

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.<sup>1</sup>

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 CDFG 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

---

<sup>1</sup> 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 Group<sup>2</sup> 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.

---

<sup>2</sup> 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 3<sup>3</sup> stream and lists the following Bear River-specific stressors:<sup>4</sup>

- 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.<sup>5</sup>

---

<sup>3</sup> 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.”

<sup>4</sup> 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.

<sup>5</sup> 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.<sup>6</sup>

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

---

<sup>6</sup> 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	-- <sup>3</sup>	89%	91%	90%	89%
<b>Clear Creek</b>	<b>4%</b>	<b>8%</b>	<b>40%</b>	<b>37%</b>	<b>57%</b>
<b>Mill Creek</b>	--	<b>7%</b>	<b>3%</b>	<b>31%</b>	<b>45%</b>
<b>Butte Creek</b>	<b>11%</b>	<b>7%</b>	<b>12%</b>	<b>7%</b>	<b>21%</b>
Feather River	78%	90%	90%	84%	83%
<b>Yuba River</b>	<b>71%</b>	<b>65%<sup>1</sup> / 34%<sup>2</sup></b>	<b>45%<sup>1</sup> / 27%<sup>2</sup></b>	<b>34%<sup>1</sup> / 46%<sup>2</sup></b>	<b>49%<sup>1</sup> / 45%<sup>2</sup></b>
<b>Bear River</b>	--	--	--	--	--
American River	32%	66%	73%	65%	64%
Mokelumne River	73%	88%	78%	64%	76%
<b>Stanislaus River</b>	<b>50%</b>	<b>83%</b>	<b>83%</b>	<b>66%</b>	<b>65%</b>
<b>Tuolumne River</b>	<b>49%</b>	<b>73%</b>	<b>36%</b>	<b>28%</b>	<b>65%</b>

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

<sup>1</sup> Yuba River upstream of Daguerre Point Dam (DPD)

<sup>2</sup> Yuba River downstream of DPD

<sup>3</sup> 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](http://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.