2013). Swainson's hawk will often return to areas where they nested the previous year (NatureServe 2011). Nesting sites are of particular concern to CDFW (2013).

Swainson's hawk forage in grasslands or suitable grain or alfalfa fields, or livestock pastures adjacent to nesting areas. They feed on mice, gophers, ground squirrels, rabbits, large arthropods, amphibians, reptiles, birds, and rarely, fish (CWHR 2013).

Range: Swainson's hawk is a breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert with very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, and Antelope Valley (CWHR 2013).

Known Records: The closest CNDDDB record for Swainson's hawk is located approximately 4.9 miles south-southwest of the BSA along Coon Creek. A nesting pair was observed in April 2009 in a large valley oak tree in a riparian corridor dominated by valley oaks, willows, black walnuts, and cottonwoods with rangeland to the south. The success of the nest is unknown.

4.5.3.1. SURVEY RESULTS

CFWR is located at the eastern edge of the range of Swainson's hawk. No Swainson's hawks were observed during the biological surveys. Trees in and adjacent to the BSA provide potential nesting habitat.

4.5.3.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts are necessary. See Project Impacts discussion below.

4.5.3.3. PROJECT IMPACTS

Swainson's hawks nest in tree canopies which would be above the high water line. Swainson's hawks breed from late March to late August. Water levels typically reach their maximum in the Reservoir in January and start to decrease in April and May. The Project will not impact Swainson's hawk nesting efforts because the reservoir will be full or receding at the time the nesting season begins. No nests will be inundated with rising water.

4.5.3.4. COMPENSATORY MITIGATION

No compensatory mitigation is necessary for Swainson's hawk.

4.5.3.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.5.4. Discussion of Northern Harrier (*Circus cyaneus*)

Northern harriers breed and forage in a variety of open (treeless) habitats that provide adequate vegetative cover, an abundance of suitable prey, and scattered hunting, plucking, and lookout perches such as shrubs and fence posts. In California, such habitats include freshwater marshes, brackish and saltwater marshes, wet meadows, weedy borders of lakes, rivers and streams, annual and perennial grasslands, vernal pool complexes, weed fields, ungrazed or lightly grazed pastures, low-growing crop fields, sagebrush flats, and desert sinks (Shuford and Gardali 2008). Northern harriers feed mostly on voles and other small mammals, birds, frogs, small reptiles, crustaceans, insects, and rarely on fish.

Northern harriers nest on the ground, mostly in emergent wetland or along rivers or lakes (CWHR 2013), and generally within patches of dense vegetation in undisturbed areas (Shuford and Gardali 2008). Nests are large mounds of sticks on wet areas or a smaller cup of grasses on dry sites. Breeding occurs from April to September with peak activity June through July. Single clutches are produced annually. The nesting period lasts about 53 days (CWHR 2013).

Range: Northern harrier occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 10,000 feet. It breeds from sea level to 5,700 feet in the Central Valley and Sierra Nevada, and up to 3,600 feet in northeast California. Northern harrier is a permanent resident of the northeastern plateau and coastal areas and a less common resident of the Central Valley (CWHR 2013).

Known Records: Thirteen records of northern harrier nests from 2000 are recorded in CNDDDB in an area about 4.5 miles northwest of the BSA on Beale Air Force Base.

4.5.4.1. SURVEY RESULTS

A northern harrier was observed foraging in the BSA during fieldwork. Most of the BSA is poor nesting habitat for northern harrier because it is well-grazed and the grass is short. The emergent wetlands, irrigated wetlands and edges of the scrub-shrub wetland provide better potential nesting habitat. No northern harrier nests were observed in the BSA during fieldwork.

4.5.4.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts are necessary. See Project Impacts discussion below.

4.5.4.3. PROJECT IMPACTS

Northern harrier typically nests from April to September. Water levels typically reach their maximum in the Reservoir in January and start to decrease in April and May. The Project

will not impact northern harrier because the reservoir will be full or receding at the time the nesting season begins. No nests will be inundated with rising water.

4.5.4.4. COMPENSATORY MITIGATION

No compensatory mitigation is necessary for northern harrier.

4.5.4.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.5.5. Discussion of White-Tailed Kite (*Elanus leucurus*)

White-tailed kite is a fully protected species by CDFW. White-tailed kites occur in herbaceous and open stages of most habitats in cismontane California. Areas with substantial groves of dense, broad-leaved deciduous trees are used for nesting and roosting. They also roost in saltgrass and Bermuda grass in southern California. White-tailed kites breed from February to October, with peak activity occurring from May to August. Nests are typically located near the top of dense oak, willow, or other tree stands from 20 to 100 ft above the ground, and are often located near an open foraging area with a dense population of voles (CWHR 2013). Nesting sites are of particular concern to CDFW (2011).

Range: White-tailed kites are a common to uncommon yearlong resident in coastal and valley lowlands in cismontane California, and are rarely found far from agricultural areas (CWHR 2013).

Known Records: The closest CNDDDB records for white-tailed kites are located approximately 13 miles from the BSA; one is located to the south and the other is located to the northwest. The record to the south is located on a 240 acre ranch. Habitat consists of a blue oak woodland/riparian habitat associated with antelope creek. The site is surrounded by smaller ranchettes. A nest was observed in June 2003 with newly-fledge young observed in July 2003. The record to the northwest is of a nest located in a black locust tree surrounded by annual grassland, abandoned/fallow farmland, rice fields, and seasonal wetlands. Two adults were observed using the nest in February 2003.

4.5.5.1. SURVEY RESULTS

White-tailed kites were observed flying over the BSA during the biological surveys. No nests were observed. Trees in and adjacent to the BSA provide potential nesting habitat.

4.5.5.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts are necessary. See Project Impacts discussion below.

4.5.5.3. PROJECT IMPACTS

White-tailed kites nest in tree canopies which would be above the high water line. White-tailed kite peak breeding activity occurs from May to August. Water levels typically reach their maximum in the Reservoir in January and start to decrease in April and May. The Project will not impact white-tailed kite nesting efforts because the reservoir will be full or receding at the time the nesting season begins. No nests will be inundated with rising water.

4.5.5.4. COMPENSATORY MITIGATION

No compensatory mitigation is necessary for white-tailed kite.

4.5.5.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.5.1. Discussion of Bald Eagle (*Haliaeetus leucocephalus*)

Bald eagle was listed as State endangered in 1971 with revisions to the listing in 1980 (CDFW 2013). Bald eagle is CDFW fully protected (CDFW 2011). At the federal level, bald eagle is protected by the Bald and Golden Eagle Protection Act of 1940, as amended. Bald eagle was federally delisted pursuant to the Endangered Species Act in 2007 (USFWS 2007). Bald eagles occur along coasts, rivers, and large, deep lakes and reservoirs inland. They require large bodies of water, or free-flowing rivers with abundant fish, and adjacent snags or other perches. Bald eagles perch high in large, stoutly limbed trees, snags, broken-topped trees, or on rocks near water. They roost communally in winter in dense, sheltered, remote conifer stands. They build stick platform nests approximately 50 to 200 ft above the ground in large, old growth, or dominant live trees with open branch work, especially ponderosa pines. Generally the largest tree in a stand is used to build the nest. Bald eagles nest most frequently in stands with less than 40% canopy, but usually with some foliage shading the nest, located near a permanent water source. Bald eagles breed from February through July, with peak activity from March to June. Bald eagles usually do not begin nesting if human disturbance is evident (CWHR 2013). Nesting and wintering sites are of concern to CDFW (CDFW 2011).

Range: Bald eagles are a permanent resident, and uncommon winter migrant, now restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity

counties. About half of the wintering population is in the Klamath Basin. Bald eagles are more common at lower elevations and are not found in the high Sierra Nevada (CWHR 2013).

Known Records: The closest CNDDDB record for bald eagle is located approximately 19 miles southeast of the BSA at Folsom Lake on North Fork American River. The nest was located in a gray pine tree at the Anderson Island Natural Preserve. Folsom Lake is used for recreation and is surrounded by oaks, gray pines, and California buckeye with an annual grassland understory. The nest was observed as active in 2005, 2006, and 2008 through 2013.

4.5.1.1. SURVEY RESULTS

Adult bald eagles were observed flying over the BSA along the north shore and along the Bear River reach in March and April 2013. A juvenile bald eagle was observed on the west shore of the Reservoir on 6 May 2013. A potential active nest was identified in April along the Bear River reach. The nest was confirmed on 6 June 2013 with the observation of two juveniles perched on the edge of the nest and an adult perched in another tree nearby. The nest is in a ponderosa pine, uphill and outside of the BSA. The approximate location of the nest is indicated on Sheet 12 in Appendix E. Most of the trees in the BSA are not of sufficient stature to provide nesting habitat for bald eagles.

4.5.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts are necessary. See Project Impacts discussion below.

4.5.1.3. PROJECT IMPACTS

The bald eagle nest is in a tree outside the BSA and well above the area that will be inundated by the Project. The Project will not impact bald eagle.

4.5.1.4. COMPENSATORY MITIGATION

No compensatory mitigation is necessary for bald eagle.

4.5.1.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.6. Special-Status Plant Species

Plants designated CNPS Rank 4 (plants of limited distribution) are not included in the definition of special-status plants in this document, but can be included in CEQA review at the discretion of the CEQA lead agency. Two CNPS Rank 4 plant species were found in the BSA, and two more may occur, but the specimens in the PSA could not be conclusively identified at the time of survey.

The two CNPS Rank 4 species identified in the BSA were Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeae*) and Sierra foothills brodiaea (*Brodiaea sierrae*). Both species were found on the south side of the Bear River reach of the reservoir, and the locations are marked on sheet 12 in Appendix E. CNDDDB forms for the species are in Appendix F. The CNDDDB does not track CNPS Rank 4 species in the digital database, but does maintain records of reported occurrences of the species should the status change.

Two small occurrences, just a few feet across each, of Brandegee's clarkia were observed. Eight plants were observed in the easternmost occurrence, and an estimated one hundred plants were observed in the westernmost occurrence. Both occurrences were on very steep slopes with noticeable effects of soil erosion, and relatively low cover of other herbaceous species. Both small occurrences are more than 5 feet above the existing OHWM of the Reservoir and are not expected to be affected by the Project.

An estimated one hundred individuals of Sierra foothills brodiaea were found growing in rock outcrops within several feet above the OHWM of the Reservoir. The raised Reservoir level is expected to reduce the numbers of these plants, because this upland species would not be expected to persist in areas with months of inundation.

Two individuals of lily (*Lilium* sp.) were observed in approximately the same location as Sierra foothills brodiaea. One individual was vegetative and the other was in bud. The individual in bud did not have sufficiently mature floral development to conclusively identify the species. The plants could be CNPS Rank 4 Humboldt lily (*L. humboldtii* ssp. *humboldtii*).

Mosquito fern (*Azolla* sp.) was observed in seep 3. The specimens were in a vegetative state and could not be conclusively identified to species, but could be CNPS Rank 4 Mexican mosquito fern (*A. microphylla*). Mosquito fern is a small (up to 3 centimeters wide) floating aquatic plant. It opportunistically grows in areas of full sun and inundation with calm water, or saturated mud. Although mosquito fern was only observed in seep 3, it may occur in many locations around the Reservoir margin at different times of the spring, summer, and fall, when the right aquatic conditions exist at a particular location and water elevation. As a free

floating plant that disperses via aquatic spores, the proposed Project changes to seasonal water elevation are not expected to affect Mosquito fern.

4.6.1. Discussion of Big-Scale Balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*)

Big-scale balsamroot is a perennial herb found on open grassy or rocky slopes in chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentinite soils, from 300 to 5,100 ft. It blooms March through July (CNPS 2013a, Baldwin et al. 2012).

Range: Known from the Sierra Nevada foothills, central high-Sierra Nevada, Sacramento Valley, and eastern San Francisco Bay Area (Baldwin et al. 2012).

Known Records: The closest CNDDDB record for big-scale balsamroot is located approximately 9.4 miles south of the south shore of the Reservoir. Habitat at the site consists of sandy hillsides. This species was locally frequent at this site in 1939.

4.6.1.1. SURVEY RESULTS

The BSA provides potential habitat for big-scale balsamroot, especially around rock outcrops near the mouth of Rock Creek, and along the Bear River Reach of the Reservoir. Big-scale balsamroot was not observed during the floristic survey conducted during the evident and identifiable period.

4.6.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance or minimization efforts are proposed.

4.6.1.3. PROJECT IMPACTS

The Project will not impact big-scale balsamroot.

4.6.1.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.6.1.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.6.2. Discussion of Dwarf Downingia (*Downingia pusilla*)

Dwarf downingia is an annual herb found in mesic valley and foothill grassland, vernal pools, and roadside ditches mostly below 500 feet. Blooms March through May (CNPS 2013a, Baldwin et al. 2012).

Range: Known from the southern Outer North Coast Ranges, Inner North Coast Ranges, Sacramento Valley, north and central San Joaquin Valley, and northern San Francisco Bay Area (Baldwin et al. 2012).

Known Records: The closest CNDDB record for dwarf downingia is located approximately 4.9 miles southwest of the south shore of the Reservoir. Habitat at the site consists of a graded terrace with standing water until May. Approximately 850 plants were observed at this location in 2005.

4.6.2.1. SURVEY RESULTS

The BSA is near the edge of the range of dwarf downingia. Seasonal wetlands and swales in the BSA may provide potential habitat for dwarf downingia. Dwarf downingia was not observed during the floristic survey conducted during the evident and identifiable period.

4.6.2.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance or minimization efforts are proposed.

4.6.2.3. PROJECT IMPACTS

The Project will not impact dwarf downingia.

4.6.2.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.6.2.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.6.3. Discussion of Boggs Lake Hedge-Hyssop (*Gratiola heterosepala*)

Boggs Lake hedge-hyssop is an annual herb found on clay soil in shallow water of vernal pools and lake margins from 30 to 7,790 feet. It blooms April through September (CNPS 2013a, Baldwin et al. 2012).

Range: Known from the inner North Coast Ranges, Cascade Range, north and central Sierra Nevada foothills, Great Central Valley, and Modoc Plateau in California (Baldwin et al. 2012).

Known Records: The closest CNDDDB record for Boggs Lake hedge-hyssop is located approximately 8 miles south of the south shore of the Reservoir. Fewer than 200 plants were observed at the site in 1989.

4.6.3.1. SURVEY RESULTS

Seasonal wetlands, swales, and the margin of the Reservoir may provide potential habitat for Boggs Lake hedge-hyssop. Boggs Lake hedge-hyssop was not observed during the botanical survey conducted during the evident and identifiable period. The similar bractless hedge-hyssop (*Gratiola ebracteata*) was common in some of the wetlands in the BSA and along the margin of the Reservoir as the water receded. The plants were checked repeatedly around the Reservoir margin and all specimens were bractless hedge-hyssop.

4.6.3.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance or minimization efforts are proposed.

4.6.3.3. PROJECT IMPACTS

The Project will not impact Boggs Lake hedge hyssop.

4.6.3.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.6.3.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.6.4. Discussion of Ahart's Dwarf Rush (*Juncus leiospermus* var. *aharti*)

Ahart's dwarf rush is an annual herb found in mesic valley and foothill grassland from 100 to 750 ft. It blooms March through May (CNPS 2013a, Baldwin et al. 2012).

Range: Known from approximately 10 occurrences in Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties (CNPS 2013a).

Known Records: The closest CNDDDB record for Ahart's dwarf rush is located approximately 8.3 miles south of the Reservoir. Habitat at the site consists of vernal pools and swales on gopher turnings, generally along pool margins. Approximately 45 plants were observed in 1990.

4.6.4.1. SURVEY RESULTS

Seasonal wetlands and swales in the BSA may provide potential habitat for Ahart's dwarf rush. Ahart's dwarf rush was not observed during the botanical survey conducted during the evident and identifiable period.

4.6.4.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance or minimization efforts are proposed.

4.6.4.3. PROJECT IMPACTS

The Project will not impact Ahart's dwarf rush.

4.6.4.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.6.4.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

4.6.5. Discussion of Layne's ragwort (*Packera (=Senecio) layneae*)

Layne's ragwort is a perennial herb found on rocky serpentinite or rocky gabbroic soil in chaparral and cismontane woodland from 656 to 3,280 ft. It blooms April through August (CNPS 2013a, Baldwin et al. 2012).

Range: Known from Butte, El Dorado, Placer, Tuolumne and Yuba counties (CNPS 2013a).

Known Records: The closest CNDDDB record of Layne's ragwort is located approximately 26 miles east-southeast of the Reservoir. Habitat consists of open areas along a road on serpentine soil. An unknown number of plants were seen in 1980, less than 1,000 scattered individuals were seen in 1982, less than 10,000 plants were seen over 150 acres in 1983, and approximately 500 plants were observed in cleared areas under the power lines in 2007.

4.6.5.1. SURVEY RESULTS

The grey pine woodland may provide potential habitat for Layne's ragwort. Layne's ragwort was not observed during the botanical survey conducted during the evident and identifiable period.

4.6.5.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance or minimization efforts are proposed.

4.6.5.3. PROJECT IMPACTS

The Project will not impact Layne's ragwort.

4.6.5.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

4.6.5.5. CUMULATIVE EFFECTS

No cumulative effects were identified. This Project will not cause a change in land use at or around the Reservoir.

Chapter 5. Results: Permits and Technical Studies for Special Laws or Conditions

5.1. Federal Endangered Species Act (FESA) Consultation Summary

FESA defines “take” (section 9) and prohibits “taking” of a listed endangered or threatened species (16 U.S.C. 1532, 50 CFR 17.3). If a federal-listed species could be harmed by a project, then section 7 or 10 consultations must be initiated and an Incidental Take Permit must be obtained (16 U.S.C. 1539, 50 CFR 13).

Section 7 of FESA states that all federal departments and agencies shall, in consultation with and with the assistance of the Secretary of the Interior/Commerce, insure that any actions authorized, funded, or carried out by them do not jeopardize the continued existence of federal-listed or proposed species or result in adverse modification of designated critical habitat, unless an exception has been granted by the Endangered Species Committee (16 USC 1536(a)(2)).

Section 9(a)(1) of FESA and federal regulation pursuant to section 4(d) of FESA prohibit the take of endangered and threatened fish and wildlife species. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct.

Harass is defined by USFWS as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by USFWS to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering.

Based on the following criteria, a Biological Assessment evaluates the potential effects of an action on federal-listed species or critical habitat to determine whether or not the species or its habitat is likely to be adversely affected by the action (USFWS & NMFS 1998):

1. Based on the best available scientific and commercial data, is the species: a) likely to be found in the area; b) potentially found in the area; or c) unlikely to be found in the area.

2. If a species is unlikely to occur in or migrate through the BSA due to lack of suitable habitat or the BSA is outside of the known range of the species, it was determined that the project would have no effect on the species.
3. If it is reasonably foreseeable for a species to occur in the BSA, further analysis of the species' life history and habitat requirements, and the suitability of habitat for any life stage of the species, was made.
4. If suitable habitat for a species was determined to occur in the BSA, an analysis of the potential effects to the species was conducted. Details of life history and habitat requirements for potentially affected species were evaluated to ascertain the likelihood and severity of impact. Technical assistance was requested from resource agencies regarding the likelihood and timing of occurrence for species.
5. A determination was then made of the type of effect in accordance with terminology used by USFWS (USFWS & NMFS 1998) for listed species and/or designated critical habitat pursuant to FESA. The types of determinations based on USFWS terminology are listed in Table 5. A summary of FESA consultations for the Project are in Table 6.
6. If a conclusion was reached that the project "may affect" a federal-listed species, reasonable and prudent mitigation measures were developed to ensure that "take" would not occur or if "take" was anticipated, it would be minimal.

Table 5. Types of Federal Consultation Determinations

| Determination | Course of Action |
|---|---|
| No effect | No incidental take will occur. No incidental take statement is required. No consultation with USFWS is required. |
| May affect, is not likely to adversely affect | No incidental take will occur. USFWS may concur in writing during informal consultation. |
| May affect, is likely to adversely affect | Incidental take is anticipated to occur. A formal section 7 consultation is required to obtain an Incidental Take Statement. During consultation, USFWS will make the determination that the project is or is not likely to jeopardize the continued existence of the species or adversely modify critical habitat. |
| Is likely to jeopardize the continued existence of the species or adversely modify critical habitat | If the project is likely to jeopardize the continued existence of the species or adversely modify critical habitat, conference with the Secretary of the Department of Interior is required. |

Table 6 summarizes potential Project effects on federal-listed species. The Project will have no effect on federal-listed species or critical habitat.

Table 6. Summary of FESA Consultation Requirements

| Scientific Name | Common Name | Federal Status ¹ | No Effect | May affect, is not likely to adversely affect | May affect, is likely to adversely affect |
|---|---|-----------------------------|-----------|---|---|
| Invertebrates | | | | | |
| <i>Branchinecta conservatio</i> | Conservancy fairy shrimp | E, CH | X | | |
| <i>Branchinecta lynchi</i> | Vernal pool fairy shrimp | T, CH | X | | |
| <i>Desmocerus californicus dimorphus</i> | Valley elderberry longhorn beetle | T, CH | | X | |
| <i>Lepidurus packardii</i> | Vernal pool tadpole shrimp | E, CH | X | | |
| Fish | | | | | |
| <i>Acipenser medirostris</i> | Green sturgeon (southern DPS) | T, CH | X | | |
| <i>Hypomesus transpacificus</i> | Delta smelt | T, CH | X | | |
| <i>Oncorhynchus</i> (=Salmo) <i>clarki henshawi</i> | Lahontan cutthroat trout | T | X | | |
| <i>Oncorhynchus mykiss</i> | Central Valley steelhead DPS | T, CH | X | | |
| <i>Oncorhynchus tshawytscha</i> | Central Valley spring-run Chinook salmon ESU | T, CH | X | | |
| <i>Oncorhynchus tshawytscha</i> | Winter-run Chinook salmon, Sacramento River ESU | E, CH | X | | |
| Amphibians | | | | | |
| <i>Ambystoma californiense</i> | California tiger salamander, central population | T, CH | X | | |
| <i>Rana draytonii</i> | California red-legged frog | T, CH | | X | |
| <i>Rana sierrae</i> (=muscosa) | Sierra Nevada yellow-legged frog | C | X | | |

| Scientific Name | Common Name | Federal Status ¹ | No Effect | May affect, is not likely to adversely affect | May affect, is likely to adversely affect |
|---|-------------------------------|-----------------------------|-----------|---|---|
| Reptiles | | | | | |
| <i>Thamnophis gigas</i> | Giant garter snake | T | X | | |
| Birds | | | | | |
| <i>Coccyzus americanus occidentalis</i> | Western yellow-billed cuckoo | C | X | | |
| Mammals | | | | | |
| <i>Martes pennanti (pacifica)</i> DPS | Pacific fisher | C | X | | |
| Plants | | | | | |
| <i>Calystegia stebbinsii</i> | Stebbins' morning-glory | E | X | | |
| <i>Ceanothus roderickii</i> | Pine Hill ceanothus | E | X | | |
| <i>Fremontodendron decumbens</i> | Pine Hill flannelbush | E | X | | |
| <i>Galium californicum ssp. sierrae</i> | El Dorado bedstraw | E | X | | |
| <i>Ivesia webberi</i> | Webber's ivesia | C | X | | |
| <i>Orcuttia viscida</i> | Sacramento Orcutt grass | E, CH | X | | |
| <i>Packera (=Senecio) layneae</i> | Layne's ragwort (=butterweed) | T | X | | |
| <i>Pseudobahia bahiifolia</i> | Hartweg's golden sunburst | E | X | | |
| <i>Rorippa subumbellata</i> | Tahoe yellow-cress | C | X | | |

¹ E = Federal Endangered; T = Federal Threatened; C = Federal Candidate, CH = Critical Habitat

5.2. California Endangered Species Act (CESA) Consultation Summary

No take of California state-listed species will occur as a result of this Project.

5.3. Wetlands and Other Waters Coordination Summary

5.3.1.1. SURVEY RESULTS

A jurisdictional delineation was prepared for the BSA (Sycamore Environmental 2013). The Reservoir is a waters of the U.S. Other, much smaller wetlands and channels around the margin of the Reservoir also occur. Ephemeral channels in the BSA may not meet the “significant nexus” standard for waters of the U.S.

5.3.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

The Project avoids direct construction impacts to most of the wetlands and waters in the BSA. Construction will occur on the concrete spillway of the dam, and temporary construction staging will be on the adjacent bed of the Reservoir during the dry season when the water level is below that elevation.

5.3.1.3. PROJECT IMPACTS

The staging area on the bed of the Reservoir is mostly unvegetated when the water level is low, and no materials will remain after construction is finished. The Project will not have direct construction impacts to the Reservoir. The Reservoir will increase in size as a result of the Project. Wetlands and channels near the existing margin of the Reservoir will be seasonally inundated with up to five feet of water during the wet season. The seasonal inundation is expected shift the dominant vegetation in and around the wetlands and channels, generally resulting in the absence of upland vegetation, and a possible increase in perennial hydrophytic vegetation.

5.3.1.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

5.3.1.5. CUMULATIVE EFFECTS

No cumulative effects were identified.

5.4. Essential Fish Habitat (EFH)

Under the Magnuson-Stevens Fishery Conservation and Management Act, the Pacific Fishery Management Council (PFMC) manages salmon fisheries through the designation of EFH and monitoring of threats to that habitat from both fishing and non-fishing activities. Salmon EFH includes all those streams, lakes, ponds, wetlands, and other water bodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California. Salmon EFH excludes areas upstream of longstanding naturally impassible barriers (i.e. natural waterfalls in existence for several hundred years), but includes aquatic areas above all artificial barriers except specifically named impassible dams. Essential habitat types identified by NMFS for

salmon include juvenile rearing areas, juvenile migration corridors, areas for growth and development into adulthood, adult migration corridors, and spawning areas (65 FR 7773).

The BSA is not located in designated EFH for Pacific salmon. The BSA is located in the Upper Bear hydrologic unit which is not designated as EFH (NMFS 2008). Complete fish barriers occur downstream of the BSA in the Bear River, including the Camp Far West Diversion Dam and the Camp Far West Dam (CalFish 2013).

5.5. Evaluation of Invasive Plant Species (EO 13112)

5.5.1.1. SURVEY RESULTS

Invasive plants are a subset of nonnative plants that spread into undisturbed ecosystems and generally negatively impact native plants and alter ecosystem processes (Cal-IPC 2006). Invasive plant species occur in the BSA and several are rated as “High” by Cal-IPC relative to their ecological impact, invasive potential, and ecological distribution (Appendix C).

5.5.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts are proposed.

5.5.1.3. PROJECT IMPACTS

The direct construction work that will occur as a result of the Project is limited to the existing concrete spillway, and the nearby staging area that will be on the exposed bed of the Reservoir during the dry season when the water level is low. Under existing conditions, these areas are nearly unvegetated, and will remain so as a result of the Project. Work conducted for the Project is unlikely to cause or promote the introduction or spread of invasive plants.

The five foot higher maximum pool elevation that will result from the Project will shift the boundary between the Reservoir and the bordering habitats. Invasive plants occur both just below the OHWM of the reservoir (such as scarlet sesban), and just above (such as Himalayan blackberry and Medusa-head). Although the project may shift the boundary between such areas by several feet, no substantive change in the extent of invasive species will occur. The limited scope of this Project precludes effective eradication of the invasive species from the BSA. The proposed construction work and seasonally higher water elevation in the existing Reservoir will not cause an increase in the dispersal of invasive plants.

5.5.1.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed.

5.5.1.5. CUMULATIVE EFFECTS

No cumulative effects were identified.

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Chapter 7. Preparers

Jeffery Little, A.A., Sacramento City College, Sacramento, CA. Over 20 years experience with preparation of NEPA/CEQA, ESA, and Caltrans compliance documents and project permitting. He holds a CDFW Scientific Collecting Permit (#801073-03), and a CDFW Rare, Threatened and Endangered Plant Voucher Collecting Permit (#08018).

Responsibilities: Project Manager.

Chuck Hughes, M.S., Plant Biology, Michigan State University, East Lansing, MI. Over 10 years experience preparing biological evaluations and impact analyses. He is a Professional Wetland Scientist (2029), an ISA Certified Arborist (WE-6885A) with a tree risk assessment qualification, holds a CDFW Scientific Collecting Permit (SC-7617) and Plant Voucher Collecting Permit (#2081(a)-12-16-V), and is listed on a USFWS recovery permit for fairy/tadpole shrimp (TE799564-3). His B.S. degree (UC Davis) is in environmental horticulture and urban forestry, with an emphasis in plant biodiversity.

Responsibilities: Assistant Project Manager, report preparation, fieldwork.

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Leane S. Dunn, M.F., Urban Forestry, University of California, Berkeley, CA. Eight years experience preparing biological technical documents and impact analyses. She is an ISA Certified Arborist (WE-7368AU), holds a CDFW Scientific Collecting Permit (SC-9306), and a CDFW Rare, Threatened and Endangered Plant Voucher Collecting Permit (#2081(a)-11-09-V). Her B.S. degree (Cal Poly, San Luis Obispo) is in ecology and systematic biology with an emphasis on entomology.

Responsibilities: Report preparation.

Juliette Robinson, B.S., Environmental Biology, Humboldt State University, Arcata, CA. Two years experience conducting plant and wildlife surveys, preparing biological evaluations, permit applications, and other documents used in the CEQA/NEPA process.

Responsibilities: Fieldwork.

Aramis Respall, GIS Analyst/ CAD Operator. Over 20 years experience in drafting and spatial analysis using AutoCAD and ArcGIS for public and private projects. He provides geospatial analysis and support for projects involving geodesy, hydrology, watersheds, project impact analysis, CNDDB occurrences, and critical habitat information.

Responsibilities: Figure preparation and spatial analysis.

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Appendix A USFWS Letter

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United States Department of the Interior
FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825



June 17, 2013

Document Number: 130617022202

R. John Little Ph.D.
Sycamore Environmental Consultants Inc.
6355 Riverside Blvd. Suite C
Sacramento, CA 95831

Subject: Species List for Camp Far West

Dear: Dr. Little

We are sending this official species list in response to your June 17, 2013 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be September 15, 2013.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found [here](#).

Endangered Species Division



U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested
Document Number: 130617022202
Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta lynchi*
vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus*
valley elderberry longhorn beetle (T)
- Lepidurus packardii*
vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus*
delta smelt (T)
- Oncorhynchus mykiss*
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)
- Oncorhynchus tshawytscha*
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Rana draytonii*
California red-legged frog (T)

Reptiles

- Thamnophis gigas*
giant garter snake (T)

Quads Containing Listed, Proposed or Candidate Species:

CAMP FAR WEST (543D)

County Lists

Nevada County

Listed Species

Invertebrates

- Branchinecta lynchi*
vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus*
valley elderberry longhorn beetle (T)
- Lepidurus packardii*
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus (=Salmo) clarki henshawi
Lahontan cutthroat trout (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Rana sierrae
Mountain yellow legged frog (PX)

Reptiles

Thamnophis gigas
giant garter snake (T)

Plants

Calystegia stebbinsii
Stebbins's morning-glory (E)

Fremontodendron californicum ssp. decumbens
Pine Hill flannelbush (E)

Senecio layneae
Layne's butterweed (=ragwort) (T)

Candidate Species

Amphibians

Rana muscosa
mountain yellow-legged frog (C)

Mammals

Martes pennanti
fisher (C)

Plants

Ivesia webberi
Webber's ivesia (C)

Placer County

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

Critical habitat, valley elderberry longhorn beetle (X)

valley elderberry longhorn beetle (T)

Lepidurus packardii

Critical habitat, vernal pool tadpole shrimp (X)

vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus

delta smelt (T)

Oncorhynchus (=Salmo) clarki henshawi

Lahontan cutthroat trout (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana draytonii

California red-legged frog (T)

Critical habitat, California red-legged frog (X)

Rana sierrae

Mountain yellow legged frog (PX)

Reptiles

Thamnophis gigas

giant garter snake (T)

Plants

Calystegia stebbinsii

Stebbins's morning-glory (E)

Ceanothus roderickii

Pine Hill ceanothus (E)

Galium californicum ssp. sierrae

El Dorado bedstraw (E)

Orcuttia viscida

Critical habitat, Sacramento Orcutt grass (X)

Sacramento Orcutt grass (E)

Senecio layneae

Layne's butterweed (=ragwort) (T)

Candidate Species

Amphibians

Rana muscosa

mountain yellow-legged frog (C)

Birds

Coccyzus americanus occidentalis

Western yellow-billed cuckoo (C)

Mammals

Martes pennanti

fisher (C)

Plants

Rorippa subumbellata

Tahoe yellow-cress (C)

Yuba County

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

valley elderberry longhorn beetle (T)

Lepidurus packardii

Critical habitat, vernal pool tadpole shrimp (X)

vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Thamnophis gigas
giant garter snake (T)

Plants

Pseudobahia bahiifolia
Hartweg's golden sunburst (E)

Senecio layneae
Layne's butterweed (=ragwort) (T)

Candidate Species

Amphibians

Rana muscosa
mountain yellow-legged frog (C)

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Mammals

Martes pennanti
fisher (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR§17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem.

However, we recommend that you get an updated list every 90 days. That would be September 15, 2013.

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Appendix B California Natural Diversity Database and California Native Plant Society Inventory Queries

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California Department of Fish and Game
Natural Diversity Database
CNDDB List for Camp Far West and 8 Adjacent Quads

| Scientific Name | Common Name | Element Code | Federal Status | State Status | Global Rank | State Rank | CNPS | CDFG |
|--|--|--------------|----------------|--------------|-------------|------------|------|------|
| 1 <i>Agelaius tricolor</i> | tricolored blackbird | ABPBXB0020 | | | G2G3 | S2 | | SC |
| 2 <i>Ammodramus savannarum</i> | grasshopper sparrow | ABPBXA0020 | | | G5 | S2 | | SC |
| 3 <i>Ardea herodias</i> | great blue heron | ABNGA04010 | | | G5 | S4 | | |
| 4 <i>Asio otus</i> | long-eared owl | ABNSB13010 | | | G5 | S3 | | SC |
| 5 <i>Athene cunicularia</i> | burrowing owl | ABNSB10010 | | | G4 | S2 | | SC |
| 6 <i>Balsamorhiza macrolepis</i> | big-scale balsamroot | PDAST11061 | | | G2 | S2 | 1B.2 | |
| 7 <i>Branchinecta conservatio</i> | Conservancy fairy shrimp | ICBRA03010 | Endangered | | G1 | S1 | | |
| 8 <i>Branchinecta lynchi</i> | vernal pool fairy shrimp | ICBRA03030 | Threatened | | G3 | S2S3 | | |
| 9 <i>Buteo swainsoni</i> | Swainson's hawk | ABNKC19070 | | Threatened | G5 | S2 | | |
| 10 <i>Circus cyaneus</i> | northern harrier | ABNKC11010 | | | G5 | S3 | | SC |
| 11 <i>Clarkia biloba ssp. brandegeae</i> | Brandegee's clarkia | PDONA05053 | | | G4G5T4 | S4 | 4.2 | |
| 12 <i>Corynorhinus townsendii</i> | Townsend's big-eared bat | AMACC08010 | | | G4 | S2S3 | | SC |
| 13 <i>Dendroica petechia brewsteri</i> | yellow warbler | ABPBX03018 | | | G5T3? | S2 | | SC |
| 14 <i>Desmocerus californicus dimorphus</i> | valley elderberry longhorn beetle | IICOL48011 | Threatened | | G3T2 | S2 | | |
| 15 <i>Downingia pusilla</i> | dwarf downingia | PDCAM060C0 | | | G2 | S2 | 2.2 | |
| 16 <i>Emys marmorata</i> | western pond turtle | ARAAD02030 | | | G3G4 | S3 | | SC |
| 17 <i>Gratiola heterosepala</i> | Boggs Lake hedge-hyssop | PDSCR0R060 | | Endangered | G2 | S2 | 1B.2 | |
| 18 <i>Juncus leiospermus var. ahartii</i> | Ahart's dwarf rush | PMJUN011L1 | | | G2T1 | S1 | 1B.2 | |
| 19 <i>Lasiurus blossevillii</i> | western red bat | AMACC05060 | | | G5 | S3? | | SC |
| 20 <i>Lasiurus cinereus</i> | hoary bat | AMACC05030 | | | G5 | S4? | | |
| 21 <i>Laterallus jamaicensis coturniculus</i> | California black rail | ABNME03041 | | Threatened | G4T1 | S1 | | |
| 22 <i>Lathyrus sulphureus var. argillaceus</i> | dubious pea | PDFAB25101 | | | G1G2 | S1S2 | 3 | |
| 23 <i>Legenere limosa</i> | legenere | PDCAM0C010 | | | G2 | S2.2 | 1B.1 | |
| 24 <i>Lepidurus packardi</i> | vernal pool tadpole shrimp | ICBRA10010 | Endangered | | G3 | S2S3 | | |
| 25 <i>Linderiella occidentalis</i> | California linderiella | ICBRA06010 | | | G3 | S2S3 | | |
| 26 <i>Myotis yumanensis</i> | Yuma myotis | AMACC01020 | | | G5 | S4? | | |
| 27 <i>Navarretia myersii ssp. myersii</i> | pincushion navarretia | PDPLM0C0X1 | | | G1T1 | S1 | 1B.1 | |
| 28 <i>Northern Hardpan Vernal Pool</i> | Northern Hardpan Vernal Pool | CTT44110CA | | | G3 | S3.1 | | |
| 29 <i>Oncorhynchus tshawytscha</i> | chinook salmon - Central Valley spring-run ESU | AFCHA0205A | Threatened | Threatened | G5 | S1 | | |
| 30 <i>Riparia riparia</i> | bank swallow | ABPAU08010 | | Threatened | G5 | S2S3 | | |

CNPS *California Native Plant* Rare and Endangered Plant Inventory

Plant List

11 matches found. *Click on scientific name for details*

Search Criteria

Found in 9 Quads around 39121A3

| Scientific Name | Common Name | Family | Lifeform | Rare Plant Rank | State Rank | Global Rank |
|---|---------------------------|----------------|----------------------------|-----------------|------------|-------------|
| <u>Azolla microphylla</u> | Mexican mosquito fern | Azollaceae | annual / perennial herb | 4.2 | S3.2? | G5 |
| <u>Balsamorhiza macrolepis</u> | big-scale balsamroot | Asteraceae | perennial herb | 1B.2 | S2 | G2 |
| <u>Brodiaea sierrae</u> | Sierra foothills brodiaea | Themidaceae | perennial bulbiferous herb | 4.3 | S3 | G3 |
| <u>Clarkia biloba ssp. brandegeae</u> | Brandegee's clarkia | Onagraceae | annual herb | 4.2 | S4 | G4G5T4 |
| <u>Downingia pusilla</u> | dwarf downingia | Campanulaceae | annual herb | 2.2 | S2 | G2 |
| <u>Fritillaria agrestis</u> | stinkbells | Liliaceae | perennial bulbiferous herb | 4.2 | S3.2 | G3 |
| <u>Gratiola heterosepala</u> | Boggs Lake hedge-hyssop | Plantaginaceae | annual herb | 1B.2 | S2 | G2 |
| <u>Juncus leiospermus var. ahartii</u> | Ahart's dwarf rush | Juncaceae | annual herb | 1B.2 | S1 | G2T1 |
| <u>Lathyrus sulphureus var. argillaceus</u> | dubious pea | Fabaceae | perennial herb | 3 | S1S2 | G1G2 |
| <u>Legenere limosa</u> | legenere | Campanulaceae | annual herb | 1B.1 | S2.2 | G2 |
| <u>Navarretia myersii ssp. myersii</u> | pincushion navarretia | Polemoniaceae | annual herb | 1B.1 | S1 | G1T1 |

Suggested Citation

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Accessed on Monday, June 17, 2013.

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Appendix C Plant and Wildlife Species Observed

Plant Species Observed

| FAMILY | SCIENTIFIC NAME | COMMON NAME | NI ¹ | CAL-IPC RATING ² |
|-------------------------|---|------------------------------|-----------------|-----------------------------|
| LYCOPHYTES | | | | |
| Selaginellaceae | <i>Selaginella hansenii</i> ⁶ | Spike-moss | N | |
| FERNS | | | | |
| Azollaceae | <i>Azolla</i> sp. | Mosquito fern | N | |
| Equisetaceae | <i>Equisetum arvense</i> | Common horsetail | N | |
| | <i>Equisetum hyemale</i> ssp. <i>affine</i> | Common scouring rush | N | |
| Marsileaceae | <i>Marsilea vestita</i> ssp. <i>vestita</i> | Water-clover | N | |
| Polypodiaceae | <i>Polypodium calirhiza</i> | Polypody | N | |
| Pteridaceae | <i>Adiantum jordanii</i> | California maidenhair | N | |
| | <i>Pellaea mucronata</i> var. <i>mucronata</i> | Bird's-foot fern | N | |
| | <i>Pentagramma triangularis</i> | Goldback fern | N | |
| GYMNOSPERMS | | | | |
| Pinaceae | <i>Pinus ponderosa</i> | Ponderosa pine | N | |
| | <i>Pinus sabiniana</i> | Foothill pine | N | |
| MAGNOLIIDS | | | | |
| Aristolochiaceae | <i>Aristolochia californica</i> | Pipevine | N | |
| EUDICOTS | | | | |
| Adoxaceae | <i>Sambucus nigra</i> ssp. <i>caerulea</i> | Blue elderberry | N | |
| Anacardiaceae | <i>Toxicodendron diversilobum</i> | Western poison oak | N | |
| Apiaceae | <i>Anthriscus caucalis</i> | Bur-chervil | I | |
| | <i>Daucus pusillus</i> | | N | |
| | <i>Eryngium castrense</i> | Great Valley coyote-thistle | N | |
| | <i>Lomatium marginatum</i> var. <i>marginatum</i> | Lomatium | N | |
| | <i>Lomatium utriculatum</i> | | N | |
| | <i>Perideridia kelloggii</i> | Yampah | N | |
| | <i>Sanicula bipinnata</i> | Poison sanicle | N | |
| | <i>Sanicula bipinnatifida</i> | Purple sanicle, shoe buttons | N | |
| | <i>Sanicula crassicaulis</i> | Sanicle | N | |
| | <i>Scandix pecten-veneris</i> | Venus' needle | I | |
| | <i>Tauschia hartwegii</i> | Tauschia | N | |
| | <i>Torilis arvensis</i> | Tall sock-destroyer | I | Moderate |
| Apocynaceae | <i>Apocynum cannabinum</i> | Indian hemp | N | |
| | <i>Asclepias cordifolia</i> | Purple milkweed | N | |
| | <i>Asclepias fascicularis</i> | Narrow-leaf milkweed | N | |
| Asteraceae | <i>Achillea millefolium</i> | Yarrow | N | |
| | <i>Achyrrachaena mollis</i> | Blow-wives | N | |
| | <i>Ambrosia psilostachya</i> | Western ragweed | N | |
| | <i>Anthemis cotula</i> | Mayweed | I | |
| | <i>Artemisia douglasiana</i> | Mugwort | N | |
| | <i>Baccharis pilularis</i> ssp. <i>consanguinea</i> | Coyote brush | N | |
| | <i>Baccharis salicifolia</i> ssp. <i>salicifolia</i> ⁶ | Mule fat | N | |
| | <i>Bellis perennis</i> | English daisy | I | |
| | <i>Bidens</i> sp. | Bidens | -- | |
| | <i>Brickellia californica</i> | California brickellbush | N | |
| | <i>Calycadenia truncata</i> | Rosin weed | N | |

| FAMILY | SCIENTIFIC NAME | COMMON NAME | NI ¹ | CAL-IPC RATING ² |
|---------------------|---|-------------------------|-----------------|-----------------------------|
| | <i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i> | Italian thistle | I | Moderate |
| | <i>Centaurea melitensis</i> | Tocalote | I | Moderate |
| | <i>Centaurea solstitialis</i> | Yellow star-thistle | I | High |
| | <i>Chondrilla juncea</i> | Skeleton weed | I | Moderate |
| | <i>Cichorium intybus</i> | Chicory | I | |
| | <i>Cirsium occidentale</i> var. <i>venustum</i> | Venus thistle | N | |
| | <i>Cirsium vulgare</i> | Bull thistle | I | Moderate |
| | <i>Cotula australis</i> | Australian cotula | I | |
| | <i>Erigeron foliosus</i> var. <i>hartwegii</i> | Leafy fleabane | N | |
| | <i>Erigeron sumatrensis</i> | Tropical horseweed | I | |
| | <i>Eriophyllum lanatum</i> var. <i>grandiflorum</i> | Common woolly sunflower | N | |
| | <i>Gamochaeta coarctata</i> ⁶ | Cudweed | I | |
| | <i>Gnaphalium palustre</i> | Cudweed | N | |
| | <i>Grindelia camporum</i> | Gumplant | N | |
| | <i>Hedynois cretica</i> ⁶ | Crete weed | I | |
| | <i>Helenium puberulum</i> | Sneezeweed | N | |
| | <i>Holocarpha</i> sp. | Tarweed | N | |
| | <i>Holozonia filipes</i> | Whiteweed | N | |
| | <i>Hypochaeris glabra</i> | Smooth cat's-ear | I | Limited |
| | <i>Hypochaeris radicata</i> | Rough cat's-ear | I | Moderate |
| | <i>Lagophylla glandulosa</i> | Hare-leaf | N | |
| | <i>Lasthenia gracilis</i> | Common goldfields | N | |
| | <i>Leontodon saxatilis</i> | Hairy hawkbit | I | |
| | <i>Leucanthemum vulgare</i> | Ox-eye daisy | I | Moderate |
| | <i>Logfia filaginoides</i> | California cottonrose | N | |
| | <i>Logfia gallica</i> | Daggerleaf cottonrose | I | |
| | <i>Madia exigua</i> | Tarweed | N | |
| | <i>Madia gracilis</i> | Gumweed | N | |
| | <i>Madia subspicata</i> | Tarweed | N | |
| | <i>Matricaria discoidea</i> | Pineapple weed | I | |
| | <i>Micropus californicus</i> var. <i>californicus</i> | Cottontop | N | |
| | <i>Microseris</i> sp. | Microseris | N | |
| | <i>Psilocarphus brevissimus</i> var. <i>brevissimus</i> | Dwarf woollyheads | N | |
| | <i>Senecio vulgaris</i> | Common groundsel | I | |
| | <i>Silybum marianum</i> | Milk thistle | I | Limited |
| | <i>Soliva sessilis</i> | | I | |
| | <i>Sonchus asper</i> ssp. <i>asper</i> | Prickly sow thistle | I | |
| | <i>Taraxacum officinale</i> | Common dandelion | I | |
| | <i>Uropappus lindleyi</i> | Silverpuffs | N | |
| | <i>Wyethia angustifolia</i> | Mule's ears | N | |
| | <i>Xanthium strumarium</i> | Cocklebur | N | |
| Betulaceae | <i>Alnus rhombifolia</i> | White alder | N | |
| Boraginaceae | <i>Amsinckia intermedia</i> | Common fiddleneck | N | |
| | <i>Eriodictyon californicum</i> | California yerba santa | N | |
| | <i>Nemophila heterophylla</i> | Nemophila | N | |
| | <i>Phacelia cicutaria</i> var. <i>cicutaria</i> | | N | |
| | <i>Plagiobothrys fulvus</i> var. <i>campestris</i> | Field popcornflower | N | |

| FAMILY | SCIENTIFIC NAME | COMMON NAME | NI ¹ | CAL-IPC RATING ² |
|------------------------|---|----------------------------------|-----------------|-----------------------------|
| | <i>Plagiobothrys greenii</i> | Greene's spiny-nut popcornflower | N | |
| | <i>Plagiobothrys nothofulvus</i> | Rusty popcornflower | N | |
| | <i>Plagiobothrys scriptus</i> | Scridgee's popcornflower | N | |
| | <i>Plagiobothrys stipitatus</i> var. <i>micranthus</i> | Great Valley popcornflower | N | |
| | <i>Plagiobothrys tenellus</i> | Pacific popcornflower | N | |
| Brassicaceae | <i>Athysanus pusillus</i> | Athysanus | N | |
| | <i>Cardamine oligosperma</i> | | N | |
| | <i>Draba verna</i> ⁶ | | I | |
| | <i>Hirschfeldia incana</i> | Summer mustard | I | Moderate |
| | <i>Lepidium campestre</i> | Peppergrass | I | |
| | <i>Lepidium nitidum</i> | Peppergrass | N | |
| | <i>Nasturtium officinale</i> | Water cress | N | |
| | <i>Sisymbrium officinale</i> | Hedge mustard | I | |
| | <i>Thysanocarpus curvipes</i> | Fringepod | N | |
| Campanulaceae | <i>Githopsis pulchella</i> ssp. <i>pulchella</i> var. <i>glabra</i> | Bluecup | N | |
| | <i>Heterocodon rariflorum</i> ⁶ | | N | |
| Caprifoliaceae | <i>Lonicera interrupta</i> | Honeysuckle | N | |
| Caryophyllaceae | <i>Cerastium glomeratum</i> | Sticky mouse-ear chickweed | I | |
| | <i>Petrorhagia dubia</i> | Proliferous pink | I | |
| | <i>Sagina decumbens</i> ssp. <i>occidentalis</i> | Western pearlwort | N | |
| | <i>Scleranthus annuus</i> ssp. <i>annuus</i> | Knawel | I | |
| | <i>Silene gallica</i> | Small-flower catchfly | I | |
| | <i>Stellaria media</i> | Common chickweed | I | |
| | <i>Stellaria nitens</i> | Shining chickweed | N | |
| Convolvulaceae | <i>Calystegia occidentalis</i> ssp. <i>occidentalis</i> | Morning-glory | N | |
| | <i>Convolvulus arvensis</i> | Bindweed | I | |
| | <i>Cuscuta</i> sp. (on <i>Xanthium</i>) | Dodder | -- | |
| | <i>Dichondra donelliana</i> | Dichondra | N | |
| Crassulaceae | <i>Crassula aquatica</i> | | N | |
| | <i>Crassula connata</i> | Pygmy-weed | N | |
| | <i>Dudleya cymosa</i> ssp. <i>cymosa</i> | Dudleya | N | |
| | <i>Sedella pumila</i> | | N | |
| Cucurbitaceae | <i>Marah fabacea</i> | California man-root | N | |
| Datisceae | <i>Datisca glomerata</i> | Durango root | N | |
| Ericaceae | <i>Arctostaphylos viscida</i> ssp. <i>viscida</i> | Manzanita | N | |
| Euphorbiaceae | <i>Chamaesyce maculata</i> | Spotted spurge | I | |
| | <i>Croton setigerus</i> | Turkey-mullein | N | |
| | <i>Euphorbia peplus</i> | Petty spurge | I | |
| Fabaceae | <i>Acemisson americanus</i> var. <i>americanus</i> | Deervetch | N | |
| | <i>Acemisson glaber</i> var. <i>glaber</i> | California broom | N | |
| | <i>Acemisson micranthus</i> | Deervetch, deerweed | N | |
| | <i>Acemisson wrangelianus</i> | Deervetch, deerweed | N | |
| | <i>Amorpha californica</i> var. <i>californica</i> | False indigo | N | |
| | <i>Cercis occidentalis</i> | Western redbud | N | |
| | <i>Hoita macrostachya</i> | | N | |
| | <i>Lathyrus jepsonii</i> var. <i>californicus</i> | Wild pea | N | |
| | <i>Lotus corniculatus</i> | Bird's-foot trefoil | I | |

| FAMILY | SCIENTIFIC NAME | COMMON NAME | NI ¹ | CAL-IPC RATING ² |
|------------------------|--|---------------------------|-----------------|-----------------------------|
| | <i>Lupinus bicolor</i> | Miniature lupine | N | |
| | <i>Lupinus microcarpus</i> var. <i>microcarpus</i> | Chick lupine | N | |
| | <i>Lupinus nanus</i> | | N | |
| | <i>Medicago polymorpha</i> | California burclover | I | Limited |
| | <i>Melilotus albus</i> | White sweetclover | I | |
| | <i>Melilotus indicus</i> | Sourclover | I | |
| | <i>Sesbania punicea</i> ⁶ | Scarlet sesban | I | High |
| | <i>Spartium junceum</i> | Spanish broom | I | High |
| | <i>Trifolium campestre</i> | Hop clover | I | |
| | <i>Trifolium ciliolatum</i> ⁶ | Foothill clover | N | |
| | <i>Trifolium depauperatum</i> var. <i>depauperatum</i> | Dwarf sack clover | N | |
| | <i>Trifolium dubium</i> | Little hop clover | I | |
| | <i>Trifolium glomeratum</i> | Clustered clover | I | |
| | <i>Trifolium hirtum</i> | Rose clover | I | Moderate |
| | <i>Trifolium oliganthum</i> | Few-flowered clover | N | |
| | <i>Trifolium repens</i> | White clover | I | |
| | <i>Trifolium striatum</i> ⁶ | Knotted clover | I | |
| | <i>Trifolium subterraneum</i> | Subterranean clover | I | |
| | <i>Trifolium variegatum</i> | | N | |
| | <i>Trifolium willdenovii</i> | Tomcat clover | N | |
| | <i>Vicia hirsuta</i> | Vetch | I | |
| | <i>Vicia sativa</i> | Vetch | I | |
| | <i>Vicia villosa</i> | Hairy vetch, winter vetch | I | |
| Fagaceae | <i>Quercus douglasii</i> | Blue oak | N | |
| | <i>Quercus kelloggii</i> | California black oak | N | |
| | <i>Quercus lobata</i> | Valley oak | N | |
| | <i>Quercus xmorehus</i> | Oracle oak | N | |
| | <i>Quercus wislizeni</i> var. <i>wislizeni</i> | Interior live oak | N | |
| Gentianaceae | <i>Cicendia quadrangularis</i> | Timwort | N | |
| | <i>Zeltnera muehlenbergii</i> | Monterey centaury | N | |
| Geraniaceae | <i>Erodium botrys</i> | Filaree | I | |
| | <i>Erodium cicutarium</i> | Redstem filaree | I | Limited |
| | <i>Erodium moschatum</i> | Greenstem filaree | I | |
| | <i>Geranium dissectum</i> | Cranesbill, geranium | I | Limited |
| | <i>Geranium molle</i> | Cranesbill, geranium | I | |
| Grossulariaceae | <i>Ribes</i> sp. | Gooseberry | N | |
| | <i>Philadelphus lewisii</i> | Wild mock orange | N | |
| Haloragaceae | <i>Myriophyllum</i> sp. | Water-milfoil | -- | |
| Hypericaceae | <i>Hypericum anagalloides</i> | Tinker's penny | N | |
| | <i>Hypericum concinnum</i> | Gold-wire | N | |
| | <i>Hypericum perforatum</i> ssp. <i>perforatum</i> | Klamathweed | I | Moderate |
| | <i>Hypericum scouleri</i> | Hypericum | N | |
| Lamiaceae | <i>Lamium amplexicaule</i> | Henbit | I | |
| | <i>Lavandula</i> sp. ³ | Lavender | I | |
| | <i>Marrubium vulgare</i> | Horehound | I | Limited |
| | <i>Mentha pulegium</i> | Pennyroyal | I | Moderate |
| | <i>Mentha</i> sp. | Mint | -- | |
| | <i>Monardella sheltonii</i> | Monardella | N | |
| | <i>Pogogyne</i> sp. | | N | |
| | <i>Scutellaria californica</i> | Skullcap | N | |

| FAMILY | SCIENTIFIC NAME | COMMON NAME | NI ¹ | CAL-IPC RATING ² |
|-----------------------|--|--------------------------|-----------------|-----------------------------|
| | <i>Stachys stricta</i> | Hedge-nettle | N | |
| | <i>Trichostema</i> sp. | Blue curls | N | |
| Linaceae | <i>Linum bienne</i> | Flax | I | |
| Lythraceae | <i>Lythrum hyssopifolia</i> | | I | Limited |
| Menyanthaceae | <i>Nymphoides peltata</i> | Water fringe | I | |
| Molluginaceae | <i>Mollugo verticillata</i> | Carpet-weed | I | |
| Montiaceae | <i>Calandrinia ciliata</i> | Red maids | N | |
| | <i>Claytonia parviflora</i> ssp. <i>parviflora</i> | | N | |
| | <i>Claytonia perfoliata</i> | Miner's lettuce | N | |
| | <i>Montia fontana</i> | Water chickweed | N | |
| Moraceae | <i>Ficus carica</i> | Edible fig | I | Moderate |
| | <i>Morus alba</i> | White mulberry | I | |
| Myrsinaceae | <i>Anagallis arvensis</i> | Scarlet pimpernel | I | |
| | <i>Anagallis minima</i> | Chaffweed | N | |
| | <i>Lysimachia nummularia</i> ⁶ | Creeping-jenny | I | |
| Oleaceae | <i>Fraxinus dipetala</i> | California ash | N | |
| | <i>Fraxinus latifolia</i> | Oregon ash | N | |
| | <i>Olea europaea</i> | Olive | I | |
| Onagraceae | <i>Clarkia biloba</i> ssp. <i>brandegeae</i> ⁶ | Brandegee's clarkia | N | |
| | <i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i> ⁶ | Four-spot | N | |
| | <i>Clarkia unguiculata</i> ⁶ | Clarkia | N | |
| | <i>Epilobium ciliatum</i> ssp. <i>ciliatum</i> | Willowherb | N | |
| | <i>Epilobium densiflorum</i> | Willowherb | N | |
| | <i>Ludwigia peploides</i> ssp. <i>montevidensis</i> | Water primrose | I | High |
| Orobanchaceae | <i>Bellardia trixago</i> | Mediterranean linseed | I | |
| | <i>Castilleja attenuata</i> | Valley tassels | N | |
| | <i>Castilleja affinis</i> ssp. <i>affinis</i> | Paintbrush, owl's-clover | N | |
| | <i>Castilleja lineariloba</i> | Owl's-clover | N | |
| | <i>Cordylanthus pilosus</i> ssp. <i>trifidus</i> | Bird's-beak | N | |
| | <i>Parentucellia viscosa</i> | | I | Limited |
| | <i>Triphysaria eriantha</i> ssp. <i>eriantha</i> | Butter-and-eggs | N | |
| | <i>Triphysaria pusilla</i> | Triphysaria | N | |
| Oxalidaceae | <i>Oxalis micrantha</i> | Dwarf wood-sorrel | I | |
| Papaveraceae | <i>Eschscholzia caespitosa</i> ⁶ | Poppy | N | |
| | <i>Eschscholzia lobbii</i> | Frying pans | N | |
| Phrymaceae | <i>Mimulus cardinalis</i> | Monkeyflower | N | |
| | <i>Mimulus guttatus</i> | Monkeyflower | N | |
| Plantaginaceae | <i>Callitriche</i> sp. | Water-starwort | N | |
| | <i>Collinsia sparsiflora</i> var. <i>collina</i> | Chinese-houses | N | |
| | <i>Gratiola ebracteata</i> ⁶ | Bractless hedge-hyssop | N | |
| | <i>Keckiella breviflora</i> var. <i>breviflora</i> | Bush penstemon | N | |
| | <i>Kickxia</i> sp. | Kickxia | I | |
| | <i>Plantago coronopus</i> | | I | |
| | <i>Plantago erecta</i> | | N | |
| | <i>Plantago lanceolata</i> | English plantain | I | Limited |
| | <i>Plantago major</i> | Common plantain | I | |
| | <i>Veronica anagallis-aquatica</i> | Water speedwell | I | |
| | <i>Veronica arvensis</i> | Speedwell | I | |
| | <i>Veronica peregrina</i> ssp. <i>xalapensis</i> | Purslane speedwell | N | |
| Polemoniaceae | <i>Collomia grandiflora</i> | Large-flowered collomia | N | |
| | <i>Gilia capitata</i> ssp. <i>mediomontana</i> | Bluehead gilia | N | |

| FAMILY | SCIENTIFIC NAME | COMMON NAME | NI ¹ | CAL-IPC RATING ² |
|----------------------|--|------------------------------|-----------------|-----------------------------|
| | <i>Gilia tricolor</i> | Bird's-eye gilia | N | |
| | <i>Leptosiphon bicolor</i> | | N | |
| | <i>Leptosiphon filipes</i> | | N | |
| | <i>Microsteris gracilis</i> | | N | |
| | <i>Navarretia intertexta</i> ssp. <i>intertexta</i> ⁶ | Navarretia | N | |
| | <i>Navarretia leucocephala</i> ssp. <i>leucocephala</i> ⁶ | Navarretia | N | |
| | <i>Navarretia pubescens</i> | Navarretia | N | |
| Polygonaceae | <i>Eriogonum nudum</i> | Wild buckwheat | N | |
| | <i>Eriogonum umbellatum</i> ^{4,6} | Sulphur flower | N | |
| | <i>Persicaria amphibia</i> | Water smartweed | N | |
| | <i>Persicaria hydropiper</i> | Waterpepper | I | |
| | <i>Pterostegia drymarioides</i> ⁶ | Woodland threadstem | N | |
| | <i>Rumex acetosella</i> | Sheep sorrel | I | Moderate |
| | <i>Rumex conglomeratus</i> | Dock | I | |
| | <i>Rumex crispus</i> | Curly dock | I | Limited |
| | <i>Rumex pulcher</i> | Fiddle dock | I | |
| Portulacaceae | <i>Portulaca oleracea</i> | Purslane | I | |
| Primulaceae | <i>Dodecatheon clevelandii</i> ssp. <i>patulum</i> | Shooting star | N | |
| | <i>Dodecatheon hendersonii</i> | Shooting star | N | |
| Ranunculaceae | <i>Clematis lasiantha</i> | Chaparral clematis | N | |
| | <i>Delphinium variegatum</i> ssp. <i>variegatum</i> | Royal larkspur | N | |
| | <i>Ranunculus aquatilis</i> var. <i>aquatilis</i> | Buttercup | N | |
| | <i>Ranunculus bonariensis</i> var. <i>triseptus</i> | Buttercup | N | |
| | <i>Ranunculus hebecarpus</i> | Buttercup | N | |
| | <i>Ranunculus muricatus</i> | Buttercup | I | |
| | <i>Ranunculus occidentalis</i> var. <i>occidentalis</i> | Buttercup | N | |
| | <i>Thalictrum</i> sp. | Meadow-rue | N | |
| Rhamnaceae | <i>Ceanothus cuneatus</i> var. <i>cuneatus</i> | Buckbrush | N | |
| | <i>Frangula californica</i> ssp. <i>tomentella</i> | California coffee berry | N | |
| | <i>Rhamnus ilicifolia</i> | Hollyleaf redberry | N | |
| Rosaceae | <i>Aphanes occidentalis</i> | | N | |
| | <i>Cercocarpus betuloides</i> var. <i>betuloides</i> | Birch-leaf mountain-mahogany | N | |
| | <i>Heteromeles arbutifolia</i> | Toyon | N | |
| | <i>Prunus</i> sp. | | -- | |
| | <i>Rosa californica</i> | California rose | N | |
| | <i>Rosa rubiginosa</i> | Sweet-brier | I | |
| | <i>Rubus armeniacus</i> | Himalayan blackberry | I | High |
| Rubiaceae | <i>Cephalanthus occidentalis</i> | California button willow | N | |
| | <i>Galium aparine</i> | Goose grass | N | |
| | <i>Galium divaricatum</i> | Lamarck's bedstraw | I | |
| | <i>Galium murale</i> | Tiny bedstraw | I | |
| | <i>Galium parisiense</i> | Wall bedstraw | I | |
| | <i>Galium porrigens</i> var. <i>tenue</i> | Climbing bedstraw | N | |
| | <i>Sherardia arvensis</i> | Field madder | I | |
| Salicaceae | <i>Populus fremontii</i> ssp. <i>fremontii</i> | Fremont cottonwood | N | |
| | <i>Salix gooddingii</i> | Goodding's black willow | N | |
| | <i>Salix laevigata</i> | Red willow | N | |

| FAMILY | SCIENTIFIC NAME | COMMON NAME | NI ¹ | CAL-IPC RATING ² |
|-------------------------|--|-------------------------|-----------------|-----------------------------|
| | <i>Salix lasiolepis</i> | Arroyo willow | N | |
| Sapindaceae | <i>Aesculus californica</i> | California buckeye | N | |
| Saxifragaceae | <i>Lithophragma bolanderi</i> ⁶ | Woodland star | N | |
| | <i>Micranthes californica</i> ⁶ | Saxifrage | N | |
| Scrophulariaceae | <i>Verbascum blattaria</i> | Moth mullein | I | |
| | <i>Verbascum thapsus</i> | Woolly mullein | I | Limited |
| Urticaceae | <i>Urtica urens</i> | Dwarf nettle | I | |
| Valerianaceae | <i>Plectritis ciliosa</i> | | N | |
| | <i>Valerianella locusta</i> | Corn salad | I | |
| Verbenaceae | <i>Phyla nodiflora</i> | | N | |
| | <i>Verbena litoralis</i> | Vervain | I | |
| Viscaceae | <i>Arceuthobium campylopodum</i> | Western dwarf mistletoe | N | |
| | <i>Phoradendron serotinum</i> ssp. <i>macrophyllum</i> | American mistletoe | N | |
| | <i>Phoradendron serotinum</i> ssp. <i>tomentosum</i> | American mistletoe | N | |
| Vitaceae | <i>Vitis californica</i> ⁶ | California wild grape | N | |
| MONOCOTS | | | | |
| Agavaceae | <i>Chlorogalum angustifolium</i> | Soap plant | N | |
| | <i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i> | Soap plant | N | |
| Alismataceae | <i>Alisma triviale</i> | Water-plantain | N | |
| Alliaceae | <i>Allium peninsulare</i> var. <i>peninsulare</i> ⁶ | Onion | N | |
| Araceae | <i>Lemna valdiviana</i> | Duckweed | N | |
| Cyperaceae | <i>Carex barbarae</i> | Whiteroot sedge | N | |
| | <i>Carex nudata</i> | Torrent sedge | N | |
| | <i>Carex praegracilis</i> | Black creeper | N | |
| | <i>Carex</i> sp. (group 11D-H) | Sedge | N | |
| | <i>Carex stipata</i> var. <i>stipata</i> | Awl-fruited sedge | N | |
| | <i>Carex vulpinoidea</i> | Brown fox sedge | I | |
| | <i>Cyperus eragrostis</i> | Nutsedge | N | |
| | <i>Cyperus niger</i> | Nutsedge | N | |
| | <i>Eleocharis pachycarpa</i> | Spikerush | I | |
| | <i>Eleocharis</i> sp. | Spikerush | N | |
| | <i>Schoenoplectus acutus</i> var. <i>occidentalis</i> | Common tule | N | |
| Iridaceae | <i>Iris pseudacorus</i> | Iris | I | |
| | <i>Sisyrinchium bellum</i> | Western blue-eyed-grass | N | |
| | <i>Sisyrinchium elmeri</i> | Elmer's blue-eyed-grass | N | |
| Juncaceae | <i>Juncus acuminatus</i> | Tapered rush | N | |
| | <i>Juncus balticus</i> ssp. <i>ater</i> | Baltic rush | N | |
| | <i>Juncus bufonius</i> var. <i>occidentalis</i> ⁶ | Western toad rush | N | |
| | <i>Juncus capitatus</i> | Dwarf rush | I | |
| | <i>Juncus effusus</i> | Soft rush | N | |
| | <i>Juncus</i> sp. (iris-leaved) | Iris-leaved rush | N | |
| | <i>Juncus tenuis</i> | Slender rush | N | |
| | <i>Juncus usitatus</i> | Australian rush | I | |
| | <i>Luzula subsessilis</i> | Hairy wood rush | N | |
| Juncaginaceae | <i>Triglochin scilloides</i> | Flowering-quillwort | N | |
| Liliaceae | <i>Calochortus albus</i> | White globe lily | N | |
| | <i>Calochortus luteus</i> | Calochortus | N | |

| FAMILY | SCIENTIFIC NAME | COMMON NAME | NI ¹ | CAL-IPC RATING ² |
|--------------------|--|------------------------|-----------------|-----------------------------|
| | <i>Erythronium multiscapideum</i> ^{5,6} | Fawn lily | N | |
| | <i>Fritillaria micrantha</i> | Brown bells | N | |
| | <i>Lilium</i> sp. | Lily | N | |
| Orchidaceae | <i>Spiranthes porrifolia</i> | Ladies tresses | N | |
| Poaceae | <i>Aegilops triuncialis</i> | Barbed goat grass | I | High |
| | <i>Aira caryophyllea</i> | Silver hair grass | I | |
| | <i>Andropogon virginicus</i> var. <i>virginicus</i> | Broomsedge bluestem | I | |
| | <i>Avena barbata</i> | Slender wild oat | I | Moderate |
| | <i>Avena fatua</i> | Wild oat | I | Moderate |
| | <i>Brachypodium distachyon</i> ⁶ | False brome | I | Moderate |
| | <i>Bromus berterianus</i> | Chilean chess | N | |
| | <i>Bromus diandrus</i> | Ripgut grass | I | Moderate |
| | <i>Bromus hordeaceus</i> | Soft chess | I | Moderate |
| | <i>Bromus laevipes</i> | Woodland brome | N | |
| | <i>Bromus madritensis</i> ssp. <i>madritensis</i> | Foxtail chess | I | |
| | <i>Bromus sterilis</i> | Poverty brome | I | |
| | <i>Briza maxima</i> | Large quaking grass | I | Limited |
| | <i>Briza minor</i> | Small quaking grass | I | |
| | <i>Cynodon dactylon</i> | Bermuda grass | I | Moderate |
| | <i>Cynosurus echinatus</i> | Bristly dogtail grass | I | Moderate |
| | <i>Dactylis glomerata</i> | Orchard grass | I | Limited |
| | <i>Deschampsia elongata</i> ⁶ | Slender hair grass | N | |
| | <i>Elymus caput-medusae</i> | Medusa head | I | High |
| | <i>Elymus elymoides</i> var. <i>elymoides</i> ⁶ | Squirreltail | N | |
| | <i>Elymus glaucus</i> | Blue wild-rye | N | |
| | <i>Festuca bromoides</i> | Brome fescue | I | |
| | <i>Festuca microstachys</i> | Fescue | N | |
| | <i>Festuca myuros</i> | Rattail sixweeks grass | I | Moderate |
| | <i>Festuca perennis</i> | Rye grass | I | Moderate |
| | <i>Gastridium phleoides</i> | Nit grass | I | |
| | <i>Glyceria declinata</i> | Low manna grass | I | Moderate |
| | <i>Holcus lanatus</i> | Common velvet grass | I | Moderate |
| | <i>Hordeum marinum</i> ssp. <i>gussoneanum</i> | Mediterranean barley | I | Moderate |
| | <i>Hordeum murinum</i> ssp. <i>leporinum</i> | Hare barley | I | Moderate |
| | <i>Leersia oryzoides</i> | Rice cutgrass | N | |
| | <i>Melica torreyana</i> | Torrey's melic | N | |
| | <i>Muhlenbergia rigens</i> | Deer grass | N | |
| | <i>Panicum acuminatum</i> var. <i>fasciculatum</i> | Pacific panic grass | N | |
| | <i>Panicum capillare</i> | Witch grass | N | |
| | <i>Paspalum dilatatum</i> | Dallis grass | I | |
| | <i>Paspalum distichum</i> | Knot grass | N | |
| | <i>Phalaris arundinacea</i> | Reed canary grass | N | |
| | <i>Poa annua</i> | Annual blue grass | I | |
| | <i>Poa bulbosa</i> | | I | |
| | <i>Poa secunda</i> ssp. <i>secunda</i> | One-sided blue grass | N | |
| | <i>Polypogon interruptus</i> | Ditch beard grass | I | |
| | <i>Polypogon monspeliensis</i> | Annual beard grass | I | Limited |
| | <i>Polypogon viridis</i> | Water beard grass | I | |
| | <i>Stipa pulchra</i> | Purple needle grass | N | |
| | <i>Stipa lemmonii</i> var. <i>lemmonii</i> | Lemmon's needle grass | N | |

| FAMILY | SCIENTIFIC NAME | COMMON NAME | N/I ¹ | CAL-IPC RATING ² |
|-------------------------|--|------------------------------|------------------|-----------------------------|
| Potamogetonaceae | <i>Potamogeton diversifolius</i> | Diverse-leaved pondweed | N | |
| Tecophilaeaceae | <i>Odontostomum hartwegii</i> | Odontostomum | N | |
| Themidaceae | <i>Brodiaea appendiculata</i> | Brodiaea | N | |
| | <i>Brodiaea elegans</i> ssp. <i>elegans</i> | Harvest brodiaea | N | |
| | <i>Brodiaea coronaria</i> | Garland brodiaea | N | |
| | <i>Brodiaea sierrae</i> | Sierra Foothills brodiaea | N | |
| | <i>Dichelostemma capitatum</i> ssp. <i>capitatum</i> | Blue dicks | N | |
| | <i>Dichelostemma multiflorum</i> | Wild hyacinth | N | |
| | <i>Dichelostemma volubile</i> | Twining brodiaea, snake lily | N | |
| | <i>Triteleia bridgesii</i> | Triteleia | N | |
| | <i>Triteleia hyacinthina</i> ⁶ | White brodiaea | N | |
| | <i>Triteleia ixioides</i> ssp. <i>scabra</i> | | N | |
| | <i>Triteleia laxa</i> | Ithuriel's spear | N | |
| Typhaceae | <i>Typha angustifolia</i> | Narrow-leaved cattail | N/I | |

¹ N = Native; I = Introduced.

² High/Moderate/Limited = CAL-IPC Inventory; reflects level of each species' negative ecological impact in California.

³ Horticultural waif. Two plants observed growing, apparently naturalized, along the western margin of the reservoir.

⁴ Only a few plants observed on some rock outcrops along the edge of the Bear River reach of the BSA. Specimen keys to var. *polyanthum* in Baldwin et al. (2012) but that taxon now treated as a misapplied name of CA plants in var. *dumosum* (Jepson Flora Project 2013). Specimen does not have the inflorescence branching pattern or rusty-woolly abaxial leaf surfaces of var. *ahartii*.

⁵ Leaves lack typical mottles. Plants growing in deep shade.

⁶ Voucher specimen deposited at the herbarium at the UC Davis Center for Plant Diversity.

Wildlife Species Observed.

| COMMON NAME | SCIENTIFIC NAME |
|-------------------------------------|---|
| REPTILES | |
| Garter snake | <i>Thamnophis</i> sp. |
| Gopher snake | <i>Pituophis melanoleucus catenifer</i> |
| Northern alligator lizard | <i>Gerrhonotus coeruleus</i> |
| Western fence lizard | <i>Sceloporus occidentalis</i> |
| AMPHIBIANS | |
| Bullfrog | <i>Lithobates catesbeiana</i> |
| Pacific treefrog | <i>Pseudacris regilla</i> |
| Western toad | <i>Bufo boreas</i> |
| BIRDS | |
| Acorn woodpecker | <i>Melanerpes formicivorus</i> |
| American coot | <i>Fulica americana</i> |
| American crow | <i>Corvus brachyrhynchos</i> |
| American kestrel | <i>Falco sparverius</i> |
| American robin | <i>Turdus migratorius</i> |
| American white pelican ⁴ | <i>Pelecanus erythrorhynchos</i> |
| Bald eagle | <i>Haliaeetus leucocephalus</i> |
| Belted kingfisher | <i>Ceryle alcyon</i> |
| Bewick's wren | <i>Thryomanes bewickii</i> |
| Black phoebe | <i>Sayornis nigricans</i> |
| Black-headed grosbeak | <i>Pheucticus melanocephalus</i> |
| Brewer's blackbird | <i>Euphagus cyanocephalus</i> |
| Bushtit | <i>Psaltiriparus minimus</i> |
| California gull | <i>Larus californicus</i> |
| California quail | <i>Callipepla californica</i> |
| Canada goose | <i>Branta canadensis</i> |
| Cassin's vireo | <i>Vireo cassinii</i> |
| Cliff swallow | <i>Hirundo pyrrhonota</i> |
| Common merganser | <i>Mergus merganser</i> |
| Common raven | <i>Corvus corax</i> |
| Cormorant | <i>Phalacrocorax</i> sp. |
| Dark-eyed junco | <i>Junco hyemalis</i> |
| European starling | <i>Sturnus vulgaris</i> |
| Graylag goose | <i>Anser anser</i> |
| Great blue heron | <i>Ardea herodias</i> |
| House finch | <i>Carpodacus mexicanus</i> |
| Hummingbird | -- |
| Killdeer | <i>Charadrius vociferus</i> |
| Lark sparrow | <i>Chondestes grammacus</i> |
| Lesser goldfinch | <i>Carduelis psaltria</i> |
| Mallard | <i>Anas platyrhynchos</i> |
| Mourning dove | <i>Zenaida macroura</i> |
| Northern flicker | <i>Colaptes auratus</i> |
| Northern harrier | <i>Circus cyaneus</i> |
| Northern mockingbird | <i>Mimus polyglottos</i> |
| Northern rough-winged swallow | <i>Stelgidopteryx serripennis</i> |
| Nuttall's woodpecker | <i>Picoides nuttallii</i> |
| Oak titmouse (Plain titmouse) | <i>Baeolophus inornatus</i> |
| Osprey | <i>Pandion haliaetus</i> |
| Red-shouldered hawk | <i>Buteo lineatus</i> |

| COMMON NAME | SCIENTIFIC NAME |
|-----------------------------|----------------------------------|
| Red-tailed hawk | <i>Buteo jamaicensis</i> |
| Red-winged blackbird | <i>Agelaius phoeniceus</i> |
| Rock dove | <i>Columbia livia</i> |
| Rufous-crowned sparrow | <i>Aimophila ruficeps</i> |
| Ruby-crowned kinglet | <i>Regulus calendula</i> |
| Sandhill crane ⁵ | <i>Grus canadensis</i> |
| Song sparrow | <i>Melospiza melodia</i> |
| Spotted towhee | <i>Pipilo maculatus</i> |
| Tree swallow | <i>Tachycineta bicolor</i> |
| Turkey vulture | <i>Cathartes aura</i> |
| Western bluebird | <i>Sialia mexicana</i> |
| Western grebe | <i>Aechmophorus occidentalis</i> |
| Western kingbird | <i>Tyrannus verticalis</i> |
| Western scrub-jay | <i>Aphelocoma californica</i> |
| Western meadowlark | <i>Sturnella neglecta</i> |
| White-breasted nuthatch | <i>Sitta carolinensis</i> |
| White-crowned sparrow | <i>Zonotrichia leucophrys</i> |
| White-tailed kite | <i>Elanus leucurus</i> |
| Wild turkey | <i>Meleagris gallopavo</i> |
| Wilson's snipe | <i>Gallinago delicata</i> |
| Yellow-billed magpie | <i>Pica nuttalli</i> |
| Yellow-rumped warbler | <i>Dendroica coronata</i> |
| MAMMALS | |
| Black-tailed jackrabbit | <i>Lepus californicus</i> |
| California ground squirrel | <i>Spermophilus beecheyi</i> |
| Coyote ¹ | <i>Canis latrans</i> |
| Mule deer | <i>Odocoileus hemionus</i> |
| Muskrat | <i>Ondatra zibethicus</i> |
| Raccoon ² | <i>Procyon lotor</i> |
| River otter | <i>Lutra canadensis</i> |
| Striped skunk | <i>Mephitis mephitis</i> |
| Western gray squirrel | <i>Sciurus griseus</i> |
| Wild pig ³ | <i>Sus scrofa</i> |

¹ Scat and call.² Tracks.³ Soil disturbance and heard.⁴ No nesting colonies observed.⁵ Overhead only.

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Appendix D Photographs



Photo 1. Blue oak woodland - Recreational Use in the campground on the north side of the Reservoir (Sheet 3; 7 March 2013).



Photo 2. Annual brome grassland near seasonal wetland swale 1 (Sheet 1; 7 March 2013).



Photo 3. Blue oak woodland along the Bear River reach of the BSA. The arrow indicates osprey nest #1 (Sheet 10; 9 April 2013).



Photo 4. The BSA is narrow in this steep area of grey pine woodland (Sheet 11; 9 April 2013).



Photo 5. Interior live oak woodland around the mouth of Channel 51 (Sheet 11; 9 April 2013).



Photo 6. The Bear River just upstream of the end of the Reservoir (Sheet 12; 9 April 2013).



Photo 7. View west along Rock Creek. The Reservoir is in the background (Sheet 6; 12 March 2013).



Photo 8. The pit of the Dairy Farm Mine (Sheet 14; 12 March 2013).



Photo 9. Typical conditions just below the high water mark of the Reservoir. Blue oak woodland - recreation use is above the high water mark (Sheet 15; 5 March 2013).



Photo 10. The bed of the Reservoir just below intermittent Channel 64. Some woody vegetation persists. A willow tree is on the left and a California button willow shrub is on the right (Sheet 14; 14 May 2013).



Photo 11. The tip of an inlet of the Reservoir at seasonal wetland swale 10. The high water mark of the Reservoir is near the fallen tree branch. (Sheet 7; 16 May 2013).



Photo 12. View north below the high water mark on the Reservoir side of the Camp Far West Dam. The arrow indicates elderberry shrub 1 (Sheet 16; 4 June 2013).



Photo 13. The arrow indicates the base of elderberry shrub 2 (Sheet 7; 27 March 2013).



Photo 14. View north of a relatively high and flat area of the bed of the Reservoir near the spillway that will be used for construction staging. The arrow indicates the bridge over the spillway just visible on the left (Sheet 1; 4 June 2013).



Photo 15. The bald eagle nest (Sheet 12; 9 April 2013).

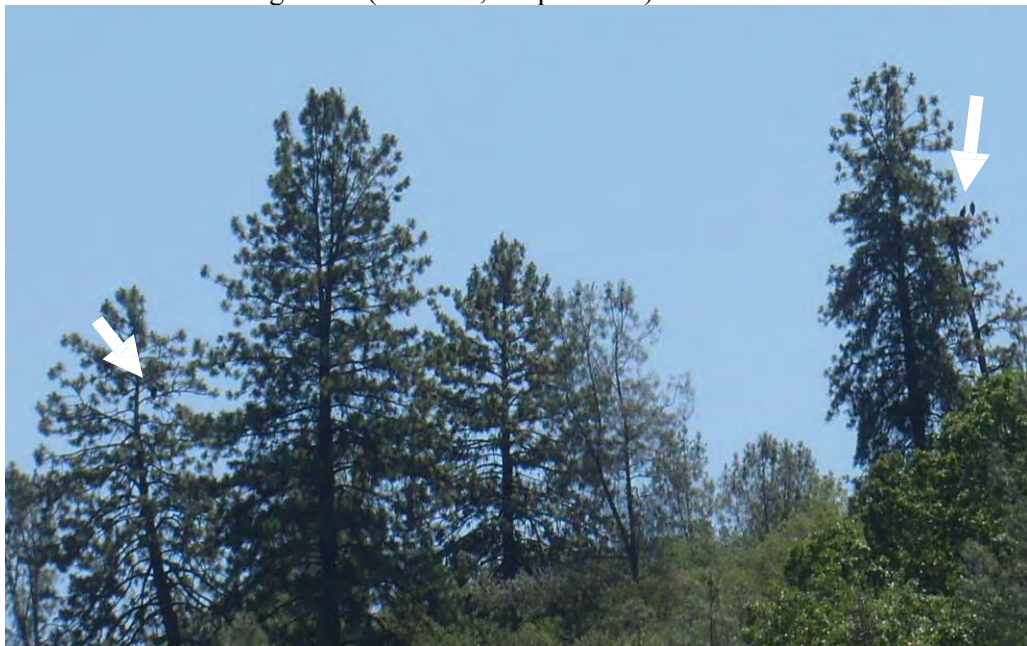
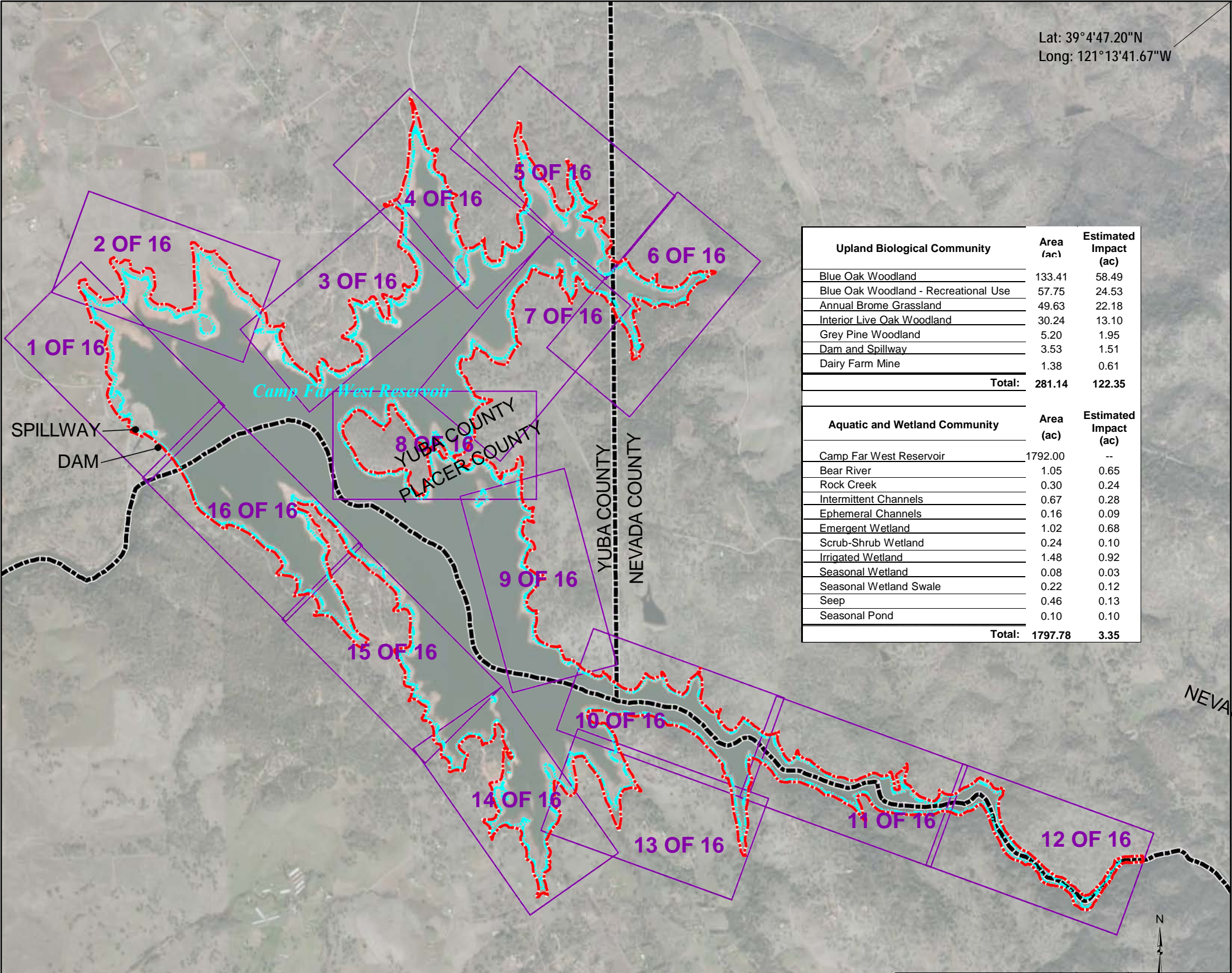


Photo 16. The arrow on the right indicates two juvenile bald eagles perched on the nest. The arrow on the left indicates an adult perched nearby (Sheet 12; 6 June 2013).

Appendix E Biological Resources Map

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| Upland Biological Community | Area (ac) | Estimated Impact (ac) |
|--------------------------------------|-----------|-----------------------|
| Blue Oak Woodland | 133.41 | 58.49 |
| Blue Oak Woodland - Recreational Use | 57.75 | 24.53 |
| Annual Brome Grassland | 49.63 | 22.18 |
| Interior Live Oak Woodland | 30.24 | 13.10 |
| Grey Pine Woodland | 5.20 | 1.95 |
| Dam and Spillway | 3.53 | 1.51 |
| Dairy Farm Mine | 1.38 | 0.61 |
| Total: | 281.14 | 122.35 |

| Aquatic and Wetland Community | Area (ac) | Estimated Impact (ac) |
|-------------------------------|-----------|-----------------------|
| Camp Far West Reservoir | 1792.00 | -- |
| Bear River | 1.05 | 0.65 |
| Rock Creek | 0.30 | 0.24 |
| Intermittent Channels | 0.67 | 0.28 |
| Ephemeral Channels | 0.16 | 0.09 |
| Emergent Wetland | 1.02 | 0.68 |
| Scrub-Shrub Wetland | 0.24 | 0.10 |
| Irrigated Wetland | 1.48 | 0.92 |
| Seasonal Wetland | 0.08 | 0.03 |
| Seasonal Wetland Swale | 0.22 | 0.12 |
| Seep | 0.46 | 0.13 |
| Seasonal Pond | 0.10 | 0.10 |
| Total: | 1797.78 | 3.35 |

| Feature | Sheet | Area (ac) | Impact Area (ac) | Feature | Sheet | Hydrology | Average Width (ft) | Length (ft) | Area (ac) | Impact Length (ft) | Impact Area (ac) |
|------------------------------|-------|-----------|------------------|-------------------------|-------|--------------|--------------------|-------------|-----------------|--------------------|------------------|
| Seasonal Wetland(SW) | | | | Camp Far West Reservoir | All | Perennial | -- | -- | 1,792 | -- | -- |
| SW 1 | 3 | 0.010 | -- | Bear River | 12 | Perennial | 91.0 | 500 | 1.045 | 470 | 0.646 |
| SW 2 | 4 | 0.020 | 0.015 | Rock Creek | 6 | Perennial | 34.3 | 386 | 0.304 | 295 | 0.243 |
| SW 3 | 4 | 0.004 | 0.004 | Seasonal Pond | 4 | -- | -- | -- | 0.104 | -- | 0.103 |
| SW 4 | 14 | 0.033 | -- | Channel (CH) | | | | | | | |
| SW 5 | 16 | 0.010 | 0.01 | CH 1 | 1 | Intermittent | 2.5 | 349 | 0.020 | 174 | 0.010 |
| Total SW | -- | 0.077 | 0.029 | CH 2 | 2 | Ephemeral | 2.1 | 330 | 0.016 | 225 | 0.011 |
| Emergent Wetland (EW) | | | | CH 3 | 3 | Intermittent | 4.0 | 27 | 0.002 | -- | -- |
| EW 1 | 2 | 0.041 | 0.033 | CH 4 | 3 | Ephemeral | 1.0 | 72 | 0.002 | 46 | 0.001 |
| EW 2 | 3 | 0.024 | 0.015 | CH 5 | 3 | Ephemeral | 1.0 | 102 | 0.002 | 65 | 0.001 |
| EW 3 | 4 | 0.024 | 0.024 | CH 6 | 3 | Ephemeral | 1.0 | 62 | 0.001 | 62 | 0.001 |
| EW 4 | 5 | 0.259 | 0.171 | CH 7 | 3 | Ephemeral | 1.0 | 117 | 0.003 | 65 | 0.001 |
| EW 5 | 9 | 0.031 | 0.031 | CH 8 | 4 | Intermittent | 4.0 | 253 | 0.023 | 74 | 0.007 |
| EW 6 | 10 | 0.023 | 0.018 | CH 9 | 4 | Ephemeral | 1.0 | 102 | 0.002 | 28 | 0.001 |
| EW 7 | 13 | 0.084 | 0.084 | CH 10 | 4 | Intermittent | 5.1 | 547 | 0.064 | 237 | 0.028 |
| EW 8 | 14 | 0.081 | 0.034 | CH 11 | 4 | Ephemeral | 1.0 | 160 | 0.004 | 85 | 0.002 |
| EW 9 | 13 | 0.055 | 0 | CH 12 | 4 | Ephemeral | 2.0 | 143 | 0.007 | 59 | 0.003 |
| EW 10 | 15 | 0.161 | 0.133 | CH 13 | 4 | Ephemeral | 1.0 | 46 | 0.001 | 46 | 0.001 |
| EW 11 | 8 | 0.235 | 0.135 | CH 14 | 5 | Ephemeral | 1.5 | 235 | 0.008 | 133 | 0.005 |
| Total EW | -- | 1.018 | 0.678 | CH 15 | 6 | Ephemeral | 1.0 | 98 | 0.002 | 60 | 0.001 |
| Scrub-Shrub Wetland (SS) | | | | CH 16 | 6 | Intermittent | 2.0 | 89 | 0.004 | 35 | 0.002 |
| SS 1 | 14 | 0.236 | 0.102 | CH 17 | 6 | Intermittent | 17.6 | 265 | 0.107 | 178 | 0.075 |
| Irrigated Wetland (IW) | | | | CH 18 | 6 | Ephemeral | 2.0 | 172 | 0.008 | 109 | 0.005 |
| IW 1 | 10 | 0.051 | 0.017 | CH 19 | 7 | Ephemeral | 2.0 | 92 | 0.004 | 52 | 0.002 |
| IW 2 | 13 | 0.629 | 0.368 | CH 20 | 8 | Ephemeral | 3.0 | 175 | 0.012 | 119 | 0.008 |
| IW 3 | 13 | 0.024 | 0.023 | CH 21 | 8 | Ephemeral | 1.0 | 69 | 0.002 | 39 | 0.001 |
| IW 4 | 13 | 0.069 | 0.052 | CH 22 | 9 | Ephemeral | 1.0 | 87 | 0.002 | 50 | 0.001 |
| IW 5 | 13 | 0.161 | 0.100 | CH 23 | 9 | Ephemeral | 2.0 | 141 | 0.006 | 36 | 0.002 |
| IW 6 | 13 | 0.550 | 0.359 | CH 24 | 9 | Ephemeral | 1.0 | 97 | 0.002 | 44 | 0.001 |
| Total IW | -- | 1.484 | 0.919 | CH 25 | 9 | Ephemeral | 2.0 | 62 | 0.003 | 20 | 0.001 |
| Seep | | | | CH 26 | 10 | Ephemeral | 4.0 | 100 | 0.009 | 44 | 0.004 |
| SEEP 1 | 2 | 0.117 | 0.013 | CH 27 | 10 | Ephemeral | 1.0 | 53 | 0.001 | 9 | 0.000 |
| SEEP 2 | 2 | 0.003 | 0.003 | CH 28 | 10 | Ephemeral | 2.0 | 48 | 0.002 | 27 | 0.001 |
| SEEP 3 | 2 | 0.002 | 0.002 | CH 29 | 10 | Intermittent | 2.0 | 93 | 0.004 | 40 | 0.002 |
| SEEP 4 | 3 | 0.032 | 0.008 | CH 30 | 10 | Intermittent | 1.0 | 169 | 0.004 | 55 | 0.001 |
| SEEP 5 | 3 | 0.024 | 0.001 | CH 31 | 10 | Ephemeral | 1.0 | 132 | 0.003 | 46 | 0.001 |
| SEEP 6 | 3 | 0.020 | 0 | CH 32 | 10 | Ephemeral | 2.0 | 94 | 0.004 | 70 | 0.003 |
| SEEP 7 | 9 | 0.065 | 0.024 | CH 33 | 10 | Ephemeral | 1.0 | 25 | 0.001 | -- | -- |
| SEEP 8 | 14 | 0.048 | 0.039 | CH 34 | 11 | Intermittent | 3.0 | 145 | 0.010 | 48 | 0.003 |
| SEEP 9 | 15 | 0.146 | 0.044 | CH 35 | 11 | Intermittent | 2.0 | 117 | 0.005 | 36 | 0.002 |
| Total Seep | -- | 0.457 | 0.134 | CH 36 | 11 | Intermittent | 5.0 | 299 | 0.034 | 124 | 0.014 |
| Seasonal Wetland Swale (SWS) | | | | CH 37 | 11 | Ephemeral | 1.0 | 95 | 0.002 | 42 | 0.001 |
| SWS 1 | 1 | 0.009 | 0.007 | CH 38 | 12 | Ephemeral | 1.0 | 74 | 0.002 | 26 | 0.001 |
| SWS 2 | 2 | 0.026 | 0.014 | CH 39 | 12 | Intermittent | 2.0 | 31 | 0.001 | 17 | 0.001 |
| SWS 3 | 2 | 0.011 | 0.006 | CH 40 | 12 | Intermittent | 2.0 | 75 | 0.003 | 25 | 0.001 |
| SWS 4 | 2 | 0.048 | 0.014 | CH 41 | 12 | Ephemeral | 3.0 | 19 | 0.001 | 10 | 0.001 |
| SWS 5 | 2 | 0.001 | 0.001 | CH 42 | 12 | Ephemeral | 2.0 | 32 | 0.001 | 15 | 0.001 |
| SWS 6 | 3 | 0.017 | 0.004 | CH 43 | 12 | Ephemeral | 1.0 | 20 | less than 0.001 | 8 | 0.000 |
| SWS 7 | 3 | 0.004 | 0.003 | CH 44 | 12 | Ephemeral | 2.0 | 22 | 0.001 | 12 | 0.001 |
| SWS 8 | 4 | 0.005 | 0.002 | CH 45 | 12 | Ephemeral | 1.0 | 50 | 0.001 | 17 | 0.000 |
| SWS 9 | 5 | 0.095 | 0.069 | CH 46 | 12 | Intermittent | 7.0 | 37 | 0.006 | 19 | 0.003 |
| SWS 10 | 7 | 0.004 | 0.003 | CH 47 | 12 | Ephemeral | 5.0 | 41 | 0.005 | 26 | 0.003 |
| Total SWS | -- | 0.220 | 0.123 | CH 48 | 12 | Ephemeral | 5.0 | 34 | 0.004 | 18 | 0.002 |
| Total Wetlands | -- | 3.492 | 1.985 | CH 49 | 12 | Ephemeral | 1.0 | 20 | less than 0.001 | 10 | 0.000 |
| | | | | CH 50 | 12 | Ephemeral | 2.0 | 33 | 0.002 | 17 | 0.001 |
| | | | | CH 51 | 11 | Intermittent | 6.0 | 130 | 0.018 | 49 | 0.007 |
| | | | | CH 52 | 11 | Ephemeral | 1.0 | 54 | 0.001 | 29 | 0.001 |
| | | | | CH 53 | 11 | Ephemeral | 1.0 | 41 | 0.001 | 21 | 0.000 |
| | | | | CH 54 | 13 | Ephemeral | 1.0 | 65 | 0.001 | 32 | 0.001 |
| | | | | CH 55 | 13 | Ephemeral | 1.0 | 71 | 0.002 | 14 | 0.000 |
| | | | | CH 56 | 13 | Intermittent | 20.0 | 393 | 0.180 | 214 | 0.098 |
| | | | | CH 57 | 10 | Ephemeral | 2.0 | 44 | 0.002 | 30 | 0.001 |
| | | | | CH 58 | 10 | Ephemeral | 1.0 | 41 | 0.001 | 21 | 0.000 |
| | | | | CH 59 | 13 | Ephemeral | 1.0 | 83 | 0.002 | 46 | 0.001 |
| | | | | CH 60 | 13 | Intermittent | 6.0 | 259 | 0.036 | 48 | 0.007 |
| | | | | CH 61 | 13 | Intermittent | 6.0 | 509 | 0.070 | 231 | 0.032 |
| | | | | CH 62 | 13 | Intermittent | 3.0 | 182 | 0.013 | 109 | 0.008 |
| | | | | CH 63 | 14 | Ephemeral | 2.0 | 206 | 0.009 | 100 | 0.005 |
| | | | | CH 64 | 14 | Intermittent | 6.0 | 270 | 0.037 | 161 | 0.022 |
| | | | | CH 65 | 14 | Intermittent | 4.0 | 90 | 0.008 | 60 | 0.006 |
| | | | | CH 66 | 14 | Intermittent | 3.0 | 73 | 0.005 | 50 | 0.003 |
| | | | | CH 67 | 14 | Ephemeral | 1.0 | 105 | 0.002 | 51 | 0.001 |
| | | | | CH 68 | 14 | Ephemeral | 1.0 | 71 | 0.002 | 20 | 0.000 |
| | | | | CH 69 | 14 | Ephemeral | 1.5 | 98 | 0.003 | 62 | 0.002 |
| | | | | CH 70 | 14 | Ephemeral | 1.5 | 69 | 0.002 | 28 | 0.001 |
| | | | | CH 71 | 15 | Ephemeral | 1.0 | 69 | 0.002 | 34 | 0.001 |
| | | | | CH 72 | 15 | Ephemeral | 1.0 | 89 | 0.002 | 28 | 0.001 |
| | | | | CH 73 | 15 | Intermittent | 1.0 | 147 | 0.003 | 43 | 0.001 |
| | | | | CH 74 | 15 | Ephemeral | 1.0 | 205 | 0.005 | 128 | 0.003 |
| | | | | CH 75 | 15 | Ephemeral | 1.0 | 60 | 0.001 | 57 | 0.001 |
| | | | | CH 76 | 16 | Intermittent | 5.0 | 106 | 0.012 | 54 | 0.006 |
| | | | | Sub-Total Channels | -- | | -- | 9,280 | 0.833 | 4,522 | 0.427 |
| | | | | Total | -- | | -- | 10,166 | 1,794.286 | 5,287 | 1.419 |

Project Study Area (PSA)

Sheet Layout

County Boundary

Scale: 1 inch = 0.5 miles

0.5

0

0.5 Miles

Aerial Photograph: 2 February 2012, UC-G, US-CA-Sacramento, Microsoft Imagery, ESRI ArcGIS Basemap
GIS Layers: Local Roads & County Boundary , CA Spatial Information Library (CASIL)
USGS National Hydrography Dataset (NHD) Flowlines

Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

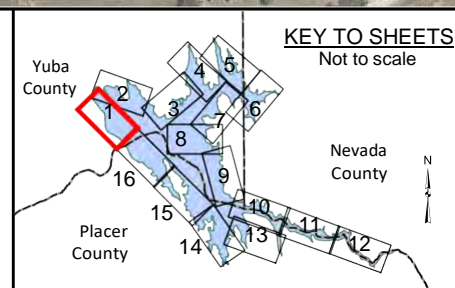
Figure 3. Biological Resources Map

KEY TO SHEETS



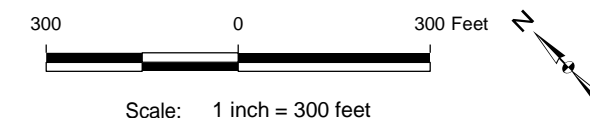
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24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact
- Biological Community Boundary

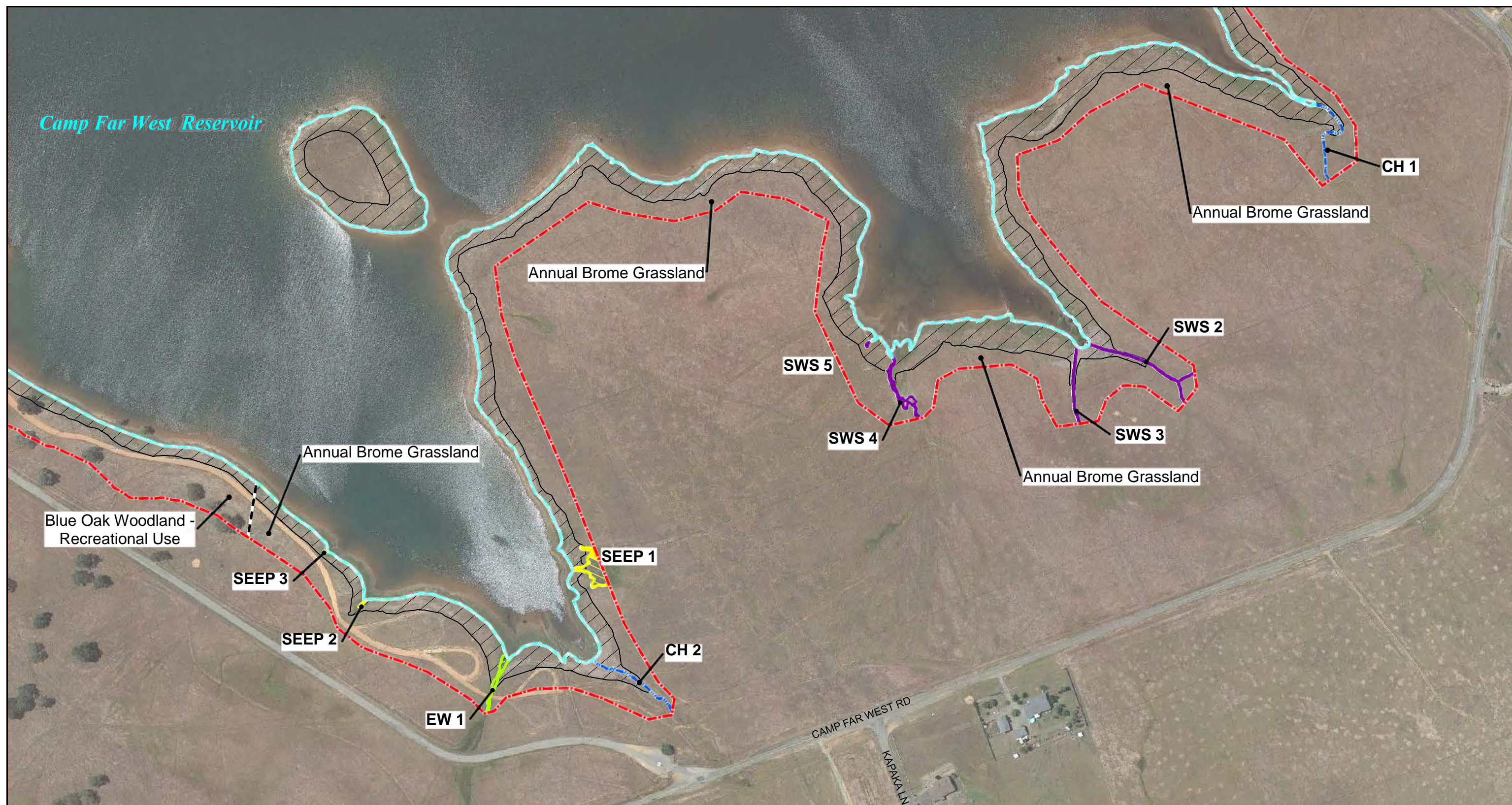
- Seasonal Wetland Swale (SWS)



Aerial Photograph: 13 June 2011, Google Earth Pro

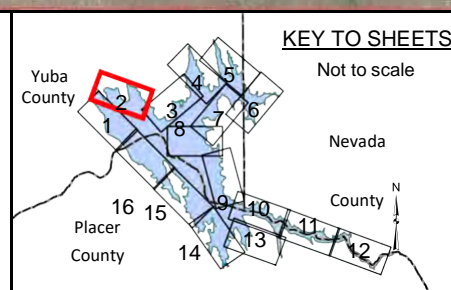
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Consultants, Inc.

SHEET 1 OF 16



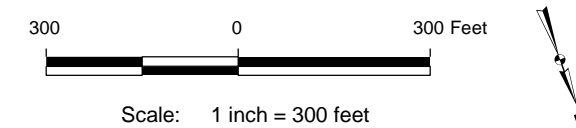
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24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact
- Biological Community Boundary

- Emergent Wetland (EW) Seasonal
- Wetland Swale (SWS) Seep



Aerial Photograph: 13 June 2011, Google Earth Pro

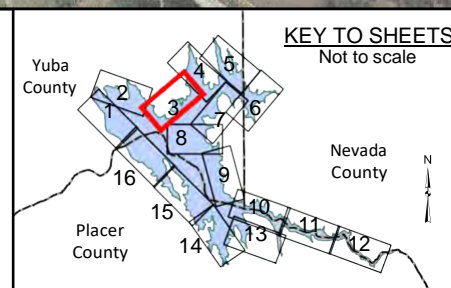
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SHEET 2 OF 16



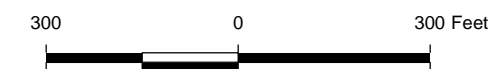
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24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact
- Biological Community Boundary

- Emergent Wetland (EW)
- Seasonal Wetland (SW)
- Seasonal Wetland Swale (SWS)
- Seasonal Pond (SP)
- Seep



Scale: 1 inch = 300 feet

Aerial Photograph: 13 June 2011, Google Earth Pro

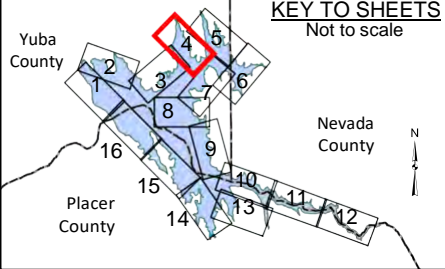


SHEET 3 OF 16



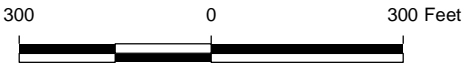
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24 July 2013

Figure 3.
Biological Resources Map



- KEY TO SHEETS**
Not to scale
- Biological Study Area (BSA)
 - OHWM
 - Channel (CH)
 - Estimated Limits of Impact
 - Biological Community Boundary

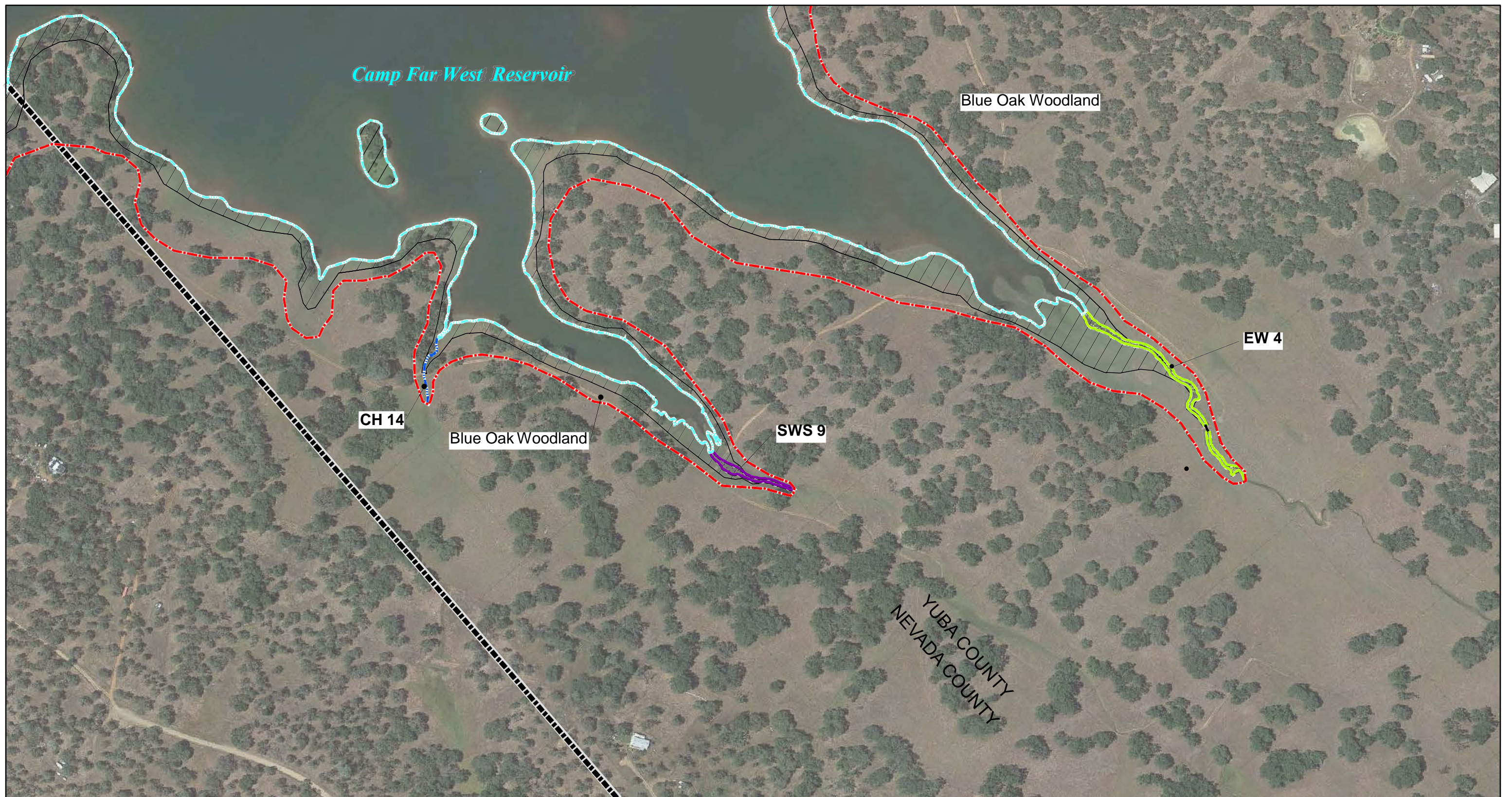
- Emergent Wetland (EW)
- Seasonal Wetland (SW)
- Seasonal Wetland Swale (SWS)
- Seasonal Pond (SP)



Scale: 1 inch = 300 feet

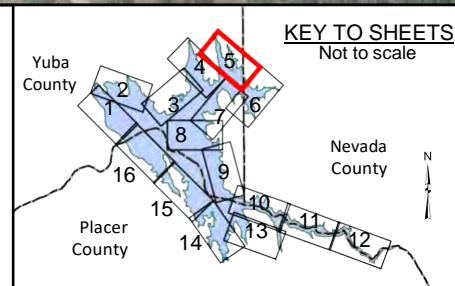
Aerial Photograph: 13 June 2011, Google Earth Pro





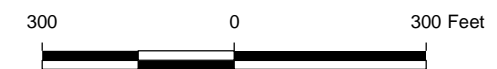
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24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact Biological Community Boundary

- Emergent Wetland (EW)
- Seasonal Wetland Swale (SWS)

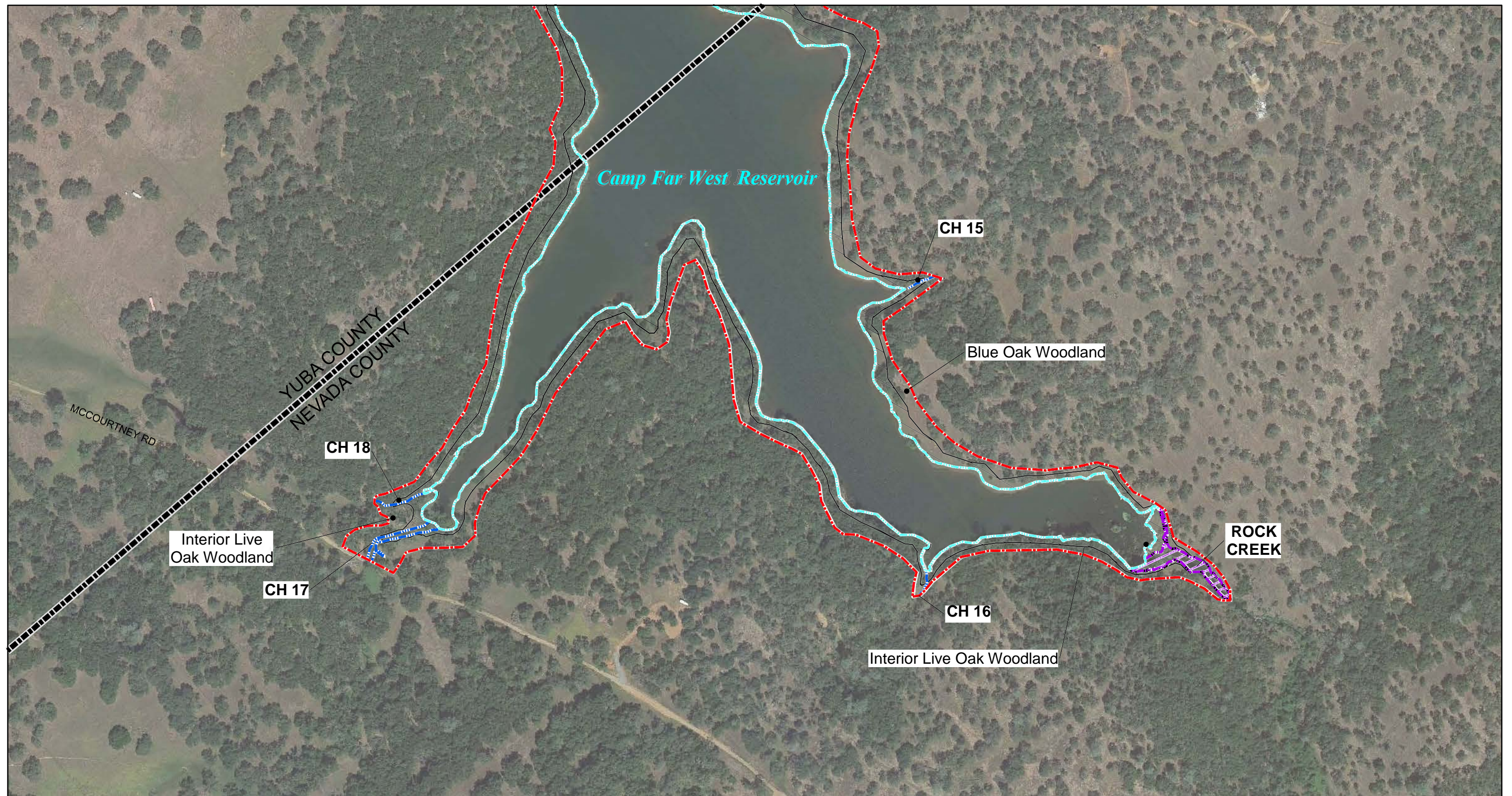


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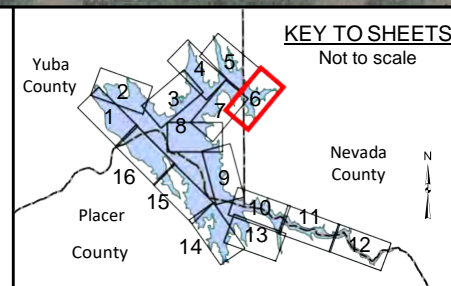
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Environmental
Consultants, Inc.

SHEET 5 OF 16

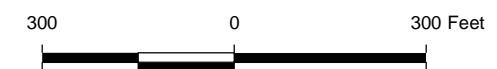


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24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Rock Creek
Estimated Limits of Impact
- Biological Community Boundary



Scale: 1 inch = 300 feet

Aerial Photograph: 13 June 2011, Google Earth Pro

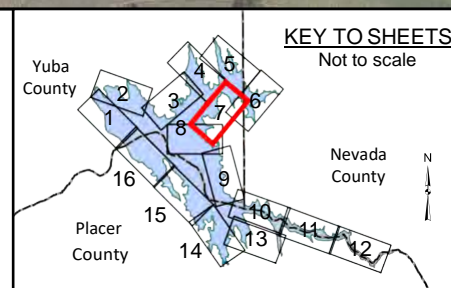
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Consultants, Inc.

SHEET 6 OF 16



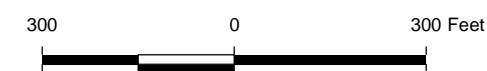
Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

Figure 3.
Biological Resources Map



- KEY TO SHEETS**
Not to scale
- Biological Study Area (BSA)
 - OHWM
 - Channel (CH)
 - Elderberry Shrub
 - Estimated Limits of Impact
 - Biological Community Boundary

- Seasonal Wetland Swale (SWS)



Scale: 1 inch = 300 feet

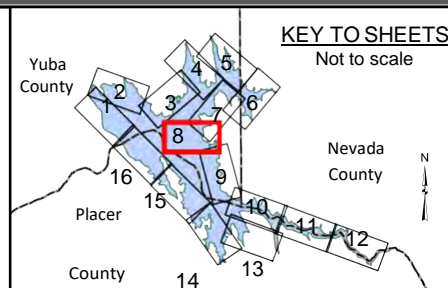
Aerial Photograph: 13 June 2011, Google Earth Pro

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Consultants, Inc.



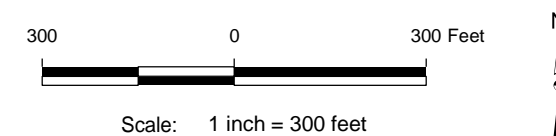
Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

Figure 3
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- ✦ Elderberry Shrub
- Estimated Limits of Impact
- Biological Community Boundary

- Emergent Wetland (EW)



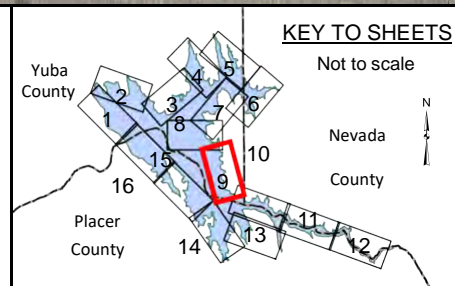
Aerial Photograph: 13 June 2011, Google Earth Pro

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Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact
- Biological Community Boundary

- Emergent Wetland (EW)
- Seep

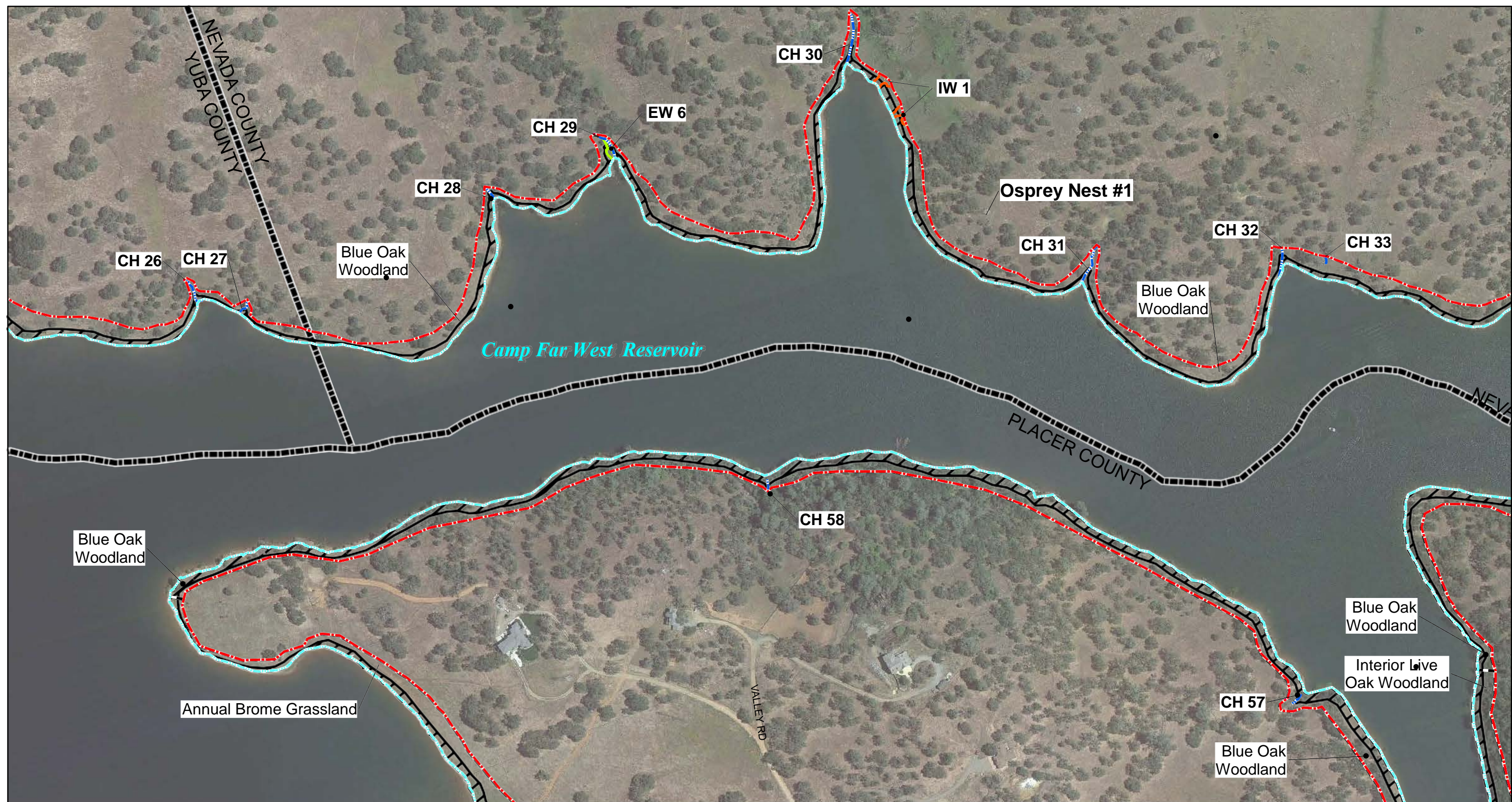


Scale: 1 inch = 300 feet

Aerial Photograph: 13 June 2011, Google Earth Pro

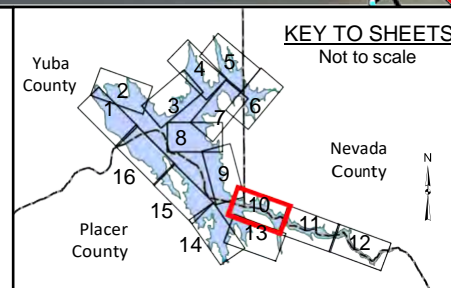
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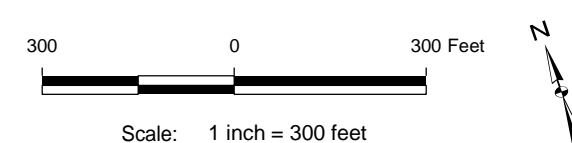
Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact
- Biological Community Boundary

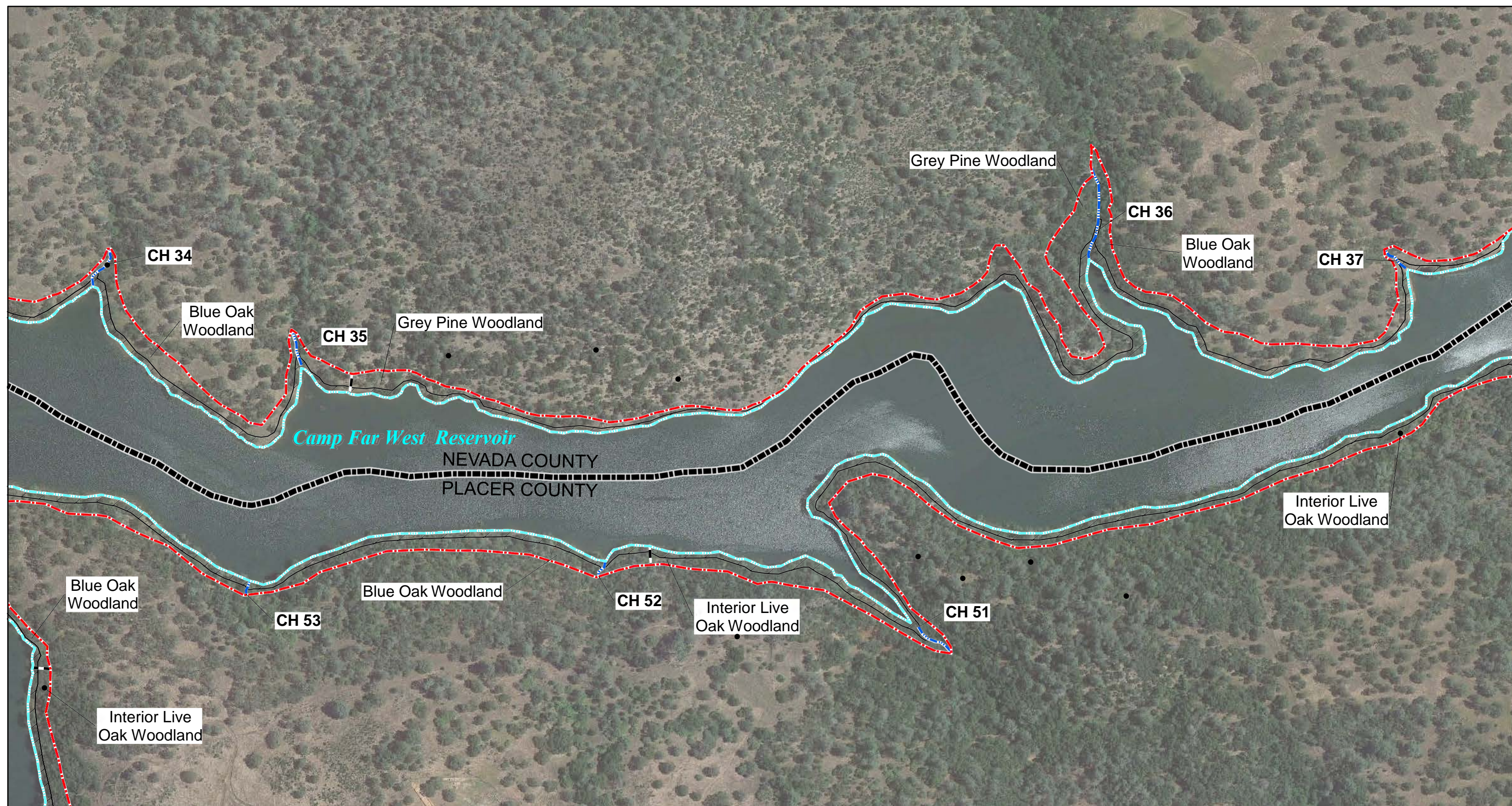
- Emergent Wetland (EW)
- Irrigated Wetland (IW)
- Osprey Nest



Aerial Photograph: 13 June 2011, Google EarthPro

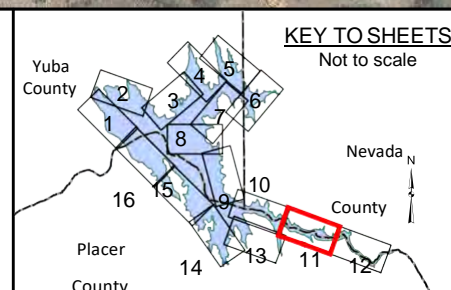
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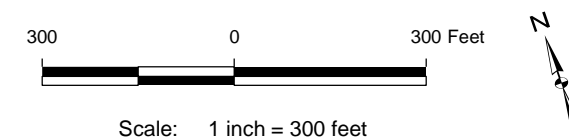


Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

Figure 3.
Biological Resources Map



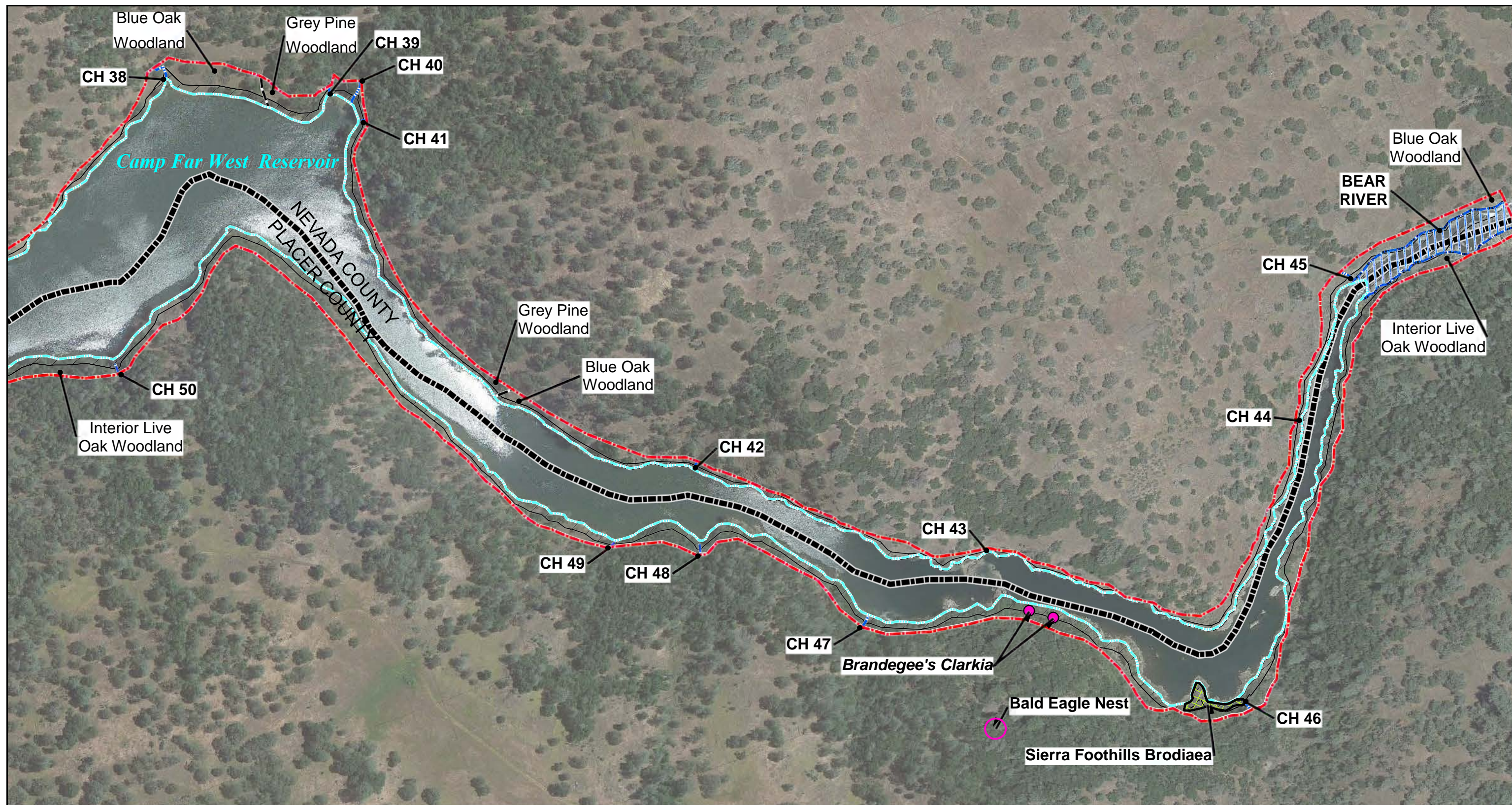
- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact
- Biological Community Boundary



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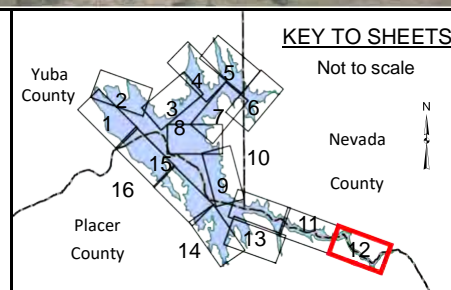
SHEET 11 OF 16

Aerial Photograph: 13 June 2011, Google Earth Pro



Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Bear River
- Estimated Limits of Impact
- Biological Community Boundary

- Bald Eagle Nest
- Brandegee's Clarkia
- Sierra Foothills Brodiaea

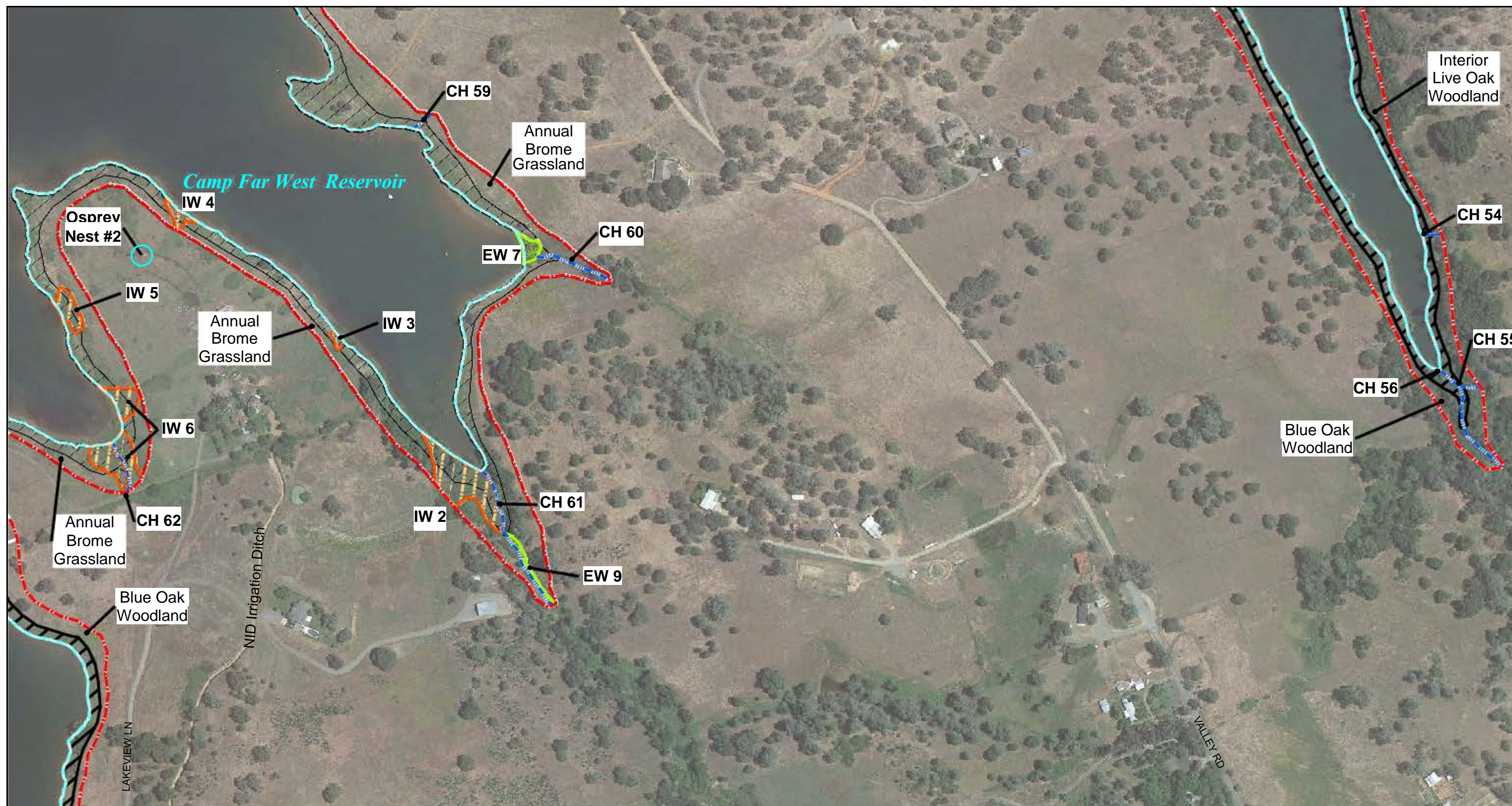
300 0 300 Feet

Scale: 1 inch = 300 feet

Aerial Photograph: 13 June 2011, Google Earth Pro

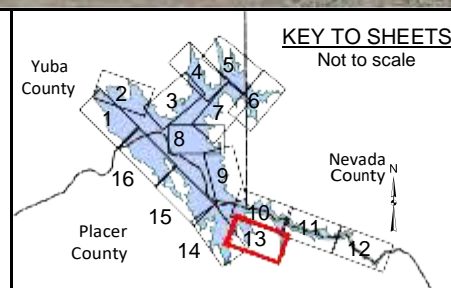
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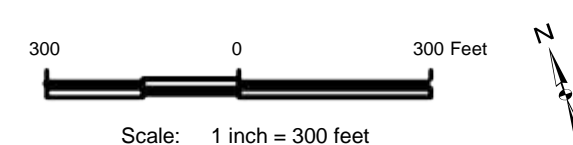
Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact
- Biological Community Boundary

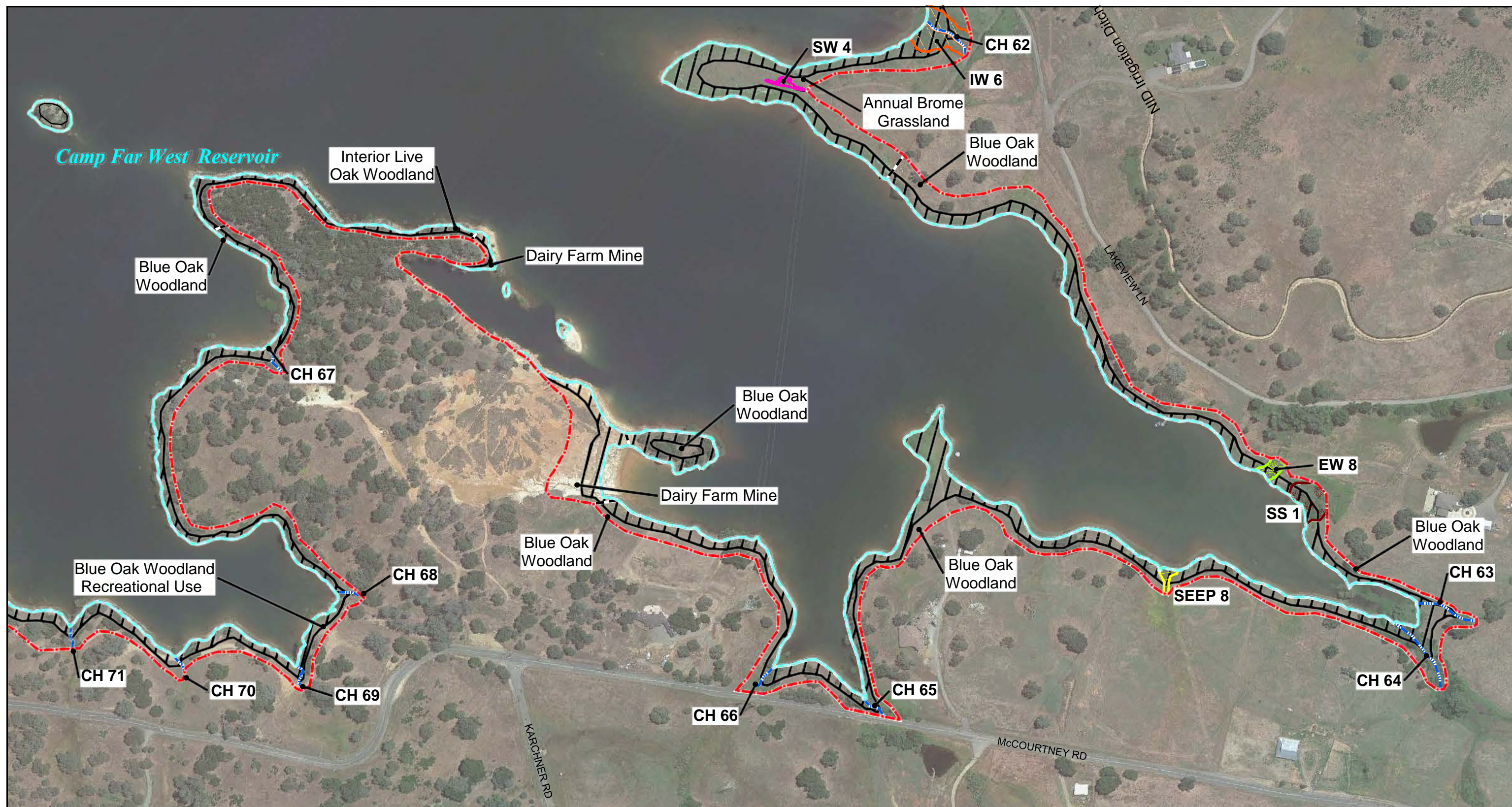
- Emergent Wetland (EW)
- Irrigated Wetland (IW)
- Osprey Nest



Aerial Photograph: 13 June 2011, Google Earth Pro

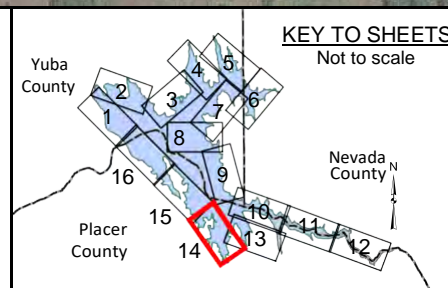
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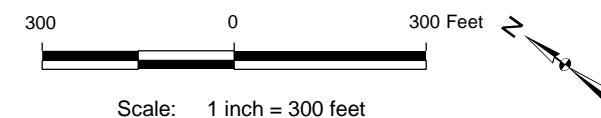
Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact
- Biological Community Boundary

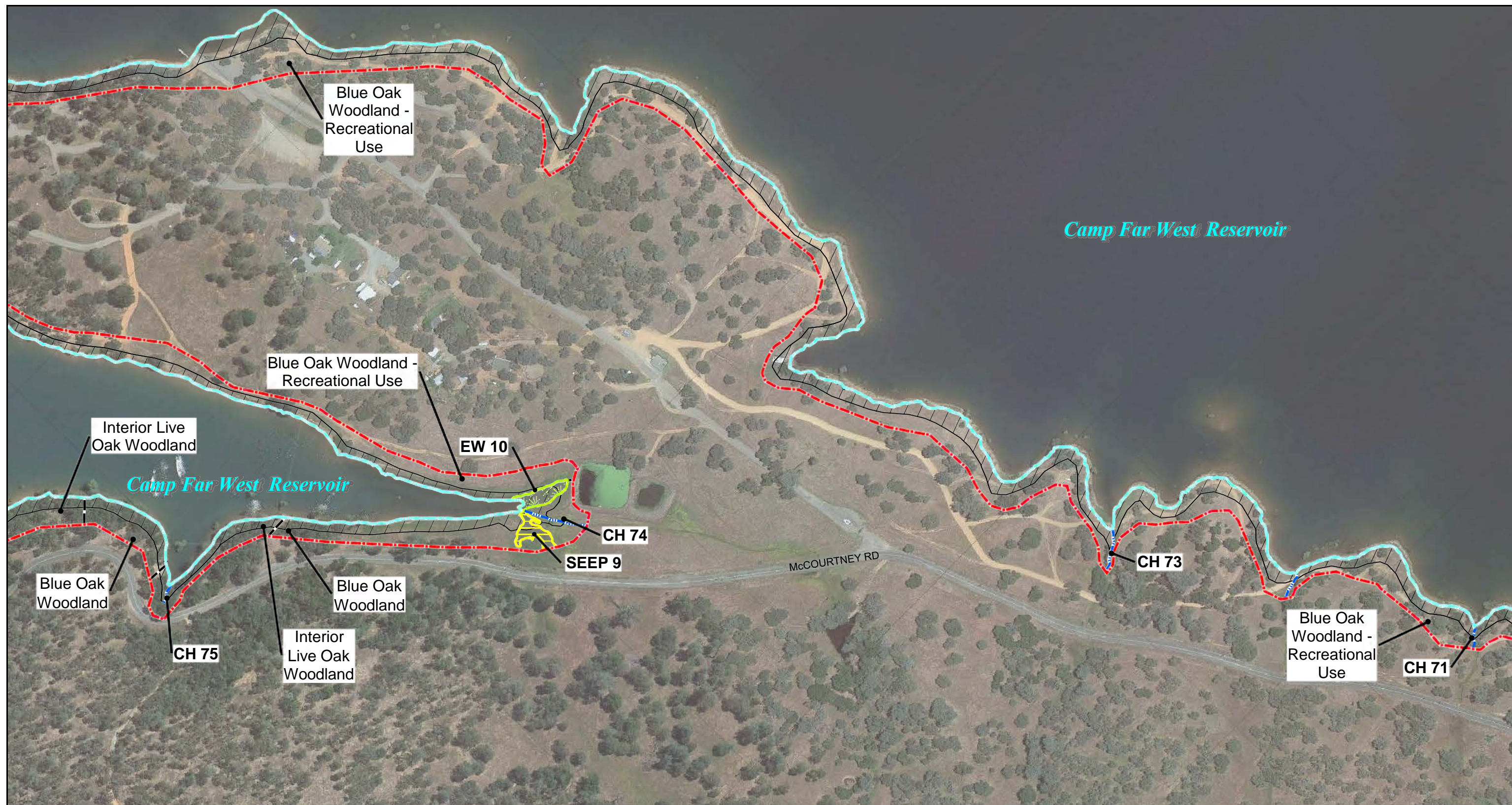
- Emergent Wetland (EW)
- Scrub-Shrub Wetland (SS)
- Irrigated Wetland (IW)
- Seasonal Wetland (SW)
- Seep



Aerial Photograph: 13 June 2011, Google Earth Pro

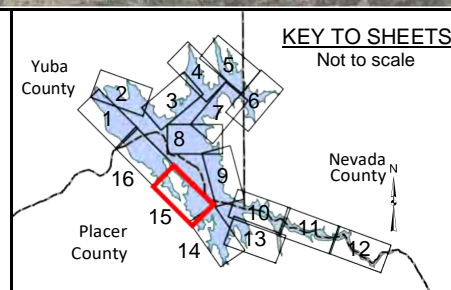
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Consultants, Inc.

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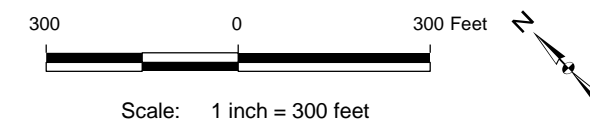
Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact
- Biological Community Boundary

- Emergent Wetland (EW)
- Seep



Aerial Photograph: 13 June 2011, Google Earth Pro

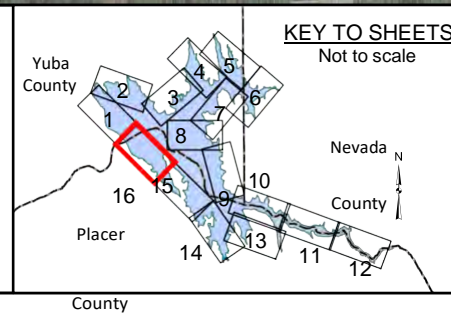


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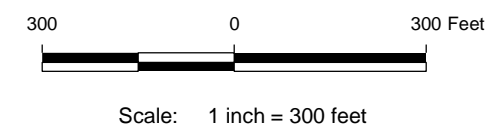
Camp Far West Reservoir Project
Yuba, Nevada and Placer Counties, CA
24 July 2013

Figure 3.
Biological Resources Map



- Biological Study Area (BSA)
- OHWM
- Channel (CH)
- Estimated Limits of Impact
- Biological Community Boundary

- Seasonal Wetland (SW)
- Elderberry Shrub



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Appendix F CNDDDB Forms

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For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 06/06/2013

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Haliaeetus leucocephalus*

Common Name: Bald Eagle

Species Found? ☒ Yes ☐ No If not, why?

Total No. Individuals 3 Subsequent Visit? ☒ yes ☐ no

Is this an existing NDDDB occurrence? ☒ no ☐ unk.
Yes, Occ. #

Collection? If yes: _____
Number Museum / Herbarium

Reporter: Chuck Hughes

Address: Sycamore Environmental, 6355 Riverside Blvd.,
Suite C, Sacramento, CA 95831

E-mail Address: chuck.hughes@sycamoreenv.com

Phone: (916) 427-0703

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1 2
adults # juveniles # larvae # egg masses # unknown
☐ wintering ☐ breeding ☒ nesting ☐ rookery ☐ burrow site ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

Near where the Bear River empties into the Camp Far West Reservoir.

County: Placer Landowner / Mgr.: Private

Quad Name: Wolf Elevation: 480 feet

T R Sec , ¼ of ¼, Meridian: H ☐ M ☐ S ☐ Source of Coordinates (GPS, topo. map & type): GoogleEarth

T R Sec , ¼ of ¼, Meridian: H ☐ M ☐ S ☐ GPS Make & Model

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☒ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☒ UTM Zone 11 ☐ OR Geographic (Latitude & Longitude) ☐

Coordinates: 652,066 E; 4,320,632 N

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:

Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Small stand of ponderosa pine, surrounded by oak woodland. The nest is about 350 feet south of Camp Far West Reservoir. Two juveniles observed on nest, and one adult perched nearby, on 6 June 2013. The nest tree is a ponderosa pine that emerges from the surrounding, lower oak canopy. One adult and one juvenile observed perching/flying elsewhere around Reservoir margin in May 2013.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☒ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Cattle grazing in grassy areas nearby. A few rural residences about a mile away. Recreation on Reservoir.

Visible disturbances: None

Threats: None known.

Comments: Birds and nest observed from boat on Reservoir and from north bank of Reservoir.

Determination: (check one or more, and fill in blanks)

- ☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☒ Compared with photo / drawing in: Sibley Guide
☒ By another person (name): Mike Bower, Jessica Orsolini
☒ Other: Experience with species.

Photographs: (check one or more) Slide Print Digital

Plant / animal ☐ ☐ ☒
Habitat ☐ ☐ ☐
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☒ no ☐

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 06/06/2013

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Clarkia biloba ssp. brandegeae*

Common Name: Brandegee's clarkia

Species Found? ☒ Yes ☐ No If not, why? _____
Total No. Individuals ~100 Subsequent Visit? ☐ yes ☒ no
Is this an existing NDDDB occurrence? ☒ no ☐ unk.
Yes, Occ. # _____
Collection? If yes: 385 UC Davis
Number Museum / Herbarium

Reporter: Chuck Hughes
Address: Sycamore Environmental, 6355 Riverside Blvd.,
Suite C, Sacramento, CA 95831
E-mail Address: chuck.hughes@sycamoreenv.com
Phone: (916)427-0703

Plant Information

Phenology: 0% vegetative 75% flowering 25% fruiting

Animal Information

adults # juveniles # larvae # egg masses # unknown
☐ ☐ ☐ ☐ ☐
wintering breeding nesting rookery burrow site other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

Near where the Bear River empties into the Camp Far West Reservoir.

County: Placer Landowner / Mgr.: South Sutter Water District
Quad Name: Wolf Elevation: 315 feet
T R Sec , ¼ of ¼, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GoogleEarth
T R Sec , ¼ of ¼, Meridian: H M S GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☒ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☒ UTM Zone 11 ☐ OR Geographic (Latitude & Longitude) ☐
Coordinates: 652,088 E; 4,320,744 N

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:

Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Steep, northern aspect slope in oak woodland dominated by blue oak, interior live oak, and grey pine. Specimens observed in very steep microtopography where some erosion is occurring.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☒ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: No human land use nearby other than recreation/fishing on the Reservoir surface.

Visible disturbances: Specimens growing in area of minor erosion/slumping. Unclear if completely natural or affected by Reservoir.

Threats: Water District intends to raise maximum Reservoir pool elevation by 5 ft, but that is below these occurrences.

Comments:

Determination: (check one or more, and fill in blanks)

- ☒ Keyed (cite reference): The Jepson Manual, 2nd Edition
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: (check one or more) Slide Print Digital

Plant / animal ☐ ☐ ☒
Habitat ☐ ☐ ☒
Diagnostic feature ☐ ☐ ☒

May we obtain duplicates at our expense? yes ☒ no ☐

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 04/01/2013

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Pandion haliaetus*

Common Name: Osprey

Species Found? ☒ Yes ☐ No If not, why?

Total No. Individuals 4 Subsequent Visit? ☒ yes ☐ no

Is this an existing NDDDB occurrence? ☒ no ☐ unk.
Yes, Occ. #

Collection? If yes: _____
Number Museum / Herbarium

Reporter: Chuck Hughes

Address: Sycamore Environmental, 6355 Riverside Blvd.,
Suite C, Sacramento, CA 95831

E-mail Address: chuck.hughes@sycamoreenv.com

Phone: (916) 427-0703

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

4
adults # juveniles # larvae # egg masses # unknown
☐ wintering ☐ breeding ☒ nesting ☐ rookery ☐ burrow site ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

Both nests near the margin of Camp Far West Reservoir.

County: First Nest: Nevada, Second Nest: Placer Landowner / Mgr.: Private

Quad Name: Camp Far West Elevation: 350 feet

T R Sec , ¼ of ¼, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GoogleEarth

T R Sec , ¼ of ¼, Meridian: H M S GPS Make & Model

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☒ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☒ UTM Zone 11 ☐ OR Geographic (Latitude & Longitude) ☐

Coordinates: First Nest: 649,548 E; 4,322,045
Second Nest: 648,653 E; 4,321,558

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:

Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

First nest on top of high voltage tower surrounded by blue oak woodland, about 200 feet from Reservoir. One adult flying near nest and one sitting in nest on 1 April 2013.

Second nest on top of high voltage tower surrounded by irrigated pasture, about 200 feet from Reservoir. One adult flying near nest and one sitting in nest on 14 May 2013.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☒ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: First nest surrounded by grazed oak woodland. Second nest with rural residences nearby.

Visible disturbances: None

Threats: None known.

Comments:

Determination: (check one or more, and fill in blanks)

- ☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☒ Compared with photo / drawing in: Sibley Guide
☒ By another person (name): Mike Bower, Jessica Orsolini
☒ Other: Familiarity with species.

Photographs: (check one or more) Slide Print Digital

Plant / animal ☐ ☐ ☒
Habitat ☐ ☐ ☐
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☒ no ☐

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 06/06/2013

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Brodiaea sierrae*

Common Name: Sierra Foothills Brodiaea

Species Found? ☒ Yes ☐ No If not, why?

Total No. Individuals ~100 Subsequent Visit? ☐ yes ☒ no

Is this an existing NDDDB occurrence? ☒ no ☐ unk.
Yes, Occ. # _____

Collection? If yes: _____
Number _____ Museum / Herbarium _____

Reporter: Chuck Hughes

Address: Sycamore Environmental, 6355 Riverside Blvd.,
Suite C, Sacramento, CA 95831

E-mail Address: chuck.hughes@sycamoreenv.com

Phone: (916) 427-0703

Plant Information

Phenology: 0% vegetative 100% flowering _____% fruiting

Animal Information

adults # juveniles # larvae # egg masses # unknown
☐ ☐ ☐ ☐ ☐
wintering breeding nesting rookery burrow site other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

Near where the Bear River empties into the Camp Far West Reservoir.

County: Placer Landowner / Mgr.: South Sutter Water District

Quad Name: Wolf Elevation: 310

T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H ☐ M ☐ S ☐ Source of Coordinates (GPS, topo. map & type): GoogleEarth

T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H ☐ M ☐ S ☐ GPS Make & Model _____

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☒ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☒ UTM Zone 11 ☐ OR Geographic (Latitude & Longitude) ☐

Coordinates: 652,245 E; 4,320,605 N

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:

Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Rock outcrop in oak woodland along the margin of the Camp Far West Reservoir.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☒ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Recreation on the adjacent Reservoir. No other land use visible.

Visible disturbances: None.

Threats: The water district intends to raise the maximum pool elevation of the Reservoir by 5 ft, which will seasonally inundate part of this occurrence.

Comments:

Determination: (check one or more, and fill in blanks)

- ☒ Keyed (cite reference): The Jepson Manual, 2nd Edition
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: (check one or more) Slide Print Digital

Plant / animal ☐ ☐ ☐
Habitat ☐ ☐ ☒
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☒ no ☐